STATE, PROSPECTS AND DEVELOPMENT OF RESCUE, PHYSICAL CULTURE AND SPORTS IN THE XXI CENTURY

Edited by

Walery Zukow
Aleksander Skaliy
Marek Napierala

Bydgoszcz 2013
Content:

Preface
Jerzy Telak ........................................................................................................................................ 5

Part 1. Rescue ........................................................................................................................................ 7

The International Life Saving Federation of Europe (ILSE) as umbrella for the family of all European Lifesaving Association
Klaus Wilkens ......................................................................................................................................... 9

DLRG as a part of disaster prevention in Germany
Klaus Wilkens ...................................................................................................................................... 11

How to cope with stressful events – primary prevention in the DLRG
Juliane Brandt ........................................................................................................................................ 13

Procedures of risk management as an element of the process of aquatic safety education
Wojciech Wiesner, Marek Rejman, Andrzej Klarowicz ........................................................................ 15

Level of intelligence and effectiveness of lesson aims accomplishment in the swimming teaching - learning process
Krystyna Zatoń, Magdalena Chrobot, Anna Kwaśna, Beata Zysiak ................................................. 25

The practical use of water as a metaphorical feelings element in the practice of art-therapy
Volodymyr Stadnyk .................................................................................................................................. 33

Rehabilitation of the fall as a geriatric problem
Anna Nalazek, Alicja Sikorska, Ewa Trela, Mirosława Cieślicka, Norbert Lysiak, Walery Zukow ........................................................................................................................................ 37

Role models and life-saving education in Poland
Wojciech Wiesner .................................................................................................................................. 51

The process of creating water safety system in Western Pomeranian Province in years 2009-2012
Tomasz Zalewski, Jakub Parobczy, Jerzy Telak, Ewa Zieliński ......................................................... 61
Assessment of Voluntary Lifeguard in years 2003-2012 on the background of social changes
Andrzej Ostrowski, Miroslaw Juszkiewicz, Marek Strzała, Arkadiusz Stanula, Witold Ziara, Aleksander Skaliy, Tetiana Skaliy ................................................................. 69

Part 2. Problems of physical culture and sports .......... 83

Connection of tourists physical development and the efficiency of overcoming categorical hikes
I. Gorodynskay, J. Grabovsky, S. Stepanuk, A. Shypko ........................................... 85

Great sport and women
R.N. Ispulova ................................................................. 91

Impact of the single session of classic massage on bioelectrical activity of the biceps brachii in surface electromyography survey. Preliminary study
Bartłomiej Niespodziński, Hieronim Bykowski, Małgorzata Łuk, Jan Mieszkowski, Agnieszka Skopowska, Adam Szulc ................................................................. 95

Influence of the volleyball training to the development of the general efficiency and the somatic build of girls practicing the volleyball
Mirosława Cieślicka, Monika Lewandowska, Mirosława Szark-Eckardt, Walery Zukow ................................................................. 109

The kind of sport discipline as a factor of differentiating aspiration level of young sportsman (on the example of swimming and team games)
Aleksander Smoliński, Andrzej Klarowicz, Anna Romanowska-Tołłoczko ................. 119

Age as the aspiration range and the level discriminatory factor among the young swimmers
Aleksander Smoliński, Andrzej Klarowicz, Anna Romanowska-Tołłoczko ................. 131

Implementation of the national prevention program the dolphins WOPR - small is safe
Ewa Zielińska, Joanna Wieczorek, Kinga Grobelska, Przemysław Paciorek, Jerzy Telak, Tomasz Zalewski, Katarzyna Pietkun, Joanna Simińska, Krystyna Nowacka, Elżbieta Nurczyńska ................................................................. 143

Rescue in car accidents in the aquatic environment
Rik Voorhelst .................................................................. 153
Preface

The sense of security is one of essential needs of the man. The safety depends on the level of existence, of individual activity of the man and is connected inseparably with the risk which is joined to danger. The universal safety is in the of competence area of the civil service - government and self-government, in addition above all entities performing the medical rescue and a State Fire Service are responsible for conducting rescue efforts, and to support them non-governmental organizations, subjects of the third sector, specialist associations of lifeguards can.

The role of non-governmental organizations depends on the form and character, of purposes stipulated in the Articles of Association and of powers and centers being at their disposal. A Water Voluntary emergency ambulance service is one of such organizations, of which conducting rescue efforts, consisting in particular in organising and the help for persons which had an accident is a purpose or losses of life or a health are exposed to danger in water area. The WOPR purpose is accomplished also by contributing to the internal security system and cooperating with doing entities with safety, protection of the aquatic environment, conducting rescue operations on waters during public threats, an equipment malfunctions, natural disasters and of natural disasters, in it is doing well.

Organizations of water lifeguards have at their disposal personal stores having a knowledge and abilities and appropriate qualifications for conducting intervention and rescue operations. WOPR, the member of the international federation of the Water Rescue (International Life Saving Federation), a safety of persons allowing effectively assuring has also a structure and an swimming equipment of the practicing sport in water areas. WOPR lifeguards perform the number of the function in ILS Federation of Europe - European ILS regional branch - consisting and representing interests of organizations rescue, operating for the safety on waters. Thanks to the WOPR activity on the international arena in Poland some deliveries developed in other, foreign organizations of water lifeguards were applied.

Staying in the act on the safety of persons in water areas a catalog of undertakings being aimed at assuring safety in water areas was entered into, in it of preventive and educational action. The plausibility of becoming known of the accident reduces along with conducted preventive and preventive action. WOPR developed the system of preventive, preventive and rescue operations for increasing the safety of persons staying in water areas, and in consequence of reducing the accident toll of the drowning of persons. WOPR conducted the sequence of preventive and preventive and educational undertakings, in it from the scope of the learning of swimming and of improving swimming abilities. Preventive WOPR shares included children and young people, in particular about the humble economic status, and adults.

The water Voluntary emergency ambulance service will matter greatly in ensuring the safety of persons staying in water areas in Poland and conducts activity promoting the water rescue in countries of Eastern Europe.

Chairman ZG WOPR dr Jerzy Telak
Part 1. Rescue

1. Issues of the Water Rescue in the EU states and Eastern areas.
2. Safety of persons swimming, bathing and practising water sports.
3. Teachwares for all sorts of social groups.
4. Water Rescue specialist: under ice, scooter’s, flood, on quickly flowing waters, rope techniques.
5. The modern equipment and technical means applied in salvage services.
6. Ordering the rescue in structures (education, rescue, recreation, sport, medicine). (Management in Rescue).
7. System of the National Medical Rescue (legal aspects, management and cooperation with Water Rescue).
The International Life Saving Federation of Europe (ILSE) as umbrella for the family of all European Lifesaving Associations

Dr. Klaus Wilkens
Honorary Life-President of the International Life Saving Federation of Europe (ILSE)
President German Life Saving Society (DLRG)

ILSE is one of the four regions of the International Life Saving Federation (ILS):
- Africa
- America
- Asia-Oceania
- Europe

The regions work with the same visions and missions:

VISION:

The International Life Saving Federation (ILS) is the world authority in the global effort to prevent drowning.

MISSION:

ILS is the International Federation for Lifesaving and Lifesaving Sport. In these roles ILS leads, supports and partners with national and international organisations committed to drowning prevention, aquatic safety supervision, emergency response and sport.

ILS follows the

STRATEGIC GOALS:

1. Build the capacity to reduce drowning within targeted at-risk communities of the world.
2. Position ILS as the international leader, advocate and global best practice authority for medical, education and rescue issues in lifesaving and lifeguarding.
3. Form alliances, advocate and implement strategies to reduce the drowning of children globally.
4. Increase participation in lifesaving sport.
5. Increase the participation of women and non native English speaking individuals.
6. Grow and diversify ILS revenues.

ILSE works with Board and Commissions in eight
STRATEGIC AREAS:
1. Information Exchange and Standard Setting
2. Prevention and Education
3. Medical Affairs
4. Water Rescue Service
5. Lifesaving Sport
6. Development Aid
7. Management and Administration
8. Global Activities

The global activities shall be explained:
- Support and strengthening of the national member associations
- Development und realisation of model projects on the ILSE level as example for taking over by national associations
- Training of the staff of national organisations
- Negotiations for fundraising concepts

Co-operation with other international organisations, in Europe:
- European Union (EU)
- Foundation for Environmental Education (FEE) - Blue Flag Campaign
- European Association for Injury Prevention and Safety Promotion (EuroSafe)
- European Child Safety Alliance (ECSA)
- European Olympic Committee (EOC)
- European Resuscitation Council (ERC)
- World Health Organisation (WHO) - European Branch
- International Federation of Red Cross and Red Crescent Societies (IFRC)
- European part
- European Network of Sport Sciences in higher Education (ENSSHE)
- European Centre for the Promotion of Vocational Education (CEDEFOP)

Europe’s special role in the world is evident in the light of its economic and political movement towards greater unity. The work of the lifesaving societies in Europe is characterised by the large number of institutions in Europe (especially in the EU with its Directorates General), and in some cases this requires a different kind of work from what is needed in Asia/Pacific, Africa and America.

The main focus of all our efforts is to combat death by drowning, which is world-wide the second most frequent cause of accidental death.

Europe has a relatively well developed lifesaving infrastructure; for more than 100 years it has had national associations achieving a significant reduction in the number of fatalities.

Nevertheless, there is still much to be done in Europe – in some cases an enormous amount. That applies to the Balkans, to Romania and unfortunately also too much of Russia and the other States of the former Soviet Union. Despite a tradition going back more than 100 years, their structures and capabilities have largely been lost, and will have to be rebuilt and developed.

The European work will have to be borne by many shoulders, in particular by our relatively strong member organisation like the Polish WOPR, the DLRG in Germany and the British (RLSS) Life Saving Societies.

ILSE and its members are on a good track!
DLRG as a part of disaster prevention in Germany

Dr. Klaus Wilkens
Honorary Life-President of the International Life Saving Federation of Europe (ILSE)
President German Life Saving Society (DLRG)

The Deutsche Lebens-Rettungs-Gesellschaft (DLRG = German Life Saving Society) is a non-governmental, incorporated welfare organisation with more than 1.2 million members and supporters. DLRG educates swimming, lifesaving, first aid, paramedical staff, specialists for rescue diving and motor rescue boats. It realises at more than 5,000 places in Germany a water rescue service and supports the disaster prevention and the disaster rescue service. In addition lifesaving sport is part of its activities.

The flooding of rivers arise from the snowmelt and extreme weather conditions with heavy rainfalls in the mountains and in the inland. Smaller floods we have in Germany almost every year at the rivers Elbe, Oder, Rhine, Danube, their feeders and some smaller rivers.

In Germany the disaster prevention is in the responsibility of the Federal States, which co-operate with the voluntary and professional fire brigades, the Technical Emergency Service and five NGO’s (Red Cross, Samaritan Corps, St. John, Maltese, DLRG) assisted by the army and the police. DLRG is specially involved in actions concerning water rescue.

Nation-wide there are approximately 50,000 voluntary DLRG helpers, more than 1,200 cars and more than 1,000 motor rescue boats, on request of the involved Federal States.

In cases of disaster the voluntary helpers of DLRG are assembled to special units. These water rescue units consists of approximately 30 helpers with six vehicles and four rescue boats as base – rescue divers included. The needed number of units (sometimes added by special forces) drive well organised to the disaster area.

The voluntary helpers of DLRG must be well trained, so that they can fulfil their rescue work with high professionalism.

At the side of the “normal” helpers DLRG has some 2,000 qualified rescue divers, who are involved in the water rescue service, disaster prevention and civil protection. They have got a special education for missions in disasters after the “normal” rescue diver education. In case of a flood disaster their special task is the protection of endangered parts of the dykes.
How to cope with stressful events – primary prevention in the DLRG

Juliane Brandt
DLRG Germany

The final straw! The German saying goes like this: “The drop which makes the barrel spill over.”

Every one of us is somehow prestressed. Some of us need a lot of drops to make their barrel spill over, some only one very small drop. That is why this topic is so extremely important.

Psychosocial Emergency Care – This term is used ambivalently in Germany.

In emergencies unclear terms can cause problems which tie up resources needlessly. That is why it is important to use the same - clearly defined – terms everywhere.

The term “Psychosocial Emergency Care” includes the whole structure and all actions of prevention as well as short-term, medium-term and long-term care for affected persons. We distinguish, in this context, the care for victims, members, surviving relatives, witnesses and other affected people from the care for task forces, paramedics, lifeguards, policemen, fire fighters and so on. The basic training in Psychosocial Emergency Care includes working with the first group of affected people.

To deal with the second group of affected people basic experience in Psychosocial Emergency Care, experience in handling emergencies and a special training are needed. There are dozens differently defined terms, this is why we have to agree on using standardized terms for the different operations. The standardized terms for the Psychosocial Emergency Care for task forces are primary, secondary and tertiary prevention.

The DLRG has to take care of their lifeguards and other task forces. That is why we train our members in this subject. The care before incidents is called “Primary prevention”. This is the part the DLRG is active in. It includes preparing our members for emergencies. This preparation lowers the psychological effects of emergencies our members are involved in.

Secondary prevention is used during and shortly after a stressful event. The professional care of Psychologists more than four weeks after the event is called tertiary prevention.

I will present our training concept and show possibilities, how to cope with stressful events.
PROCEDURES OF RISK MANAGEMENT AS AN ELEMENT OF THE PROCESS OF AQUATIC SAFETY EDUCATION

Procedury zarządzania ryzykiem jako element procesu edukacji dla bezpieczeństwa w wodzie i nad wodą

Wojciech Wiesner¹, Marek Rejman², Andrzej Klarowicz²

¹Department of Leisure, ²Department of Swimming
University School of Physical Education, ul. Paderewskiego 35, 51-612 Wroclaw, Poland

Key words: swimming education, safety education, risk management.
Słowa kluczowe: ryzyko, edukacja, bieżenieństwo, woda.

Abstract

Water based relaxation (swimming, rowing, diving, sailing and the various types of surfing as a form of recreation) is perceived as a universal and joyful location for physical activity, but is it safe as well? The foundation of this study lies in the pedagogical belief that people can undergo an educational change, in order to shape their behavior and modify their attitudes. It was aimed to demonstrate the process of education in safety, as being consistently logical actions and decisions to minimize the effects of risk. These activities are referred to as risk management.

The education in water safety should be initiated to identify and raise awareness of the hazards present in this environment. Further account should be taken as to the risks associated with specific actions in the water, and how to conduct oneself in the event of an emergency. The following strategies are of possible use: risk avoidance, bearing risk, risk transfer, risk compensation and plans.

Streszczenie

Środowisko wodne postrzegane jest w społeczeństwie jako miejsce powszechnej aktywności fizycznej. Według danych Instytutu Turystyki prawie 60 % mieszkańców naszego kraju wybiera tereny nad wodą jako cel wyjazdów długookresowych. Tak więc woda jest miejscem radosnej zabawy, ale czy także bezpiecznej?

Celem edukacji dla bezpieczeństwa w wodzie jest obniżenie poczucia zagrożenia oraz wzrost realnego bezpieczeństwa podczas korzystania z różnorodnych akwenów. Niniejsza praca stanowi fragment poszukiwań, u podstaw których leży pedagogiczne przekonanie, że człowieka można wychowawczo zmieniać, kształtować jego zachowania, modyfikować postawy. Celem opracowania jest ukazanie procesu edukacji dla bezpieczeństwa jako ciągu logicznych działań i decyzji optymalizujących skutki występowania ryzyka. Działania te określa się terminem zarządzanie ryzykiem.

Przyjęto założenie, że powszechną edukację dla bezpieczeństwa w wodzie należy rozpocynać od identyfikacji i smarciowaniem zagrożeń występujących w tym środowisku. W dalszej kolejności należy uwzględnić ryzyko związane z konkretnym działaniem w wodzie oraz sposoby postępowania na wypadek pojawienia się niebezpieczeństwa. Możliwe do zastosowania są następujące strategie: unikanie ryzyka, ponoszenie ryzyka, transfer ryzyka, kompensacja oraz strategie i plany awaryjne.

15
Introduction

Water-based leisure activities are very popular. Long and short holidays by the water are chosen by almost 60% of Poles www.intur.com.pl. On a hot summer day, there is no better place to spend your time than by the water. The summer season, combined with natural bodies of water, makes the selection of recreational swimming significantly more varied, compared to the one presented by indoor swimming pools throughout the year. Water encourages recreational swimming, diving, sailing, surfing and rowing. The natural water environment is rich in valuable physical and biological stimuli which affect the organism of swimmers, improving their adaptive skills, endurance level and protection against disease. Regular swimming may be a cure-all of sorts for many different ailments. But most importantly, it prevents several unpleasant health problems from arising in the first place (Wiesner, 1999, 2003; Czabański, Filon and Zatoń, 2003)

Therefore, we may assume that society perceives water as a source of common, joyful physical activity. But is it safe? Statistics show that different types of water activities carry certain real risks. The consequences resulting from risky activities in water can be seen in data collected by the press office of the Polish National Police Headquarters as well as from the Volunteer Water Rescue Service (WOPR) http://www.kgp.gov.pl/statys/; http://www.zg.wopr.pl/. This data has also prompted the voicing of opinions on the subject of safety, by the introduction of a new subject, Education for safety, in Poland’s secondary school curriculum http://www.men.gov.pl/.

Safety is one of the basic human needs, as it gives us the feeling of confidence (Korzeniowski, 2006; Szymański, 2008). It is perceived as a state characterised by low risk of losing something particularly precious – life, health, job, respect, feelings, material and non-material goods. Safety is the opposite of danger. Comprehensive swimming education requires safety priorities to be followed. This can be done in the form of specifically targeted methodological activities, which can be described as water safety education (Wiesner, 2008). This type of education aims at teaching young people how to manage their own safety. Pedagogical optimism allows us to believe that we are able to change people educationally, by shaping their behaviour and modifying their attitudes, with regard to safe water-based activities.

When in water, swimmers or bathers need to be aware of the dangers they may have to face. We could say that in such situations the range of risk taken is between low and high. The aim of this paper is to present water safety education as a process of teaching people how to manage risk and, consequently, their own safety. The authors present both methodical steps related to educational activities and their methodological justification. The effectiveness of the proposed education depends on the cognitive activity of all subjects involved in the educational process – the educator, i.e. the person directly responsible for the education (parent, teacher, instructor, lifeguard etc.) and the methodologist responsible for educating professional staff. Risk management reduces the impact of negative events which may accompany our actions. It may even limit the occurrence of such events. The effectiveness of risk management has been repeatedly demonstrated in critical situations in economics, computer science, communications and corporate or financial management. Risk management procedures are the foundation of rescue service action during catastrophes or natural disasters. Risk management has proved effective in most business organisations, with formalised procedures of risk assessment being applied in such areas as insurance, credit risk evaluation and investment assessment (Kaczmarek, 2008; Goszczyńska,1997) Therefore, we can hypothetically assume that mastering the skill of risk management will also allow us to predict water-based threats, and control their negative consequences.

Risk identification

What is risk? For the purposes of this paper, risk is understood to be the probability of an event that can result in loss. Thus, risk measures the scale of the event and the ensuing loss, which can be presented as a function of probability and consequence. Risk can be mathematically expressed as a product of the probability of loss and consequences related to these losses (Figure 1).
The result of the above equation is usually more than zero because actions lead to consequences – there are no consequences of zero value. Therefore, we may assume that our actions are always accompanied by a certain dose of risk. Risk management involves:

- Risk identification
- Risk analysis
- Risk management strategy planning
- Risk monitoring

The aim of risk management at the first stage of water safety education is to identify risks. This identification is understood as the recognition of a threat, with its elements and sources, threat description and classification. The effect of this stage is a list of identified risks. What do we risk? The threats and associated risks can be external or internal, http://toolbox4pm.com/index.php/2009/03. We do not have a direct influence on the sources of external threats (Table 1).

In contrast, a person in water can influence internal threats, as their source often lies within oneself (e.g. one’s knowledge, skills or personality traits). The author believes that many people do not take advantage of risk management opportunities because they cannot overcome their weaknesses, exercise objective self-control or assess internal threats. As a result, internal threat identification is imprecise and risk is high. Safety education aims to teach people how to understand their own organisms, and how to control anxiety and panic. This knowledge, and the critical assessment of one’s skills, make it possible to plan safe activities in the water (Table 2).

The initial periods of each successive stage of swimming education constitute an ideal moment to teach risk identification. This should be accompanied by a motivational process. It is important that the educatee be active in acquiring detailed knowledge of risk assessment (Czabański, 2000; Grabowski, 1997) Risk management requires an independent and voluntary decision to start a physical activity in the water, as well as conscious acceptance of the risk involved.

**Risk analysis**

Having mastered the skill of risk identification, educatees can then themselves, learn about the scale of threat related to a given activity in water. The next stage of risk management involves estimating the probability of risk and the extent of adverse consequences that may follow. Here, we need to ask ourselves several questions. What bad events can happen during particular activities in water? How likely is the predicted threat to occur? What adverse consequences of this threat can follow? Can we avoid such an event or, at least minimise its consequences? What is the cost of reducing the risk?

Risk analysis can be carried out by means of two methods, quantitative and qualitative. Quantitative methods are based on mathematical calculations of the risk’s impact on safety and the probability of risk occurrence. These methods use only statistical data. Qualitative methods, on the other hand, are more subjective, since they are based on human assessment. They use descriptive measures, which can have their numerical equivalents (e.g. 1 – low risk, 2 – medium risk etc.). It seems, however, that qualitative methods are more useful in swimming education because they do not require complex mathematical calculations (Table 3).

Only through risk management does water safety education open up opportunities for new methodical procedures. A typical process of risk analysis based on the diagram presented above, involves risk identification and assessment, as well as the formulation of an action plan that reflects the accepted risk. Depending on the features of a given body of water, and the individual qualities of a given person, each action taken in the water environment will vary in terms of the estimated risk. Thus, the guidelines concerning risk management strategies will vary as well. The following table presents the course of such a procedure (Table 4).
Risk management strategy planning

Can risk be managed? The goal of planning safe water activity is to develop different ways of reducing risk. The result should be a risk response plan. During the planning stage, we identify the factors which can indicate possible risks, the way we are going to respond to these factors, our actions, their cost and predicted effect. We can use the following strategies: (Goszczyńska, 1997; Rajzer, 2001; Kaczmarek, 2008).

Risk avoidance – from the perspective of the person responsible for people at risk, it is the most reliable strategy of protecting them from risk consequences. However, this means that in practice we refrain from any action and thus abandon our plans. This philosophy is present in common swimming safety rules and legal norms in the form of bans. The relevance to water safety education is clear. In the context of mainstream education, this strategy is effective only within a highly disciplined society, as it is social discipline that becomes the educational goal.

Risk retention – this strategy is the opposite of the previous one. The idea is to accept the risk with all its consequences. The plan here needs to include the costs of an activity that will have to be covered – related to finances or health. This approach is close to the liberal one, which stipulates both free choice and responsibility for one’s actions. Taking action and accepting risk make sense only in low risk situations. In the case of this strategy, the educational goal is to prepare the educatee to perform self-identification and self-assessment of risks and learn other ways of managing them (e.g. those listed below).

Risk transfer – the aim of this strategy is to spread the risk and transfer it to a third party. In the context of the water safety issues addressed in this paper, this strategy can be associated with such safety measures as: assistance by experienced swimmers or caretakers, the presence of a lifeguard etc. We can also transfer the risk related to our actions by informing people who stay ashore about our swimming plans. When the risk is transferred to experienced and competent people, the threat becomes less serious. Transfer of risk to an insurer is similar in this sense. When we sign a personal accident or third party liability insurance agreement, some consequences of the risk involved will be mitigated, at least financially. This refers to extreme types of swimming, diving, sailing, cruising etc. It is worth mentioning that insurers also conduct risk assessment in order to determine insurance rates.

Risk compensation – involves making up for one’s deficiencies, especially skill deficiencies, through the use of swimming accessories as well as safety and rescue measures. In many situations this strategy constitutes a legal norm as for instance with: watercraft equipment, safety features near water facilities, lifeguard post equipment, safety features during classes at a swimming pool, etc.

Contingency plans – are strategies to be followed in high risk situations. In the context of water safety education, these include learning various self-rescue activities, adequate to a given threat. The author of this paper has written about them a number of times (Wiesner, 2005, 2008). Self-rescue means that we help ourselves. This is an ability to overcome threats that even experienced water sports enthusiasts can face. This ability involves, first of all, staying calm, overcoming body weakness, exercising self-control and assessing one’s skills. Another emergency strategy is comprised of activities which prepare society, including children and adolescents, for assisting people in danger. In emergency situations participants or witnesses are obliged to help the victims. From a legal perspective, helping somebody in danger is the duty of every adult (http://kodeks-karny.ovh.org/) However, the person who gives first aid needs to do it quickly and skilfully. Rescue education is a process which has the largest conceptual potential, since it constitutes a component of axiological education (Wiesner, 2003, 2007).

Risk monitoring

The last stage of the educational process analysed here starts when the action consistent with the adopted plan has been taken, and the associated risk has been accepted. The aim of this stage is to implement the risk management plan. However, in order to implement a selected action strategy, we
need to monitor whether the risk has transformed itself into a real threat, whether the level of risk has changed and, especially, whether the risk is increasing (worsening weather and water conditions, increased fatigue, cramps, hypothermia etc.). With time, we may need to change the classification of risk level. Therefore, risk monitoring requires constant control and verification. Another aim of risk monitoring is to gather information which could be used in future activities. This stage results in bringing the risk under control, modifying the list of risks and developing a new risk response plan.

**Conclusions**

Swimming and water sports will always be accompanied by certain risks, because it is impossible to eliminate all threats to human life and health. The author believes that teaching risk management skills may constitute a very effective, as well as pedagogically attractive, educational process. Starting with teaching young people how to identify risks and assess their consequences. But risk is not a pejorative term. When we take action, we need to accept the existing risk, but it does not mean that we will automatically incur specific losses. With the use of risk management strategies presented in the paper (transfer, compensation, contingency plans) we can minimise threats without giving up our goals. Through risk management, safety education is able to develop both technical skills, and a responsible approach to the risk taken.

**Methodical conclusions**

1. Water safety education may prove more effective, if educatees are involved in the process of risk management. This involvement should include risk identification, risk analysis, risk management strategy planning and risk monitoring.
2. Apart from specific technical skills, risk management education should include the teaching of decision making and responsibility for one’s actions.
3. Water safety education is supported by legal, rescue and axiological education. This education should be understood not only as a process of acquiring knowledge and skills but, first of all, as a process of developing attitudes of respect for the highest values.

**Methodological conclusions**

1. The subject of this paper comprises people acting in a water environment, as well as their caretakers and the methodologists responsible for educating professional staff. All three groups are hierarchically responsible for safety within the scope of their competences.
2. Risk management strategies are a subject of water safety education research.
3. The research methods used in solving problems within safety education, as discussed in the paper, are typical of those theories for physical education, pedagogy, economic science and praxeology.

**References**


Internet Sources (In Polish)

\[
\text{RISK} = \text{PROBABILITY OF AN EVENT} \times \text{CONSEQUENCES OF THE EVENT}
\]

Figure 1. The scale of risk carried by a given activity.

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples of external threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other people’s actions</td>
<td>Instructor error, Caretaker error, Lifeguard error, Too many bathers, variety of leisure activities, Other people’s actions (drowning, collisions, hooliganism)</td>
</tr>
<tr>
<td>Dangerous water bodies</td>
<td>Land and bottom features, water depth, Water dynamics, Water flora, Boggy areas,</td>
</tr>
<tr>
<td>Category</td>
<td>Examples of internal threats</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td>Health</td>
<td>Bad physical or mental state, Injuries, Medical advisory against swimming</td>
</tr>
<tr>
<td>Swimming skills</td>
<td>Low level of swimming skill, Low fitness level, Lack of experience in swimming, Ignorance of swimming safety rules</td>
</tr>
<tr>
<td>Errors during water-based activities</td>
<td>Non-observance of safety rules, Errors in equipment use (diving, sailing, jet skiing)</td>
</tr>
<tr>
<td>Self-assessment and self-control</td>
<td>Lack of self-assessment skills, Mindlessness and thoughtlessness, Bravado,</td>
</tr>
<tr>
<td>Lifesaving skills</td>
<td>Lack of self-rescue skills, Lack of lifesaving skills</td>
</tr>
</tbody>
</table>

Table 2. Examples of internal threats related to water-based activities.

<table>
<thead>
<tr>
<th>Consequence severity</th>
<th>Minor</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event probability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Moderate</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Low</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 3. Simplified matrix of risks estimated by means of descriptive methods. Level 1-2 risk is accepted (ignored); level 3-4 risk is accepted (but monitored); level 6-9 risk can be accepted only on an exceptional basis, provided there is a contingency plan included. (Based on [www.rudnicki.com.pl](http://www.rudnicki.com.pl))
Table 4. Analysis of risks related to water-based activities, including most frequent negative events.

<table>
<thead>
<tr>
<th>Negative event</th>
<th>Source</th>
<th>Effect</th>
<th>Action</th>
<th>Risk analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drowning</td>
<td>Lack of swimming skills</td>
<td>Drowning (death)</td>
<td>Self-rescue, assistance from others, resuscitation</td>
<td>Low risk but tragic consequences (about 500 incidents a year)</td>
</tr>
<tr>
<td>Decrease in body</td>
<td>Swimming in cold water for a long time;</td>
<td>Hypothermia (death)</td>
<td>Stop swimming immediately</td>
<td>Risk in direct proportion to the time spent in water and in inverse proportion to the temperature</td>
</tr>
<tr>
<td>temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold shock</td>
<td>Sudden immersion in cold water</td>
<td>Cardiac arrest (death)</td>
<td>Resuscitation</td>
<td>Increased risk on hot days</td>
</tr>
<tr>
<td>Painful cramp</td>
<td>Muscle fatigue</td>
<td>Pain, restricted mobility, possible drowning (death as a result)</td>
<td>Self-rescue, assistance from others, resuscitation</td>
<td>High probability, moderately dangerous consequences</td>
</tr>
<tr>
<td>Orthopaedic injuries</td>
<td>Jumping into water</td>
<td>Spinal cord or brain damage, fractures (pareisis, death)</td>
<td>assistance from others</td>
<td>High risk – about 600 incidents a year</td>
</tr>
<tr>
<td>Aspiration of water</td>
<td>Water in upper respiratory tract</td>
<td>Choking, cough, even respiratory arrest (death as a result)</td>
<td>Self-rescue, assistance from others.</td>
<td>Medium risk</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>Excessive effort</td>
<td>Fatigue and weakness, possible drowning (death as a result)</td>
<td>Stop swimming, self-rescue, assistance from others.</td>
<td>Medium risk</td>
</tr>
</tbody>
</table>
Table 5. Possible actions against risks associated with activities in water. (Based on Kaczmarek, (2008)).

<table>
<thead>
<tr>
<th>Possible strategies</th>
<th>Risk level</th>
<th>Action against risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk retention</td>
<td>Very high</td>
<td>Risk acceptance</td>
</tr>
<tr>
<td>Risk self-insurance</td>
<td>High</td>
<td>Contingency plan formulation – self-rescue and lifesaving skills</td>
</tr>
<tr>
<td>Risk diversification</td>
<td>Medium</td>
<td>Different ways of spreading risk</td>
</tr>
<tr>
<td>Risk compensation</td>
<td>Medium</td>
<td>Use of safety and rescue measures</td>
</tr>
<tr>
<td>Risk transfer</td>
<td>Low</td>
<td>To a partner, caretaker, lifeguard or insurer</td>
</tr>
<tr>
<td>Risk avoidance</td>
<td>No risk</td>
<td>No action</td>
</tr>
</tbody>
</table>
LEVEL OF INTELLIGENCE AND EFFECTIVENESS OF LESSON AIMS ACCOMPLISHMENT IN THE SWIMMING TEACHING - LEARNING PROCESS

Poziom inteligencji a skuteczność osiągania celów lekcji w procesie nauczania - uczenia się pływania

Krystyna Zatoń¹, Magdalena Chrobot¹, Anna Kwaśna¹, Beata Zysiak²

¹ University School of Physical Education in Wrocław
² 72 Primary School in Wrocław

Słowa kluczowe: uczenie się motoryczne, inteligencja, pływanie.
Key words: motor skills learning, intelligence, swimming.

Streszczenie

Poziom inteligencji ma istotny wpływ na szybkość oraz efektywność procesu uczenia się. Jednakże niewiele badań empirycznych odnosi poziom inteligencji do uczenia się czynności ruchowych. Celem opracowania jest sprawdzenie zależności pomiędzy poziomem inteligencji dzieci 9 -letnich, a osiąganymi przez nie celami poszczególnych lekcji w procesie nauczania-uczenia się pływania.

Przeprowadzono obserwację ośmiu następujących po sobie jednostek lekcyjnych, tematycznie związanych z nauczaniem pływania kraulem na piersiach. Określono w nich cele i zadania lekcji, następnie zarejestrowano osiągnięcie lub nie celu lekcji u każdego badanego, w każdej jednostce lekcyjnej. Poziom inteligencji zweryfikowano na podstawie Skali Matrycz Progresywnych Ravena.

Wyniki przedstawionych badań pozwalają na potwierdzenie tezy o zależności rezultatów uczenia się pływackich czynności ruchowych od poziomu inteligencji badanych uczniów. Istotne statystycznie związku pomiędzy poziomem inteligencji a realizacją celów poszczególnych jednostek lekcyjnych zaznaczyły się w przypadku lekcji pierwszej, piątej oraz ósmej.

Na podstawie wyników badań wykazano zależność pomiędzy poziomem inteligencji, a sumą osiągniętych celów lekcji. Istnieje niska, ale istotna statystycznie zależność pomiędzy poziomem inteligencji a realizacją celów poszczególnych jednostek lekcyjnych.

Abstract

Level of intelligence has a significant influence on how quick and effective learning process is. There are however only few empirical researches relating level of intelligence to motor skills learning. Thus, the aim of the following study is to verify the relationship between level of intelligence in 9-year old children and aims accomplished by them during subsequent lessons in the swimming teaching – learning process.

Eight succeeding lessons, thematically dedicated to learning front crawl, were observed. Lesson aims and tasks were defined and subsequently each participant of the research was examined in terms of the aim accomplishment in each lesson unit. The level of intelligence of the subjects was verified by means of Raven's Progressive Matrices.

Results of the research confirm thesis about correlation between effects of swimming skills learning and the level of intelligence of the examined schoolchildren. Statistically significant relationship between those two factors were observed in case of the first, fifth and the eighth lesson unit.
The results of the research revealed also correlation between level of intelligence and the sum of the accomplished lesson aims. This interrelation is low but still, statistically significant.

Introduction

Ancient Greece... the cradle of ancient art, crafts, philosophy. Then there was the ideal of "kalos kagathos" embodying the unity of the virtues of mind, heart and body, spirituality and physicality at the same time. This is one of the ideals that in the fullest possible way captures the essence of humanity. Similarly, as the imbalance in nature results in enormous consequences, as the imbalance between the body and cause degradation of the human spirit. "Analysis of the importance of sport (gymnastics) in the education of a man showing his need (that comes from reading human nature) as an educational factor. Skipping the importance of physical education in general education and education have the effect not only to the lack of health or even physical disability, but it can cause significant damage to the disorder of spiritual harmony that should prevail in man between the necessary components (co-factors) of his spiritual and physical nature. "(Pańpuch Z., Sports by Plato and Aristotle, http://www.wychowawca.pl/miesiecznik/07-08_139-140/09.htm) in the work of Plato exhorts the people to care about their physical development. Gymnastics concern was the health of the body, maintaining his good health, and also help improve the actuator for a reason, that is, "the irritable soul," obedient to reason, which is responsible for courage and bravery. Plato did not, however, provide detailed prescriptions for exercise, thus giving only certain base, because according to him, the body does not have the power to call the health of the soul. His opinion is a healthy, good soul its "arete" (valor, efficiency) brings the body into the best possible condition (Plato, Politeia, 403 d). presented considerations have become a source idea for a unity of body and mind. Did fitness can affect mental performance? And the level of mental development affects the rate of learning?

Correlation between the level of mental development and the learning process has been the subject of interest among scientists for many years now and despite connections of those two features seem obvious, they lack explicit and unambiguous interpretation.

There are numerous scientific trends defining intelligence. Zimbardo (1999) characterizes it as a general ability to learn from experiences and get beyond available information about environment”. Intelligence is also understood as “a theoretical construction addressing relatively fixed internal conditions of a person co-determining effectiveness of the actions requiring involvement of typically human cognitive processes. Those internal conditions are shaped under influence of interaction between genotype, environment and one’s own activity” (Strelau 1992), or after Nęcka (2003): as “adaptability to changing circumstances resulting from the recognition of abstract relationships and taking advantage of previous experiences as well as effective control of one's cognitive processes”.

Sternberg’s concept of intelligence assumes mutual functioning of three layers: contextual, experiential and componential. First of the named layers is responsible for one’s adaptation to environment, second – for ability to deal with a new task. The third layer consists of three kinds: meta-components, components of realisation and components of gaining knowledge. The meta-components are responsible for forming problems: their planning, verifying and realisation. O such basis one may assume that intelligence is a general mental aptitude processing information between meta-components, components of realisation and components of gaining knowledge (Nosarzewski 1999).

Thinking intelligence in the modern psychology one most frequently speaks about processing information reaching a person form the environment. Information is received by senses, next part of the received information is processed, in other words – selected, compared, coded, transformed, explained and implemented. At the end of this process exit information is received expressed by one’s external behaviour (Nosarzewski 1999).

Stimulus received from the environment may have various forms: an influential force, a light or a sound wave, etc. It becomes transformed in the sense organs into a sensory impulse in other words a certain sequence of bio-potentials functioning as a carrier for information inside the body.
system. In order to understand the stimulus it needs to be previously recognised and followed by analysis of the delivered information. The processing results in certain answer of the receiver to the stimuli. In case of motor skills learning the answer is in the form of a certain movement influencing environment. We may speak about movement intelligence (Petryński 2009). He has coined a definition of intelligence optimal for physical education, taking into account tasks of anthropomotorics: “ability to build effective intentional behaviours in situations requiring logical processing of the exactly recognised information according to precisely defined rules describable by means of arithmetic encompassing explicit connection of the causes with the effects; enabling to predict unfolding events in far future being also the subject to to limitations resulting from the theorem of the uniqueness (not-quietness) of logical systems” (Petryński 2009).

In the light of stated definitions not many aspects of a child functioning at school remain without the influence of intelligence. Undoubtedly, level of intelligence in a school child at a young age significantly influences its cognitive, emotional and psychomotor sphere. It may also be seen as a causative factor of how quick, effective and permanent gaining knowledge is (Strelau 2000). Fact of direct connection between at least average level of intelligence and learning indicates that correlation (Włodarski, Matczak 1987). The process of learning is treated here as active information processing up to the final effect which is a certain activity. Processing of information means that the student has learned.

Researchers Ackerman and Schneider (after Strelau 2000) singled out three phases of learning in their research:
1. Cognitive – mastering basic skills necessary to perform a task,
2. Associative – creating and consolidating associations,
3. Autonomic – observable when we can perform certain activities without involving consciousness.

They put forward a view that time required to learn how to complete a particular task reduces the correlation between the quality of the task performance and intelligence. Influence of this ability has a great significance in the process of teaching motor skills, for the way of information acquisition and its transfer onto the performed motor task may decide about didactic effects.

Klix and Lander revealed in their research relationship between subject’s level of intelligence and selected by the subject method of problem solving with the use of possessed knowledge (Włodarski, Matczak 1987). Motor skills learning including learning to swim is an exceptional case of human education where relatively long-lasting changes of behaviour are registered in human motor sphere. (Czabański 1998). Younger schoolchildren are the fastest to learn swimming skills, due to favourable biological changes and stable development phase of this age period. (Bartkowiak 1997).

The aim of the present work is to establish by means of a research relationship between level of intelligence in 9-year old children and the speed of learning how to swim. According to the authors level of intelligence has a great influence on the speed of learning besides another qualities characteristic for that age: psychological, physical and motor capabilities.

Following research questions were formed:
1. Is there any relationship between level of intelligence and realisation of particular lesson aims in teaching how to swim?
2. With reference to the level of intelligence of the examined students - how does realisation of aims of subsequent lesson units develop?
3. Is the correlation between level of intelligence and accomplishment subsequent lesson aims statistically significant?

Research material and methodology

A group of nine-year old schoolchildren of several Wroclaw primary schools took part in the research. Swimming classes were part of Physical Education lessons in those schools. Physical
Education teachers leading the classes were also qualified and certified swimming couches or swimming instructors.

In order to justify the stated research problem level of intelligence of the subjects was verified by means of Raven’s Progressive Matrices. Due to its cultural neutrality Raven’s Progressive Matrices scale is one of the most reliable and accurate tool measuring level of intelligence. It is also one of the most frequently used group test. In each test item, the subject is asked to select missing element that completes a figural pattern according to identified logic. Many patterns are presented in the form of a 4x4, 3x3, or 2x2 matrix, giving the test its name (Strelau 2000). The test used in the research was a colourful version addressed to children in school age. [2] The research was carried out and interpreted by an academic from Psychology Division at the University School of Physical Education in Wroclaw. Level of intelligence was classified in the following way: 1-4 stens – low level, 5-6 stens – average level, 7-10 stens – high level (Brzeziński 2006).

Subject and aim of the teaching programme, prepared especially for the sake of the experiment, were the same for both groups. The research took 8 weeks, one school-lesson per week. After first lesson the pupil was to swim 15 metres kicking off the wall performing alternating front crawl leg kick. After the second lesson the pupil was to perform the same task swimming 25 metres. During the third lesson continuous alternating arm action was introduced. After the fourth lesson the pupil should be able to swim 15 metres performing front crawl leg and arm alternating action while after the fifth lesson – the distance should rise to 25 metres. During the following lessons the swimmers focused on breath regulation on the same distance. After each of the 8 lessons teachers assessed whether the appointed aims had been achieved. Having participated in all classes, students should have achieved the main aim of the teaching process – mastering the front crawl swimming technique.

The process of teaching – learning how to swim was realised within eight subsequent lesson units thematically connected with teaching front crawl technique. After each class children participating in the swimming teaching – learning process were checked for their progress in gaining new skill. Accomplishment of the aim of particular lesson unit was verified basing on achieving or not achieving motor aim of the lesson in the 0-1 system.

Results analysis

Collected material was statistically analysed in order to determine answers to the research questions. Relationships between results of Raven’s test measuring level of intelligence and accomplishment of aims of particular lesson units were explored by means of chi-square distribution test.

Analysis of the data included in Fig. 1 reveals clear, distinct in each lesson unit domination of lesson aims accomplishment among those with the highest level of intelligence. It remains on the level of 41 – 47%. An interesting fact is that the largest proportion of students with the highest level of intelligence (47,79%) accomplished the aim during the first lesson, whereas accomplishment of the aim of the last lesson came out the weakest. (41,91%)
Accomplishment of the aim of the last lesson came out the lowest also in the group of average and low level of intelligence. Most probably it was the result of participants’ weariness with the process of learning the same motor activity or difficulty in achieving lesson aim.

The above analysis was done by means of Pearson’s chi-square distribution test. Statistically significant correlation between level of intelligence and accomplishment of the aims of particular lesson units were observed in case of the first, fifth and the eighth lesson. In the remaining cases the relationship was noted statistically insignificant.
The outlined trend indicates linear relationship between level of intelligence and the sum of accomplished lesson aims. Its progression allows to state that along with the increase of the level of intelligence the sum of accomplished lesson aims rises either. There is a relationship between level of intelligence and the sum of particular lesson aims accomplishment in teaching how to swim (p= 0.006086).

**Discussion**

In many psychologists’ opinion level of intelligence is significant in the learning process. Ackerman and Schneider (after: Strelau 2000) claim that intelligence matters considerably especially in the first stage of the learning process, namely in the cognitive phase. Sternberg puts forward a different argument (after Strelau 2000), claiming that intelligence becomes apparent after several attempts of task realisation, not at the beginning of familiarising oneself with a new task. He argues that at the initial stage of the learning process everyone acts slowly and ineptly, the intelligent however characterise with greater ability to deal with difficult situations. It is based on quick automation of cognitive processes. Whereas, for the less intelligent it takes longer time and more effort to perform the same activity (Strelau 2000). There are though very few reports concerning skills transfer in learning understood as not only memorising and making associations but also – motor learning. Berendsen, Meeteren and Helders define the notion of movement intelligence as: “abilities to understand, perceive and solve problems functioning in various environments by maintaining flexible, dynamic, effective and productive movement”. Its logical consequence is the fact that movement intelligence should be measured in various environments while maintaining tasks differentiation in order to determine the ability to generalise motor skills in characteristic for the motor activity situations (Brynnin atal 2002). Research on influence of intelligence on learning processes in relation to motor skills learning reveal strong influence of that ability on time effectiveness, precision of learning, memorising content and also significant impact on motor skills learning effects (Strelau 2000, Włodarski, Matczak 1987, Koszczyc, Wieczorek 1996). Empirical research carried out by Raczek, Dybińska, or Starościak show dependency of the coordination abilities from the level of intelligence examined in terms of motor skills learning.

The authors analysing the process of teaching how to swim (stretched in time due to pedagogical experiment assumptions) focused on the acquired didactic effect expressed in the realisation of the operational aim of each lesson unit in relation to presented by the subjects level of intelligence. Conducting research process in a different (water) environment is also worthy noticing. Extraordinary water conditions evoke series of distractions in the didactic process. Thus, all the more interesting seems to relate motor skill learning effects to intellectual capabilities of the examined students. Results of the research introduced by the authors allow to confirm the thesis about existing relationship between swimming motor skills learning effects and schoolchildren level of intelligence.

**Conclusions**

1. There is a low but statistically significant relationship between level of intelligence and accomplishment of the aims of particular lesson units.
2. The highest percentage of the aims accomplishment in each lesson unit was observed among the subjects with high level of intelligence.
3. Statistically significant correlations between level of intelligence and particular lesson units were observed in case of the first, fifth and the eighth lesson.
Bibliography


Brzeziński J. Metodologia badań psychologicznych. PWN. Warszawa; 1996.


Table 1.
Relationship between level of intelligence and accomplishment of the aims of particular lesson units.

<table>
<thead>
<tr>
<th>Subsequent lesson units</th>
<th>Pearson’s Chi-square distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aim 1</td>
<td>8,374175 df=2 p=.01519</td>
</tr>
<tr>
<td>Aim 2</td>
<td>4,133607 df=2 p=.12660</td>
</tr>
<tr>
<td>Aim 3</td>
<td>2,294785 df=2 p=.31747</td>
</tr>
<tr>
<td>Aim 4</td>
<td>4,187418 df=2 p=.12323</td>
</tr>
<tr>
<td>Aim 5</td>
<td>9,980911 df=2 p=.00680</td>
</tr>
<tr>
<td>Aim 6</td>
<td>0,437954 df=2 p=.80334</td>
</tr>
<tr>
<td>Aim 7</td>
<td>5,606019 df=2 p=.06063</td>
</tr>
<tr>
<td>Aim 8</td>
<td>9,882306 df=2 p=.00715</td>
</tr>
</tbody>
</table>
Fig. 1
Relationship between level of intelligence and accomplishment of the aims of particular lesson units.

Fig. 2.
Spearman’s ranks order - correlation between the sum of particular lessons aims accomplishment and the level of intelligence.
THE PRACTICAL USE OF WATER AS A METAPHORICAL FEELINGS ELEMENT IN
THE PRACTICE OF ART THERAPY

Volodymyr Stadnyk

Academy of Municipal Administration, Kyiv, Ukraine

Number of characters: 16 000 (with abstracts). Number of images: 0 x 1000 characters (lump sum)= 0 characters. Total: Number of characters: 16 000 (with abstracts, summaries and graphics)=0,4 spreadsheets publishing.

Abstract

Existence of metaphorical connection between the awareness of corporal perception of water environment and sphere of relations between people allows to use semantics of this comparison for working of difficulties in the field of relations, by interpretation of experience got in touch with a water environment at implementation of the special exercises and their discussion.

Problem

At various times, people treated water in different ways: in ancient Egypt repentance containing the words "I did not swim in the water" which meant, "I'm clean and not familiar with the dark forces" is similar to test water used during the witch hunt, then as in ancient Greece, on the contrary, the ability to swim was considered a sign of harmonious development, and the goddess Aphrodite is known, was born from the sea foam. As you can see, there are opposing views, but each of them emphasized that special relationship that causes people water. In Jungian approach, water is regarded as a symbol of transformation, it dissolves solids, freezes and evaporates, and dreams associated with immersion, often speak of the coming changes in our minds and the willingness or unwillingness to accept the changes. Also very common is the comparison of immersing in love in the water that provides significant changes in their lives. In our study, we attempted to examine the relationship between bodily perceptions water and its relationship to the field relations of a person.

Objective: To test the assumption of a link between the perception of bodily awareness of the aquatic environment and the sphere of human relationships and opportunities to correct problems in this area through metaphorical interpretation in the form of definite perception.

Research.

Own observations during practical work provided by us for 2005 - 2010 years while conducting field seminar by O.L.Voznesenskaya "The World through the eyes of a child", aimed at improving the relationship of parents with children allowed to notice a link between maternal comfort in communicating with young children based on their relationship to water. They raised a number of questions aimed at finding out whether they like to swim in the waters, they face or immerse in
water when swimming or diving if you open your eyes, whether they know how to swim and how was studying whether they teach their children to swim and how they do it? Often the difficulty in communicating with their children early years coincided with the difficulties of adaptation to water environment. It was therefore created a program that allowed the workshop through selected exercises in style motor and Expressive art therapy areas to improve psychological contact with water, and discussion in the group, improve interpersonal relationships.

This program was tested on the scientific seminar "Art Kaleidoscope" in August 2011. in Shelkino, Azov sea coast. It included a series of three classes combined single logic. Each lesson has been constructed in such a way that most promote awareness of own motor capacity in water and its reconsideration in metaphorical terms. Structure studies consisted of three parts which were held in the water and four that held on land. The first was part of the land is dedicated to verbalizing expectations and familiarity of participants - it was held on the beach, the second and third parts - included a series of exercises in the water and discussion on land; final - consisted of the final discussion and feedback and carried out on land.

By "water" part of the application program consisted of the following exercises: watering face with water, sprinkle in the face lying on the water with the support of a partner in a position similar to the "stars" play of the embryo to support partner efforts to move away from the partner that holds, movement in water in pairs, talking under water entering the water in the form young turtles, stream - channel birth. What supplemented on land - the creation of sand mandalas, meditation on the colors of the rainbow, scanning body image. In the preparatory discussions on land, while verbalizing expectations, a number of participants said their concerns about facial immersion in water and diving, but it is not associated with the sphere of the senses, but wanted to understand whether such a relationship. After watering the face with water said that doing so under the instruction and installation due to participate in the workshop. After lying on the water in a relaxed state, in the "Star" with the support of a partner under the head, were surprised by the reviews on this unsuspecting comfortable position, those who were well acquainted with water, used the opportunity to help and explain to others.

An attempt to use this approach, we ve seen in the study V.Havrylenko, this approach is called – aqua integration. In his work, the researcher relied on theoretical developments V.N. Nikitin [1,2], A.I. Kopytina [3] and others. Using body oriented therapy, art therapy and psychodrama approach the author attempted to create a new approach to expressive, body oriented, art therapy practice, which he called aqua integration or aqualitically therapy, from the Greek aqua - water and lisis - dissolution. Use of the term "integration" reflects the desire to rely on that part of the theory of expressive therapy, which states that the cause of suffering patients is the lack of unity between the body and the senses, blocking expression, and therefore aspects of his own "I". As the D.Jouns [4] emotional, social and behavioral disorders as reflected in limiting the range of motion that is caused by tonic patterns and the limitation of thought, abstraction, imagination. Next V.Havrylenko notes that the volume of movements to control the body in water is greater, the less conscious bodily "I", ie degree of bodily self-identity. Movement of water held in conditions weakening gravitational reflexes, which formed the basis for body schema, or as it is called P.Federn [5] - sustainable human knowledge about your body and its patterns. Thus, the stability of the perception of the body in space is violated and included mechanisms for self-regulation, based on the ability to accept uncertainty and chaos. That is, as indicated F.Barron, R.P.Jons et al. [5] include mechanisms of spontaneous perception, characterized by the ability to perceive the situation synthetically, consciously and impartially. It is this perception according Y.A.Ponamarov defined as wholeness, integrity, perception, which is the basis of creativity. So the problem is where the creative use of logical pattern - body schema is not possible because there is a phenomenon of discursive thinking, unity is intuitive and logical. Man begins to turn to a more detailed image of the body as an integrated complex formation which can be considered as a complex integrated unity of perception, attitudes, evaluations, representations associated with bodily form and function and is at this level to work with its own personality. As known significant attention to water as a means of regulating particular stress weightlessness paid L.Kitayev-Smyk using the exercises in water to prepare
astronauts to stay in space. Later it was used to develop the developing gymnastics in water with newborns, which gives significant benefits to the increased efficiency of the development of children. For adults of creativity that give specific exercises in water, unlike children, do some metaphorical ingredients of support. This support will keep the useful operating time of life experience, transform, or specify the path of transformation of destructive entities and will result in new positive developments in ideas about themselves, beliefs and personal values.

For example, supporting partner in a folded position similar to embryo participants experiencing an increase in their capacity as compared with staying on land. Metaphorically comparing attribute this immersion in water as immersion element of feelings and trust her when we overflow feelings we are capable of many things we can do much more than in the neutral condition. At the same time you can feel the extent to which should balance the immersion and observation during an interaction with another person. The discussion participants reported that the condition of the embryo is seen as a circuit and how solitude accompanied by a certain decrease of trust in the environment, but in both versions support the partner is perceived as a resource. He who feels the need to support their efforts. In contrast to the state of fetal posture like a star, facing the mountain is seen as an open and trusting environment to that which the member feels supported. In discussing this exercise participants compared with life situations where they felt confidence or lack of it. In case of lack of participants remembered modeled new ways of interaction based on experience.

Where is Worms are treated first experience of lying in the water and swimming on the back. Someone was surprised to found out that water got into the ear, there flows despite warnings to the contrary received from his parents as a child, which served as a significant addition to the holistic perception of their body image. When you enter the land but also carried out discussions and creating mandalas despite waiting in images motives relaxation bliss or even a significant number of variants belonging to the so-called "crystals" that suggest rather the structuring and transformation of personality. Also met mandala type "target", "spiral" or "stream" the first two of which point to dive in ourselves and internal development, and the last state of that classification in conventionally called "bliss". When the meditation through the rainbow colors was observed that the distribution of imaginary flowers on the body image of participants who have difficulties in contact with water is uneven, alternating brightly colored and completely unpainted areas. In contrast, the participants are well contacted with water or re-attend seminar were mostly even distribution of colors. This may indicate a more intuitive understanding of the level of perception of the image of his own body. It should be said of participants who can swim very well, but have no experience of conscious perception of movement in the water. The proposed approach is demanded from them a certain amount of time to adapt. Just as dance therapy adapted to the professional dancers who do seek.

One of the structural cores of the workshop was an evolutionary model. Participants had the opportunity to experience the state mineral, plant, animal and human, and to feel the importance of the water element for the continuation of life, it used images of babies turtles and crabs. The instructions to enter the water like babies turtles stressed that they have to go from sand to water to keep yourself functioning of instinct, the symbol of which is the movement of the four limbs, and the transition is seen as two human intervention. Feedback from the participants, they had not tried so hard to get into the water and caught it as life itself. In the second block of the workshop was used exercise in which you want to move away from the partner that holds. Feedback from participants they have never felt so strong and powerful as the water moves very loose and large amplitude, and was surprised to notice that are in the same place, just as in the relationship who want to stop doing the main focus on efforts aimed at the removal, and not on whether there is separation.

Integrating stage of the workshop is to exercise simulating the birth canal and reminds stream. According to the participants, it symbolizes the transition to a new level of perception of water as a transformation of the resource. It should be noted planes of movement exercise movements. Thus the analysis proposed Laban considered three main planes of movements, "table" - or horizontal plane at the waist, "door" - or vertical plane located frontally and "wheel" - or sagittal plane is
vertical in the direction back and forth and vice versa. The water plane "table" moves to the level of depth, such as the level of the neck. Then this area is perceived much higher level than on land and moves in this tier are perceived much easier. As the plane "wheel", it is easy to see that when moving in the water on the bottom of foot is very effective to use it. There is great visibility to illustrate multilevel communication when one participant is immersed to the bottom, while the other tries to maintain a dialogue with a smooth surface. In the minds of the first level of the knee is a top tier, and in his mind the second is the level heads. Then to maintain dialogue should first dive to the bottom is the level of the first and the only way to contribute to its growth. These images give right hemisphere left-hemispheric consciousness of a new, fresh space for development created from the already known resource. The inclusion of the above mechanisms are transferred to other levels of consciousness and self-perception of body S.Grof [6] indicates the trans personal level model of the human psyche that can mediate communication with any part archetypical paintings and mythological world. In this context M.Reyly [7] noted a lot of attention attracted by water as a space for the formation of consumer mythological and folkloric semantics. Here we use images of motherhood and birth thanatological aspects change the status of man in a wedding, funeral rites and rituals of birth. It should also be mentioned ceremonial and religious significance of baptism, in which the semantics of the original is the time of immersion in water, which is borrowed from ancient Eastern rite washing.

Conclusion: The experience of body oriented therapy in water convinced us appropriate emphasis on the metaphorical image of considering water as an element of feeling. Justified the logic of construction activities, according to which we moved from simple stages of evolution to more complex and therefore more open to dialogue with the world. Resource experience gained in a metaphorical sense elements allow to transform meaningful experiences, integrating them in the difficult process of life creation, the best options for this process.

Literature

2. Никитин В. Н. Энциклопедия тела. Психология, психотерапия, педагогика, театр, танец, спорт, менеджмент. – М., 2000.
6. Grof S. The Adventure of Self-Discovery: Dimensions of Consciousness and New Perspectives in Psychotherapy and Inner Exploration
REHABILITATION OF THE FALL AS A GERIATRIC PROBLEM

Rehabilitacja upadku, jako problem geriatryczny

Anna Nalazek¹, Alicja Sikorska¹, Ewa Trela², Mirosława Cieślicka³, Norbert Lysiak¹, Walery Zukow¹

¹University of Economy, Bydgoszcz, Poland  
²Collegium Medicum Bydgoszcz, UMK Toruń, Poland  
³Kazimierz Wielki University, Bydgoszcz, Poland

Key words: rehabilitation; fall; geriatrics.

Słowa kluczowe: rehabilitacja; upadek; geriatria.

Abstract

In the process of aging there are some problems that hinder elderly life geriatric. Such problems include: downs, mobility disorders, incontinence and stool, dementing disease of the brain disorders, low vision, hearing, and the occurrence of depression. For and large group of people downs are the bridge disturbing symptom of aging, which triggers fear, trauma and loss of consciousness. An older of personages is afraid of is that in the event of the fall, which may result in immobilization or other tragic consequences will make your loved ones and of creases problem. Of Such but personages will feel dependent he third parties. The aim of the work of you it present the problem of falls among elderly people. And how can in make this falls prevent, try it is improve the quality of life of people at risk of falls. Falls among older people are among the so-called great geriatric problems. Entail but the flight of consequences, both physical and economic and social. Contribute it and reduction in physical fitness, and loss in order to older people of faith in their own forces. The cause of falls is complex-almost always falls are caused in order to the coexistence of several factors at once. Falls you need it is prevent, in implementing appropriate preventive procedure earlier. Systematic testing, evaluation of the balance will ugh the basic things it determine the degree of risk of fall. Thanks it such proceedings, in will ugh able it reduce the risk of falling in the elderly. In the case of already existing falls threaten of personages will include rehabilitation, which hasium in its composition: kinesiotherapy, physical therapy, massage therapy, occupational therapy, and orthopedic supplies. Elderly persons should spend more time, reduce the external factors that increase the risk of falling, teach in the event of proceedings the alone demise. Thanks it such and of personages will ugh more confident she felt earlier interventions in the environment that surrounds it, you will know how, in the event of the fall is it proceed. Falls among older people are and very of creases problem for them and those that appear he their doorstep. Falls are the main cause of and sense of helplessness among the elderly. Therefore, our goal is it is provide them with any assistance it change their attitude, it make you feel needed. Conclusions: 1. The falls are more common in the elderly than in middle-aged people. 2. Of Ana fall entails the health, economic and social consequences. 3. Risk of falls increases with the age of the patient and underlying diseases. 4. An essential element in people exposed he the falls is the introduction of appropriate prevention. 5. Each patient should ugh covered in order to the rehabilitation, which will ugh aimed at the restoration of physical fitness and balance.
Streszczenie
W procesie starzenia się występują pewne problemy geriatryczne, które utrudniają życie ludziom starszym. Do takich problemów zaliczamy: upadki, zaburzenia mobilności, nietrzymanie moczu i stolca, zaburzenia ośpiewne, upośledzenie wzroku, słuchu i występowanie depresji. Dla dużej grupy osób upadki stanowią najbardziej niepokojący objaw starzenia się, który wyzwala strach przed urazem i utratą świadomości. Osoba starsza boi się o to, że w razie wystąpienia upadku, którego wynikiem może być unieruchomienie bądź inne tragiczne konsekwencje sprawi swoim bliskim duże problemy. Taka osoba będzie się czuła zależna od osób trzecich.


Wnioski: 1. Upadki występują częściej u osób w podeszłym wieku niż u ludzi w średnim wieku. 2. Każdy upadek pociąga za sobą konsekwencje, zdrowotne, ekonomiczne i społeczne. 3. Ryzyko upadków zwiększa się wraz z wiekiem chorego i chorobami współistniejącymi. 4. Niezbędnym elementem u osób narażonych na upadki jest wprowadzenie odpowiedniego programu prewencji. 5. Każdy chory powinien być objęty rehabilitacją, która będzie miała na celu przywrócenie sprawności fizycznej i równowagi.

Introduction
"The life of the man is a gift, with wonderful gift of the God the Father. From here one should also incessantly accept them as the gift, but also the task, because although we are people from the moment of conception, incessantly we become it is them. Most nice we answer God to this gift trying for our broad development but the dynamic approach to every stage of the life as for the specific task. Old age about can better old age, appears in next stages of the development of the man as the exceptional problem and oftentimes not simple "[18]

Priest Adam Skreczko

Geriatrics is a field of medicine which deals with the last stage of the human life, with health care of the man in the period of his old age. Grow old he consists in gradual dying down of stamina, and so an attempt to slow this process down is setting geriatrics and preventing premature becoming decrepit of the man as well as curing many diseases which appear in this period. Our life consists of certain stages which each of us must somehow or other pass. Man being born has years of the childhood which are light-hearted, full of the play, ahead of spots of bother. Then he becomes involved in a period of the maturity where must learn alone to make decisions with time
more considerable problems start appearing. The man even won't realize as becoming associated with the elderly person having great problems with the much weakened coordination and the person with this period. Certain geriatric problems which make it difficult for the elderly to live appear in the ageing process. We rank among such problems: falls, disorders of the mobility, urinary incontinence and stool, disorder dementing disease of the brain, visual impairment, hearing and appearing of depression. For the large group of people falls constitute the most alarming manifestation of the ageing which fear of the injury and the loss of consciousness frees. Elderly people worry about it, that in case of the appearance of collapse, of which immobilizing can be a result or will cause his family and friends other tragic consequences considerable problems. Such a person will feel dependent on third parties.

Falls are a main cause of loss of the efficiency by elderly people. Children and young people fall down more oftentimes than elderly people, however in it is this last group falls are a great problem, resulting behind oneself in substantial medical and economic effects, because the group of the elderly demonstrates great disability and the mortality because of falls. The risk and the frequency of appearing of falls increase along with age, the most a place has them at people about 75 of year of age. Elderly people don't already have such a physical fitness as the young man. At such a person he seeks the everyday day for slow stopping function, disorders of the coordination, the deuce, the eyesight and the hearing appear, problems with the memory can appear, what the person cannot be found in an environment which surrounds him by.

Presenting the problem of falls amongst the elderly was a purpose of the work. As well as how we can prevent these falls, to try to correct, quality of life of persons exposed to falls.

FALLS - ESSENTIAL ISSUES

- Pathobiology of falls
  - The cause of collapses is set - almost always falls are an effect of coexisting of a few factors suddenly. Out of examined almost 400 persons, only a dozen or so has reliable results, in accordance with principles of medicine based on fact (EBM - Evinence Based Medicine). It are assessed in prospects as well as polycentric tests in which the conducted multifactorial risk analysis of falls stayed. It belong to important factors: reducing the muscle strength above all in lower limbs, the disequilibrium and the race walking, the visual impairment, catching above 4 medicines and impairment of cognitive functions. [3].
  - Risk factor
    - Weakening muscle power
    - Falls in the medical history
    - Of disturbing the race walking
    - Of disequilibrium
    - Applying boosters race walking (walking frames)
    - Visual disturbances
    - Depression
    - Arthritis
    - Of disturbing the memory
    - Age for 80 years
  - Causes of collapses

It always appears a few, mutually overlapping each other to oneself, of problems causing falls and it is hard to point out of them one, most important, the one causative.

It is possible to divide causes of collapses in two groups:
1. internal (organic)
   1. resulting from the ageing process of the organism,
   2. resulting from morbidities,
2. outside (environmental).

Internal causes resulting from very ageing process of the organism:
- worsening functioning of the nervous system (worsening the motor coordination, the dismissal of the response time to stimuli, capacity reduction of feeling the touch - hampering recognizing obstacle, vibration, temperature),
- change of the posture of the body (race walking with small steps, lowering ahead),
- worsening functioning of the muscular system, the eyesight and the hearing (worsening of the visual and aural control the race walking).

Tbl. 1. Morbidities increasing the risk of falls at elderly people. [14]

<table>
<thead>
<tr>
<th>Kind of the disorder</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurological disorders</td>
<td>stroke, pareses, transitional ischaemic attacks, Parkinsonism, apparition, myelopathy, epilepsy and other paroxysmal illnesses, team of the basal artery and vertebral arteries, illnesses of the cerebellum, peripheral neuropathy, dementia</td>
</tr>
<tr>
<td>Cardiovascular disorders</td>
<td>cardiac infarction, orthostatic hypotension, cardiac arrhythmia and of transmitting (hypersensitivity of the cervical bay, vasovagal teams, situations: faints podefekcyjne, postcibal, pomikcyjne), atherosclerosis of cephalad vessels</td>
</tr>
<tr>
<td>Gastroenteric disorders</td>
<td>gastrointestinal bleeding, diarrhoea</td>
</tr>
<tr>
<td>Metabolic disorders</td>
<td>hypothyroidism, hypoglycemia, anaemia, disorders elektrolitowe (hypokalaemia, hiponatermia), dehydration</td>
</tr>
<tr>
<td>Of disturbing the urinary system</td>
<td>urinary incontinence, hurrying the hydrostatic pressure, nykturia</td>
</tr>
<tr>
<td>Illnesses of the motor organ</td>
<td>arthritis, hypertrophic arthritis and of spine, myopathy of proximal muscle groups, distortions of feet</td>
</tr>
<tr>
<td>Psychic disturbances</td>
<td>depression, fear</td>
</tr>
<tr>
<td>Illnesses of the sense organs</td>
<td>cataract, glaucoma, maculopathy, labyrinthitis, illness Meniere’a, mild paroxysmal positional vertigo, disorders propriocepcji</td>
</tr>
</tbody>
</table>

Outside causes are connected above all with the environment in which the patient settles. It is easier to identify their influence what next gives the possibility of implementing proper preventive action.

To outside (environmental) we rank causes of collapses:
- inappropriate illumination (both insufficient and blinding),
- a correction lacks disorders of the eyesight and the hearing (the lack or inadequately selected too soft blinders, a hearing aid is missing),
- the obstacles associated with base (slippery floors - wet, waxen, loose carpets, from curled with edges, doorsills, irregularities of the area, steep, high stairs without parallel bars),
- lack of conveniences for elderly people in institutions and apartments (e.g. hand railes are missing, light switches installed too high, in places hard to reach),
- unsuitable footwear (market high heels, the slippery sole),
- mess in the apartment (e.g. not curled, long aerial, electric wires)
- inappropriate furniture (e.g. too soft armchairs, chairs, armchairs on rings, low backrests of chairs, the lack of parallel bars or too short, rickety parallel bars chairs, tables, high hung shelves, cupboards),
- market low temperature in rooms,
- degeneration of weather conditions. [16]
### Tbl. 2. Environmental threats being able to cause falls. [14]

<table>
<thead>
<tr>
<th>Type of threatening</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illumination</td>
<td>insufficiently bright, striking, switches are missing at entering rooms</td>
</tr>
<tr>
<td>Floor</td>
<td>loosely lying rugs, destroyed carpets, curl on edges, slippery surface, doorsills cords, the small domestic animals</td>
</tr>
<tr>
<td>Stairs</td>
<td>lack of parallel bars, not equal, destroyed, slippery, too steep or too long grades</td>
</tr>
<tr>
<td>Furniture</td>
<td>armchairs and chairs without parallel bars about the unsuited height, high put shelves and cupboards, hampering arranging the furniture passage, unstable</td>
</tr>
<tr>
<td>Bathroom</td>
<td>low stool, lack of holds, slippery bathtub wading pool</td>
</tr>
</tbody>
</table>

**Types of falls**

We can divide falls on occasional and spontaneous.

Occasional falls - are these are falls in which extrinsic factors play an important role, e.g. slippery, waxen floors, inappropriate stairs, the illumination or the mess. It can be associated with the need e.g. to walk down the stairs what can cause serious trouble not only ailing, older persons, but also persons feeling in the good psychophysical condition and of having fewer than 75 years.

Spontaneous falls - are falls which can happen suddenly and as a rule have it to not a large impact both intrinsic factors as well as outside. Most oftentimes he/she reaches them during the change of the position from sedentary on upright and inversely. Oftentimes they are a result of impairment of the functional fitness of the organism. As a rule they happen repeatedly and concern persons being more than 75 years old which weakened muscles and coexisting illnesses have. [22]

- Ageing of the layout of the movement

The ageing process includes all elements of the layout of the movement i.e. the bone, muscles, ponds (as well as cartilages, ligaments of the tendon, synovial capsules). Changes concern also a nervous system (among others worsening proprioception, that is of bathyesthesia - it regarding arranging individual body parts). [16]. Reducing bone mass is revealed with inherent element of the ageing process. As a result of not-coping of osteoblasts (osteoblasts) behind the effect of osteoclasts (osteoclasts) reducing the bone reconstruction happens in the process of the metabolism of the bone. In the end, of what we watch the rarefaction of bone mass. All bones are touched with this process, at least in the different degree. The rarefaction earliest regarding the bone trabecular structure of cancellous bones, as spinal hard cores. However depletion of bone mass in long bones of limbs occurs late, because only in the advanced years. Inasmuch as it is possible to regard very reducing bone mass, i.e. the osteopenia as the natural result of the ageing process, further loss leads densities of bone mass unavoidably to spontaneous fractures of bone beams what is determined with name of osteoporosis. It is possible, and so to say, that border between effects of the regular ageing process - with osteopenia but osteoporosis, as illness "from growing old" is liquid. Ponds lose their ability to keep the steady-state dynamic as a result of microdamage intensifying and overlapping each other to oneself in the course of their everyday functioning. Crucial changes in this process concern the cartilaginous tissue above all (of cartilages and intervertebral pucks). This tissue contains few cellphones, is denervate and is deprived of any vascularity, but surrendered for ceaseless microdamage through the entire life of the man. Along with age cartilages in the body of the man are defeated by thinning, immobilizing, the dehydration and for qualitative changes - become more susceptible to mechanical injuries. As a result of this damage chondrocytes become more susceptible on apoptozę (programed death of the cellphone). From the account of the lack of phagocytes in the cartilaginous tissue of the flesh apoptotic they cannot be removed, disturb the function for her and provoke more distant damage.
Loss of the muscle mass in grow old (sarkopenia), heightened by reducing the physical activity, disability and coexisting illnesses, causes loss of muscle power what keeping one's balance hampers and supports the instability of the race walking. [16].

The degeneration of the efficiency of the muscular system also results from muscle atrophies, of reducing the strength and tense of muscles, changes of degenerative tendons and ligaments. In the ageing process also a pattern of the race walking changes (involutorial changes in the nervous system are a main cause and bone-pond). The race walking becomes slower, uncertain, a length of the step is shortened, oftentimes elderly people don't take feet away from base, synkineses of upper limbs reduce as well as a rotation is limited in hip joints and knee. In the end, of what problems with overcoming obstacles, changes of the position of the body and very turnovers appear. [8]. It showed that the substantial amount of falls amongst elderly people happened during the activity of the everyday day: of walking and getting up from a sitting position. [19]. It also lead diseases of the layout of the movement to falls: hypertrophic arthritis, of the myitis and ponds, deformations of the spine, distortions of feet and osteoporosis.

Changes in the sense organs

The ageing process of the sense organs characterizes a few regularities. Set shortages of their function (vision, hearing, feeling the taste, the olfaction) usually very slowly become apparent - into the effect, of what oftentimes are overlooked by the doctor, the patient and his family and friends. It are dependent both from changes in the central nervous system, as well as receptor organs.

Along with age in the sight organ hypermetropia is monitored (presbyopia) resulting from running out along with age of the ability of the accommodation of the lens and clouding (opalescence) lenses. It are these are processes unfortunately irreparable. He belongs in addition alone to emphasize, that gray cataract is a symptom regular grow old - is illness which one should early recognize and cure.

The hearing impairment is an another, inevitable effect of the ageing process. A mild hearing deficit of the receiving type is a typical feature what understanding the speech in the noise makes it difficult for elderly people. Changes have a usually hidden beginning, both ear and symmetrical character.

The normal ageing process involves progressive reduction of district feeling, especially a vibration and bathyesthesia. These changes very much support falls. [16].

Along around grow old seeks the race walking also for weakening the visual and aural control. A visual acuity, an accommodation, a dark adaptation deteriorate and of strong light, the ability to distinguish the contrast medium and the district vision, also senile eye diseases appear: cataract, glaucoma, maculopathy. Unfortunately also impairment of distinguishing the speech, increasing the hearing threshold level of clear tones, exaggerated collecting the earwax, reducing the district excitability act parts of the vestibular organ. Apart from that very cause of collapses can lie in the improper selection or the lack of blinders and hearing aids. In consequence elderly people have happening changes worse spatial imagination and more poorly picks a warning visual stimulus up and aural from the environment. [15].

Ageing of the arrangement cardio-vascular

It are burdening for the cardiovascular system of course of all kind social pathologies, but also very effort. In the ageing process, even at healthy persons, a tolerance of effort reduces, since minute's capacity (blood volume pumped by the heart during the minute) cannot grow proportionally to current needs. At elderly people also a maximum frequency of the rhythm of the heart is defeated by a decrease during effort (about 25% between 20 and 80 with year of age) and the maximum shrinkage during effort (even, by the 60%; at least a shrinkage of the myocardium in the rest keeps steady).

Along with time within the heart and vessels he ranks among typical appearing changes:

- Reducing the process of the synthesis and freeing factors shrink vessels through cellphones endoteliulm vascular, in it among others of nitric oxide - this risk of atherosclerosis increases
homeostases on account of the role of this connection in the regulation within walls of vessels.

- Reducing the elasticity of arterial vessels - in the result what along with age seeks to the growth of the systolic blood pressure. At healthy persons it doesn't exceed correct values, but this risk increases occurrences of the so-called separated systolic arterial hypertension of blood.

- Capacity reduction of the relaxation of the myocardium, of especially a left ventricle - it supports coming into existence of a cardiac insufficiency. With the most frequent developing form of a cardiac insufficiency in the oldest age groups (after 80 of year of age) there is a relaxant failure, that is so, which filling the ventricle of the hearts is handicapped in (especially left), but the shrinkage is normal.

- Reducing the activity of the sinoatrial node - it conducts the little retired dismissal of the rhythm of the heart and supports the cardiac arrhythmia; with the tendency of the tachycardia supports the dysrhythmia of theses among others the lessening of tension of the vagus nerve.

- Reducing the response to the β-adrenergiczną stimulation resulting from changes on the receptor level - it indicates stressful and burdening changes in the reaction to factors they think that it can be significant also e.g. for increasing the risk of the postural hypotension in the ageing process. [15].

In heart diseases in which reducing his throw appears unchecked faints and falls can also call the sick person. To cause it anatomical changes can, so as the mitral insufficiency, taking the left arterial outlet in, being fitting of the petal of the bicuspid valve and ischaemic changes of the heart, a heart attack and the cardiomyopathy. Collapses oftentimes are monitored in case of the Mobitz block II and in the team of the ill sinus node. [11]. We can also rank among diseases much increasing the risk of falls: cardiac arrhythmia, faints, cardiac infarction. [16].

- Changes of the respiratory system

At healthy elderly persons parameters of the gas exchange are not-disturbed in spite of numerous, enough well characterised changes in the respiratory system. One should however admit, that happening changes in the respiratory system resulting from the ageing process, to a large extent they are modified by influences of the external environment and distinguishing them is oftentimes very difficult or on the present stage of the knowledge even it is impossible. The degree of increasing observed changes depends among others on the state of feeding the patient up in the childhood, experienced respiratory diseases, as well as the exhibit to pollutants (including the passive burning - is obvious, because the practicing burning precipitates observed changes) whether of very physical activity of the sick person.

For the most characteristic changes in the respiratory system resulting from the ageing process we rank:

Reducing the mobility of the chest - most oftentimes as a result of reducing mass of respiratory muscles and the fall in the durability of their contraction. It is main for reasons for increasing muscle effort which is needed for comparable stretching the chest, and consequently it increases the risk of the muscle fatigue while speeding up or deepening breath, that is e.g. during effort. It influences for limiting his tolerance.

Reducing the vital capacity (VC - vital capacity) - difference of the volume of lungs during the maximum inhalation and the maximum exhalation at the lack of changes of the tidal volume (TV - tidal volume), that is of volume entered into lungs during the retired respiration. Simultaneously however almost proportionally to the VC fall a residual air of lungs is defeated by increasing (RV - residua volume), that is air volume which stays in lungs after carrying the maximum exhalation out. Between 30-40 and 70-80 with RV year of age is defeated by a reduplication what he/she marks, that exhalation becomes less effective. It
results in reducing the flexibility of lungs and causes, that along with age a risk grows emphysema of lungs.

Worsening the gas exchange (among others as a result of reducing the area of the gas exchange) - leads it for lowering the speed of oxygen in the arterial blood; at least however ratable values oxidize aren't defeated by blood for change, into the effect, of what a risk of the hypoxemia increases in load conditions.

Impairing the reflex of cough and reducing the ciliary clearance - it supports lying of discharge in the bronchial tree what in consequence the development of the bacterium facilitates and increases the risk of infection (this risk additionally is increased as a result of happening changes in the immune system). [15].

- Ageing of the nervous system

In the ageing process of the brain a number of neurons reduces, however they as everybody knows think that for correct functioning of this organ an efficiency of sending the signal between individual cellphones rather than very cell count have a primary importance. As a result of the passage of time and with reducing the number of nerve cells reaches for educating additional connections between existing cellphones what allows for the big compensation for the reducing cell count. Therefore in the ageing process at absence of processes of sick pays changes in cognitive functions are relatively small and concern mainly worsening remembering and the recent memory. It as a matter of fact also among others results from changes in the synthesis of neurotransmitters.

A dismissal of transmitting is one of the most characteristic occurring changes in the peripheral nervous system of impulses, in consequence, of what a time of reflex actions is defeated by extending. It is also characteristic district obtusion, of especially a vibration and bathyesthesia. All these changes increase the risk of many social pathologies, in it of very falls. [15].

Of special kind an autonomous system is a nervous tissue. The happening changes dependent on the ageing process are manifested most oftentimes with impairment of the thermoregulation, perspirations, with emotional stiffness (e.g. more rarely visible blush of embarrassment), with tendency to emergency rises of the pressure or the postural hypotension or fainting fits. Main a fall in the sensitivity of adrenergic receptors causes it at the compensatory height of catecholamines (adrenaline, noradrenaline). It supports disorders of the vasomotor function, that is of both narrowing, and widening vessels as a result of the activity of pressor amines. Illnesses are a factor heightening such symptoms (e.g. diabetes or hypertension) and medicines, especially hypotensive, universally used at elderly persons. [16].

On account of happening changes in the neurological system we also rank among neurological diseases of collapses much increasing the risk: Parkinson's disease - the risk of the fall is increased about ten times, Alzheimer's disease, multiple sclerosis, states after the cerebral stroke, temporary disorders of the awareness, convulsions, syndrome of the basal and spinal artery, polyneuropathies and epilepsy.

Staying by the nervous system it is possible not to mention mental illnesses which enjoy considerable influence for appearing of falls at elderly people. One should here exchange: dementia, the delirium, the heavy form of depression and anxiety states. These diseases on account of their course increase the risk of faints, falls and feeling very efficiency at elderly persons. [16].

CONSEQUENCES OF FALLS

Meaning of falls is essential associated with their consequences - they are a main cause of injuries at elderly people, increase the morbidity and the mortality in this age group, support the development unfortunately for disability, becoming dependent on caregivers, worsening the life of seniors. [9]. Frequent injuries to elderly people as a result of falls are caused among others with slowing defense reflexes down and appearing of osteoporosis. Therefore many time, seemingly minor collapses, can have serious effects. [22].

We can analyze results of falls in all sorts categories. Most oftentimes we will deal with physical, psychological and socioeconomic results. [16].

Traumatic consequences of the fall:
• fracture, • hyposcleral haemata, • extensive bruises, • of the burn

Consequences of falls associated with immobilizing:
• hypothermia, • dehydration, • economy class syndrome, • infections, • of bedsore, • contractures of ponds [15].

- Physical consequences

Injuries arising as a result of falls are a leading cause of deaths of the elderly. [21]. Falls constitute main and compelling reasons of the traumatism amongst persons in the older century. Fractures and bruises are most oftentimes met results as well as constitute the very frequent reason of the hospitalization of older patients. The most a neck of the femur is an exposed space for breaking in this age group. He flies it out in court, that over the 90% of fractures necks of the femur is a result of existing collapse at the person above 70. of year of age. Even the injury is also smallest with reason of breaking the radial bone in the very typical place (breaking the more distant part of the radial bone, the about 2.5 cm from a wrist joint), of the rib, the circle or injuring carpal bones, of ankle whether knee. [16].

Injuries to the skull take the next place (concussions, intracranial bleeding), in the first moment which consequences cannot give no visible signs, but them appear only after some time. [22]. Equally dangerous and serious, however more rarely appearing, a hypothermia is an effect of the fall. On of such a kind danger there are exposed living alone persons which use the restroom at night or fall down in little resorts, e.g. in the basement, in the attic. In such situations the waiting time for reaching for any fullbacks much grows longer, and the body of the older person very much quickly is defeated for cooling.

To physical consequences of falls one should also take effects of immobilizing into account (e.g. bedsores, contractures, infections, economy class syndrome) and general worsening the physical fitness. [16]. Such complications much extend the time of the hospitalization and quite often lead to premature demises. [21].

- Psychological and socioeconomic consequences

Self-reliance and functional function, as well as appearing of the so-called team are a result of falls, much having an effect on an activity of elderly people after fall. [16]. Team after fall it is result of the medicine of the patient before very fall. Elderly people assess their abilities of moving and keeping their balance very negatively. This property regarding persons which were defeated by a fall, which and of the ones which are afraid that they can fall down. These are exactly fear, rather than objective loss of the efficiency, forces the elderly person to assume the attitude passive, reducing the plausibility of the fall. A so-called vicious circle is created: the relinquishment of the physical initiative conducts negotiations for worsening the function respiratory, of the circulation, motor organs and a general mental state of the patient.

Team after fall regarding c 20-25 % elderly people which fell down. One should not underestimate this phenomenon, because team after fall is a quite frequent occurrence in the long-term care. Results of this phenomenon mean among others worsening the quality of life for elderly people, withdrawal. Fear seizes patients, quite often verge on depression. Also disorders of functioning of the organism resulting from restricting the physical initiative reach it. As a result of appearing problems with the locomotion and keeping their balance patients are completely dependent on the medical staff or third parties. [22]. Worsening functioning results in imposing greater obligations on the family/carer of the elderly person, and at the large deficit of the physical activity what in consequence can supply for putting in the institution about protective character.

Falls are also enough the most frequent cause of the hospitalization, hasten the need to provide the permanent care of the older person at home, extend the time of the stay in hospital and increase the demand for the specialist care. [16].
The geriatric rehabilitation is aimed at taking into account all forms of the therapeutic influence. In her line-up she embraces: the kinesipathy, physiotherapy, the therapeutic massage, the occupational therapy and the orthopedic supply as well as the support equipment.

- **Kinesipathy**

He is a base of the rehabilitation of the elderly. She is applied in the form of individual as well as team exercises. Also passive exercises are valuable, since don't strain the cardiovascular system. However practicing exercises are administered individually under control of doctor/physiotherapist. Persons training in the older century systematic in the therapeutic team much correct their both physics and psychological function. According to Stefaniak older persons can be burdened with even a systematic weight training under the condition of avoiding of static loads to the benefit of the dynamic work. Competently the administered weight training also in the dimension of three individuals every week for 6 months lowers the concentration of cholesterol and triple of glycerides. A noticeable improvement of the function of the cardiovascular system takes place, improvement of coordination visual-motor and of also a mental state of the patient. [9].

At elderly people taking the little initiative falls happen three times more oftentimes than at persons taking regular exercise. The training program being aimed at preventing appearing of falls should contain the following elements:

- Weight training;
- Exercises sensomotoryczne having a positive effect on a deuce and/or endurance exercises;
- Eliminating outside risk factors.

Weight training (with difficulty) should be conducted by elderly persons, to say the least twice a week for 20 minutes. It is possible to carry them out on devices for resistance exercises if necessary also to use the resistance tape, weights or the edging put by the psychotherapist during exercises. Such a training should include the set of more or less 8-10 exercises which the most important muscle groups would involve. The number of repeating each of these exercises should take out 8-12. Resistance exercises it is possible to make in the group or individually. The initial edging for exercises is drawn up on the base e.g. of isolated test of the maximum any contraction. It is keeping the maximum weight which elderly people can pick up once, in addition soundness. Also in case of applying devices for the weight training as well as very resistance tapes whether it is possible to administer the dumb-bells volume of the resistance. More low model exercises were described resistance.

Exercises sensomotoric are these are exercises which do the deuce good as well as in the significant way lower the risk of falls amongst elderly people. Elements of equivalent, coordinating and stretching exercises are included in their line-up. It tell to conduct them every day at least for 10 minutes. One should however pay special attention to the good posture of the patient while performing exercises. For that purpose it is possible additionally to lay on the head.

However an endurance training which also does good the improvement in the deuce and the motor coordination plays an important role in the prevention of collapses. Efforts are most beneficial for the health of elderly people submaximal. It should be conducted, to say the least twice a week for the minimum of 20 minutes. It at present think that reducing the risk of the fall at elderly persons even is possible about 40 %. Hence the guard into the daily living of elderly people, peculiarly burdened with the increased risk of the fall, to weave in the right university class which improve the physical activity. [15].

Any type of the rehabilitation should grasp the "learning of laying an egg" also, with aim of cushioning effects for her. It is very difficult, since exercises of falls performed by patients which alone they can lead to fractures and injuries remain dubious. [3].

**Physiotherapy**

In physiotherapy different physical stimuli are applicable. However amongst many diverse recommended treatments the elderly best tolerates thermal treatments. Unfortunately however the prolonged heat treatment can deepen senile osteoporosis. One should take into account disorders appearing at the elderly of feeling also very often. After considering all clinical contraindications
the large portion of physical treatments can be applied in geriatrics, as the supportive therapy treatment. But at the elderly the type of very treatment, the place of performance, the duration, the number and the recess between treatments but also sequence of treatments must closely be specified and be under the permanent supervision and the inspection of the physiotherapist as well as the control of a consultant.

Therapeutic massage

He has a considerable application in geriatrics on account of small burdening elderly people at the great therapeutic influence on his tissues. It is applied mainly in the prevention of diseases of the motor organ and neurological diseases. Well massage tolerated by geriatrics improves the blood supply to tissues, of them trophic, metabolism of muscles and reduces pain complaints.

Occupational therapy

The occupational therapy constitutes supplementing the kinesipathy. In case of the appearance of irreversible changes he lets for developing substitute functions. The occupational therapy in case of the geriatric has a considerable advantage over other types of the treatment, because puts the concrete objective which he is supposed to reach before him. Performing the specific work not only in the occupational studio, whether in the own garden, club of interests restores the mental balance. Thanks to the concentration of the attention it get lowering of pain threshold. The repeated move by elderly people is the best manner of the re-education and the automation. However through recording motor templates a sequence of conditional reflexes comes into existence.

The orthopedic supply and the support equipment

At elderly persons they play the very important role, because a huge number of patients uses them. It have a great importance above all for the safety of moving and reducing the risk of falls. This basic supplying older patients is with chronic illnesses of the motor organ, after injuries as well as after operation treatments. Equipment intended for geriatrics must be light, user-friendly, esthetic and functional.

Orthopedic footwear intended for elderly people must be light, warm as well as simple to take and to establish and stabilizing the ankle as well as with non-skid soles. Older patients quite often require supplying with a wheelchair.

From economic reasons to the program of the geriatric rehabilitation one should implement the prevention of collapses at elderly people. Such a program should contain rules of conduct being aimed at a reduction in disorders of the static and dynamic deuce in itself. The elderly person which is exposed to the risk of the fall should apply the support equipment such as: walking stick, tripod, walking frame, baby walker. [9].

Falls amongst elderly people rank among so-called large geriatric problems. It result behind themselves in a lot of, both physical and economic-social consequences. It also contribute to lower the physical fitness, losses by elderly people of the self-confidence. It is necessary to prevent falls, implementing proper preventive proceedings earlier. Systematic tests, evaluation of the deuce will be the most essential things enabling to determine the degree of risk of the fall. Thanks to such proceedings we will be able to lower the risk of the fall at elderly persons.

In case of already existing falls they frighten the person a rehabilitation which has in its line-up will include: the kinesipathy, physiotherapy, the therapeutic massage, the occupational therapy and the orthopedic supply. It is necessary to devote more time to elderly persons, to limit extrinsic factors which increase the risk of the fall, to teach acting in case of very fall. Thanks to such intervention elderly people will feel most more probably in the environment which surrounds her, will know how in case of the fall he is supposed to act.

Falls amongst the elderly are a very considerable problem for them alone as well as of persons which are in the neighborhood closest to them. Falls are main cause of a sense of helplessness amongst elderly people. Therefore delivering to them all fullbacks is our task in order to change setting them so that feel needed.
Conclusions:
1. Collapses appear more oftentimes at elderly persons than at middle-aged people.
2. Every fall results behind itself in, health, economic and social consequences.
3. The risk of falls is increased along with age of sick person and with complication.
4. At persons exposed to falls implementing the appropriate programme of the prevention is an essential element.
5. Every sick person should be provided with the rehabilitation which will be aimed at a reinstatement of the physical fitness and the deuce.

Bibliography

ROLE MODELS AND LIFE-SAVING EDUCATION IN POLAND

Wojciech Wiesner
University School of Physical Education, Wroclaw, Poland

Number of characters: 29 300 (with abstracts). Number of images: 0 x 1000 characters (lump sum)= 0 characters. Total: Number of characters: 29 300 (with abstracts, summaries and graphics)=0,73 spreadsheets publishing.

Key words: rescuing the drowning, axiology, personal philosophy of education.

Summary

Saving a drowning person, apart from technical dexterity, requires from the rescuer the full conviction of human’s life worth. This conviction actually constitutes the vocation for the role, in which one serves other people devotedly. It is a will to help the weaker, suffering human being. This aspect calls for referring to the values that have their roots in deep humanism of lifesaving actions. Lifesaving education aims at proper shaping of a rescuer. It aims both at preparing people to undertake efficient life-rescuing actions and developing their personality through saving other people’s lives. One needs to realize that saving a man’s life has a fundamental meaning to the personality of the lifesaver. Then a strong feeling of good deed being done dominates. This virtue enriches and becomes a source of inner pursuit of perfection. Thus, one can consider education for life-saving as well as education through saving people’s lives.

In pedagogical actions an important role is played by a role model being both a moral authority and a carrier of values. The hereby considerations concentrate on the person of St. Jacek (St. Hyacinth of Poland), who thanks to his efforts and service was regarded as a patron saint of the flooded people, sailors, navigators and people in danger of drowning; and on the person of general Mariusz Zaruski – a patriot, soldier, educator, artist, painter, life-saver and mountain tourist.

Introduction

A superior role in pedagogical efforts is played by the role model, which is a carrier of values such as a human’s life and its protection. So far, in the lifesaving education of WOPR (Voluntary Water Rescue Service) no such authority has been established yet. However, it does not mean that there are no such authorities – role models – in the history of life-saving. I would rather think that there was a lack of conviction and consequence in promoting the proper attitudes. The present considerations reveal a need to call for role models who would be the patrons of Polish lifesavers. The person of St. Jacek can be the person who, thanks to his actions and service, may become the patron saint of life-savers. St. Jacek already patronizes the flooded people, sailors and navigators and people in danger of drowning; and on the person of general Mariusz Zaruski – a patriot, soldier, educator, artist, painter, life-saver and mountain tourist.

Another authority may be general Mariusz Zaruski, whose versatile and heroic activities in the social field, especially his educational and life-saving activities, deserve recognition and admiration.

The achievements of saving the lives of the drowning people by two other men – Hieronim Gostomski and Józef Radwan, who are often discussed in the life-saving history – are also worth considering.

Upon discussing the issues of role models for life-savers, the heroic deeds of ordinary men – Kamil Dziubek or Zenon Bem – who did not have any life-saving qualifications and died rescuing the drowning people, are also worth considering.

Life-saving education and role models

Educating life-savers, apart from arming a professional rescuer with skills and expert knowledge, is aimed at a human being who has to make a decision and an effort to help a person in

---

need of a rescue. In the process of life-saving education a rescuer is a subject, in which one has to arouse and develop a feeling of self. This self is always the aim of education. Education can be thus considered as evoking the self in the person being educated. Thereby the process of educating aims at making a human being more human, who lives in order to be and not to have. The person who is being educated functions for another person, not for some indistinct other people (Wojtyła 2000). It is a sentence especially worth headlining in life-saving education.

The above assumption is close to the personal philosophy of education. In this understanding of the education process the role model plays a crucial role. Krawczyk (2013, p. 1) understands role model as “a complex of personality traits to which a member of a given group aspires, upon needing to be in accordance with the group’s postulated or actual system of values and norms”. One is a personality model when one realizes an ideal of perfection through their life, when one is a good example for others to follow.

A model is often an authority, master or a teacher. “In order for a role model to have an educative effect, for example in the process of education, which is always a process of realization of given values, it should have certain axiological references” (Noga 2013, p. 1). A model often has a normative sense. In the educational process a role model can be either a historical figure or a fictional one, for example a character from a book, film or even computer games. It can be then described as an empirical model, manifesting itself in the actions of a certain social group (Filipiak, 2000, Krawczyk 2013, Noga 2013).

Upon searching for a role model one should avoid an exterior authority, basing on strong power. One does not need to educate for that model (Kostyło 2008). A fundamental work by Adorno (1950) on authoritarianism as well as the author’s own research on the authority of a teacher (Wiesner 2005) prove that. In contrast to the exterior authority, an inner (ideological) authority may become the role model, which is based on the recognition of values followed by the individual (Kostyło 2008, also Sośnicki 1958).

Relating to the role models should be applied on all levels of life-saving training. We can profile altruistic attitudes, introduce life-protecting actions from the earliest years of life (Wiesner 2003). Already in small children one can develop the empathic feeling of compassion for other people’s sufferings, the feeling of responsibility for others, compassionate attitudes and arouse the understanding for the helplessness of others (ibidem).

A natural tendency to search for role models can be observed amongst children (Noga 2013). In the process of life-saving education of children and pupils one can create heroes close to the mentality and emotions of this generation. I should, however, warn against narrowing down the role model to the idol created by pop culture. A criterion of relating and verifying of such role models are universal absolute values and they will verify the authentic value of a given role model.

**Life-saving education as the axiological education**

_Temporamutantur et nos mutamur in illis._ Times change and so do we. Also the conditions and forms of organization of water life-rescuing services in Poland change. There is a dynamic process of new entities coming into being, that act in the area of water safety and saving the drowning. This diversity of entities is not a pejorative phenomenon, provided that the essential message of rescuing remains unchanged (and it cannot change). This message originates with the will to help other human beings. Saving the drowning person requires from the rescuer the full conviction about the worth of human life. This is where the humanism of rescue actions lies. Appealing to the highest values is a platform of understanding between the entities dealing with water rescue services. Times do change, but the universal values cannot.

The life-saving education aims at shaping the rescuer as a person fully mature in the axiological aspect (Wiesner 2011). This maturity plays a crucial role when taking decisions in the face of a conflict of motivations or opposing reasons (Denek 2011). For instance, the decision to give up rescue action because of high risk or the dilemmas of triage during group drowning. Taking these difficult decisions requires from the rescuer the axiological maturity. “A mature person is

---

faithful to some values, but does not follow them blindly” (Węgrzecki 1994, p.21). Konaszewicz (1994, p.66) thinks that the axiological maturity of a person is expressed by the level of his autonomy, independence and honesty in understanding the motives of his actions. Węgrzecki (1994) says that the values and acting in accordance with them should not be comprehensive, because it is a result of free choice and axiological maturity. He understands axiological maturity as an efficiency in relating to the values expresses by the needs, sensitivity, stance, knowledge, etc. This efficiency is subject to the axiological education process (ibidem). “It is a need, especially urgent nowadays, when “the death culture” attacks so aggressively “the culture of life” and often seems to overpower it” (Jan Paweł II, 1995, r. 87). Noga describes the situation as a “deep, wide-ranging axiological crisis of many walks of life” (Noga 2013 s. 6).

Olbricht (1994), reminds in this context the three triads of values:

- truth, **good** and beauty (ancient Greece);
- faith, hope and **love** (Christian virtues);
- liberty, equality and **fraternity** (the French Revolution).

In the mentioned systems of values a fourth triad is included, which can be adapted for the life-saving education. It is made by the values telling us to do good, love others and being brotherly towards others. Thus is seems that in the education of lifesavers there have to be the rudiments of axiological education (Wiesner 2007, Juszkiewicz 2009). Axiological education has therefore its deep justification in the process of educating the rescuers.

Saving a drowning person, apart from technical dexterity, requires from the rescuer the full conviction of human’s life worth. This conviction actually constitutes the vocation for the role, in which one serves other people devotedly. It is a will to help the weaker, suffering human being. This aspect calls for referring to the values that have their roots in deep humanism of lifesaving action. Wiesner (2011, p.194) says that “life-saving education is directed at existential values – human life and the dangers to it”. An incomparable value of a human life finds it theological wording in the Pope’s encyclical “Evangelium Vitae”. “Human being is called to live his life to the full extent, which greatly transgresses the dimensions of his earthly life, because it consists in taking part in the life of God himself. The importance of the supernatural vocation shows the greatness and immense value of human life also in the earthly phase. Living in time is but a basic condition, beginning phase and integral part of the whole, indivisible human existence” (Jan Paweł II, 1995, r. 2).

The human life is the highest value, having an absolute, universal and autotelic dimension. Autotelic values are characterized by being lasting, eternal and unconditional. This truth cannot be made relative. “The worth of human life is the basis of all other human rights. If we make it relative, all other laws will be made relative, especially that today’s civilization and culture are doing their best to treat everything as relative values” (Hoser, 2013). Human life – as the ultimate value, is the reason enough for saving a drowning person (Wiesner 2007, p. 107).

Helping with devotion is not biologically determined, but it is an outcome of conscious choice and can be developed naturally or shaped via education (Wiesner 2011). Wiesner (2007) emphasizes the mutual dependence of life-saving education and axiological education. Not only forming a mature rescuer requires educating in the sphere of values, but it is also the practice of saving a drowning person’s life that influences the development of a rescuer’s personality through a strong feeling of good deed being done. Educating through saving other people’s lives manifests itself as forming the responsibility for others, the feeling of duty and obligation. Life-rescuing service teaches controlling one’s emotions, especially anxiety, develops courage (ibidem). Altruistic

---

3 “One can give many examples of enormous satisfaction that a man feels who saved other person’s life or took part in the action of a group of rescuers. An ordinary man becomes a hero. His reactions and feelings influence his personality for a long time. It seems that a strong feeling of a good deed being done persists. This value enriches and becomes the source of inner pursuit of perfection” (Wiesner 2007, p. 110).
stance is shown in the life-rescuing actions\textsuperscript{4}. Life-rescuing feedbacks the motives of helping other people, which Hoffman (2006) calls the emphatic stimulation\textsuperscript{5}.

We should also observe that by life-saving training we may create the pedagogical alternative to the widely spreading social pathologies – insensitivity, nihilism, as well as hooliganism, drug addiction, violence and others (Wiesner 2003).

**Role models in the tradition of the Polish water rescue services**

So far, no role model has been promoted in the water life-saving education. It is an issue that may limit the effectiveness of educative efforts of water rescuers. There may be many reasons for such a situation, but it is not, however, caused by a lack of personal examples. One can give examples of both people from the beginning of the foundation and development of water rescue services in Poland, as well as amongst the contemporary rescuers. Also the Honorary Members of WOPR\textsuperscript{6} may serve educational aims.

There are also examples of heroic deeds amongst people who were not professional rescuers. I should remind again the heroic death of Daniel Dziubek in the waters of Kaczawa river. This seventeen-year-old boy died on March 19\textsuperscript{th}, 2005 in Świerzawa in Lower Silesia when saving the life of his friend (Wiesner 2005). Another example of heroic stance is given by Burski (2012). Upon saving a man drowning in Jeziorko Czerniakowskie, Zenon Bem died, a nineteen-year-old pupil of Miejska Szkoła Budowlana in Warszaw. His mother founded a commemorative stone with a moving inscription (ibidem, p. 54).

In the many textbooks and books on water rescuing the problem of role models was not discussed. Most of the authors only limit themselves to short mentions of the history of rescuing in the world and in Poland\textsuperscript{7}. These publications do not refer to original sources and historic materials, but quote and duplicate the information from the pioneering works of professor Mieczysław Witkowski\textsuperscript{8}. This leads to over-interpretation of some facts, and even to their distortion. For instance, in a short historical note on the friars of a monastery in Sandomierz in the works of Mozer (2007 p. 7 and 2011, p. 8) there is an information about a training in helping the victims of Vistula river. According to my information acquired directly the chancellor of Sandomierz curia, the quoted „help for the victims of Vistula River” included material losses of the local people as a result of a flood and it was not a life-rescuing training. There are credible sources informing about the actions of the order of the Jesuits form the monastery, hospital and school founded by Hieronim Gostomski.

Another example of over-interpreting the facts is ascribing the idea of saving the drowning people to the Kalisz Rowing Society (Kaliskie Towarzystwo Wioślarskie). The Society was founded in 1894 as a District of Russian Tzar’s Drowning Rescue Society. It was the only chance to legalize a Polish organization in the Russian empire (Zmyślony 1994, Nowak 2009). One has to admit, however, that the Kalisz rowers did take up water patrolling service by Prosna river (Zmyśłony 2004). Moreover, by the effort of the Society a textbook of dr Leon Wernic “How to save the drowning?” was published (Wernic 1902). In 1905, that is after 10 years of functioning, the name was changed to Kalisz Rowing Society (Kaliskie Towarzystwo Wioślarskie), in accordance to its profile (Zmyśłony 1994, Nowak 2009).

\textsuperscript{4} I should recommend a dissertation by Śliwak (2001) on the altruistic personality.

\textsuperscript{5} Emphatic stimulation is also called compassionate suffering (Hoffman 2006).

\textsuperscript{6} At present there are 57 people on the WOPR Honorary Members List (http://www.wopr.pl/ as of 12 April 2013);


The duplicated and popularized date 1898 as the year of founding the Society is also wrong, as it was registered in 1894\textsuperscript{9}. The mistake originated with publishing the list of members of the Kalisz District of Tsar’s Society for Rescuing the Drowning (Wernic 1902).

Limiting oneself only to copying information like the so-called „Chinese whispers” causes that consecutive publications do not create the premises for showing the traditions and role models of water rescue. It does not, however, diminish the role of these publications, as they are an important contribution to the dissemination of the knowledge of how to rescue the drowning people\textsuperscript{10}.

It is worth, nonetheless, to popularize the heroes of the mentioned historic events. Especially the person of Józef Radwan deserves to be presented in greater detail. He was the founder of the Kalisz Division of Russian Tzar’s Water Rescue Society. He was an outstanding social, cultural and patriotic activist\textsuperscript{11}. A lawyer by profession, he was a journalist, publisher and a printer. Together with a group of rowing boat youth he took part in the 1920 Battle of Warsaw. After Poland regained its independence he was a chairman of the Polish Rowing Society (Zmyśłony 1994).

Life-rescuing education may also adapt the role model of another hero connected to water rescue. General Mariusz Zaruski may be the perfect role model. He lived from 1867 to 1941 and he was a deeply engaged and active person in many walks of social life, which is illustrated by Table 1. Among many of his achievements one should underline the facts connected to his activities in Zakopane in the 1907-1914 period. He was an active skier, mountain guide and mountain rescuer\textsuperscript{12}. As a founder of TOPR, he was its first Chief and the author of the oath taken by the new mountain rescuers\textsuperscript{13}. The text of this oath was an inspiration of the oath taken by the WOPR rescuers\textsuperscript{14}.

Mariusz Zaruski is considered a pioneer of Polish sailing and naval education. In his naval career, he was a sailor (graduated from Naval School in Archangielsk), commanded many ships, with the most widely known training ship “Zawisza Czarny”. During WWII Zaruski was arrested in Lwów and put in NKWD prison in Cherson. There he fell ill with cholera and died in 1941, away from his homeland. His symbolic grave is in the Old Graveyard in Zakopane\textsuperscript{15}.

\textsuperscript{9} In 1998, WOPR solemnly celebrated 100 years of organized water rescue services in Poland. As one can see – they were in the wrong.


\textsuperscript{11} „as a result of insistent efforts of Radwan and a group of activists centered around him, and the favour of Kalisz governor Michail Piotrowicz Daragan, an enlightened man favoring the Poles, a Kalisz District of Russian Tzar’s Water Rescue Society was formed in 1894 (original name: Imperatorskoje Russijskoje Obszcziestwo Spasanija na Wodach).” (Nowak 2009, p. 8).

\textsuperscript{12}http://pl.wikipedia.org/wiki/Mariusz_Zaruski

\textsuperscript{13}”I, hereby signed [...] in the presence of Chief of Rescue Service, Mr. [...] and a witness, Mr. [...] solemnly swear out of my free will that while I am healthy I will obey every call from the chief or his Second-in-command – regardless the season, time of the day and weather – and stand ready in the set place and hour adequately equipped for the expedition and will go into the mountains according the route and directions of the Chief or his Second-in-command in order to search for the lost person and help them. I will strictly obey the rulings of the Charter of the Rescue Service and the Regulations for the active members, as well as the Chief’s orders, his Second-in-command and the Directors of Units. I will carry out my duties solemnly and dutifully, remembering that human life may depend on my actions. In total consciousness of the difficult duties undertaken and to show my good will I confirm my oath by shaking the hand of the Chief”. TOPR Charter http://www.topr.pl/html/pdf/dok_topr/statut_TOPR_29.10.2011.pdf

\textsuperscript{14} The oath of WOPR rescuers was elaborated by Stanislaw Knoff.

\textsuperscript{15} (ibidem)
A compilation of the most important facts in the life of Mariusz Zaruski.
Based on Mariusz Zaruski, http://pl.wikipedia.org/wiki/Mariusz_Zaruski

<table>
<thead>
<tr>
<th>Function</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independence activist</td>
<td>Underground activist, sent to Siberia (Archangielsk)</td>
</tr>
<tr>
<td>Soldier</td>
<td>Member of the Legions, soldier, general of the brigade of the Polish army</td>
</tr>
<tr>
<td>Teacher</td>
<td>Scout instructor of ZHP and the tutor of the youth</td>
</tr>
<tr>
<td>Artist (Academy of Fine</td>
<td>Photographer, painter, poet, writer</td>
</tr>
<tr>
<td>Arts)</td>
<td></td>
</tr>
<tr>
<td>Mountain tourist</td>
<td>Mountaineer, cave explorer, skiing instructor, hiking instructor</td>
</tr>
<tr>
<td>Man of the water</td>
<td>Sailor, navigator, traveler, captain of Zawisza Czarny</td>
</tr>
<tr>
<td>Life-saver</td>
<td>Founder of TOPR (Tatra Mountains Voluntary Rescue Service), author of the rescuers’ oath</td>
</tr>
</tbody>
</table>

Mountain rescuers, as opposed to water rescuers, have many role models, who are amongst the pantheon of the well-deserved authorities. Apart from Mariusz Zaruski, one can mention Klemens Bachleda, Stanisław Byrcyn Gąsienica, Maciej Sieczka, Jędrzej Wala, Józef Gąsienica Wawrytko and many others. These rescuers were the heroes of poems, short stores and paintings. Most of them lie in the historic necropolis in Zakopane. Thus legends are being made, but also valued role models for education are being created.

**St. Jacek as a role model and patron saint of water rescue services in Poland**

In the light of hitherto considerations a person completely omitted in the life-rescuing education is worth reflecting on. Jacek Odrowąż (around 1183–1257), the first Polish Dominican friar, is one of the most worshipped Polish saints outside Poland. He is considered to be a big moral authority, an exceptional preacher and a skilled diplomat. Up until nowadays many miracles are happening through his intercession.

The hagiography of St. Jacek, amongst many other miracles, includes also the miracles related to water. It is undoubtedly why he is the patron saint of the flooded, sailors, navigators and people in danger of drowning (Tab. 2).

**TAB. 2**

A selection of miracles of St. Jacek connected to water life-rescue.


<table>
<thead>
<tr>
<th>YEAR</th>
<th>EVENT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1221</td>
<td>Raising from the dead of a drowned man</td>
<td>Drowning in Raba river in the village of Proszowo</td>
</tr>
<tr>
<td>1222</td>
<td>Walking on water</td>
<td>Wyszogród. St. Jacek and Dominicans: Florian, Godymin and Benedykt are crossing the Vistula river on a blanket, not able to find a boat or a guide. After praying, he said to his companions: “Come and follow me in the name of Christ” and started walking on water without sinking in it. Because none of his companions wanted to follow him, he threw a blanket onto the water and said: “May this blanket, my dearest sons, be a bridge of Jesus Christ, upon which we shall cross this mighty river in His name”. And so they did…</td>
</tr>
<tr>
<td>1253</td>
<td>Raising from the dead the knight</td>
<td>On his way to visit the place of martyrdom of St. Stanisław, St. Jacek raised form the dead a young man called Piotr who</td>
</tr>
</tbody>
</table>

![Image](http://pl.wikipedia.org/wiki/Kategoria:Ratownicy_TOPR)
called Piotr had drowned in Raba river in the village of Proszówki, located 2 km from Bochnia.
Taking the drowned man’s hand in his, He prayed:
“Peter, may Jesus, whose glory I propagate, with the help of the Blessed Virgin Mary bring you back to life”.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1257</td>
<td>Raising from the dead of a young man</td>
<td>Drowning in the village of Żerniki.</td>
</tr>
<tr>
<td>1257</td>
<td>Raising from the dead a man called Wiesław, who drowned in the Vistula</td>
<td>St. Jacek prays by the river to recover the body of a drowned young man. The corpse with God’s aid floats to the riverbank. Then the Young man’s mother begs: “Blessed Jacek, you gave me back my dead son, and now give him back alive”. Then Jacek said: “Son Wiesław, may Jesus, in whom everything is alive, bring you back to life”. And the dead man arose.</td>
</tr>
<tr>
<td>1493</td>
<td>Raising from the dead a servant of a priest</td>
<td>Kraków. Raising from the dead a servant of a priest who drowned in Vistula river.</td>
</tr>
<tr>
<td>1499</td>
<td>Raising a boy from the dead</td>
<td>Drowning in Kraków in Garbary.</td>
</tr>
</tbody>
</table>

Including a person into the ranks of the saints by canonizing them is a sufficient moral recommendation of a human being. The status of a saint is a value in itself, and it may serve the educative purpose. St. Jacek is, in this sense, a model of altruistic stance, sensitive to human needs and suffering. His deeds can be the example for people serving others (Pater 2013).

“Is there a resemblance in the actions of a saint and contemporary water rescuers?” – wonders Father Dariusz Pater, PhD17 (ibidem, p. 10). And he concludes, that “an in-depth analysis proves that there is. Water rescuers, who fight the mighty powers of Nature, often “work miracles”. They save the drowning people, restore breath in the unconscious, salvage the belongings” (ibidem).

**Conclusion**

By saving the life of another man we enrich our personality with the highest values. In the life-saving education one can therefore not omit the axiological education, referring to the absolute values. They are the manifestation of the human pursuit of safe life and wellbeing. They are characterized by their durability and they are unconditional. Accepting absolute values by a life-saver is conductive to the process of motivating him to perfect the SELF, including the reinforcement of skillful life-rescuing actions. The educational process is an outcome of conscious efforts of the life-rescuer to shape his self.

Axiological education needs to be carried out also outside the professional water life-rescuing groups, since the effectiveness of educational actions is influenced by the family, school, religious community as well as peer groups. A system of values shaped by the aforementioned groups calls for a support, which should be given by an authentic role model. As my considerations have shown, one of important role models can be the person of St. Jacek Odrowąż. He is somewhat connected to the water life-rescuing by the scope of his miracles and the axiological sphere of his service to the others.

---

17Theology Faculty of UKSW in Warszaw;
Bibliography

7. Chudy W., (2006), Istota pedagogiki personalistycznej, O nowej edukacji, „Ethos”, 2006, nr 75. R.19, nr 3 s. 52-74
15. Juszkiewicz Z. (1994) Błędy popularyzacji psychologii jako zagrożenie dla pedagogiki aksjologicznej, [w:] Edukacja aksjologiczna, t.1 [red. K. Olbrycht], Wydawnictwo Uniwersytetu Śląskiego Katowice, s. 57-66,
16. Konaszkiewicz Z. (1994) Pływanie w kategoriach wartości, Fall Kraków,
19. Lipiec J. (2001) Świat wartości, Fall Kraków,
27. Olbrycht K. (1994) „Edukacja aksjologiczna” – próba interpretacji i zarys programu, [w:] Edukacja aksjologiczna, t.1 [red. K.Olbrycht], Wydawnictwo Uniwersytetu Śląskiego Katowice, s. 72-83,
37. Sośnicki K. (1958) *Autorytet a wychowanie*, Nowa Szkoła nr 10 s.29,
38. **Statut TOPR**, http://www.topr.pl/ [dostęp 05.04.2013],
39. Śliwak J. (2001) *Osobowość altruistyczna*, KUL Lublin,
43. Węgrzecki A. (1994) *Wolność jako podstawa dojrzałości aksjologicznej*, [w:] Edukacja aksjologiczna, t.1 [red. K.Olbrycht], Wydawnictwo Uniwersytetu Śląskiego Katowice, s. 19-24,
45. Wiesner W. (2005) *Komunikacja dydaktyczna na lekcjach wychowania fizycznego a poziom autorytarzmu nauczycieli*, AWF Wrocław,
47. Wiesner W., in. (2007) *Podstawy metodyczne edukacji ratowniczej*, Matrix Olsztyn,
49. Wojtyła K. (2000) *Osoba i czyn oraz inne studia antropologiczne*, Instytut Jana Pawła II KUL, Lublin,
Additional index words: Water Safety System, drowning.
Drowning is still a serious problem in Poland. According to the police data, 408 people have drown until the end of August 2012, 464 people drown in 2011, 369 in 2010, and in the years 2008 and 2009 respectively 486 and 452 drownings were noted. Analyzing the indicator of drownings for West Pomerania province it is necessary to mark they are still one of the highest in Poland. A big number of lakes, a big area of internal waters and almost 185 km of coastal belt of the territorial sea are some of the environmental determinants which influence the number of drownings. In the period from 01.01.2012 to 31.08.2012 29 drownings were noted, out of which 24 were noted during the period of summer time. Analysing previous years there were 29 people drowned, whereas in the years 2010 and 2011 30 and 25 drownings respectively were noted, what is presented in the table 1.

Diagram 1. Drowning in the Western Pomeranian Province for the years 2008-2012 (data to 31.08.2012).

Water areas and number of drownings in West Pomerania province in 2012: lake – 12, sea – 9, river – 3, channel – 3, pond – 1, the other – 1. The most often reasons of drowning were:
recklessness, poor recognize of water area and poor skills of swimming. There were unintentionally accidents too. All of drowning accidents were noticed on unguarded water areas.

Below analysed number of drownings in particular district of Westpomeranian area in accordance with International Standard of Drowning Evaluation. Drowning indicator presents large variety, depends on number of inhabitants and tourists. For example in Walcz district indicator came 5,53, this result is very high and is not to be found in the World. But indicator amount 0,00 in districts: Bialogard, Goleniów, Police and Świdwin can delight.

Next to drownings it’s worth to say, that 11 accidents arised on water areas weren’t categorized by the Police as drownings. Territorial analyse shows, that the most accidents on the water with death result happened in Szczecin district (4 people), which constitute 36% of all accidents. On the other hand in districts: Stargard, Świnoujście, Kamień Pomorski, Gryfice, Kołobrzeg, Sławno i Szczecinek – in total 7 people.18

Summing up all accidents period 01.01 – 31.08.2012 can confirm that 40 deceases in water in West Pomerania province is still too high number. So the main aim is to reduce this high number through detailed data of accident location, reasons and regards of cases, and circumstances of injured. That can helps to create Water Safety System.19

Efficient safety system can’t be scattered and should have supervision. Perfect prepared to this matter is Wodne Ochotnicze Pogotowie Ratunkowe (WOPR) countrywide non-government association. WOPR is a member of International Lifesaving Federation (ILS), organization which unite 100 countries. Knowledge and experience is used by another members.

WOPR activity consist in rescue actions and prevention. Results of actions afford reveal effectiveness and optimality organization activity as drowning indicator.

<table>
<thead>
<tr>
<th>Rescue actions</th>
<th>Preventive actions</th>
<th>Prophylactic actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Rescue operations in zone A</td>
<td>● Surveillance of guarded sites (including interventions, opinions and audits)</td>
<td>● Learning and improvment in swimming</td>
</tr>
<tr>
<td>● Rescue operations in zone B</td>
<td>● Water patrols</td>
<td>● Teaching self-rescuing and rescuing</td>
</tr>
<tr>
<td>● Rescue operations in zone C</td>
<td>● Coastal patrols</td>
<td>● Confirmation of swimming and lifesaving qualifications</td>
</tr>
<tr>
<td>● Search operations</td>
<td>● Securing water-related events</td>
<td>● Teaching safe swimming and beach bathing rules</td>
</tr>
<tr>
<td>● Rescue operations during common dangers, natural disasters and technical breakdowns</td>
<td>● Diagnosing dangerous sites</td>
<td>● Teaching safe water equipment usage and water activities rules</td>
</tr>
<tr>
<td></td>
<td>● Signage and information about dangers</td>
<td>● Education of safe behavior</td>
</tr>
</tbody>
</table>

In the analysis of tasks being accomplished by WOPR (Table 1) three main measures have been distinguished which may form a specific chain of water safety in Poland (Figure 1). They are, as follows:

− Prophylaxis (prophylaxis of the 1st degree) – actions being taken up prior to execution of proper water activity which prepare both participants and site to its accomplishment in conformity with rules and best practices;

– Prevention (prophylaxis of the 2nd degree) – actions being taken up during accomplishment of water activity based on surveillance and current interventions that counteract drowning incidents
– Lifesaving – rescue interventions and search operations during common dangers

Figure 1. The operation of water rescue organisations in the aspect of realization of certain actions

Management (Prophylaxis, Prevention, Rescue)

During creating Watersafety System in Westpomeranian area analysed informations about realised tasks and effects acquired by government and self-government executives in „Safety Beach” program. Departament Obrony Narodowej i Bezpieczeństwa Wewnętrznego Najwyższej Izby Kontroli (KOB-410-05/2009 nr ewid. 170/2009/PO9/0821K0B) gave instructions after internal control. Recommendations in the most were implemented in Westpomeranian area and with participation of WOPR.

Table 2. Synthesis of the results of audit carried out by the Supreme Audit Office, referring to water rescue functioning.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Selected irregularities recorded</th>
<th>Recommendations</th>
</tr>
</thead>
</table>
| Lack of the analysis and plans for water rescue functioning negatively influence water safety standard | - No analyses prepared concerning safety hazards for swimming and bathing persons as well as for those practicing water sports both at the national (MSWiA) and local level (state and local administration units)  
- No control of water level (local administration units and specialist water rescue organisations) | Development of a complex analysis of the situation of water rescue, including in particular: legal solutions, staff and equipment potential of all subjects accomplishing tasks concerning water safety, and adopted financing system |
| Lack of the system specifying water rescue functioning rules. | - No scope of responsibility in respect of water safety assurance determined for particular subjects  
- Lack of procedures in case of the occurrence of mass water accidents (local administration units) | Undertaking of legislative actions with a purpose to create the legal framework for water rescue functioning including in particular precise regulation and separation of the scope of qualifications and obligations of particular subjects that operate within it |
Adopted model of water rescue financing does not ensure proper realization of tasks.

Lack of reliable evaluation of the size (in relations to existing needs) and the effectiveness of public funds designated for nation-wide water rescue functioning (MSWiA)

Undertaking of organisational actions which will secure commissioning of water rescue tasks in such a way to ensuring the effective usage of public funds as well as their reliable settlement

Unsupervised beaches and lack of information about dangerous sites.

Lack of no-swimming signs in dangerous sites (local administration units, subjects managing particular water bodies)

The development of the final model of the functioning of water rescue in Poland based on the results of the analyses and determination of the mode of its implementation

Lack of uniform communication system.

Lack of country-wide uniform communication system for the needs of running a rescue operation

Undertaking of actions in order to assure direct communication between the subjects running rescue interventions

Since 2009 WOPR has been leading system actions with Western Pomeranian with state government to improve water safety in Province. In 2012 the legal support for WOPR was appeared in 2012 as Safety Act of persons residing in the areas of water. There are four Regulations in this Act: Regulation of the Minister of Internal Affairs of 23 January 2012 of the minimum requirements for the number of lifeguards to ensure constant control of a designated area of water; Regulation of the Minister of Internal Affairs of 27 February 2012 on the requirements for equipment in designated areas of water rescue equipment and auxiliary indication and warning devices and medical equipment, medicines and sanitary articles; Regulation of the Minister of Internal Affairs of 6 March 2012 on methods of marking and protection of water design signs forbidding, order and information signs and flags; and the last very important Regular is Regulation of the Minister of Internal Affairs of 21 June 2012 on training in water rescue.

Legal regulations have important influence for safety tourists at the water. Analyse of water-safety situation in province gives possibility to observe development some water areas and diagnose blind spots. WOPR organise audit process for guarded water areas to recognize needs, workers and equipment potential. It is necessary.

Under the honorary patronage of the governor of the Province authorities and Provincial School Superintendent WOPR accomplishes the action from June to August entitled „Safe Beaches“ within which audits of sea and inland beaches functioning within the area in the province is being carried out. The horizontal objective of this action is to raise the level of involvement of competent local government units, institutions, private owners managers of these objects as well as organisers of holiday and summer camps and other children and youth recreation centres to as best as possible preparation of beaches and water sport-recreational equipment and its operation for summer season and by this to raise the level of safety of inhabitants and tourists.

Audit process conclude analyse of risk at the agreed appointed water areas and conduct categorisation of appointed guarded water area. There are stars awards from 1 to 5. First part is about „Analiza oceny bezpieczeństwa wyznaczonego obszaru wodnego” which conclude: field analyse, access to medical teams, public rescue equipment, marking, information tables, danger occurrencenes, lifeguards equipment. Second part is about element of audit process which is categorisation of appointed water areas. Past analyses provided to verify individual sections corresponding for organisation safety at the water. Data received in this part of audit make possible to conduct statistics, but make possible to permit the summary about water – safety in the summer. Categorisation include 6 sections: organisation and equipment at the agreed appointed water areas, lifeguards qualifications, alarm signalling, social infrastructure and documentation. Very important point of audit process is comparison data in last years and completing deficiencies. Examples are comparison of categorisation at the seaside and at the lake (Diagram 2 i 3).
The results show that adding all categorisation in 2011 allowed for a water safety summary among beaches under audit constitutes 64.25%, while in 2012 mean categorisation score amounted 62.36% which means that it is decrease of organisation and equipment in province about 1.89%. The result depend on committing all the people who are interested in water safety; WOPR in Western Pomeranian Province, the Provincial Government, administration and Local Government.

Besides „Safe Beaches” mobile intervention groups should be indicated. An example of intervention groups that protect the reservoir from the German border on the Oder River and the city Gryfino to the Baltic Sea are intervention groups who cooperate with WOPR in Świnoujście, Kamień Pomorski, Police, Dąbie, Heyki i Dzewoklicz. In the case of inland water areas there are intervention groups which work in Regional Operational Group in the following cities: Myślibórz, Złocieniec, Wałcz, Choszczno, Szczecinek, Goleniów, Gryfino, Stargard Szczeciński, Koszalin. The typical coast intervention group is GI WOPR Kołobrzeg. Besides these groups there are more seasonal intervention groups next to the beaches like Międzyzdroje, Dźwirzyno, Grzybowo, Darłowo, Międzywodzie, Dziwnów, Pobierowo, Niechorze, Ustronie Morskie, Dziwnów, Mielno, Miedwie, Czaplinek, Głębokie, Stepnica, Nowogard, Dąbki. Intervention Groups have lead a wide range of activities safety-related not only in and near beach. They have got involved in implementing projects related to propylactic, ecology and improvement of cooperation between services (joint patrols and trainings).
Centrum Koordynacji Ratownictwa Wodnego (CKRW) coordinate rescue actions execute by lifeguards on the beach and by rescue teams. CKRW came into operation in June 2010 and it was working in the summer period, between 8:00 – 20:00. For 2012 year it works whole year.

Seaside resorts and rescue teams enter to the system by „Report Card” – operating and equipment declaration. All of interventions are registered in on-line application. In season 2012 initiated conveniences to simplify the System. Thanks of it CKRW noticed increase number of reports to 771 (2010 – 275 reports, 2011 – 541 reports).

![Diagram 4. The number of reported interventions for the years 2010, 2011, 2012.](image)

In Szczecin CKRW cooperates closely with Centrum in Sopot in the jointly coordinated emergency phone 601 100 100. CKRW Szczecin work together with Security and Crisis Management Department, Coast Search and Rescue Service, State Police, State Fire Brigade, Emergency Medical Service, Airborne Emergency Medical Service, Border Guard, Municipal Police and others.

![Figure 2. Organisation model of Watersafety System in West Pomerania province.](image)

Process of building a water safety system requires a horizontal look with a mission and view for development of its respective elements operating coherently in professional structural solutions. Proper distribution of operational objectives and tasks over time allows planning of measures and their financing. It is a necessary condition for achieving a hindsight effect in the form of reduction in the number of drowning incidents.
In table 3 presented tasks, which realisation is creating by the World’s directions of development.

<table>
<thead>
<tr>
<th>SYSTEMATIC ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation of researches and works aiming at the creation and implementation of strategy of water safety system development for the West Pomerania province</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROPHYLAC TIC ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- comprehensive system support for a broadly outlined information campaign connected with the signage of dangerous sites, promotion of safe sites and safe bath rules</td>
</tr>
<tr>
<td>- implementation of an information campaign addressed to all aquatic sports lovers, focused on the promotion of safety rules and knowledge of water bodies and lifesaving elements</td>
</tr>
<tr>
<td>- support for prophylactic actions being realized by GI and WOPR members outside summer season</td>
</tr>
<tr>
<td>- running information campaigns referring to water safety involving the largest possible number of partners</td>
</tr>
<tr>
<td>- creation of an education platform for implementation of new guidelines connected with changes in law, for example regular training or conferences</td>
</tr>
<tr>
<td>- continuation of the education process of lifeguards and beach administrators</td>
</tr>
<tr>
<td>- promoting of a catalogue of good cooperation practices between local authorities, recreation organisers and beach administrators</td>
</tr>
<tr>
<td>- continuation of preparing educational environments for teaching water safety and first aid</td>
</tr>
<tr>
<td>- developing of environment through lifesaving sport</td>
</tr>
<tr>
<td>- implementation of projects about how to teach swimming and how to survive in water, especially in school</td>
</tr>
<tr>
<td>- creating an educational center for teaching first aid (Fishing Guard, Hunting Guard, Forest Guard, RDOS, Parks Guard, RZGW, ZMiUW, WIOŚ, PIS, PIW, local governments, the other institutions) and qualified first aid for units cooperating with the system (PSP, OSP, WOPR, SAR, Border Guard, Municipal Police, State Police, Maritime Office, Inland navigation offices)</td>
</tr>
<tr>
<td>- assistance of research actions in range of storm actions control, safety in tourism</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PREVENTIVE ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- running the monitoring of particularly dangerous water sites and running risk analysis</td>
</tr>
<tr>
<td>- running drowning statistics, water accidents resulting in death and individual interventions</td>
</tr>
<tr>
<td>- support for public order services with a purpose to eliminate watercrafts posing unfairly as rescue boats</td>
</tr>
<tr>
<td>- continuation of the categorisation process and distinction of best beaches as promotion of best practices</td>
</tr>
<tr>
<td>- running the monitoring of sites usually used for bathing and of so-called unsupervised beaches</td>
</tr>
<tr>
<td>- continuation of the process of organisers’ education with regard to water safety by inspectors of the Board of Education</td>
</tr>
<tr>
<td>- monitoring of the state of water safety during children and youth’s recreation</td>
</tr>
<tr>
<td>- creation of an informational- warning system for the Odra River, water areas of Landscape Parks, Westpomeranian Sailing Route</td>
</tr>
<tr>
<td>- development of the cooperation with particular institutions i.e. Provincial Office, Marshal’s Office, Board of Education, Provincial Sanitary-Epidemiological Station, National Labour Inspectorate and State Inspectorate of Commerce, Maritime Office, mass media, sponsors and partners</td>
</tr>
<tr>
<td>- common practice training of simulated accidents with participation of WZZK, WCZK and WOPR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESCUE ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>- raising the operability and quality of equipment of GI WOPR</td>
</tr>
<tr>
<td>- modernising rescue teams,</td>
</tr>
<tr>
<td>- selecting management who works year-round</td>
</tr>
<tr>
<td>- implementation of the development of a professional lifeguards career path, including advancement</td>
</tr>
<tr>
<td>- creation of a system of refunding the borne expenses of rescue and search operations</td>
</tr>
<tr>
<td>- creation of a system of refunding the borne expenses of maintainance and readiness of equipment and rescue bases</td>
</tr>
<tr>
<td>- strengthening the communicability between intervention groups, beaches and CKRW (communication, reporting)</td>
</tr>
<tr>
<td>- improvement of the operability of guarded beaches and areas under surveillance by WOPR intervention groups</td>
</tr>
<tr>
<td>- maintenance of the operation time of Water Rescue Coordination Centre during the year in a twenty-four-hour system</td>
</tr>
<tr>
<td>- launching WOPR beach intervention groups being on duty in a „dawn to dusk” or twenty four hour system</td>
</tr>
<tr>
<td>- launching seasonal water ambulance</td>
</tr>
<tr>
<td>- cooperation with other international bodies and ILS with shared goals</td>
</tr>
<tr>
<td>- continuation of the cooperation with particular institutions or services i.e. State Police, CKRW Sopot, State Fire Brigade, Coast Search and Rescue Service, Airborne Emergency Medical Service, Border Guard, Municipal and Communal Police, Emergency Medical Service</td>
</tr>
</tbody>
</table>

**Literature:**
Zalewski T. red., 2010 “Assumptions for the strategy of development of the water safety system on Polish Baltic coast” - Journal of Coastal Research
Zalewski T. red., 2011, Raport z przeglądu kąpielisk i miejsc zwyczajowo wykorzystywanych do kąpieli w województwie zachodniopomorskim. Szczecin 2011”.
Zalewski T. red., 2012, Zmiany w systemie bezpieczeństwa wodnego w aspekcie nowych regulacji prawnych.
ASSESSMENT OF VOLUNTARY LIFEGUARD IN YEARS 2003-2012
ON THE BACKGROUND OF SOCIAL CHANGES

Analiza działalności Wodnego Ochotniczego Pogotowia Ratunkowego w latach 2003–2012 na tle zachodzących zmian społecznych

Andrzej Ostrowski¹, Mirosław Juszkiewicz¹, Marek Strzała¹, Arkadiusz Stanula², Witold Ziara¹, Aleksander Skaliy³, Tetiana Skaliy³

¹Akademy of Physical Education, Krakow, Poland
²Akademy of Physical Education, Katowice, Poland
³University of Economy, Bydgoszcz, Poland

Number of characters: 41 000 (with abstracts). Number of images: 0 x 1000 characters (lump sum)= 0 characters.
Total: Number of characters: 41 000 (with abstracts, summaries and graphics)=1,025 spreadsheets publishing.

Keywords: social changes, in water safety, lifeguard.

Słowa kluczowe: zmiany społeczne, bezpieczeństwo w wodzie, ratownictwo wodne.

Abstract

Introduction: The authorities of the country in order to ensure the safety of citizens cite various types of service. Duties of security in the areas of water, especially divisional rest on Voluntary Water Rescue Team, a specialized association with nationwide coverage. Rescuers VWRT shall review the bathing and swimming, reveal safety hazards of the swimmers and bathers. There are the relevant actors to eliminate the risks, as well as reports and issue of water security.

Aim: Assessment of activities of Water Voluntary Rescue Service in the years 2003-2012 on the background of social change.

Materials and methods: reports,: ZG WOPR, Police Headquarters, CSO, Ministry of Economy, Labour and Social Policy, Institute of Tourism have been analyzed critically, as well as the calculated average amount and percentage of the analyzed research materials.

Results and conclusions: In the years 2003-2012 the number of people in Poland did not increase, however, by joining the European Union has increased significantly affluence. EU subsidies and economic growth have contributed to the construction of numerous centers of sports facilities, including swimming pools. Increase in the number held by the public vessels. It can be assumed that these factors are conducive to learning to swim, public awareness, etc., consequently reducing the number of drowning. A special role in water safety plays a Voluntary Water Rescue, which annually trains new staff, and rescuers of the organization contribute to safety in many water areas. New legislation related to safety result in a change in the system of training and the organization of rescue in Poland.

Streszczenie


Cel: Ocena działalności Wodnego Ochotniczego Pogotowia Ratunkowego w latach 2003–2012 na tle zachodzących zmian społecznych.
Materiał i metody: sprawozdania, raporty: ZG WOPR, KG Policji, GUS, Ministerstwa Gospodarki, Pracy i Polityki Społecznej, Instytutu Turystyki poddano analizie krytycznej, jak też obliczono średnie, sumy i procentowy udział analizowanych materiałów badawczych.


Introduction

Safety is a condition that gives you a sense of certainty and guarantees its improvement. It is one of the basic human needs. It is characterized by the absence of the risk of losing something for the body especially valuable - life, health, work, respect, affection, tangible and intangible property. Security is a central need of a human and social groups, it is also a basic need of state and international systems, the lack of it causes anxiety and insecurity. The man, a social group, the state, an international organization are trying to influence their external environment and the internal sphere, to remove or at least reduce risk by eliminating its own anxiety, fear, and uncertainty (Borkowski et al, 2000). State authorities, taking care of its citizens, cite various departments to ensure security: military, political, energy, environmental, information technologies, social, cultural, and physical. Security may be structural or personal (Zieba, eds 2008).

In terms of security in the water areas in Poland there are multiple services, especially fire brigades, police, and others in different emergency situations. For a huge number of public water areas, especially designated shall be treated as a place for sports, recreation and leisure. Swimming pool is a place for students to attend physical education and sports for athletes of different disciplines. For people with disabilities practice in water is a cure to return to the ability. The water areas are more secure if they are identifiable, limited, designated and supervised by the emergency services. Duties of security in the water areas, especially divisional rest on Voluntary Water Rescue Team. Rescuers of VWRT shall review the bathing and swimming, reveal safety hazards swimmers and bathers. They eliminate the risks, as well they report and issue in terms of water security. Voluntary Water Rescue works with: the National Civil Defence, Police, Polish Association of boating and Waterskiing, Polish Scouting Association, Government Protection Bureau, Ministry of Defence, Polish Resuscitation Council, the State Fire Service, the Polish Association of swimming and others (Telak 2007).

Aim of the study

To evaluate the activities of VWRT in ensuring the safety of the water in the years 2003-2012 against the background of selected changing social conditions. The following research questions are selected:
1. To which extent social change in Poland in the years 2003-2012 could be related to the safety of the water and drowning accidents?
2. What were the actions VWRT in years 2003-2012 to ensure the safety of the water?

Material and methods

The material for the study was the reports of the General Board VWRT for the years 2003-2012 and the statistics of the Police Headquarters in terms of:
- drowning accidents,
- members of the VWRT,
rescuers VWRT having degrees,
attended training courses and conferred degrees,
indoor and outdoor swimming pools and lifeguards employed there.

These materials are available on the website www.wopr.pl and www.policja.pl/portal/st/958/- from April 15, 2013.

In the characterization of the social changes in Poland during this period were used the reports prepared by the Central Statistical Office, Ministry of Economy, Labour and Social Policy, Institute of Tourism, ZG WOPR.

Selected statistics ZG WOPR, Police, GUC subjected to statistical analysis, presenting the results in absolute numbers and percentages.

Based on the results of the analyzed factors characterized the changes over the 10 years, giving it an average and sum. Calculated:

- changes in number of facilities for swimming and bathing in relation to 2003,
- changes in the number of lifeguards WOPR hedging facilities for swimming and bathing in relation to 2003.

The test results

1. Selected social conditions in Poland in years 2003-2012

Among the many conditions that can be related to the safety of the water in this study analyzed the changes related to:

- population growth in Poland,
- increasing affluence of Polish society,
- emigration,
- development of water tourism,
- development of infrastructure for swimming and bathing,
- legal regulation of safety of swimming and bathing.

Population

In 2003, there were 38,205 thousand in Poland, and in 2011 - 38,538 thousand of residents. During this period, according to the Central Statistical Office, Polish population increased by 1.0%. In 2003-2005, the population growth rate in Poland was negative (from -0.4 to -0.1%), followed by 2007 increased the most - by 0.9% in 2008-2010. After this period, there was the release of population growth shown by a change of 0.3% in 2011. Overall, from 2003 to 2012 natural population growth in Poland was 2.7%. It does not include the number of inhabitants, where the difference between 2003 and 2011 was 1.0%. It is supposed that the difference between the birth rate and the population appears due to other conditions, including labor migration. (Pl.wikipedia.org / wiki / Ludność_Polski)

The increasing wealth of the Polish

In 2004, Poland joined the European Union. Membership of the EU has helped Poland in many ways. From the beginning to the present day Poland is Europe's largest recipient of Structural and Cohesion Funds. Poland paid a contribution to the common budget, but the balance of transfers was positive. In the period from 1 May 2004 until 28 February 2010, Poland had paid 16.7 billion euros, and got 38.1 billion, an increase of 21.4 billion euros more than paid. Thanks to EU funds built hundreds of kilometers of new roads, bridges, water supply, subsidies paid to thousands of entrepreneurs, etc. For this amount includes also payments to farmers (wyborcza.biz / business /). The economic crisis in Europe has not undermined the process of catching-up economies "old" EU by Poland and even accelerated. In 2009, Poland was the only country in Europe which avoided recession.

The accelerated flow of funds, higher than by resorting to Polish citizens, the revival of exports and imports, access to the latest technology and many other factors led to the growth of wealth of the Polish society. One of the most objective indicators of affluence is the Gross Domestic Product. GDP per capita is one of the world's most widely used indicators of prosperity of the citizens of the state. It is calculated by dividing the value of the GDP of that country by the
number of its inhabitants. World GDP gap in 2011 amounted to 102,595 $, average global GDP is about 10 thousand $.

The growing affluence of Polish society indicates changes in GDP. In 2003 in Poland, GDP per capita was 11,524 $ (csioz.gov.pl / file.php), while in 2011, already 20,592 $. Between 2003 and 2011 there was an increase of GDP per capita of 78.69%. It should also be noted that there were at that time a distinct change in the dollar. For comparison, the average per capita income in the "old" EU in the same period increased from 23.6 to 26.2 thousand euro. Orlowski (2003) in its report said that despite the growing wealth of Polish society, the gap between Poland and the EU-15 in 2003 was almost doubled. Although, by 2011 it clearly decreased, but the difference was much further, and certainly will not disappear until 2015. This would require a long-term growth rates of 11%, below the threshold in the long run by any country in the world. In Poland, the growth of GDP from 2003 to 2012 despite the continuous averaged 4.19%. The largest increase in GDP occurred in 2006-2008, the lowest in 2009. Detailed results are shown in Table 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>3.70</td>
</tr>
<tr>
<td>2004</td>
<td>5.10</td>
</tr>
<tr>
<td>2005</td>
<td>3.30</td>
</tr>
<tr>
<td>2006</td>
<td>6.20</td>
</tr>
<tr>
<td>2007</td>
<td>6.70</td>
</tr>
<tr>
<td>2008</td>
<td>5.00</td>
</tr>
<tr>
<td>2009</td>
<td>1.80</td>
</tr>
<tr>
<td>2010</td>
<td>3.80</td>
</tr>
<tr>
<td>2011</td>
<td>4.30</td>
</tr>
<tr>
<td>2012</td>
<td>2.00</td>
</tr>
<tr>
<td>Average</td>
<td>4.19</td>
</tr>
</tbody>
</table>

Labour migration

Polish accession to the European Union has removed many of the barriers related to tourism including paid. many new permanent labor markets have been opened up to Polish citizens. For example, in 2011 the Polish borders were crossed nearly 43.3 million Polish citizens traveling to other countries. This was 500,000 more than the previous year. Among crossing the border were 6.3 million tourists, or those who have spent outside the country for at least one night. The aim of 49% of Poles traveling abroad was typical tourism, trips to visit were 29%, business trips - 17%. (Intur.com.pl / statystyka.htm). Among those declaring these forms of tourism was part of the Polish population emigrating for economic purposes.

Every tenth adult Pole declared that in the last decade has worked gainfully employed abroad. This means that seeking for bread 3.3 million of people has left. Migrations have become so common in recent years, especially after the Polish accession to the EU for people aged 25-34 that we can talk about a generational experience. Also youth - at the age of 18-24 associate with their future with work abroad (Sendrowicz 2012). From 2006 to 2010 the Polish emigrants sent to the country from 2.335 to 2.679 million per year (prawica.net/28681). It was one of the elements of the enrichment of the Polish society.

The development of nautical tourism in the country

In studied in 2004 "Development Strategy of sport in Poland until 2015 is indicated that in order to reduce the gap, which in this area divides Poland and the European countries, the Polish sport infrastructure one of the two trends was the expansion and modernization of basic sport facilities in the area including indoor swimming pools. This program is assumed to finance the construction of indoor swimming pools so that by 2010 the number rose to 1050 (in 2010, according to statistics WOPR was 663 indoor swimming pools), and 2015 to 1400, the state of 916
pools in 2004 (in 2004, by WOPR statistics, there were 417 indoor swimming pool, which is less than half were published in this report).

Despite large differences in the forecasts and statistics should be noted a marked increase in the number of indoor swimming pools. Emerging objects were allocated increasingly to the wider society, built as aqua parks, recreation and swimming pools with fun activities. In 2012, Poland had 172 such objects: Dolnośląskie (18), Kujawsko-pomorskie (6), Lubelskie (3), Lubuskie (7), Łódzkie (10), Małopolskie (19), Mazowieckie (24), Opolskie (4), Podkarpackie (11), Podlaskie (7), Pomorskie (4), Śląskie (16), Świętokrzyskie (6), Warmińsko-mazurskie (7), Wielkopolskie (20), Zachodniopomorskie (10), in total 172 objects (wodne parki.pl).

In Poland, in addition to swimming and bathing, society cultivated many other forms of aquatic environment, especially sailing. Annually Polish Yachting Association gave around 15 thousand patents and approximately 150 sailing instructor legitimacies. Sailing patents are the documents which certify to use yachts longer than 7.5 m, which were in a small minority in inland waters. On the Baltic Sea under the Polish flag floated about 300 boats, and on inland waters - more than 60 thousand yachts (Sial-ho.pl). The introduction of the Regulation of the Minister of Sport of 9 June 2006 on the sailing, where laws allow to run without patents sailing yachts (up to 7.5 m) and a motorboat on engines up to 10 kW, and increasing year by year the number of vessels not the effect of increasing incidents of drowning. This is exemplified in the following table 2.

<table>
<thead>
<tr>
<th>Year</th>
<th>Wywrotki jedn. pływ.</th>
<th>Wypadnięcie za burtę</th>
<th>Together</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>19</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>2004</td>
<td>20</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>2005</td>
<td>14</td>
<td>16</td>
<td>30</td>
</tr>
<tr>
<td>2006</td>
<td>12</td>
<td>18</td>
<td>30</td>
</tr>
<tr>
<td>2007</td>
<td>21</td>
<td>5</td>
<td>26</td>
</tr>
<tr>
<td>2008</td>
<td>13</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>2007</td>
<td>13</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>2010</td>
<td>15</td>
<td>13</td>
<td>28</td>
</tr>
<tr>
<td>2011</td>
<td>14</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>2012</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Average</td>
<td>15</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td>Ogółem</td>
<td>151</td>
<td>106</td>
<td>257</td>
</tr>
</tbody>
</table>

Legal changes regulating water security

The ongoing political and social changes require continuous legal regulation. In order to increase the safety of citizens in the years 2003-2012, a number of righteous acts were introduced, including determining water rescue operation. The following laws were passed:

- Law on State Emergency Medical Services dated 8 September 2006,
- Sport Act of 25 September 2010,
- Law on safety of persons residing in the water areas of 18 August 2011.

This legislation has drastically changed the functioning of the water rescue and the associated security of Polish citizens. The Law on State Emergency Medical Services resulted in the training of all duty lifeguards qualified in the field of provision of first aid. Courses in this area were carried out with the approval of Governor by the entities meeting the formal requirements in this regard. Doctors and emergency nurses could carry it on, and were carried out off the training programs in water rescue. The Law on the safety of persons residing in the areas of water in 2011 but set up the same requirements and business opportunities rescue all eligible operators.

Consequently enacted laws the following regulations were introduced:

- Regulation of the Minister of Health on March 19, 2007, in the course of qualified first aid;
Regulation of the Minister of National Education of 9 December 2009 amending Regulation on the conditions to be met by the organizers of recreation for children and youth, as well as the principles of the organization and supervision,

Regulation of the Minister of Labour and Social Policy of 27 April 2010 concerning the classification of professions and labor market needs and its application,

Regulation of the Minister of Home Affairs and the Minister of Defence of 23 December 2011 amending the Regulation on training in first aid qualified Minister of Internal Affairs of 23 January 2012 on the minimum requirements for the number of lifeguards to ensure constant control of a designated area of water,

Regulation of the Minister of Home Affairs Council of 27 February 2012 on the requirements for equipment in designated areas of water rescue equipment and auxiliary indication and warning devices and medical equipment, medicines and sanitary articles of the Minister of Internal Affairs of 6 March 2012 on the way labeling and protection of water areas and design signs forbidding, order and information signs and flags,

Regulation of the Minister of Internal Affairs of 21 June 2012 on training in water rescue,

Statutes VWRT

From 2003 to 2012 there were three VWRT statutes, which at the time operated on the basis of the Law on Associations. Earlier until December 2003 VWRT operated on the basis of the laws of physical culture, as a specialist association of physical education. Statute from 2003 located the VWRT in the range of the Ministry of Internal Affairs, as well as the statute from 2012. VWRT has become a specialist association nationwide. The Statute from the 2012 additionally includes VWRT relationship functioning on the basis of following laws: Public Benefit and Volunteer safety of persons residing in the areas of water and emergency medical services. This is confirmed by the following texts - an extract from the statutes VWRT (wopr.pl)

✓ VWRT Statute from April 25, 1999:

Voluntary Water Rescue hereinafter referred to as "VWRT ", working under the Act - Law on Associations, the Law on Physical Culture and on the basis of the statute. VWRT is a specialized association of physical education nationwide, operating within the Polish Republic with the seat in the city of Warsaw.

✓ VWRT Statute from December 6, 2003:

Voluntary Water Rescue hereinafter referred to as "VWRT ", working under the Act - Law on Associations and other laws and on the basis of the statute. VWRT is a specialized association nationwide, operating within the Polish Republic, with the seat of the central government in Warsaw.

✓ Statute VWRT from May 25, 2012:

Voluntary Water Rescue hereinafter referred to as "VWRT ", works on the basis of the Law from April 7, 1989 Law on Associations, the Law from April 24, 2003 on Public Benefit and Volunteer Work Act from August 18, 2011, the safety of persons residing water areas, the Act from September 8, 2006, the State Emergency Medical Services and other regulations and on the basis of the statute.

2. Assessment of the VWRT ensuring the safety on the water in 2003-2012

VWRT is an organization of major importance for society. In the legal system operating in Poland, the safety of people being on the water depends on the effective operation of the association, especially the possibility of practicing physical culture connected with the aquatic environment. The appropriate number of well-trained and willing to work rescuers operate bathing and swimming, and thus gives possibility of safe participation of the public in physical activities in water. With VWRT’s commitment to safety problems, the statistics of drowning decreases year in. This is exemplified in Table 3:
### Table 3. Drowning and their places in 2003-2012 (policja.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>Swimming pools N</th>
<th>Swimming pools %</th>
<th>Swimming-pools N</th>
<th>Swimming-pools %</th>
<th>Other places N</th>
<th>Other places %</th>
<th>Not connected with swimming N</th>
<th>Not connected with swimming %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>6</td>
<td>0,91</td>
<td>4</td>
<td>0,60</td>
<td>265</td>
<td>40,09</td>
<td>386</td>
<td>58,40</td>
<td>661</td>
</tr>
<tr>
<td>2004</td>
<td>7</td>
<td>1,24</td>
<td>3</td>
<td>0,53</td>
<td>141</td>
<td>25,00</td>
<td>413</td>
<td>73,23</td>
<td>564</td>
</tr>
<tr>
<td>2005</td>
<td>3</td>
<td>0,51</td>
<td>2</td>
<td>0,34</td>
<td>175</td>
<td>30,01</td>
<td>403</td>
<td>69,12</td>
<td>583</td>
</tr>
<tr>
<td>2006</td>
<td>6</td>
<td>1,06</td>
<td>4</td>
<td>0,71</td>
<td>236</td>
<td>41,84</td>
<td>318</td>
<td>56,38</td>
<td>564</td>
</tr>
<tr>
<td>2007</td>
<td>2</td>
<td>0,40</td>
<td>2</td>
<td>0,40</td>
<td>168</td>
<td>33,80</td>
<td>325</td>
<td>65,39</td>
<td>497</td>
</tr>
<tr>
<td>2008</td>
<td>2</td>
<td>0,43</td>
<td>1</td>
<td>0,21</td>
<td>148</td>
<td>31,62</td>
<td>317</td>
<td>67,73</td>
<td>468</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>1,11</td>
<td>0</td>
<td>0,00</td>
<td>153</td>
<td>42,62</td>
<td>202</td>
<td>56,26</td>
<td>359</td>
</tr>
<tr>
<td>2010</td>
<td>3</td>
<td>0,81</td>
<td>2</td>
<td>0,54</td>
<td>178</td>
<td>48,24</td>
<td>186</td>
<td>50,41</td>
<td>369</td>
</tr>
<tr>
<td>2011</td>
<td>3</td>
<td>0,76</td>
<td>1</td>
<td>0,25</td>
<td>104</td>
<td>26,26</td>
<td>288</td>
<td>72,72</td>
<td>396</td>
</tr>
<tr>
<td>2012</td>
<td>3</td>
<td>0,70</td>
<td>0</td>
<td>0,00</td>
<td>154</td>
<td>34,30</td>
<td>292</td>
<td>65,05</td>
<td>449</td>
</tr>
<tr>
<td>Average</td>
<td>4</td>
<td>0,79</td>
<td>2</td>
<td>0,38</td>
<td>175</td>
<td>35,45</td>
<td>313</td>
<td>63,40</td>
<td>494</td>
</tr>
<tr>
<td>Sum</td>
<td>39</td>
<td>0,79</td>
<td>19</td>
<td>0,38</td>
<td>1749</td>
<td>35,45</td>
<td>3130</td>
<td>63,40</td>
<td>4937</td>
</tr>
</tbody>
</table>


In 2003-2012 mostly all the drowning (63.4%) were not connected with swimming and bathing. Those were random cases caused by unexpected falling to the water, ice breaking etc. the way to reduce this group of cases could be improvement of swimming skills in the society, and also dissemination of the means of self-rescue in untypical situations.

A big group of drowning (35,45%) were people who came to the water to swim or to bathe. The reason of the accidents were insufficient swimming skills and also inappropriate places, the places not designed for swimming or where bathing was prohibited.

### Table 4. VWRT members (wopr.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>Joined VWRT N</th>
<th>Joined VWRT %</th>
<th>Left VWRT N</th>
<th>Left VWRT %</th>
<th>Difference N</th>
<th>Number of members N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>6592</td>
<td>10,20</td>
<td>4339</td>
<td>6,68</td>
<td>2253</td>
<td>64594</td>
</tr>
<tr>
<td>2004</td>
<td>6235</td>
<td>9,73</td>
<td>6778</td>
<td>10,58</td>
<td>-543</td>
<td>64051</td>
</tr>
<tr>
<td>2005</td>
<td>6884</td>
<td>10,42</td>
<td>4898</td>
<td>7,41</td>
<td>1986</td>
<td>66037</td>
</tr>
<tr>
<td>2006</td>
<td>6949</td>
<td>10,09</td>
<td>4139</td>
<td>6,01</td>
<td>2800</td>
<td>68837</td>
</tr>
<tr>
<td>2007</td>
<td>7651</td>
<td>11,94</td>
<td>12445</td>
<td>19,43</td>
<td>-4794</td>
<td>64043</td>
</tr>
<tr>
<td>2008</td>
<td>6728</td>
<td>10,54</td>
<td>6423</td>
<td>10,06</td>
<td>303</td>
<td>63817</td>
</tr>
<tr>
<td>2009</td>
<td>9012</td>
<td>12,10</td>
<td>2236</td>
<td>3,00</td>
<td>6776</td>
<td>74478</td>
</tr>
<tr>
<td>2010</td>
<td>7374</td>
<td>9,75</td>
<td>6263</td>
<td>8,28</td>
<td>1111</td>
<td>75589</td>
</tr>
<tr>
<td>2011</td>
<td>14217</td>
<td>17,01</td>
<td>6232</td>
<td>7,45</td>
<td>7985</td>
<td>83574</td>
</tr>
<tr>
<td>2012</td>
<td>5963</td>
<td>6,95</td>
<td>3729</td>
<td>4,34</td>
<td>2234</td>
<td>85729</td>
</tr>
<tr>
<td>Average</td>
<td>7760</td>
<td>10,87</td>
<td>5748</td>
<td>8,32</td>
<td>2012</td>
<td>71075</td>
</tr>
<tr>
<td>Sum</td>
<td>77605</td>
<td>57482</td>
<td>20123</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In 2003-2012 the VWRT had about 71 thousand members. In the analyzed period, there was an upward tendency in the number of members - from 64 thousand in 2003 to almost 86 thousand members in 2012. This was dependent on people joining the VWRT, as well as from people who for various reasons left the organization.
Around 7000 new members were joining the VWRT every year, which is 10.87% of the total. The biggest wave was in 2011 - 17.01% of the total, and the smallest in 2012 - 6.95% of the total.

In total 77,000 members joined VWRT during last 10 years, which amounts to 90.05% of all of its present members. There were fewer people who left the VWRT - more than 57 thousand (67.05% of present members). Despite major changes in the number of members, the VWRT always had around 60,000 rescue workers. This is shown in Table 5:

### Table 5. VWRT members with entitlement

<table>
<thead>
<tr>
<th>Year</th>
<th>MR VWRT N</th>
<th>MR VWRT %</th>
<th>R VWRT N</th>
<th>R VWRT %</th>
<th>SR VWRT N</th>
<th>SR VWRT %</th>
<th>I VWRT N</th>
<th>I VWRT %</th>
<th>total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>39013</td>
<td>67,80</td>
<td>16648</td>
<td>28,92</td>
<td>1263</td>
<td>2,21</td>
<td>572</td>
<td>1,07</td>
<td>57549</td>
</tr>
<tr>
<td>2004</td>
<td>39136</td>
<td>68,71</td>
<td>16087</td>
<td>28,24</td>
<td>1302</td>
<td>2,28</td>
<td>592</td>
<td>1,03</td>
<td>56952</td>
</tr>
<tr>
<td>2005</td>
<td>40068</td>
<td>67,81</td>
<td>17130</td>
<td>28,99</td>
<td>1293</td>
<td>2,18</td>
<td>594</td>
<td>1,02</td>
<td>59085</td>
</tr>
<tr>
<td>2006</td>
<td>42619</td>
<td>67,81</td>
<td>18379</td>
<td>29,24</td>
<td>1260</td>
<td>2,00</td>
<td>585</td>
<td>0,99</td>
<td>62843</td>
</tr>
<tr>
<td>2007</td>
<td>39463</td>
<td>66,37</td>
<td>18195</td>
<td>30,30</td>
<td>1182</td>
<td>1,98</td>
<td>579</td>
<td>0,97</td>
<td>59452</td>
</tr>
<tr>
<td>2008</td>
<td>38069</td>
<td>65,54</td>
<td>17801</td>
<td>30,64</td>
<td>1062</td>
<td>1,83</td>
<td>565</td>
<td>0,97</td>
<td>58088</td>
</tr>
<tr>
<td>2009</td>
<td>45990</td>
<td>65,61</td>
<td>22237</td>
<td>31,72</td>
<td>1221</td>
<td>1,74</td>
<td>647</td>
<td>0,92</td>
<td>70095</td>
</tr>
<tr>
<td>2010</td>
<td>40440</td>
<td>64,89</td>
<td>20119</td>
<td>32,28</td>
<td>1094</td>
<td>1,75</td>
<td>670</td>
<td>1,07</td>
<td>62323</td>
</tr>
<tr>
<td>2011</td>
<td>42792</td>
<td>64,24</td>
<td>21683</td>
<td>32,55</td>
<td>1362</td>
<td>2,04</td>
<td>772</td>
<td>1,16</td>
<td>66609</td>
</tr>
<tr>
<td>2012</td>
<td>25459</td>
<td>60,26</td>
<td>14940</td>
<td>35,36</td>
<td>1151</td>
<td>2,72</td>
<td>698</td>
<td>1,65</td>
<td>42248</td>
</tr>
<tr>
<td>Average</td>
<td>39304</td>
<td>66,09</td>
<td>18322</td>
<td>30,81</td>
<td>1219</td>
<td>2,05</td>
<td>627</td>
<td>1,05</td>
<td>59472</td>
</tr>
</tbody>
</table>

Note:
- ✓ since 2011 SR = SR + SRW
- ✓ until 2008 I = I + IW, since 2009 I = MI + I + IW

In Poland, in 2003-2012 there were in average about 60,000 rescuers VWRT, two thirds of which are younger lifeguards. There were more than 18 thousand VWRT rescuers, which represented 30% of the total. There were more than 2% of the total older lifeguards, and the instructors formed a group of more than 600 people representing approximately 1% of all VWRT responders.

Analyzing the changes in each year, there was observed a slight downward tendency among younger lifeguards, senior lifeguards and instructors, and growth in the group of rescuers VWRT lasted until 2011. In 2012 there was a sharp decline in the number of rescuers, especially among the younger lifeguards and lifeguards VWRT. The main tasks of rescue VWRT include ensuring safety for swimming and bathing facilities in the outdoor areas during the summer, and indoor open all year round. The number of open objects in the years 2003-2012 is shown in Table 6:

### Table 6. Outdoor and indoor areas in Poland in 2003-2012 (wopr.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>Bathes N</th>
<th>Bathes %</th>
<th>Outdoor swimming pools N</th>
<th>Outdoor swimming pools %</th>
<th>Indoor swimming pools N</th>
<th>Indoor swimming pools %</th>
<th>total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>621</td>
<td>54,23</td>
<td>154</td>
<td>13,45</td>
<td>370</td>
<td>32,31</td>
<td>1145</td>
</tr>
<tr>
<td>2004</td>
<td>677</td>
<td>53,68</td>
<td>167</td>
<td>13,24</td>
<td>417</td>
<td>33,06</td>
<td>1261</td>
</tr>
<tr>
<td>2005</td>
<td>791</td>
<td>54,62</td>
<td>194</td>
<td>13,39</td>
<td>463</td>
<td>31,97</td>
<td>1448</td>
</tr>
<tr>
<td>2006</td>
<td>910</td>
<td>55,82</td>
<td>219</td>
<td>13,43</td>
<td>501</td>
<td>30,76</td>
<td>1630</td>
</tr>
<tr>
<td>2007</td>
<td>1017</td>
<td>55,58</td>
<td>258</td>
<td>14,07</td>
<td>558</td>
<td>30,44</td>
<td>1833</td>
</tr>
<tr>
<td>2008</td>
<td>1015</td>
<td>54,48</td>
<td>272</td>
<td>14,60</td>
<td>576</td>
<td>30,91</td>
<td>1863</td>
</tr>
<tr>
<td>2009</td>
<td>1018</td>
<td>54,12</td>
<td>261</td>
<td>13,87</td>
<td>602</td>
<td>32,00</td>
<td>1881</td>
</tr>
<tr>
<td>2010</td>
<td>1016</td>
<td>52,34</td>
<td>262</td>
<td>13,50</td>
<td>663</td>
<td>34,16</td>
<td>1941</td>
</tr>
<tr>
<td>2011</td>
<td>986</td>
<td>51,06</td>
<td>270</td>
<td>13,98</td>
<td>675</td>
<td>34,95</td>
<td>1931</td>
</tr>
<tr>
<td>2012</td>
<td>665</td>
<td>42,87</td>
<td>225</td>
<td>14,51</td>
<td>661</td>
<td>42,62</td>
<td>1551</td>
</tr>
<tr>
<td>Average</td>
<td>876</td>
<td>53,00</td>
<td>228</td>
<td>13,79</td>
<td>549</td>
<td>33,21</td>
<td>1653</td>
</tr>
</tbody>
</table>
In Poland in 2003-2012 there were in average around 1,653 areas for swimming and bathing. This number was increasing year in year from 1145 in 2003 to 1941 in 2010, to the main extent indoor swimming pools. Since 2011, there was less areas for swimming, especially swimming pools. Percentage of each object in the studied period was at a similar level and ranged from 1 to 3%. Despite small changes in the share of individual objects observed in substantial quantitative increases. This is shown in Table 7:

### Table 7. Increase of swimming and bathing areas in 2003 (wopr.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>Bathes N</th>
<th>Outdoor swimming pools N</th>
<th>Indoor swimming pools N</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>621</td>
<td>154</td>
<td>370</td>
<td>1145</td>
</tr>
<tr>
<td>2004</td>
<td>677</td>
<td>167</td>
<td>417</td>
<td>1261</td>
</tr>
<tr>
<td>2005</td>
<td>791</td>
<td>194</td>
<td>463</td>
<td>1448</td>
</tr>
<tr>
<td>2006</td>
<td>910</td>
<td>219</td>
<td>501</td>
<td>1630</td>
</tr>
<tr>
<td>2007</td>
<td>1017</td>
<td>258</td>
<td>558</td>
<td>1833</td>
</tr>
<tr>
<td>2008</td>
<td>1015</td>
<td>272</td>
<td>576</td>
<td>1863</td>
</tr>
<tr>
<td>2009</td>
<td>1018</td>
<td>261</td>
<td>602</td>
<td>1881</td>
</tr>
<tr>
<td>2010</td>
<td>1016</td>
<td>262</td>
<td>663</td>
<td>1941</td>
</tr>
<tr>
<td>2011</td>
<td>986</td>
<td>270</td>
<td>675</td>
<td>1931</td>
</tr>
<tr>
<td>2012</td>
<td>665</td>
<td>225</td>
<td>661</td>
<td>1551</td>
</tr>
</tbody>
</table>

In Poland, in the period from 2003 to 2012, 35.46% of the objects were built to practice safe swimming and bathing. Indoor swimming pools were built the most (about 78.65%), followed by outdoor swimming pool (about 46.10%) and the lowest baths (about 7.08%). Note the difference between the year 2012 and previous years, when it was clearly more active bathing. For example, in 2007-1017, and in 2012 only 665. The specified places for swimming and bathing in the years 2003-2012 lifeguards were employed. Their number in the periods shown in Table 8:

### Table 8. Lifeguards employed for safety of bathes and swimming pools (wopr.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>Bathes N</th>
<th>Outdoor swimming pools N</th>
<th>Indoor swimming pools N</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>2245</td>
<td>587</td>
<td>1657</td>
<td>4489</td>
</tr>
<tr>
<td>2004</td>
<td>2401</td>
<td>604</td>
<td>1796</td>
<td>4801</td>
</tr>
<tr>
<td>2005</td>
<td>2623</td>
<td>658</td>
<td>1911</td>
<td>5192</td>
</tr>
<tr>
<td>2006</td>
<td>2970</td>
<td>734</td>
<td>2037</td>
<td>5741</td>
</tr>
<tr>
<td>2007</td>
<td>3909</td>
<td>833</td>
<td>2326</td>
<td>7068</td>
</tr>
<tr>
<td>2008</td>
<td>4158</td>
<td>817</td>
<td>2445</td>
<td>7420</td>
</tr>
<tr>
<td>2009</td>
<td>4214</td>
<td>816</td>
<td>2498</td>
<td>7528</td>
</tr>
<tr>
<td>2010</td>
<td>3948</td>
<td>887</td>
<td>2427</td>
<td>7262</td>
</tr>
<tr>
<td>2011</td>
<td>3298</td>
<td>1005</td>
<td>2950</td>
<td>7253</td>
</tr>
<tr>
<td>2012</td>
<td>1951</td>
<td>720</td>
<td>2216</td>
<td>4887</td>
</tr>
<tr>
<td>Average</td>
<td>3172</td>
<td>766</td>
<td>2226</td>
<td>6164</td>
</tr>
</tbody>
</table>

In Poland, on average, 1,653 areas for swimming and bathing were secured by 6164 rescuers yearly. This was 8.67% of the total average number of members of the VWRT. The majority of rescuers (63.89%) worked seasonally for outdoor areas. In the indoor swimming pools worked over third remaining lifeguards. Observing the structure of employment at each site during the 2003-2012 year noted a slight increase in the number of lifeguards in bathes - about 5% until 2008 and a clear reduction in the years 2011-2012. In the outdoor swimming pools worked on average 12.43%, while 36.11% - in indoor swimming pools.
In view of the fact during the analyzing period new areas were built, particularly indoor swimming pools, also increased the number of employed there lifeguards. This is illustrated in Table 9:

### Table 9. Changes in the number of lifeguards VWRT hedging areas for swimming and bathing in 2003 (source: wopr.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>Baths N</th>
<th>%</th>
<th>Outdoor swimming pools N</th>
<th>%</th>
<th>Indoor swimming pools N</th>
<th>%</th>
<th>Total N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>2245</td>
<td></td>
<td>587</td>
<td></td>
<td>1657</td>
<td></td>
<td>4489</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>2401</td>
<td>6.95</td>
<td>604</td>
<td>2.89</td>
<td>1796</td>
<td>8.38</td>
<td>4801</td>
<td>6.95</td>
</tr>
<tr>
<td>2005</td>
<td>2623</td>
<td>16.83</td>
<td>658</td>
<td>12.09</td>
<td>1911</td>
<td>15.32</td>
<td>5192</td>
<td>15.66</td>
</tr>
<tr>
<td>2006</td>
<td>2970</td>
<td>32.29</td>
<td>734</td>
<td>25.04</td>
<td>2037</td>
<td>22.93</td>
<td>5741</td>
<td>27.89</td>
</tr>
<tr>
<td>2007</td>
<td>3909</td>
<td>74.12</td>
<td>833</td>
<td>41.90</td>
<td>2326</td>
<td>40.37</td>
<td>7068</td>
<td>57.45</td>
</tr>
<tr>
<td>2008</td>
<td>4158</td>
<td>85.21</td>
<td>817</td>
<td>39.18</td>
<td>2445</td>
<td>47.55</td>
<td>7420</td>
<td>65.29</td>
</tr>
<tr>
<td>2009</td>
<td>4214</td>
<td>87.70</td>
<td>816</td>
<td>39.01</td>
<td>2498</td>
<td>50.75</td>
<td>7528</td>
<td>67.70</td>
</tr>
<tr>
<td>2010</td>
<td>3948</td>
<td>75.85</td>
<td>887</td>
<td>51.11</td>
<td>2427</td>
<td>46.47</td>
<td>7262</td>
<td>61.77</td>
</tr>
<tr>
<td>2011</td>
<td>3298</td>
<td>46.90</td>
<td>1005</td>
<td>71.21</td>
<td>2950</td>
<td>78.03</td>
<td>7253</td>
<td>61.57</td>
</tr>
<tr>
<td>2012</td>
<td>1951</td>
<td>-13.10</td>
<td>720</td>
<td>22.66</td>
<td>2216</td>
<td>33.73</td>
<td>4887</td>
<td>8.87</td>
</tr>
<tr>
<td>Average</td>
<td>3172</td>
<td>41.29</td>
<td>766</td>
<td>30.49</td>
<td>2226</td>
<td>34.34</td>
<td>6164</td>
<td>37.31</td>
</tr>
</tbody>
</table>

The number of lifeguards employed in bathing and swimming pools in 2003 was around 37.31%, in each area was different. The most - 41.29% increase in the number of rescuers on outdoor bathes, and the least - about 30.49% on outdoor swimming pools. The largest increase, reaching 87.70% was observed in bathes until 2009, and 78.03% in indoor swimming pools in 2011. In 2012, there was a general decline in lifeguards employment, especially in bathes, which was in 13.10% less than in 2013.

Well-protected by lifeguards swimming and water areas, equipped with the necessary safety and floating equipment create a comfortable areas for safe swimming and bathing. The possibility of immediate help reduce the risk of accidents. Therefore, rescuers should have a sufficient number of vessels, which the minimum condition for bathing determined in subsequent regulations. The number of vessels available to the VWRT in the years 2003-2012 is shown in Table 10:

### Table 10. Vessels available for VWRT in 2003-2012 (wopr.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rowing units N</th>
<th>%</th>
<th>Units with engines N</th>
<th>%</th>
<th>Total N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>817</td>
<td>54.94</td>
<td>670</td>
<td>45.06</td>
<td>1487</td>
</tr>
<tr>
<td>2004</td>
<td>755</td>
<td>55.47</td>
<td>606</td>
<td>44.53</td>
<td>1361</td>
</tr>
<tr>
<td>2005</td>
<td>689</td>
<td>61.35</td>
<td>434</td>
<td>38.65</td>
<td>1123</td>
</tr>
<tr>
<td>2006</td>
<td>662</td>
<td>54.98</td>
<td>442</td>
<td>45.02</td>
<td>1204</td>
</tr>
<tr>
<td>2007</td>
<td>708</td>
<td>58.27</td>
<td>507</td>
<td>41.73</td>
<td>1215</td>
</tr>
<tr>
<td>2008</td>
<td>716</td>
<td>57.93</td>
<td>520</td>
<td>42.07</td>
<td>1236</td>
</tr>
<tr>
<td>2009</td>
<td>661</td>
<td>52.75</td>
<td>592</td>
<td>47.25</td>
<td>1253</td>
</tr>
<tr>
<td>2010</td>
<td>621</td>
<td>50.94</td>
<td>598</td>
<td>49.06</td>
<td>1219</td>
</tr>
<tr>
<td>2011</td>
<td>689</td>
<td>54.42</td>
<td>577</td>
<td>45.58</td>
<td>1266</td>
</tr>
<tr>
<td>2012</td>
<td>648</td>
<td>51.22</td>
<td>617</td>
<td>48.78</td>
<td>1265</td>
</tr>
<tr>
<td>Average</td>
<td>697</td>
<td>55.63</td>
<td>556</td>
<td>44.37</td>
<td>1253</td>
</tr>
</tbody>
</table>

VWRT Rescuers have at their disposal on average around 1,253 vessels, of which 44.37% are motorized. Anxiety must arouse the fact that over the 10 years disappeared both rowing boats as
well as boats with engines. These amounts appear to be insufficient. For example, in record 2008, there were 4158 baths, and VWRT had 1236 vessels. It can be believed that many baths were equipped by the owners with the necessary sports equipment.

Employment opportunities in water rescue are associated with having the necessary powers. Therefore, the VWRT conducted every year a lot of training. It should be noted that the level of work required for lifeguard with whom a junior lifeguard could collaborate. Since 2009, only rescuers having additional powers lifeguard system could be employed in accordance with the Law on emergency care. The number of courses conducted at various degrees in the years 2003-2012 are shown in the table 11:

Table 11. Training courses for rescue degree VWRT (wopr.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>MR VWRT N</th>
<th>%</th>
<th>R VWRT N</th>
<th>%</th>
<th>SR VWRT N</th>
<th>%</th>
<th>I VWRT N</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>359</td>
<td>73,71</td>
<td>124</td>
<td>25,46</td>
<td>3</td>
<td>0,61</td>
<td>1</td>
<td>0,20</td>
<td>487</td>
</tr>
<tr>
<td>2004</td>
<td>361</td>
<td>74,89</td>
<td>124</td>
<td>24,27</td>
<td>3</td>
<td>0,62</td>
<td>1</td>
<td>0,20</td>
<td>482</td>
</tr>
<tr>
<td>2005</td>
<td>394</td>
<td>72,69</td>
<td>124</td>
<td>26,56</td>
<td>3</td>
<td>0,53</td>
<td>1</td>
<td>0,18</td>
<td>542</td>
</tr>
<tr>
<td>2006</td>
<td>416</td>
<td>71,11</td>
<td>124</td>
<td>28,20</td>
<td>3</td>
<td>0,51</td>
<td>1</td>
<td>0,17</td>
<td>585</td>
</tr>
<tr>
<td>2007</td>
<td>448</td>
<td>72,61</td>
<td>124</td>
<td>26,74</td>
<td>3</td>
<td>0,48</td>
<td>1</td>
<td>0,16</td>
<td>617</td>
</tr>
<tr>
<td>2008</td>
<td>457</td>
<td>70,09</td>
<td>124</td>
<td>29,45</td>
<td>2</td>
<td>0,30</td>
<td>1</td>
<td>0,15</td>
<td>652</td>
</tr>
<tr>
<td>2009</td>
<td>556</td>
<td>71,01</td>
<td>124</td>
<td>28,08</td>
<td>2</td>
<td>0,25</td>
<td>1</td>
<td>0,13</td>
<td>783</td>
</tr>
<tr>
<td>2010</td>
<td>567</td>
<td>65,40</td>
<td>124</td>
<td>34,29</td>
<td>2</td>
<td>0,23</td>
<td>3</td>
<td>0,34</td>
<td>867</td>
</tr>
<tr>
<td>2011</td>
<td>625</td>
<td>66,84</td>
<td>124</td>
<td>32,51</td>
<td>3</td>
<td>0,32</td>
<td>3</td>
<td>0,32</td>
<td>935</td>
</tr>
<tr>
<td>2012</td>
<td>446</td>
<td>65,98</td>
<td>124</td>
<td>33,58</td>
<td>1</td>
<td>0,15</td>
<td>2</td>
<td>0,29</td>
<td>676</td>
</tr>
<tr>
<td>Average</td>
<td>463</td>
<td>69,83</td>
<td>1957</td>
<td>29,56</td>
<td>25</td>
<td>0.38</td>
<td>15</td>
<td>0.23</td>
<td>6626</td>
</tr>
<tr>
<td>Sum</td>
<td>4629</td>
<td>69,83</td>
<td>1957</td>
<td>29,56</td>
<td>25</td>
<td>0.38</td>
<td>15</td>
<td>0.23</td>
<td>6626</td>
</tr>
</tbody>
</table>

Note: since 2010, column I VWRT refers to the sum of courses for MI + I, are not included in the lifeguard swimming courses, inland and ocean, as those were the rescue training courses for VWRT workers.

Field units and central VWRT conducted around 663 courses per year. Most courses for the degree of a younger lifeguard VWRT (463, representing 69.83% of the total) and lifeguard VWRT (196 courses, representing 29.56% of the total). At the level of senior lifeguard and instructor VWRT the central clusters there were carried 3 - 6 courses. Analyzing the number of courses attended notes to their steady growth from 2003 to 2011 and a marked decline in 2012.

Rate of indirect evidence of trained rescuers, but the participants in the exchange rate could be different numbers, as not everyone passed tests, that is why it was checked how many lifeguards received the training program prescribed level. The results are shown in Table 12

Table 12. Degrees of emergency issued by VWRT (Source: wo.pr.pl)

<table>
<thead>
<tr>
<th>Year</th>
<th>MR VWRT N</th>
<th>%</th>
<th>R VWRT N</th>
<th>%</th>
<th>SR VWRT N</th>
<th>%</th>
<th>I VWRT N</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>5261</td>
<td>77,69</td>
<td>1405</td>
<td>20,75</td>
<td>73</td>
<td>1,08</td>
<td>32</td>
<td>0,47</td>
<td>6771</td>
</tr>
<tr>
<td>2004</td>
<td>5211</td>
<td>77,41</td>
<td>1403</td>
<td>20,84</td>
<td>88</td>
<td>1,31</td>
<td>29</td>
<td>0,43</td>
<td>6731</td>
</tr>
<tr>
<td>2005</td>
<td>5781</td>
<td>77,06</td>
<td>1614</td>
<td>21,51</td>
<td>76</td>
<td>1,01</td>
<td>31</td>
<td>0,41</td>
<td>7502</td>
</tr>
<tr>
<td>2006</td>
<td>5712</td>
<td>75,91</td>
<td>1752</td>
<td>23,28</td>
<td>52</td>
<td>0,69</td>
<td>36</td>
<td>0,47</td>
<td>7552</td>
</tr>
<tr>
<td>2007</td>
<td>5999</td>
<td>76,66</td>
<td>1761</td>
<td>22,50</td>
<td>47</td>
<td>0,60</td>
<td>18</td>
<td>0,23</td>
<td>7825</td>
</tr>
<tr>
<td>2008</td>
<td>6128</td>
<td>76,53</td>
<td>1809</td>
<td>22,59</td>
<td>48</td>
<td>0,60</td>
<td>22</td>
<td>0,27</td>
<td>8007</td>
</tr>
<tr>
<td>2009</td>
<td>7018</td>
<td>74,69</td>
<td>2291</td>
<td>24,38</td>
<td>59</td>
<td>0,74</td>
<td>28</td>
<td>0,35</td>
<td>9396</td>
</tr>
<tr>
<td>2010</td>
<td>6785</td>
<td>68,42</td>
<td>2992</td>
<td>30,17</td>
<td>60</td>
<td>0,60</td>
<td>50(MI)+29(I)</td>
<td>0,80</td>
<td>9916</td>
</tr>
<tr>
<td>2011</td>
<td>7483</td>
<td>69,18</td>
<td>3213</td>
<td>29,70</td>
<td>56</td>
<td>0,56</td>
<td>46(MI)+18(I)</td>
<td>0,59</td>
<td>10816</td>
</tr>
<tr>
<td></td>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4672</td>
<td></td>
<td>28,74</td>
<td>34</td>
<td>0,51</td>
<td>28(MI)+26(I)</td>
<td>0,81</td>
<td>6680</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>6005</td>
<td>73,98</td>
<td>2013</td>
<td>24,80</td>
<td>59</td>
<td>0,73</td>
<td>39</td>
<td>0,48</td>
<td>8117</td>
</tr>
<tr>
<td>Sum</td>
<td>60050</td>
<td>73,98</td>
<td>20133</td>
<td>24,80</td>
<td>593</td>
<td>0,73</td>
<td>392</td>
<td>0,48</td>
<td>81168</td>
</tr>
</tbody>
</table>

Note:

✓ in column I VWRT from 2010 column I VWRT refers to the sum (MI) - junior instructor VWRT (I) - instructor VWRT (IA) - instructor, lecturer VWRT

✓ Conferred degrees are not equivalent to the state of the VWRT by degrees, for example, MR VWRT after promotion was counted among the R VWRT and ceased to be counted among the MR VWRT, etc. Therefore, the sum of the degrees conferred is not equivalent to the number of lifeguards in each group degrees.

In the period from 2003 to 2012 at the courses organized by the field units and central VWRT given to 81,168 degrees, the most junior lifeguard - 73.98%, and the least the instructor 0.48%.

Analyzing the number of degrees granted in each year, there is a stabilization of the broadcast rescuers younger degrees. Among the lifeguards and in the years 2003-2011 was very mild upward tendency. In the other groups, the number of degrees in the following years decreased. Particularly strong downward tendency occurred among older lifeguards VWRT, where year after year, decreased interest in this phase of training. In 2003-2004 broadcast an average of 80 degrees, and in 2012 the degree of training of senior lifeguard graduated 34 people. It should be noted that in 2012 it was given about one third less degree than the year before.

Applications

1. In Poland from 2003 to 2012 significantly increased the level of society as a result of economic development grants from the European Union and emigration.

2. More and more citizens use the newly created sports facilities, including the swimming pools, which was conducive to learning how to swim and reduce cases of drowning.

3. Implemented new legal regulations in the field of security, the effect of changes in the system of national security and emergency operation of the organization, particularly in the field of training and security bathing and swimming.

4. For the safety of the water in the years 2003-2012 were responsible rescuers VWRT, so that in the designated areas of water was only 1.17% of all drowning accidents.

5. From 2003 to 2011 VWRT in all aspects studied systematically developed, but in 2012 there was a clear breakdown resulting primarily less-trained lifeguards and secured areas of water.

6. Concern is the high number of accidents and drowning outside swimming pools and baths, and therefore efforts should be made to increase the safety of being in the water through the development of infrastructure, equipment and VWRT potential in this area.

Literature


Part 2. Problems of physical culture and sports

1. Philosophical, sociopsychological and economic problems of the development of physical culture and sport.
2. Medical and biological aspects of physical culture and sport, contemporary SPA technologies.
3. Diagnostics in physical education and sport.
4. Pedagogy of physical culture - the present and the future.
5. Didactics of physical education.
8. Other problems of education, physical education, recreation and sport.
Statement of the problem. Tourist activity today is a diverse journey associated with physical, emotional, intellectual, psychological and other loads. During sports tourism campaign an important role plays physical development and physical state of the tourist. The tasks of the coach, tourist instructor are the working knowledge of modern technology and the organization of training and activities of tourists during preparation for the hike, the hike itself, in the rehabilitation process and summarizing the trip. This requires quality tourist training to a travel taking into account: initial condition of physical, mental and social development of the person who is going to hike and climatic features of the future route of the hike.

That is why the purpose of our study is to determine the connection of physical development of tourists and effective overcoming of categorical hikes.

The results of the study. Efficiency of overcoming categorical hike route depends on: routing work (drafting appropriate route of the hike), logistical preparation of the hike, recruitment and training of the group (physical, technical, mental preparation and physical development of the hike participants). The main characteristics of a hike route, which determine its category is the length of the active part of the route, the time spent in movement of tourists on the route, speed of tourists (Fedotov Y.N., 2008).

The basis of physical development are primarily those morphological features that define the structural and mechanical properties of the body, such as weight, density and shape of the body. Therefore, most researchers, diagnosing physical development, based on three easily accessible to study characteristics: body length, body weight and chest girth (Apansenko G.L., 2000; Krucevich T.YO., 2011).

These dimensions characterize the processes of growth and physical development of the person and determine the identity of individual and group differences. Determination of total anthropometric measurements only do not provide a full description of the physical development of a person, that is why in addition to anthropometric measurements other methods of assessing the physical development are also used: the method of indexes, the method of standards, correlation method and so on.

To determine the physical characteristics of the tourists we have elected the following methods: body mass index, the index of Brock-Bruhsh; proportionality index, index of Pigna, method of standards.

The survey was conducted with members of various difficulty hikes in different areas. The experimental groups (E1 and E2) were students of Kherson State University in the amount of 22.
persons (women’s articles - 10 men - 12), and control - members of the sports section in the federation of sports tourism in the Kherson region of 23 people (female – 12, male – 11).

By sex and age composition the experimental group is characterized as follows: female aged from 19 to 21 years, male aged from 19 to 24 years. Members of the experimental group are characterized by participation in the hikes of the second category in the Crimean Mountains (E1) and the third category in the Carpathians (E2).

In the control female group aged from 17 to 30 years, and male from 20 to 30 years. Tourist experience of members of the control group is characterized by participation in the campaigns of the third category of complexity in the Crimea.

For comparison of hikes of varying difficulty each the following characteristics were selected: route length, hike length, i.e. the number of days, length of day transitions, walking time, speed. The first two are the source characterizing the category of the hike difficulty. The latest are for determining the effectiveness of overcoming the hike route.

The comparative analysis of the characteristics of the routes of control and experimental groups (see Table. 1.) suggests that the difference between the actual characteristics of the standard does not exceed 11% for the second route complexity, and 9.1% for the third route complexity.

### Table 1. Comparison of the routes of control and experimental groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Category of complexity</th>
<th>Route length (km)</th>
<th>Number of days</th>
<th>Length of day transitions (km / day)</th>
<th>Walking time (hr, min)</th>
<th>Speed (km/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>3 st.s</td>
<td>76/75*</td>
<td>6/6</td>
<td>12,67/12,5</td>
<td>29.10</td>
<td>2.6</td>
</tr>
<tr>
<td>E 1</td>
<td>II</td>
<td>178/160</td>
<td>9/8</td>
<td>19,78/20</td>
<td>54.00</td>
<td>3.3</td>
</tr>
<tr>
<td>E 2</td>
<td>III</td>
<td>209/190</td>
<td>12/10</td>
<td>17,4/19</td>
<td>69.30</td>
<td>3.01</td>
</tr>
</tbody>
</table>

* In the numerator of the actual data in the denominator – regulations.

Changes in day length conversion control and experimental groups are correct, namely, for the first experimental group calculated t (2.43) is greater than t tabulated for 15 cases (2.13) for the second experimental group calculated t (2.14) over t tabulated for 18 cases (2.10) (Table 2).

### Table 2. The reliability of change of length of day transitions in control and experimental groups

<table>
<thead>
<tr>
<th>Group</th>
<th>$\bar{X}$ (km)</th>
<th>$\sigma$</th>
<th>$m$</th>
<th>$t$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>12.67</td>
<td>4.18</td>
<td>1.32</td>
<td>2.43</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>E 1</td>
<td>19.78</td>
<td>6.40</td>
<td>2.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>12.67</td>
<td>4.18</td>
<td>1.32</td>
<td>2.14</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>E 2</td>
<td>17.42</td>
<td>4.38</td>
<td>1.79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These calculations characterize the routes length in general, so that the total length of day transitions gives distance.

Changes in time spent in control and experimental groups on the route march are significant: t calculated is 1.45 and 1.39 at t tabulated 2.13 and 2.10 accordingly (see Table 3). This is because the control group was moving with a low speed that was available to all tourists.
Table 3.
Credibility of change of time traffic on the route of control and experimental groups

<table>
<thead>
<tr>
<th>Group</th>
<th>$\bar{X}$ (min)</th>
<th>$\sigma$</th>
<th>$m$</th>
<th>$t$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$K$</td>
<td>291.67</td>
<td>116.65</td>
<td>52.17</td>
<td>1.07</td>
<td>$&gt;0.05$</td>
</tr>
<tr>
<td>$E_1$</td>
<td>360.0</td>
<td>103.80</td>
<td>36.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$K$</td>
<td>291.67</td>
<td>116.65</td>
<td>52.17</td>
<td>0.48</td>
<td>$&gt;0.05$</td>
</tr>
<tr>
<td>$E_2$</td>
<td>320.77</td>
<td>111.26</td>
<td>32.12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As for the reliability of the speed change in the control and experimental groups, they are reliable for both options. Comparing the speed of the control and experimental groups gives the first figure $t = 2.96$, at $t$ table 2.13, comparing of control and the second experimental groups gave the following results: $t = 2.46$, 2.10 at $t$ table (see Table 4.).

Table 4.
Reliability of speed changes on the routes of control and experimental groups

<table>
<thead>
<tr>
<th>Group</th>
<th>$\bar{X}$ (km/hr)</th>
<th>$\sigma$</th>
<th>$m$</th>
<th>$t$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$K$</td>
<td>2.6</td>
<td>0.22</td>
<td>0.07</td>
<td>2.96</td>
<td>$&lt;0.05$</td>
</tr>
<tr>
<td>$E_1$</td>
<td>3.27</td>
<td>0.52</td>
<td>0.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$K$</td>
<td>2.6</td>
<td>0.22</td>
<td>0.07</td>
<td>2.46</td>
<td>$&lt;0.05$</td>
</tr>
<tr>
<td>$E_2$</td>
<td>3.01</td>
<td>0.37</td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thus, the essence of categorical hikes is characterized by trail hikes, length of day transitions, walking time, speed of the groups on the route.

By means of the method of index (Апанасенко Г.Л., 2000) we define the degree of excess weight in body mass index among representatives of the control and experimental groups (see Table 5.).

The men of the control group the average body mass index is 22.42 ideal body weight is observed in four people, which is 36.4%. Five people have too little mass (45.6%), and one representative of the control group has minor and moderate excess body weight, which is 9%.

Table 5.
Distribution of tourists control and experimental groups according to body mass index

<table>
<thead>
<tr>
<th>Group</th>
<th>Body mass index ($\bar{X}$)</th>
<th>Characteristics of the groups according to body mass index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>too little weight</td>
<td>ideal body weight</td>
</tr>
<tr>
<td></td>
<td>number</td>
<td>%</td>
</tr>
<tr>
<td>$K$ (11)</td>
<td>22.42</td>
<td>5</td>
</tr>
<tr>
<td>$E_1$ (5)</td>
<td>23.53</td>
<td>-</td>
</tr>
<tr>
<td>$E_2$ (7)</td>
<td>23.25</td>
<td>1</td>
</tr>
<tr>
<td>$E_1+$</td>
<td>23.39</td>
<td>1</td>
</tr>
<tr>
<td>$E_2$ (12)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Female
As for the first experimental group, all five people (100%) are with a body mass index, which corresponds to the ideal body weight. In the second experimental group of seven tourists with an ideal weight (71.4%), and found a slight excess body weight (14.3%) and in one (14.3%) – too little weight.

Based on this study it can be argued that most of the male participants of difficult hikes have an ideal body weight. Accordingly, 83.4% versus 36.4% of the control group.

Similar results were obtained in the study of body mass index of female tourists. In the control group of 9 people out of 12 (75%) have an ideal body weight, and the remaining 3 (25%) – very low body weight. In the first experimental group: 5 people have an ideal body weight (83.3%), and one (16.7%) – very low body weight. The second experimental group is characterized by 100% of staff with an ideal body weight. Totally two experimental groups with 90% (9 people) female tourists with an ideal body weight, but only one person (10%) has too low body weight.

Defining the deviation from ideal body weight mass (Brock-Bruhsh index) tourists of the control and experimental groups have the following results (see table in Appendix B), confirming the calculations of body mass index. Thus, in all experimental female groups there is less weight as compared with the value on a great 4-11 kg. And the girls from the control group have deviation from 5 to 13 kg. That is, all the females both from the control and experimental groups, have a reduced weight compared to an ideal weight, that is, Brock-Bruhsh index.

As for the men of the control group, the observed deviation in direction of mass failure (-5; -10), and towards greater weight compared to Brock Bruhsh index (0; 17). In the experimental group the following results are observed: weight gain relative to the estimated 1 to 14 kg, a decrease of 3 kg (one person).

Thus, the results of the two indexes (body mass index and Brock Bruhsh index) we can conclude that the participants have a variety of multi-day hikes deviation from ideal body weight, but the experimental group deviations are positive, and in control, both positive and negative (See pic. 1.).

<table>
<thead>
<tr>
<th></th>
<th>K (12)</th>
<th>E₁ (6)</th>
<th>E₂ (4)</th>
<th>E₁+E₂ (10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,31</td>
<td>19,70</td>
<td>19,13</td>
<td>19,41</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>16,7</td>
<td>-</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>-</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>83,3</td>
<td>100</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Pic. 1. The distributions of Broca-Bruhsh index of men in control and experimental groups

![Graph showing the distributions of Broca-Bruhsh index of men in control and experimental groups](image)

The next task was to determine the index of body proportionality of the tourists. This index is determined by the ratio between the circumference of the chest and body length. It is the norm
when this ratio is 50-52%. Rate less than 50% is typical for narrow-chested, and more than 52% - for wide-chested.

According to the study female tourists from the first and second experimental groups the ratio between the circumference of the chest and body length reaches more than 52%, that is all there is wide-chested figure. In women, the control group 3 (25%) 12 have a normal figure, and 9 (75%) are wide-chested.

This suggests a curtain connection: participating of multi-categorical hikes have a wide-chested figure, unlike participants of non categorical hikes, where there are examples of wide-chested and normal constitution.

Of five men from the first experimental group 4 (80%) have wide-chested figure, and one person (20%) – normal. In the second experimental group, all seven people have wide-chested figure. 3 men from the control group have narrow-chested figure (27.4%), 4 – normal (36.3%); 4 – wide-chested figure (36.3%). The study of male body build suggest a connection between complexity and figure: the harder tourism campaign, the closer to wide-chested the figure is.

According to the determination of the strength of the body structure (index of Pigna) we have that all the female participants of experimental groups are described as “good”, and all male participants as “strong”. As for the control group, among females two (16.7%) had a weak figure, four (33.3%) – “average”, six (50%) – “good”. Among men: two (18.2%) have body structure that is characterized as “weak”, 5 (45.4%) – “average”, 4 (36.4%) – “strong”.

Using the standard method, we have the following results: all the participants both of the experimental and control groups have less of the actual body weight over the standard.

To determine the connection of physical development of tourists of the control and experimental groups with the characteristics of the hike correlation analysis was held (Шиян Б.М., 2008) (see Table. 6).

**Table 6. Correlation analysis of physical characteristics of tourists trekking**

<table>
<thead>
<tr>
<th>Indicators of Physical Characteristics</th>
<th>Gender</th>
<th>Hike route characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Length of the route</td>
</tr>
<tr>
<td></td>
<td></td>
<td>r</td>
</tr>
<tr>
<td>Body mass index</td>
<td>F</td>
<td>-0.961</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0.890</td>
</tr>
<tr>
<td>Broc-Broushsh index</td>
<td>F</td>
<td>0.907</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0.280</td>
</tr>
<tr>
<td>Index of proportion</td>
<td>F</td>
<td>0.412</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0.965</td>
</tr>
<tr>
<td>Index of Pigne</td>
<td>F</td>
<td><strong>-0.993</strong></td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>-0.899</td>
</tr>
<tr>
<td>Method of standards index</td>
<td>F</td>
<td>-0.175</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0.895</td>
</tr>
</tbody>
</table>

Note: substantial connection is in bold; in italics – lack of communication.

Correlation analysis of the effectiveness to overcome categorical hikes with characteristics of physical development suggests that **female tourists:**
- the lowest indicators characterizing the absence or weak connection are observed in the index of method of standards and the route length (r = -0.175) and the index of proportionality with the time to overcome the route (r = 0.256) (the results are not reliable);
• average connection between the observed variables: index of proportionality and route length \( (r = 0.412) \), Broc-Bruhsh index and speed \( (r = 0.467) \), the average inverse connection of body mass index with the speed \( (r = -0.599) \) (the results are not reliable);
• high direct connection characteristic for the following parameters: the index of Broc-Bruhsh with the length of the route \( (r = 0.907) \) and the time to overcome the route \( (r = 0.857) \), the index of proportionality with the speed \( (r = 0.879) \);
• inverse connection is observed between the indexes: the index of method of standards and time to overcome the route \( (r = -0.711) \) and speed \( (r = -0.735) \) (the results are not reliable), body mass index and the route length \( (r = -0.961) \) (the results are not reliable) and time to overcome the route \( (r = -0.994) \) (the results are reliable), the index of Pigna with all the characteristics of the hike route – route length \( (r = -0.993) \) (the results are reliable), time to overcome the route \( (r = -0.961) \), speed \( (r = -0.860) \) (the results are not reliable);

for male tourists:
• the lowest indicators characterizing the absence or weak link of Broc-Bruhsh index and route length \( (r = 0.280) \) (the results are not reliable);
• average connection is observed between the indexes of Brock-Bruhsh time to overcome the route \( (r = 0.280) \) the index of proportionality with the time to overcome the route \( (r = 0.366) \) (the results are not reliable);
• high direct connection have: the index of the Broc-Bruhsh and the speed \( (r = 0.803) \) (the results are not reliable), the index of proportionality with the length of the route \( (r = 0.965) \) and speed \( (r = 0.928) \) (the results are not reliable) body mass index with all the characteristics of the hike, namely the length of the route \( (r = 0.890) \) (the results are not reliable), time to overcome the route \( (r = 0.805) \) (the results are not reliable) and speed \( (r = 0.984) \) (the results are reliable) the index of method of standards with all the characteristics of the hike, namely the length of the route \( (r = 0.895) \) (the results are not reliable), time to overcome the route \( (r = 0.988) \) and speed \( (r = 0.982) \) (the results are reliable);
• high inverse connection is observed between the index of Pigna with all the characteristics of the hike, namely the length of the route \( (r = -0.899) \) (the results are not reliable), time to overcome the route \( (r = -0.815) \) (the results are not reliable) and speed \( (r = 0.981) \) (the results are reliable).

Conclusions. According to the correlation analysis it can be argued that to improve the efficiency of overcoming categorical hikes it’s important to consider for female tourists: the index of Pigna and some indexes of body mass index, the index of Brock-Bruhsh, the index of method of standards for male tourists: body mass index, Pigna index, index of method of standards and some index of proportionality.

Prospects for further research. The research does not exhaust the problem of studying the effectiveness of overcoming of categorical hikes taking into consideration physical development of the tourists. Remaining research questions is that of the connection of the characteristics of a hike route and individual links of a tourist body, with peculiarities of the posture, body type, etc.

Literature
Круцевич Т.Ю., Воробьёв М.И., Безверхняя Г.В. (2011) Контроль у фізичному вихованні дітей та молоді. Олімпійська література, 224с.
Шиян Б.М., Вацеба О.М. (2008) Теорія і методика наукових педагогічних досліджень у фізичному вихованні і спорті. Навчальна книга – Богдан, 276с.
БОЛЬШОЙ СПОРТ И ЖЕНЩИНЫ

Great sport and women

Р.Н. Испулова
Ispulova R.N.

Западно-Казахстанский государственный университет им. М.Утемисова, Казахстан
West Kazakhstan State University after M. Utemissov, Kazakstan.

Ключевые слова: женский спорт, спортсменки, традиции.

Keywords: female sport, athletes, tradition.

Постепенный рост участия женщин Казахстана в спортивном движении является результатом стремительных преобразований в производстве и в других формах общественной жизни.

Процесс этот в Казахстане происходил и происходит в противоречиях и конфликтах.

Борьба за равноправие женщин и мужчин ведется одновременно во многих областях, не исключая и спортивного движения, что наблюдается и в других странах.

Президент Канадской Олимпийской ассоциации, член МОК Кэрол Энн Летрен проанализировала положение женщин в современном обществе с точки зрения беспристрастности в отношении к ним и равенства наравне с мужчинами предоставляемых им прав. Обратив особое внимание на состояние современного спорта и положение в нем женщин, Кэрол Энн Летрен, в частности, коснулась вопроса соперничества между мужчинами и женщинами: "Нам не следует соперничать с мужчинами, нам следует работать вместе с ними. Мы не собираемся подражать мужчинам [1].

Отношение к занятиям спортом женщин в настоящее время различное. Так, например, представители общественной палаты г. Талдыкоргана республики Казахстан направили письмо на блог председателя Агентства Республики Казахстан по делам спорта и физической культуры, в котором говорится: - "Просим вас …поставить вопрос о прекращении государственного финансирования женской тяжелой атлетики, женского регби, женской борьбы, ведь главное - не количество завоеванных медалей, вредно культивируемых видах спорта, а продолжительность здоровой жизни населения Казахстана", - говорится в письме.

По мнению председателя общественной палаты Талдыкоргана, занятия тяжелой атлетикой, боксом, регби и другими схожими видами спорта вредят женскому здоровью, вследствие чего у спортсменок могут возникнуть серьезные проблемы при планировании семьи [2].

В статье мы попытаемся показать свою позицию на участие женщин в большом спорте.

В начале прошлого века женского спорта в Казахстане практически не было. Были отдельные, незначительные напоминания. Несмотря на то, что этот тезис теперь имеет только историческое значение, он заслуживает упоминания, так как позволяет понять нынешнее положение женщин в спорте. Существенным элементом его являются сформированные многолетней традицией идеалы женственности и женщины, которые существовали только для мужчины и семьи.

Взгляды на женский спорт в девятнадцатом и начале двадцатого столетий были резко отрицательными. Было много противников распространения среди женщин различных форм физической активности, которые признавались как вредные развлечения.
В начале 50-х годов прошлого столетия прогрессивные теоретики физической культуры и спорта Ленинградского государственного института физической культуры и спорта им. П.Ф.Лесгафта С.В.Янанис, К.Х.Грантынь и И.М.Коряковский отрицали участие женщин в спортивных состязаниях по толканию ядра и гонке на велосипеде, мотивируя это иным от мужчины физическим строением организма, иной психической системой, наконец, житейской деятельностью женщины.

Хотя разнополярность суждений о женском спорте не выдержала испытания жизнью, нельзя недооценивать то влияние, которое они оказали на формирование организованного на основе равноправия полов, единого с точки зрения целей спортивного движения. Появились ограничения, направленные на рационализацию состязаний, на охрану здоровья женщин в спорте. Они основывались прежде всего на введении различных для мужчин и женщин видов спорта, подборе методов обучения и тренировки, дозированного контроля объема и интенсивности тренировочных нагрузок, учитывающих морфофизиологическую специфику женского организма.

И только после второй мировой войны женщины в Республике Казахстан заняли достойное место в спорте. Факторами, ускорившими распространение спорта среди женщин, стали более глубокие общественные преобразования, в процессе которых женщины воочию убедились в гражданском равноправии с мужчинами, им стали доступны почти все профессии и должности.

Однако, традиционные представления об особой «миссии» женщины удивительно стабильны. И, как многие годы назад, они оказываются источником критического отношения к женскому спорту, создают трудно ломаемые барьеры обычая. Они «вмонтированы» в процесс домашнего воспитания взглядов, норм и ценностей, которые определяются рядом запретов, исключающих девушек из сферы спортивной деятельности. И речь идет прежде всего о здоровье. Распространено убеждение, что физическое напряжение подрывает здоровье женщины, организм которой, мол, весьма деликатен и менее приспособлен к трудностям спортивной тренировки.

Однако коронным аргументом противников женского спорта являются возражения морального плана. Специфика спортивных занятий, расширенная сфера вынужденных приятельских контактов мужчин и женщин, свобода одежды и быта, частое отсутствие дочери дома и многое другое трактуются как упадок нравственности и дисциплины. Этот тип мышления обычно характерен для родителей малых городов и аулов. Вот что рассказывала студентка факультета физической культуры Западно-Казахстанского государственного университета при изучении вопроса о мотивах выбора физкультурного образования. Мама вообще была против моих занятий спортом. Мои спортивные успехи ее совсем не радовали. А впоследствии узнала, что я не только занимаюсь спортом, но еще хочу учиться на факультете физической культуры и спорта. Это для нее было слишком… и таких примеров немало.

Эстетические представления также являются одним из субъективных трудностей для распространения спорта среди женщин. Тот факт, что длительные тренировки развивают мускулатуру и формируют ряд психомоторных признаков, нарушающих традиционные каноны женской красоты, ставят спортсменку перед трудным выбором между спортивным успехом и привлекательностью.

Эта необходимость выбора между различными ценностями составляет специфическую черту социального положения женщины в спорте и определяет существенное отличие ее взглядов на спортивную карьеру.

Интересен в этом отношении проведенный опрос студентов Западно-Казахстанского государственного университета им.М. Утемисова «женились бы вы на спортсменке?» «Все зависит от того, что мы понимаем под словом «спортсменка», - говорил один из студентов. Если эта девушка, играющая в теннис или плавающая на реке Урал для удовольствия, для здоровья, - женился бы на ней. Но если речь идет о спортсменке, выступающей публично, прыгающей с шестом, занимающейся тяжелой атлетикой, борбой … надо подумать».
Стоит заметить, что эстетические взгляды играют немалую роль и в выборе женщинами видов спортивных занятий. Женщина ведь значительно чаще, чем мужчина, ищет в спорте не столько успеха и победы, сколько возможности улучшить свои внешние данные. Боинство деформации (искажения) тела, чрезмерного развития мускулатуры и потери «женственности» оказывается часто отрицательным специфически женским фактором, ослабляющим мотивации интенсивной тренировки.

Эстетические взгляды становятся часто и критерием для оценки вида спорта, влияющим на степень участия в нем.

Анализируя некоторые положения в женском спорте мы сосредоточили внимание исключительно на субъективном аспекте социальной ситуации. Он складывался из представлений, мнений, обрядов и обычев, формирующих различную для обоих полов систему норм, ценностей и жизненных целей.

Следует добавить, что наряду с этим комплексом психологических факторов существует объективная схема анализирующего конфликта социальных отношений. Современная жизнь расширила поле деятельности женщин Казахстана и прибавило ряд новых обязанностей, связанных с наукой, получением профессии, работой, общественной деятельностью, мало что, убрав из домашних дел. Основные заботы ведения домашнего хозяйства, воспитания детей, по – прежнему, лежат на женщине. Ещё недостаточно развито база социальных учреждений, которая избавляла бы женщину от большинства забот. Вноспортивная сфера жизни женщины – спортсменки куда более обширна, чем мужчины – спортсмена, а это порождает ряд конфликтов и трудностей при согласовании с длительной и поглощающей много усилий современной тренировкой. Отец и цена, которую должна платить женщина за спортивный успех и славу.

Субъективные и объективные элементы социального положения женщины, занимающейся спортом, играют свою роль в формировании общности в условиях спорта высших достижений. Они влияют на процессы, происходящие в сфере спорта, на различные стремления, взглядов спортсменов и спортсменок на спортивную карьеру.

Наверное, мы не будем объективны, если не выскажем свою позицию по отношению спорта высших достижений и участия в нем женщин.

Мы за большой спорт, за высокие спортивные результаты женщин. Но при проведении занятий физическими упражнениями и спортивной тренировки необходимо учитывать анатомо-физиологические особенности женского организма. Это отмечается и российскими учеными.

Влияние занятий спортом на женский организм, психику спортсменки, ее дальнейшую судьбу также далеко не однозначно [3].

Тренерам, учителям и преподавателям физической культуры нужно всегда помнить, что у женщин иные, чем у мужчин пропорции тела: позвоночник относительно длиннее, конечности короче, плечи более узкие, а таз шире. Центр тяжести тела, играющий большую роль в механизме движений, у женщин находится ниже, чем у мужчин. У женщин меньше чем у мужчин мышечная масса. Имеются также существенные различия у женщин и мужчин (не в пользу женщин) в показателях функционального состояния, в частности, сердечно-сосудистой и дыхательной систем. Эти данные говорят о том, что женщины с большей легкостью выполняют упражнения, требующие гибкости, чувство ритма, равновесия, пластичности движений (фигурное катание, спортивная и художественная гимнастика, спортивная аэробика, синхронное плавание и некоторые другие виды спорта), так как упражнения такого типа адекватны физиологическим особенностям женского организма.

Каждая женщина хочет быть красивой и мечтает сохранить молодость, здоровье и красоту на долгие годы. Одного желания здесь мало, необходимы время и огромные усилия. При наличии этих условий занятия любимым видом спорта помогут добиться желаемого. Красота, обаяние и женственность требуют жертв и остаются лишь тем, кто готов их принести.
Спортивное мастерство женщин, а вместе с этим и спортивные результаты поднимаются все выше и выше.

За полноправное место женщин в спорте выступает Кэрол Энн Летрен, президент Канадской олимпийской ассоциации, член МОК. Она отмечает, что необходимо «…создание условий, способствующих привлечению женщин к участию в занятиях спортом; разработку программ, рассчитанных на молодежь, как девушек, так и юношей; повышения уровня образования и подготовки; проведение исследовательских работ и расширен базы информации; распределение ресурсов; и, наконец, дальнейшее развитие сотрудничества на всех уровнях…» [1].

Но необходимо подумать и о дальнейшей деятельности по завершению активной спортивной деятельности. По данным российского ученого Лубышевой Л.И.: «…после завершения спортивной карьеры большинство опрошенных спортсменок хотели бы связать свою дальнейшую жизнь с физической культурой и спортом: 38,7% намереваются стать тренером, 20,2% - менеджером, 17,4% избрали бы профессию инструктора физической культуры, 16,3% - организатора физкультурно-спортивной работы. С профессией учителя физкультуры связывают свой профессиональный интерес только 4,6% опрошенных» [3].

Спортивный сайт Vesti.kz провел голосование на тему « Лучшая спортсменка Казахстана». Так, среди претендентов на звание "Лучшая спортсменка-2012" были следующие представительницы различных видов спорта: Ольга Рыпакова (легкая атлетика), Светлана Подобедова (тяжелая атлетика), Майя Манеза (тяжелая атлетика), Зульфия Чиншанло (тяжелая атлетика), Марина Вольнова (бокс), Гузель Манюрова (вольная борьба), Ярослава Шведова (теннис), Динара Садуакасова (шахматы), Екатерина Айдова (конькобежный спорт) и Галина Вишневская (биатлон) [4].

В Казахстане было проведено голосование «Самая красивая спортсменка Казахстана». По итогам его самой красивой спортсменкой была признана представительница борьбы, а именно дзюдо Мариан Урдабаева - 33%; на втором месте Сана Джарлагасова (волейбол) - 20%; и на третьем месте представительница одного из самых красивых видов спорта – художественной гимнастики Анна Алябьева - 13%. Далее места распределились следующим образом: 4. Майя Манеза (тяжелая атлетика) - 7%; 5. Айнур Керей (синхронное плавание) - 7%; 6. Зарина Тухтиева (хоккей) - 5%; 7. Анастасия Алябьева (баскетбол) - 4%; 8. Валерия Цой (сноуборд) - 4%; 9. Юлия Волошина (футбол) - 3%; 10. Галина Воскобоева (теннис) - 3%. [5].

Подводя итоги выше сказанному, женщины Казахстана имеют широкие новые возможности для реализации спортивных интересов, преумножения славы казахстанского спорта по многим видам спорта. Но нельзя забывать о гуманизации женского спорта с учетом особой биосоциальной роли ее в обществе.

Список использованной литературы
1. Кэрол Энн Летрен Спорт для женщин и женщины для спорта lib.sportedu.ru/press/sfa/1997N3-4/p33-34.htm
2. www.Tengrinews.kz
3. Лубышева Л.И. Женщина и спорт: Социальный аспект. ТиПФК, научно- теоретический журнал, №6, 2000 г.
5. Вести.КЗ).
IMPACT OF THE SINGLE SESSION OF CLASSIC MASSAGE ON BIOELECTRICAL ACTIVITY OF THE BICEPS BRACHII IN SURFACE ELECTROMYOGRAPHY SURVEY. PRELIMINARY STUDY

Wpływ pojedynczego zabiegu masażu klasycznego na aktywność bioelektryczną mięśnia dwugłowego ramienia w badaniu elektromiografii powierzchniowej. Doniesienie wstępne

Bartłomiej Niespodziński a, Hieronym Bykowski b, Małgorzata Łukowicz d, Jan Mieszkowski a, Agnieszka Skopowska b, Adam Szulc a

a Kazimierz Wielki University in Bydgoszcz, Institute of Physical Culture, Chodkiewicza 30; 85-064 Bydgoszcz, Poland
b Nicolaus Copernicus University Ludwik Rydygier Collegium Medicum in Bydgoszcz, Chair and Department of Lasertherapy and Physiotherapy, M. Curie Skłodowskiej 9; 85-094 Bydgoszcz, Poland
c Jędrzej Śniadecki Academy of Physical Education and Sport in Gdańsk, Kazimierza Górskiego 1; 80-336 Gdańsk, Poland
d Józef Piłsudski University of Physical Education in Warsaw, Chair of Rehabilitation, Marymoncka 34; 00-968 Warsaw, Poland.

Number of characters: 44 800 (with abstracts). Number of images: 1 x 1000 characters (lump sum)= 1 000 characters. Total: Number of characters: 45 800 (with abstracts, summaries and graphics) = 1,15 spreadsheets publishing.

Keywords: classic massage, surface electromyography, biceps brachii muscle.

Słowa kluczowe: masaż klasyczny, elektromiografia powierzchniowa, mięsień dwugłowy ramienia.

Streszczenie

Cel. Ocena wpływu pojedynczego zabiegu masażu klasycznego na czynność bioelektryczną mięśnia dwugłowego ramienia.

Material i metody. Badanie zostało przeprowadzone na 25 (11 kobiet oraz 14 mężczyzn) zdrowych dorosłych ochotnikach (średnia wieku 25.34 ± 5.85). W badaniu elektromiografii powierzchniowej (sEMG) oceniono aktywność bioelektryczną mięśni dwugłowych ramienia przed i po zabiegu masażu klasycznego na ten mięsień. Z zebranego sygnału sEMG wyodrębniono następujące parametry: procentowa aktywność względem maksymalnego skurczu dowolnego (MVC), średnia częstotliwość wyładowań jednostek motorycznych oraz średnie wartości bezwzględnej amplitudy metodą pierwiastka z kwadratu średniej (RMS). Powyższe parametry zostały przeanalizowane podczas czynności spoczynkowej, skurczu koncentrycznego, skurczu izometrycznego z oporem submaksymalnym, a także podczas 30 sekundowej próby maksymalnego izometrycznego skurczu dowolnego (MVCt), podzielonej na trzy 10 sekundowe następujące po sobie interwały czasowe (mvct1, mvct2, mvct3).

Wyniki. Znormalizowane wartości amplitudy po masażu uległy istotnemu obniżeniu. W przypadku mięśnia dwugłowego ramienia kończyny niedominującej było to 9.6% podczas czynności spoczynkowej (p < 0.05), 20% dla skurczu koncentrycznego oraz izometrycznego (p <0.05). Mięsień kończyny dominującej zmniejszył swoją aktywność o 16% (p < 0.05) i 12% (p < 0.01) odpowiednio w skurczu koncentrycznym i izometrycznym. W przypadku wartości absolutnych RMS amplitudy doszło do istotnego jej zwiększenia podczas prawie całego okresu MVCt dla obu mięśni. Dla mięśnia kończyny dominującej był to wzrost o 14% i 4% (p < 0.05) odpowiednio dla mvct2 i mvct3. Analogicznie, dla mięśnia kończyny przeciwnej było to 18% (p < 0.005) podczas mvct1 oraz 24% (p < 0.001) mvct2 i mvct3.
**Abstract**

**Aim.** To evaluate the impact of the single session of classic massage on the bioelectrical activity of biceps brachii muscle.

**Material and methods.** The study was conducted on 25 (11 females and 14 males) healthy young adult volunteers (mean age 25.34 ± 5.85). In the surface electromyography (sEMG), bioelectrical activity of biceps brachii muscle, before and after classic massage, was evaluated. From received sEMG signal, following parameters were extracted: percentage of maximal voluntary contraction (MVC), mean discharge rate of motor units and mean absolute values of amplitude by root mean square (RMS) method. The parameters above were analyzed during the rest activity, concentric contraction, isometric contraction with submaximal resistance, and also in 30-second maximal isometric voluntary contraction trial (MVCt), divided into three 10-second consecutive time periods (mvct1, mvct2, mvct3).

**Results.** After massage, normalized values of mean amplitude were significantly reduced. In the case of biceps brachii muscle of non-dominant limb, it was 9.6% lower during rest activity (p < 0.05), 20% for concentric and isometric contraction (p < 0.05). Muscle of dominant limb reduced its activity by 16% (p < 0.05) and 12% (p < 0.01) in concentric and isometric contraction, respectively. In case of absolute RMS amplitude values, there has been a significant increase during almost entire MVCt for both muscles. For muscle of dominant limb, increase was by 14% and 4% for mvct2 and mvct3, respectively. Analogically, for contralateral muscle, it was 18% (p < 0.005) during mvct1 and 24% (p < 0.001) mvct2 and mvct3.

**Conclusions.** Single session of local classic massage of biceps brachii muscle improved its neuromuscular coordination expressed in surface electromyography survey.

**Introduction**

The classic massage (Swedish) is one of the most common form of massage used in rehabilitation, sport and wellness purposes. By definition, massage suppose to reduce increased muscle tone and improve contractile properties. The sport and medical use of massage techniques dates back to ancient times, when the wrestlers and athletes prepared themselves for the fights and competitions during Olympic Games. Currently, different forms and massage techniques are widely used in medicine, in the prevention and the management of sport injuries, specific prestart and after start preparation of athletes (Callaghan 1993; Tiidus and Shoemaker 1995; Hemmings 2001; Robertson, Watt and Galloway 2004). All because, the benefits that’s comes from using massage serves as a medical factor in therapy.

Many studies all over the world discuss the benefits effects of massage, especially:

- improvement of growth and development (Field 1988; 1998; Jinon 1996; Field et al. 1996; Field et al. 2004),
- after massage improvement of neuromuscular function and regulation of the autonomic nervous tonus (Leivadi et al. 1999),
- reduction of pain (Lund et al 1999; Lund 2000; Hernandez-Reif et al. 2001; Sritoomma 2012),
- enhancement of immune function (Field et al. 2001; Hernandez-Reif et al. 2004; Hernandez-Reif et al. 2005),
- influence on psychological mechanisms (relaxation, reduce of depression and aggression, effects of on attention disorders) (Field et al. 1996; Diego et al. 2004),
- influence on blood pressure and heart rate (Diego et al. 2004; Lund et al 1999),
- relief of muscle tension (Stamford 1985),
- improvement of stretching of connective tissue (Samples 1987; Best et al. 2008).
Most of the studies examine the physiological aspects of massage therapy, and only few of them as a main center of interest focus on the psychological benefits of massage. All because medical effects of therapy are dependent from many factors such as technique parameters used during the massage, the pressure putted in the hand movement, time and the speed of massage and many others. Those factors are quite easy to measure and to define, and the psychological aspects of massage is always dependent from the human personal reactions. Always have to remember that physiological effect are in continues correlation with psychological effects, and changes of one of them can cause changes in another. There is great problem to define which effect of massage is most benefits for the health because those effects are widely directed and changes that appears are from many different body systems. Improvement of growth and development of children as a therapeutically result was wildly showed in many studies, such as works of Field et al. (1986). He observed that children treated with three 15-min massages per day through 10-days period had more than 47% greater weight gain than normal group of children. Same conclusions were presented in many others studies, and also it has been shown that after a period of massage treatments bone mineralization, bone density and bone length increased (Moyer-Mileur et al. 1995). The mechanism of weight gain in preterm infants is still unclear, but very likely hypothesis was depicted by Field (1988). He showed that massage stimulates vagal activity, with the vegetative branch of the vagus facilitating the release of food absorption hormones (example insulin), and increasing gastric motility. The effect of this process was very effective food absorption, and much higher weight gain than in normal group of children. This experimental hypothesis model was partially confirmed in other researches (Uvnas-Moberg et al. 1987; Diego et al. 2004).

Another very important massage effect is improvement of neuromuscular function and regulation of the autonomic nervous tonus. Many scientist demonstrated that massage therapy may cause essential increase in motion range, strength and improvement in neuromuscular function (Leivadi et al. 1999; Diego et al. 2002) as a result in quickness of nerve fibers conduction.

Additionally, massage therapy is very valuable tool for the pain reduction. It can activate endogenous pain inhibitory system, causing relief of pain sensations. Mechanisms of pain relief during the massage therapy was reveled basing on two different theories - “closes gate”, and “substance P decrease”. Both of them can have impact on the ending effect and pain relief. Of course, decrease of pain can may be connected to the increases of serotonin, dopamine concentration and higher release of endogenous opioids, but this effect is an additional factor (Jhingran et al. 1996; Bergstrom et al. 1998; Rapaport et al. 2010.). Closes gate theory is based on different speed of transmission of pain sensations and massage pressure in nerve fibers. Factors causing pain sensations stimulates less myelinated nerve fibers, and the conduction velocity of this information to the central nerve system is much longer, than the transmission of massage pressure, which stimulate much more insulated and longer nerve fibers. When massage information reaches the brain before the pain stimulus, it can lead to the closing of the gate for the pain stimulus, therefore, there won’t be any cortical answer such as the uncomfortable pain felling. Secondary theory is based on role of substance P in pain feeling perception. Substance P is one of the factors that are judged to be responsible for the causing of pain. Massage therapy can lead to enhance the deep sleep, when less substance P is emitted, and as a result patients can feel less pain.

There are several studies about another massage therapy values. It can enhance human immune system and as a result it can essentially increase immune function, and give a better possibility to cancer and leukemia diseases treatment. Diego et al. (2001) reveled that a period of massage therapy can lead to increase of NK cells concentration in HIV infected mature patients. Natural killers as a first line of immune system defense, provide rapid response to virally infected cells and tumor formation. Additionally, when analyzing the immune system always have to remember about connection between psychological state and mechanisms and immuno-suppression. Long time depression is responsible for the decrease number of CD4 cells (Ravindran et al. 1995), and as a result it can lead to decrease of immune system response. Psychological effect of massage series on depression is very well known and it can lead to significant improvement of mood with enhancement of immune function.
Every human reaction is a result of physiological and psychological reactions. Massage therapy have very big impact on them both but psychological mechanisms in human body is still not fully clear. Like every physical activity massage therapy can lead to increase of endogenous opioids production. Endorphins and enkephalins are called hormones of happiness and their activity can lead to significant mood improvement. Additionally, massage therapy can cause reduction of aggressive behaviors. It has been connected to the after therapy decreases of anxiety and stress hormones concentration (Diego 2002). Increase of the serotonine, observed during the therapy, is correlated to the decrease of substance P and cortisol concentration, which is being responsible for pain and mental state reactions. Increase of dopamine concentration during massage therapy is contributed with decrees of norepinephrine level. And the summary result of this reaction can be lover blood pressure, better mental calm and state (Field, Diego and Hernandez-Reif 2007).

Furthermore studies on autistic children given another very important psychological conclusion, that every day massage therapy can really improve children behavior and lead to greater involvement in classroom activity (Escalona et al. 2001).

Period of Swedish massage technique lead mechanically activation of skin, muscles, tendons and connected tissues. Indirectly those elements are responsible for regulation of autonomous nervous system, which activity underlies of blood pressure regulation. Omitting the nervous regulation once more, very important factor is the influence of massage on psychological mechanism. After massage, blood pressure decreases and during the treatment it can be additionally regulated by limbic structure reaction, which remains in close correlation and connection to autonomic neuronal circuits. As a effect it reduces sympathetic activity, and decreases blood pressure (Aourell, Skooga and Carleson 2005). Moreover the effects of massage on blood pressure is dependent from the massaged areas of the body (different amount of sensory input from coetaneous and muscle afferents).

Of course, nowadays many new research and papers discuss the impact of massage on neuromuscular system, not only after few times of massage but after single session of therapy, both in peripheral and central nervous system (Sliz et al. 2012). It is important to evaluate these effects to understand the mechanisms of massage therapy. Some authors already investigated the effects of massage techniques on bioelectrical activity of muscles in surface electromyography (sEMG) survey. In most cases low back and lower limbs muscles were taken in consideration. sEMG provides information about muscle activity profile derived from surface electrodes and it is very efficient method of muscles bioelectrical activity analyzes. Possibility of measuring the effects of massage on muscle bioelectrical signals gives value information about neuromuscular system and factors that can occur during any activity. Therefore, there is no better experimental tool that could provide such information for the analyzes and could explain the elementary effects of massage therapy.

**Aim**

To evaluate the impact of the single session of classic massage on the bioelectrical activity of biceps brachii muscle.

**Material and Methods**

In the study, 25 healthy young adults (mean age 25.34 ± 5.85) have voluntary participated. 11 females and 14 males. 23 of them had dominant right upper limb and the rest of them had domination of the left side. Participants claimed that they did not suffer from upper limb injuries in the past.

The study consisted of two parts: diagnostic and intervention. The first one was based on surface electromyography (sEMG) measurements. It was conducted right before and 5 minutes after single intervention. Procedure was consisted of following activities and motor tasks:

1. Resting activity - 5 seconds
2. Concentric contraction - 3 x 3 seconds
3. Isometric contraction - 3 x 3 seconds
4. Maximal voluntary contraction 3 x 5 seconds
5. Maximal voluntary contraction trial (MVCt) – 30 seconds
In the first one, the participants stood with arms hanging along the body and with palms pointing forward. Subsequently, subjects done three repetitions of flexion of elbow joint. The movement was in subject’s full range of motion, from maximal extension into full flexion. The third activity was performed in the same starting position as above. The participants had their elbow joints flexed in 90° while they held 3 kg dumbbell in each hand. This task was also repeated three times with at least 5 minute break between each of them. At the end, participants performed three MVC measurements and single MVCt. The position of body was exactly the same as in the previous activity but instead of free weights, subjects held stabilized bar and attempted to flex elbow joints as strong as they can. MVC was performed in purpose of further normalization process (Burden and Barlett 1999). Position of the 90° of elbow joint flexion is considered to be the best for developing the maximal isometric torque (Christova 1998). During these two activities, subjects were vocally enhanced to make their maximal effort. Each of three MVC measurements was separated by 3-min. recovery time. After the MVC, the maximal voluntary contraction trial took place. For the study purpose, the trial was analyzed by three 10-second consecutive periods: mvct1 (0-10 s), mvct2 (11-20 s), mvct3 (21-30 s). Before the diagnostic protocol, participants performed 10 minutes warm up.

All surface electromyography measurements were done by portable electromyography device: MyoTrace 400 (Noraxon, USA). The study protocol was conducted with bipolar technique and the device’s two channels were used. Each channel has sampling rate of 1000 Hz. Used electromyograph has signal amplification of 500 times, common mode rejection (CMR) of >100 dB, 16 bit resolution and the 10-500 Hz band-pass filter.

Electrode placement as well as skin preparation were consistent with SENIAM organization (Hermens et al. 1999). It included: hair shaving if necessary, skin abrasion and clearance with alcohol. After that, two Ag/AgCl electrodes (Sorimex, Poland) with 1 cm diameter of active surface were placed in line between acromion and fossa cubit at 1/3 from fossa cubit. The reference electrode was placed on the epicondylus lateralis humeri. The distance between active surface of each pair of electrodes was 2 cm.

In conditions mentioned above, after the acquiring signal, data was processed and archived by MyoResearch XP Master Edition 1.07 (Noraxon, USA). This process included cleaning the EKG artifacts, calculating the root mean square (RMS) of the amplitude (50 ms moving window) and the normalization by MVC (300 ms moving window). From such prepared EMG signal the following parameters have been obtained for each activity: mean value of RMS amplitude, mean percentage activity of MVC and mean frequency of power spectrum calculated on the basis of Fast Fourier Transformations (FFT). After this part, localization of electrodes were marked. It was in purpose of proper secondary placement after the intervention.

The second part of the study was the intervention. In this part, participants underwent single session of the classic massage of both biceps brachii muscles. Order of massaged side was randomly assigned. During the massage, participant was sitting with his upper limb abducted in 90°, so that the limb was freely resting on physiotherapist’s shoulder. Following techniques (fig. 1.) were used in following order: effleurage, friction, petrissage, vibration and tapotement. Each subsequent technique was preceded by effleurage and performed three times. The massage was done in the direction from the insertion to the origin of the biceps brachii muscle. The entire procedure lasted approximately 5 minutes. The study was conducted with an assent of Bioethical Committee of Ludwik Rydygier Collegium Medicum in Bydgoszcz of Nicolaus Copernicus University of Toruń nr KB 318/2011. All parts of investigation took place in the Chair and Department of Laserotherapy and Physiotherapy of Ludwik Rydygier Collegium Medicum in Bydgoszcz of Nicolaus Copernicus University of Toruń.

The significance of differences before and after intervention were evaluated by paired $t$-Student test or Wilcoxon signed-rank test. The choice of the statistic test was dependent on similarity to normal distribution of the differences. This condition was examined by Shapiro-Wilk test. In addition, differences between both biceps brachii muscles were evaluated before and after intervention part. They were tested by unpaired $t$-Student test and U-Mann Whitney test.
Analogically, choice of the statistic test was dependent on similarity to normal distribution of variables and their variance homogeneity. That last condition was tested by the Levene’s test. Level of significance for all tests was set at $\alpha = 0.05$. Results are presented as arithmetic means and standard deviations (in brackets). Values of $T$ (Wilcoxon) statistic were converted into corresponding value of $z$ test to show the results more clearly. It was done by following equation (Francuz and Mackiewicz 2005):

$$Z_{(T)} = \frac{n(n+1) - 4T}{\sqrt{2n(n+1)(2n+1)}}$$

$Z_{(T)}$ – result of Wilcoxon test expressed in values of standardized normal distribution, 
$n$ – number of pairs which subtraction is different than zero,  
$T$ – result of Wilcoxon test.

All statistic analyses were done in Statistica 10. Software by StatSoft Inc.

Results

Considering the normalized values of the amplitude, the resting activity of the contralateral biceps brachii significantly decreased (9.6%) after massage. In dominant limb, this change was also seen but it was insignificant. In concentric and isometric contractions the normalized amplitude significantly decreased for both studied muscles. The values in concentric contraction were 16% and 20% lower after massage from dominant and contralateral limb respectively. In isometric conditions, it was 12% and 20% respectively. In whole maximal voluntary contraction trial only the second period (11-20 s) showed significant increase in studied parameter. It was approximately 6%. Table 1. Mean (SD) values of amplitude before and after massage in each activity for both biceps brachii muscles normalized by maximal voluntary contraction.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Dominant</th>
<th>Contralateral</th>
<th>z or t value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest</td>
<td>0.61 (0.48)</td>
<td>0.94 (1.32)</td>
<td>z = 0.77</td>
<td>0.4432</td>
</tr>
<tr>
<td>Concentric contraction</td>
<td>4.31 (2.71)</td>
<td>4.34 (3.64)</td>
<td>z = 2.54</td>
<td>0.011*</td>
</tr>
<tr>
<td>Isometric contraction</td>
<td>18.27 (8.73)</td>
<td>19.21 (9.47)</td>
<td>t = 3.19</td>
<td>0.0039*</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (0-10 s)</td>
<td>67.34 (11.46)</td>
<td>68.81 (13.46)</td>
<td>t = 0.27</td>
<td>0.7921</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (11-20 s)</td>
<td>68.75 (11.29)</td>
<td>68.16 (8.52)</td>
<td>t = 0.00</td>
<td>0.9977</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (21-30 s)</td>
<td>72.15 (10.12)</td>
<td>70.57 (11.01)</td>
<td>t = 0.78</td>
<td>0.4443</td>
</tr>
</tbody>
</table>

z – value of z statistic converted from Wilcoxon test. t – value of paired t-Student test. * Statistical significant difference at p < 0.05.

Frequency values (table 2.)

After the massage, only in the concentric contraction contralateral biceps brachii showed significant increase (approximately 7%) in mean frequency value. There were significant difference (p < 0.005) between both biceps brachii muscles during the rest activity, however, due to spontaneous low amplitude discharges of motor units these difference cannot be consider as reliable.
Table 2. Mean (SD) values of frequency before and after massage in each activity for both biceps brachii muscles.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Dominant</th>
<th>Contralateral</th>
<th>Statistic test</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest</td>
<td>129.5 (73.63)a</td>
<td>87.09 (41.92)a</td>
<td>t = 2.04</td>
<td>0.0527</td>
</tr>
<tr>
<td>Concentric contraction</td>
<td>57.3 (6.86)</td>
<td>54.47 (7.6)</td>
<td>t = 1.67</td>
<td>0.1083</td>
</tr>
<tr>
<td>Isometric contraction</td>
<td>59.69 (7.42)</td>
<td>56.2 (6.33)</td>
<td>t = 0.08</td>
<td>0.9352</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (0-10 s)</td>
<td>60.08 (9.05)</td>
<td>57.28 (6.3)</td>
<td>t = 1.11</td>
<td>0.2779</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (11-20 s)</td>
<td>53.69 (7.64)</td>
<td>51.08 (5.93)</td>
<td>t = 0.77</td>
<td>0.4469</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (21-30 s)</td>
<td>49.79 (7.13)</td>
<td>47.4 (5.55)</td>
<td>t = 0.49</td>
<td>0.6264</td>
</tr>
</tbody>
</table>

z-value of z statistic converted from Wilcoxon test. t-value of paired t-Student test. * Significant difference between two biceps brachii muscles. * Statistical significant difference at p < 0.005.

Root mean square of amplitude (Table 3.)

The changes of RMS amplitude in the three first activities did not occur to be significant. In maximal voluntary contraction trial both biceps brachii muscles increased their RMS amplitude in all periods, except the first 10 seconds (mvct1) in dominant upper limb. The contralateral biceps brachii increased its amplitude by 18% in mvct1, and by 24% in mvct2 and mvct3. In case of the dominant biceps, it increased after massage about 14% and 4% in mvct2 and mvct3, respectively.

It was seen that the contralateral biceps brachii muscle had higher values of RMS amplitude and normalized values but lower in frequency parameter than in dominant muscle.

Discussion

The main outcome of the study is the decrease of normalized values of amplitude in basic activities which did not exceed 20% of muscle bioelectrical activity. It was connected with increase in absolute amplitude values in maximal voluntary contraction trial. It can be explained that the overall potential to generate higher amplitude in maximal efforts increased so the normalized values of submaximal activities occurred to be lower. In the study, mean RMS amplitude of mvct1 reached values of 394.14 ± 230.57 µV for dominant biceps brachii muscle, whereas the opposite muscle had mean values of 445.41 ± 289.16 µV. It was connected with slightly lower values (not significant) of mean frequency for contralateral muscle (57.28 ± 6.3 Hz) in compare to dominant (60.08 ± 9.05 Hz). Such state of matter, may be contributed to better motor control strategy in dominant upper limb. For the dominant biceps brachii muscle similar results was observed in study conducted by Piitulainen et al. (2013). In their work, mean RMS amplitude reached 356 ± 167 µV and the median
frequency was established on 81 ± 52 Hz. However, data of parameters of contralateral muscle are not known.

Table 3. Mean (SD) values of root mean square of amplitude before and after massage in each activity for both biceps brachii muscles.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Dominant</th>
<th>Contralateral</th>
<th>z-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest</td>
<td>2.8 (1.79)</td>
<td>3.75 (3.48)</td>
<td>1.28</td>
<td>0.2012</td>
</tr>
<tr>
<td></td>
<td>3.13 (2.27)</td>
<td>4.19 (5.39)</td>
<td>0.12</td>
<td>0.9036</td>
</tr>
<tr>
<td>Concentric contraction</td>
<td>18.99 (5.65)</td>
<td>19.2 (6.75)</td>
<td>0.36</td>
<td>0.7207</td>
</tr>
<tr>
<td></td>
<td>18.8 (6.51)</td>
<td>20.14 (8.62)</td>
<td>0.74</td>
<td>0.4593</td>
</tr>
<tr>
<td>Isometric contraction</td>
<td>87.1 (42.63)</td>
<td>104.5 (63.01)</td>
<td>0.26</td>
<td>0.7975</td>
</tr>
<tr>
<td></td>
<td>88.43 (38.39)</td>
<td>101.83 (55.13)</td>
<td>0.43</td>
<td>0.6729</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (0-10 s)</td>
<td>394.14 (230.57)</td>
<td>445.41 (289.16)</td>
<td>1.52</td>
<td>0.1284</td>
</tr>
<tr>
<td></td>
<td>440.99 (270.51)</td>
<td>527.43 (306.42)</td>
<td>4.65</td>
<td>0.0001**</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (11-20 s)</td>
<td>416.05 (260.25)</td>
<td>441.6 (271.5)</td>
<td>2.31</td>
<td>0.0295*</td>
</tr>
<tr>
<td></td>
<td>475.99 (284.32)</td>
<td>547.8 (319.3)</td>
<td>6.02</td>
<td>0.0000**</td>
</tr>
<tr>
<td>Maximal voluntary contraction trial (21-30 s)</td>
<td>424.8 (273.27)</td>
<td>443.04 (271.52)</td>
<td>2.35</td>
<td>0.0186*</td>
</tr>
<tr>
<td></td>
<td>440.99 (270.51)</td>
<td>550.79 (341.46)</td>
<td>3.97</td>
<td>0.0001**</td>
</tr>
</tbody>
</table>

z – value of z statistic converted from Wilcoxon test. t – value of paired t-Student test. * Statistical significant difference at p < 0.05. ** p < 0.001.

The study contained specific conditions of isometric contraction. Participants attempted to constantly maintain their maximal strength during 30 – second trial (MVCt). Such prolonged maximal contraction could be conducted only among healthy people. Under these conditions, the main source of energy for muscle in the first second is phosphocreatine and in small extent - glycolysis (Górski 2008). Subsequently, contribution of phosphocreatine decreases in favor of glycolysis process until they reach the same level in 10th second. If the contraction lasts longer, phosphocreatine as a source of energy still decreases and reaches level of four time lower than in the beginning. At the last 10 - second (20-30 second) period, this source becomes literally depleted. Otherwise presents the use of energy through glycolysis. At first, as already was mentioned, its part is small, but already in the first two seconds, the intensity of process is doubled and remained relatively constant until approximately 20 seconds of ongoing contraction. In the last seconds of the observed muscle work (20-30 sec.), the efficiency of the process returns to state which was at the beginning of contraction. Mentioned process of glycolysis, regarding the intensive isometric characteristic of contraction, involve mainly anaerobic metabolism. In such muscle work, there is a lack of muscle pump and some of the bloodstream vessels are closed, therefore it is impossible to supply muscle cells in products from extracellular environment. Energy for the muscle contraction in such conditions is acquired from intracellular supplies, mainly phosphocreatine and muscle glycogen, hence mainly used by fast motor units (type F).
During the 30-second maximal voluntary contraction trial, successive decrease of mean frequency in following time periods was seen. The mentioned decrease is connected with the increase in absolute values of mean RMS amplitude, which indicates the peripheral fatigue process. Imaging this process by changes in frequency is well known and documented phenomenon (Pincivero et al. 2006; Cifrek et al. 2009; Enoka 2012).

The cause of observed decrease of frequency is decrease of the motor units conduction velocity. During muscle effort, the produced lactic acid makes the intracellular environment of muscle fibers more acidly, which directly lowers the conduction velocity. However, relation between the conduction velocity and the decrease in mean frequency is disproportionate (Rainoldi et al. 1999), thus, existence of other additional factors indicating this phenomenon is probable. One of them could be a greater activity of slow motor units (type S) instead of fatigued fast ones. Probably, synchronization of active motor units is the second factor (Cifrek et al. 2009).

Mentioned before increase of amplitude was explained by De Luca in 1979. He assumed that the reason of that lies in shift of entire power spectrum into lower frequencies, thus the tissues between muscle and electrode act like low-pass filter. In effect, the electrodes placed on skin receive much more signal values (Cifrek et al. 2009). In our study, massage increased only the amplitude values, without corresponding spectral shift, therefore, we can assume that the increased amplitude was not due to fatigue phenomenon.

One of the studies that discussed the issue of massage stimulation and the myoelectrical muscle fatigue was study conducted by Tanaka et al. (2002). Authors evaluated the back muscle activity during the sustained back extension for 90 seconds. Twenty-nine healthy volunteers performed mentioned task before the massage and right after it. Another day, the same group underwent fatigue task once again but instead of massage they rested for 5 minutes. In addition, subjects evaluate in both conditions their subjective sense of fatigue by using Visual Analogue Scale (VAS). Results did not show any significant differences after massage or control condition (resting) in bioelectrical activity of lumbar region of back muscles (median and mean frequency, RMS amplitude). Only the subjective sense of fatigue changed significantly but the difference was rarely noticeable. In compare to our study, we achieved increase in the RMS amplitude during the maximal voluntary contraction trial (fatigue task). It was not connected with greater decrease in mean frequency, thus we can assume that the maximal muscle potential increased without any significant fatigue manifestation in surface electromyography. It must be noted that the Tanaka’s et al. study contained different fatigue task – longer but also submaximal, and the involved muscles were different. Another study (Young et al. 2005), on different muscle (adductor muscles of the thumb), showed that the single massage session made of effleurage is insufficient to reduce the postfatigue decrement of developing torque. However, the study did not contain the electromyography analysis.

Another attempt to evaluate the impact of local classic massage on the muscle electromyographic activity was done by the Pilok et al. (2009). They analyzed three case studies in the context of the influence of the shank classic massage on the rest activity of the gastrocnemius muscle. Only in one case there was noticeable reduction of mean resting amplitude. In our study, we noticed the increase (not significant) of the mean RMS amplitude. It should be pointed out that in our study the massage intervention was shorter (5 minutes) in compare to mentioned above (approximately 17 minutes), and the aims of interventions were different. Pilok et al. wanted to relax muscles, whereas our purpose was to maximize the efficiency of the biceps brachii muscles.

The conducted study, as a preliminary study, has several limitations. Firstly, the issue of the lack of the control group. In many studies, repeated measurements of the same group served as a control group. It is difficult to evaluate the correctness of such methodology because studies are unequivocal in terms of repeatability of surface electromyography within day or between days (Callard et al 2000; Nicolas et al. 2005; Huber et al. 2007; Ochia and Cavanagh 2007). Some of them used special device (Sliz et al. 2012) to imitate the contact with participants’ skin or develop specific low-intensity touch (Patterson et al. 2008; Rapaport et al. 2010.), rather than simple lack of intervention. The simultaneous study of both groups (massage and control) seems to be more
appropriate. Secondly, surface electromyography does not indicate directly the force which muscle could develop, therefore the simultaneous torque measurements of elbow joint and corresponding muscles should be considered in future study. It will help to estimate if there is improvement of torque associated with observed increase in absolute values of RMS amplitude.

**Conclusions**

In the study, single session of classic massage occurred to improve biceps brachii muscles efficiency expressed in surface electromyography survey. Non-dominant biceps brachii occurred to have slightly greater neural response potential to a massage stimulus, probably due to less initial motor units discharge rate. Further studies including randomized control group, in the form of separate group, and the additional torque measurements should be conducted.

**References**


Samples, P. (1987). Does sports massage have a role in sports medicine? Physician and Sports Medicine, 15, s.177–183.
INFLUENCE OF THE VOLLEYBALL TRAINING TO THE DEVELOPMENT OF THE GENERAL EFFICIENCY AND THE SOMATIC BUILD OF GIRLS PRACTICING THE VOLLEYBALL

Wpływ treningu siatkarskiego na rozwój sprawności ogólnej i budowy somatycznej dziewcząt trenujących siatkówkę

Mirosława Cieślicka¹, Monika Lewandowska¹, Mirosława Szark-Eckardt¹, Walery Zukow²

¹Instytut Kultury Fizycznej, Uniwersytet Kazimierza Wielkiego w Bydgoszczy
²University of Economy, Bydgoszcz, Poland

Keywords: training; general efficiency; somatic structure; girls; volleyball.

Abstract
An assessment of the impact of the volleyball training is a main purpose of research to the general efficiency and the somatic development of girls practicing the volleyball. Above this under construction showing differences morphological of examined competitors towards the all-Polish population, determining profiles of the body amongst examined volleyball players and sentencing the level of motor abilities in comparing to peers from regional tests. They conducted research on 24 volleyball players from and of the II classes of the junior high school of the Team of Schools No. 10 in Bydgoszcz in 2012. The following research methods were applied: the measurement of the height of the body and the body weight and the test assessing the physical fitness "International Test of the physical fitness". Get results of observation in the time made in the evaluation of the physical level of development and chosen motor abilities of girls of Schools practicing the volleyball and attending the Team No. 10 in Bydgoszcz, constitute the ground for expressing the following conclusions: 1. The examined young stock doesn't differ in the morphological level from compared peers from regional and all-Polish tests. 2. Amongst examined a leptosomatic profile overbalances bodies. 3. Girls playing volleyball demonstrate the greater efficiency than compared groups.

Streszczenie
Głównym celem badań jest ocena wpływu treningu siatkarskiego na sprawność ogólną i rozwój somatyczny dziewcząt trenujących siatkówkę. Ponad to wskazanie różnic w budowie morphologicznej badanych zawodniczek w stosunku do populacji ogólnopolskiej, określenie sylwetek ciała wśród badanych siatkarek oraz skazanie poziomu zdolności motorycznych w porównaniu do rówieśników z badań regionalnych. Badania przeprowadzono na 24 siatkarkach z I i II klas gimnazjum Zespołu Szkół nr 10 w Bydgoszczy w 2012 roku. Zastosowano następujące metody badawcze: pomiar wysokości ciała i masa ciała oraz test oceniający sprawność fizyczną „Międzynarodowy Test Sprawności Fizycznej”. Rezultaty uzyskane w czasie poczynionych obserwacji w zakresie oceny poziomu rozwoju fizycznego oraz wybranych zdolności motorycznych dziewcząt trenujących siatkówkę i uczęszczających do Zespołu Szkół nr 10 w Bydgoszczy, stanowią podstawę do sformułowania następujących wniosków: 1. Badana młodzież nie różni się poziomem morfologicznym od porównywanych rówieśników z badań regionalnych i ogólnopolskich. 2. Wśród badanych przeważa leptosomaticzna sylwetka ciała. 3. Dziewczęta grające w siatkówkę wykazują większą sprawność od porównywanych grup.
Introduction

The physical fitness is connected not only with the system of the move, but also with functioning of the entire organism. It is assumed that the physical fitness includes the degree of the function of all organs and arrangements, of controlled motor exercises, the practicing lifestyle, but also motor abilities: weight, high-speed, coordinating and endurance. According to J. Raczek "the motor-ness accomplishes the particular role in the area of the physical culture. It is, because for specialists of the physical culture with not only one of basic functions of the living organism and the element of his personality, with specific object of the test, but above all with area of their action (Osiński, 2000). According to well-known Howley researchers and Franks he wields enormous influence on the physical fitness on: the suppleness, the endurance, strength of muscles, the slim silhouette of the body or the function cardio-respiratory. The physical education is one of compulsory classes for students at school. The game teacher has a duty of controlling the physical development and the motricity of students. The activity increases the level of the function and the efficiency of the unrolling young body of the man (Pilewska, 2002,, Kurzeja et al. 2012 Pilewska et al. 2008). Every teacher in the process of the implementation of operations didactic education, should aspire for correct managing the process of the physical education, at applying adequate means of methods and for selecting physical burdens. Cognitions of motor characteristics of the student, but also the control over them are the best way measurement at using tests which came into existence from the largeness (Cieślicka et al. 2012). At present most oftentimes in these tests an International Test of the physical fitness is chosen and applied. S. Pilicz thinks, that "game teacher, before he chooses measuring appropriate methods, must establish, what he wants to measure up. The teacher which doesn't use appropriately selected methods of measurements, most oftentimes wastes his effort. If because it doesn't effect systematic evaluations determining needs of individual students, won't know, whether they stayed fulfilled. It won't also be able to point, oneself his teaching methods benefit foster children "(Pilicz 1997). An assessment of the impact of the training is a main purpose of volleyball research to the general efficiency and the somatic development of girls practicing the volleyball. Above this under construction showing differences morphological of examined competitors towards the all-Polish population, determining profiles of the body amongst examined volleyball players and sentencing the level of motor abilities in comparing to peers from regional tests.

Material and methods

The research on the somatic development and the general physical fitness was conducted in the Team of Schools No. 10 in Bydgoszcz in December 2012. Altogether 24 schoolgirls of the age of 14-16 years were examined. The number of girls attending the first class takes the junior high school out 14, however to second class 10. The test of the physical fitness was carried out on a gymnasium after the conducted warm-up, during classes of the game lesson. Schoolgirls were informed about the way of performing tests. A sportswear applied to every competitor. Volleyball players train 5 times during the week for two hours, under direction of the coach of the volleyball. Trainings are held on the hall in a Palace of Young people in Bydgoszcz. The evaluation of the physical development of examined volleyball players from the Team of Schools in Bydgoszcz was No. 10 assessed with measurements anthropometric which concerned the height of the body and the body weight. The height of the body was measured with the help stadiometer for on the medical weight range. The measurement was read off with the accuracy 0.1 cm. However the measurement of the body weight was made on the medical weight range in the presence of the nurse. The measurement was read off with accuracy 10 dag. While examining a sportswear applied to examined volleyball players without the footwear. Results of measurements of volleyball players were used for determining types bodies according to the system of Kretschmer which favored 3 types of the figure:

1. leptosomatic type - the narrow and extended structure, the small weight of the body, the face and the extended neck, the narrow and flat chest, narrow shoulders and the pelvis, slender and poorly muscular limbs
2. athletic type - strong build with strongly developed bones and muscles
3. type picnic - the small skeleton, the tendency of putting on weight, the wide chest and the well vaulted, short neck, the wide face, barges and the pelvis, short limbs, weak musculature ".

The physical build of volleyball players was assessed with applied pointers through F. Curtius with using the Rohrer indicator according to the pattern:

\[
AND = \frac{\text{masa ciała w gramach} \times 100}{(\text{wysokość ciała w cm})^3}.
\]

Norms of silhouettes according to Curtius have the following form:
1. Leptosomatic type x- 1.27
2. Athletic type 1.28 - 1.49
3. Type picnic 1.50 - x

However the measurement of individual motricities was fulfilled based on the International Test of the physical fitness which included 6 tests:

The long jump from the place. Tests were conducted on a gymnasium. Two hard mattresses were put on not a slippery base in length one after the other. In front of the mattress, in the distance of the about one subway, at right angles to their longer pivot the starting post was appointed. Practicing he stopped in the little straddle position with placed parallel bases in front of the starting post, next lowered the torso, bent legs with the simultaneous assault of both hands with fossa into the back, what performed swings of hands ahead all over and pushed with his legs simultaneously energetically against base in order to perform the jump the longest most possible. The length of the jump stayed measured from the outlined line to the closest left track jumping over the heel. If jump practicing after the performance he fell down to the back, then the jump stayed repeated. From two performed jumps, is a measure of the test longer, written down with the accuracy up to 1 cm.

Measurement of the force of the hand. Training tests in the run time stood little straddle position. With hand included the earlier inspected palmar dynamometer so that fingers and the hand fit tight closely. Both shoulders were left freely along the torso, in addition the hand with the dynamometer was kept in the certain distance from the body. Practicing gripped the dynamometer with maximum power. Tests were performed left and with right-hand man. The good result was enrolled with the accuracy in 1 kg.

Overhang on bent hands. The test consisted in the persistence the longest most possible in the overhang on the bar about upper limbs bent in an elbow joints. Setting about to the test practicing got hold of the bar ongrip, with fingers from above and with thumb from the fossa, to the width of bars so that his chin is above the bar. The test started with the moment, when practicing independently he was hung on the bar, and ended, when his eyes were found below the bar. The test was performed one time, and for her a time measured in seconds was a measure.

Pendular 4x10 run flat The test took place on a gymnasium about not a slippery surface with two lines distant from oneself for 10 meters. Practicing stood in the front position before the initial line, waited for the signal of the start. After the signal he commenced the run to the back row. Behind her two wood blocks were located about 5x5x5 dimensions cm. Performing the test he raised one of blocks, directed with it back to the starting line, put the block behind the line, directed then again to the back-line and picked up the other block which he moved and put this way like previous. When the block was thrown, but not-puted behind the line, the test was past its pull date and it was necessary to repeat her. From two performed tests a good time was written down with the accuracy to 0.1 of seconds.

Sitting positions from lying. Tests took place on the mattress. Practicing lied down so that legs were bent in knee joints after with angle of 90 steps, but the foot deployed from a distance about 30 cm. Hands were wreathed with fingers were on a neck. Copractioner kneeled down by feet lying and pressed so that they touched base with the entire sole. To the practicing signal he raised the torso for
the sitting position and touched knees with elbows, and then immediately returned to lying on his back and then again performed the sitting position. He repeated these functions enough quickly for, he could, during 30 seconds. The back each time has had to return to the home position in order to enable locked fingers contact with base. Using elbows for pushing off from the mattress was unlawful. Practicing non-stop only one time performed the test. Counted made bends stayed during 30 seconds. Their number is a measure of the test.

Bend of the torso ahead in standing. Tests took place on the bench. Practicing stood without the footwear on the bench so that fingers of feet were at the same time as the edge of a bench. Feet were joined, straight legs in knee joints. From this position practicing made with continuous move forward bend in order to reach with fingers like most low. The student kept such a position of the maximum bend for 2 seconds. If training in the made bend with continuous move he reached the plain on which he was based, received result 0. For every achieved centimeter below the level of the plain a positive point received benches. For every centimeter sorting standing to the level - negative point. The test was past its pull date, if during the bend legs were bent in knee joints. Also all sudden moves were unlawful during the bend. Two performed tests stayed and a better result was written.

At the work standard methods of the mathematical statistics were applied: the arithmetic mean, the standard deviation, differences of averages and the gravity of differences.

At the work standard methods of the mathematical statistics were applied: the arithmetic mean, the standard deviation, differences of averages and the gravity of differences.

\[
\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}
\]

where: \(\bar{x}\) - arithmetic mean
\(x\) - observation
\(n\) - number

\[
\sigma = \sqrt{\frac{\sum_{i=1}^{n} x_i^2}{n} - \bar{x}^2}
\]

where: \(\sigma\) - standard deviation
\(x\) - observation
\(n\) - number of observation
\(\bar{x}\) - arithmetic mean

Coefficient of variation (V) - measure which announces about diversifying data.

\[
V = \frac{\sigma}{\bar{x}}
\]

where:
\(v\) - coefficient of variation
\(\sigma/\bar{x}\) - standard deviation
\(\sigma/\bar{x}\) - arithmetic mean from the test

Purpose of research

An assessment of the impact of the training is a main purpose of volleyball research to the general efficiency and the somatic development of girls practicing the volleyball. Above this under construction showing differences morphological of examined competitors towards the all-Polish population, determining profiles of the body amongst examined volleyball players and sentencing the level of motor abilities in comparing to peers from regional tests.
Results

Table 1. Numerical order of the Rohrera indicator of competitors

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max value</th>
<th>Arithmetic mean $\bar{x}$</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>1.02</td>
<td>1.34</td>
<td>1.16</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>1.07</td>
<td>1.3</td>
<td>1.17</td>
<td></td>
</tr>
</tbody>
</table>

It results from conducted tests that a leptosomatic type prevails of the silhouette among examined competitors practicing the volleyball. The norm of the silhouette according to Curtius is $x = 1.27$. The arithmetic mean in the class I takes out 1.16. However in the class II 1.17.

Table 2. Numerical order of the body weight of examined competitors practicing the volleyball

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max value</th>
<th>Arithmetic mean $\bar{x}$</th>
<th>Standard deviation $\sigma$</th>
<th>Coefficient of variation $V$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>3.1</td>
<td>64.5</td>
<td>55.2</td>
<td>4.6</td>
<td>8</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>3</td>
<td>63.8</td>
<td>57.1</td>
<td>3.72</td>
<td>7</td>
</tr>
</tbody>
</table>

Analyzing the figures included in table 2 they stated that the value of the arithmetic mean of the body weight of competitors was higher in the class II than in the class I. U of older girls is 57.1 kg. However at younger the value of the average is 55.2 kg.

Table 3. Comparing own findings body weight of girls to regional findings of the province Kuyavian - Pomeranian 2001 r. M. Napierala and to all-Polish findings 1991r. R. Przewęda

<table>
<thead>
<tr>
<th>Class</th>
<th>Own tests</th>
<th>Regional tests</th>
<th>All-Polish tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N $\bar{x}$</td>
<td>N $\bar{x}$</td>
<td>N $\bar{x}$</td>
</tr>
<tr>
<td>AND</td>
<td>14 55.2</td>
<td>750 47.7</td>
<td>3586 49.57</td>
</tr>
<tr>
<td>II</td>
<td>10 57.1</td>
<td>750 52.08</td>
<td>3448 52.85</td>
</tr>
</tbody>
</table>

It results from the numerical orders included in table 3 that the value of the arithmetic mean of the body weight is highest at girls practicing the volleyball from the Team train No. 10 in Bydgoszcz from the class I as well as also from the class II. they also stated that all-Polish findings had maximum values of the arithmetic mean of the body weight from regional tests of girls.

Table 4. Numerical order of the height of the body of competitors practicing the volleyball

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max value</th>
<th>Arithmetic mean $\bar{x}$</th>
<th>Standard deviation $\sigma$</th>
<th>Coefficient of variation $V$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>157</td>
<td>176</td>
<td>168.6</td>
<td>5.96</td>
<td>3</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>164.9</td>
<td>175</td>
<td>169.03</td>
<td>2.9</td>
<td>2%</td>
</tr>
</tbody>
</table>

From figures they observed that the arithmetic mean of the height of the body of competitors of the class I was 168.6 cm. However in the class II the value is 169.03 cm. It results from tests that
the height of the body of competitors practicing the volleyball demonstrates the upturn along with age. A quite expressive difference in the standard deviation was also stated between the class I and II. in the class I is 5.96 cm. However in the class II the value takes out 2.9 cm.

Table 5. Comparing findings of own heights of girls to regional findings of the province Kuyavian - of Pomorze M. Napierała_ of 2001 yr and to all-Polish findings 1991 r. R. Przewęda

<table>
<thead>
<tr>
<th>Class</th>
<th>Own tests</th>
<th>Regional tests</th>
<th>All-Polish tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>( \bar{x} )</td>
<td>N</td>
</tr>
<tr>
<td>AND</td>
<td>14</td>
<td>168.6</td>
<td>807</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>169.03</td>
<td>750</td>
</tr>
</tbody>
</table>

It results from the figures included in table 5 that the value of the arithmetic mean of the height of the body is highest at competitors practicing the volleyball in the class I and II from its peers. It is possible also to observe the numerical increase in the height of the body which grows along with age in all tests.

Table 6. Numerical order of the long jump from the place of competitors practicing the volleyball.

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max value</th>
<th>Arithmetic mean ( \bar{x} )</th>
<th>Standard deviation ( \sigma )</th>
<th>Coefficient of variation ( V )</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>140</td>
<td>213</td>
<td>182.14</td>
<td>17.11</td>
<td>9</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>163</td>
<td>226</td>
<td>189.5</td>
<td>21.95</td>
<td>11</td>
</tr>
</tbody>
</table>

The jumping ability at examined girls from the class I develops between 140 cm and 213 cm and the average is 182.14 cm. At girls from the class II values are located within the limits of by 163 cm up to 226 cm, and the result of the average of this feature is 189.5 cm.

Table 7. Comparing own findings of the long jump from the place of girls to regional findings of the province Kuyavian - Pomeranian M. Napierała of 2001 yr and to all-Polish findings 1991 r. R. Przewęda

<table>
<thead>
<tr>
<th>Class</th>
<th>Own tests</th>
<th>Regional tests</th>
<th>All-Polish tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>( \bar{x} )</td>
<td>N</td>
</tr>
<tr>
<td>AND</td>
<td>14</td>
<td>182.1</td>
<td>366</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>189.5</td>
<td>331</td>
</tr>
</tbody>
</table>

Analyzing tables 7 a maximum value of the arithmetic mean of the long jump was stated right away at girls training in the class I and II. all-Polish Tests of girls of the class I and II cheapnesses have an average from girls practicing the volleyball and from peers from chosen schools of the province Kuyavian- Pomeranian.

Table 8. Numerical order of gripping the dynamometer of competitors practicing the volleyball

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max value</th>
<th>Arithmetic mean ( \bar{x} )</th>
<th>Standard deviation ( \sigma )</th>
<th>Coefficient of variation ( V )</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>40</td>
<td>70</td>
<td>48.78</td>
<td>10.73</td>
<td>22</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>33</td>
<td>63</td>
<td>48.7</td>
<td>9.1</td>
<td>18</td>
</tr>
</tbody>
</table>
Results placed in table 8 present values of power of hugging of dynamometer. The highest average is 48.48 kg in the class I at individual values which they take out by 40 kg up to 70 kg. In the class II the arithmetic mean of girls is 48.7 kg. The greatest departure from the mean appears in the class I and is exactly 10.73 kg.

Table 9. Comparing own findings of gripping the dynamometer of girls to regional findings of the province Kuyavian- Pomeranian M. Napierała of 2001 yr and to all-Polish findings 1991r. R. Przewęda

<table>
<thead>
<tr>
<th>Class</th>
<th>Own tests</th>
<th>Regional tests</th>
<th>All-Polish tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>$\bar{x}$</td>
<td>N</td>
</tr>
<tr>
<td>AND</td>
<td>14</td>
<td>48.8</td>
<td>402</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>48.7</td>
<td>303</td>
</tr>
</tbody>
</table>

It results from the data analysis of table 9 that maximum values of the arithmetic mean of gripping the dynamometer appear at girls practicing the volleyball both in the class I and II than at peers attending unsporting schools. In the class I the average of volleyball players is 48.8 kg, however in the class II 48.7 kg.

Table 10. Numerical order of the overhang on bent hands of competitors practicing the volleyball

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max. value</th>
<th>Arithmetic mean $[\bar{x}]$</th>
<th>Standard deviation $[\sigma]$</th>
<th>Coefficient of variation $[V]$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>4.07</td>
<td>59.34</td>
<td>21.86</td>
<td>17.11</td>
<td>77</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>15.02</td>
<td>45.37</td>
<td>24.51</td>
<td>9.8</td>
<td>4</td>
</tr>
</tbody>
</table>

It results from the figures included in table 10 that from values practicing the volleyball of functional power they are located in a class I of girls from 4.07 of seconds to 59.34 of seconds and the average takes out 21.86 of seconds. However in the class II numerical values develop from 15.02 of seconds to 45.37 of seconds, and the average takes out 24.51 of seconds. The greatest departure from the mean appears in the class I and is equal 17.11 of seconds.

Table 11. Comparing own findings of the overhang on bent hands of girls to regional findings of the province Kuyavian- Pomeranian 2001r. M. Napierała and to all-Polish findings 1991r. R. Przewęda

<table>
<thead>
<tr>
<th>Class</th>
<th>Own tests</th>
<th>Regional tests</th>
<th>All-Polish tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>$\bar{x}$</td>
<td>N</td>
</tr>
<tr>
<td>AND</td>
<td>14</td>
<td>21.9</td>
<td>369</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>24.5</td>
<td>366</td>
</tr>
</tbody>
</table>

Observing the set of three tests it is possible to conclude that numerical values of the overhang on bent hands of competitors practicing the volleyball exceed values of regional, as well as all-Polish findings. It is possible also to observe at everyone examined height of the time of the overhang on bent hands along with age.
Table 12. Numerical order of the pendular run of competitors practicing the volleyball

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max value</th>
<th>Arithmetic mean $\bar{x}$</th>
<th>Standard deviation $\sigma$</th>
<th>Coefficient of variation $V$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>11.2</td>
<td>13.2</td>
<td>12.25</td>
<td>0.70</td>
<td>8</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>11</td>
<td>13.2</td>
<td>11.96</td>
<td>0.68</td>
<td>5</td>
</tr>
</tbody>
</table>

The agility at examined girls in the class I is located in a period from 11.2 of seconds to 13.2 of seconds and the average of this feature takes out 12.25 of seconds. Numerical values at girls take out from the class II for 11 seconds to 13.2 of seconds, and the average is of value 11.96 of seconds. However the value of drawing aside in the class I takes out 0.7 of seconds, and in the class II 0.68 of seconds. It results from the test of described tests that minimally girls have with a better agility from the class I.

Table 13. Comparing own findings of the pendular run of girls to regional findings of the province Kuyavian- Pomeranian M. Napierała of 2001 yr and to all-Polish findings 1991r. R. Przewęda

<table>
<thead>
<tr>
<th>Class</th>
<th>Own tests</th>
<th>Regional tests</th>
<th>All-Polish tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N $\bar{x}$</td>
<td>N $\bar{x}$</td>
<td>N $\bar{x}$</td>
</tr>
<tr>
<td>AND</td>
<td>14 12.2</td>
<td>956 12.6</td>
<td>3510 12.7</td>
</tr>
<tr>
<td>II</td>
<td>10 12</td>
<td>977 12.7</td>
<td>3388 12.6</td>
</tr>
</tbody>
</table>

From the data analysis we can observe that the lowest numerical values of the pendular run act in the class I as well as in the class II at competitors practicing the volleyball. maximum value they observed in the class I in all-Polish tests which takes out 12.7 of seconds. However in the class II in regional tests, where takes out 12.7 of seconds.

Table 14. Numerical order of sitting positions from being in the time of 30 seconds of competitors practicing the volleyball

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max value</th>
<th>Arithmetic mean $\bar{x}$</th>
<th>Standard deviation $\sigma$</th>
<th>Coefficient of variation $V$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>24</td>
<td>32</td>
<td>29.64</td>
<td>2.84</td>
<td>10</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>21</td>
<td>29</td>
<td>24.9</td>
<td>2.60</td>
<td>12</td>
</tr>
</tbody>
</table>

Results presented in table 14 prove that in the test on sitting positions from being in the time of 30 seconds amongst competitors from two examined groups a little bit good results got girls from the class I, where the arithmetic mean amounts to 29.64 repeating. However at competitors 24.9 repeating take out from the class II. The greatest departure from the mean appears in the class I and amounts to 2.84 repeating.

Table 15. Comparing findings of own sitting positions from being in the time of 30 seconds of girls for regional findings of the province Kuyavian- Pomeranian 2001r. M. Napierała and to all-Polish findings 1991r. R. Przewęda

<table>
<thead>
<tr>
<th>Class</th>
<th>Own tests</th>
<th>Regional tests</th>
<th>All-Polish tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N $\bar{x}$</td>
<td>N $\bar{x}$</td>
<td>N $\bar{x}$</td>
</tr>
</tbody>
</table>
From the test of tests maximum values of sitting positions were observed from being in the
time of 30 seconds at competitors practicing the volleyball from the class I and II from numerical
values from regional, as well as all-Polish tests. All-Polish tests also overbalance tests regional.

Table 16. Numerical order of bends of the torso ahead of competitors practicing the
volleyball.

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Min. value</th>
<th>Max value</th>
<th>Arithmetic mean $\bar{x}$</th>
<th>Standard deviation $\sigma$</th>
<th>Coefficient of variation $V$</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>14</td>
<td>5</td>
<td>14</td>
<td>10.4</td>
<td>3.08</td>
<td>30</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>3</td>
<td>16</td>
<td>9.1</td>
<td>4.56</td>
<td>55</td>
</tr>
</tbody>
</table>

From the data analysis introduced in table 16 they stated that results of girls from the class I
developed by 5 cm up to 14 cm and the average of this feature is 10.4 cm. However at girls from the
class II results develop by 3 cm up to 16 cm. Big differences between the minimum value and
maximum act in the class II. the arithmetic mean is 9.1 cm. Values of individual competitors
deviate from this value on average for 4.56 cm.

Table 17. Comparing own findings skonów of torso ahead of girls to regional findings
of the province Kuyavian-Pomeranian 2001 r. M. Napierała and to all-Polish findings 1991 r. R. Przewęda

<table>
<thead>
<tr>
<th>Class</th>
<th>Own tests</th>
<th>Regional tests</th>
<th>All-Polish tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N $\bar{x}$</td>
<td>N $\bar{x}$</td>
<td>N $\bar{x}$</td>
</tr>
<tr>
<td>AND</td>
<td>14 10.4</td>
<td>471 6.8</td>
<td>3532 6.7</td>
</tr>
<tr>
<td>II</td>
<td>10 9.1</td>
<td>364 7.6</td>
<td>3407 7.7</td>
</tr>
</tbody>
</table>

From the numerical orders included in table 17 maximum values are noticed in the class I
and of the II bends of the torso ahead in own tests. It is possible to notice the marked difference
enough between results of training girls, but girls attending unsporting classes.

Discussion

A move is one of important conditions of skillful and correct functioning of the organism.
The practicing participation in physical exercises causes improvement in the frame of mind,
reducing the degree of depression or fear. The physical activity helps neurosis abreact the stress
which is one of causes, as well as prevents diseases associated with the progress of civilization. The
physical activity is an essential attribute and an element of a healthy lifestyle of every man. The
physical development of the young man is dependent of the regularity and appropriate intensity.
Examined girls apart from the involvement in compulsory classes of the physical education are also
participation 5 overcome times during the week in trainings of the volleyball under the care of the
qualified coach. From conducted tests in the class I and train the II Team in Bydgoszcz it is possible
to state No. 10 not-meaning differences in combinations of numerical somatic results of the same
age group. However analyzing findings of motor abilities one should state that appearing
differences between competitors of individual classes are in most cases unimportant. It is possible
to notice only visible differences in the test on the long jump from the place and the overhang on
bent hands at competitors attending the same classes. Comparing findings of somatic and motor
girls practicing the volleyball from the Team of Schools No. 10 in Bydgoszcz for tests of peers
which additionally go in for no sports sport from chosen schools of the province Kuyavian -
Pomeranian it is possible to state, that level of development physical showed girls systematically
practicing the volleyball of the same age group oneself much higher. Also taking findings into
consideration all-Polish to findings of peers under the somatic account it is possible to notice a numerical big difference of the body weight in the class I and II between own, but regional tests, where predominate the ones first. However all-Polish tests have a narrow lead in the class I and II above regional tests. The highest numerical values of the height of the body appear in own tests in the class I as well as II. however all-Polish tests overbalance regional tests only in the class II. at younger girls maximum values appear in regional tests.

Findings of motor abilities explicitly show the greater fitness in measurements of the ability of motor volleyball players than peers not-practising no sports sport additionally. However comparing findings regional from all-Polish we can notice the changeability in the dominance. In the test all-Polish tests prevail of the long jump above regional in the class I and II. in gripping the dynamometer in the class I higher results appear in all-Polish tests, however in the class II slightly lower into regional tests. In the overhang on bent hands in the class I and the II maximum values appear in regional findings. On the run pendular in the class I numerical values dominate in all-Polish tests, however in the class II into tests regional. Numerical values of sitting positions from being in the time of 30 seconds higher it is possible to observe in the class I and II in all-Polish tests. However results of bends of the torso first in the class I are higher in regional tests, and in the class II in all-Polish tests.

The physical build of competitors practicing the volleyball was assessed with applied pointers through F. Curtius with using the Rohrer indicator according to the determined pattern. Amongst volleyball players a profile of the type dominated leptosomatic. In solitary cases a type of the figure was stated athletic. Get results of observation in the time made in the evaluation of the physical level of development and chosen motor abilities of girls of Schools practicing the volleyball and attending the Team No. 10 in Bydgoszcz, constitute the ground for expressing the following conclusions:
1. The examined young stock doesn't differ in the morphological level from compared peers from regional and all-Polish tests.
2. Amongst examined a leptosomatic profile overbalances bodies.
3. Girls playing volleyball demonstrate the greater efficiency than compared groups.

References
THE KIND OF SPORT DISCIPLINE AS A FACTOR OF DIFFERENTIATING ASPIRATION LEVEL OF YOUNG SPORTSMAN (ON THE EXAMPLE OF SWIMMING AND TEAM GAMES)

Rodzaj dyscypliny sportu jako czynnik różnicujący poziom aspiracji młodych sportowców (na przykładzie pływania i gier zespołowych)

Aleksander Smoliński, Andrzej Klarowicz, Anna Romanowska-Tolłoczko

Academy of Physical Education, Wrocław
aleksander.smolinski@awf.wroc.pl

Abstract Article presents results of comparative research of perspective aspirations of young people coaching swimming and team games. Subject’s analysis was performer amongst representatives of team and individual disciplines in order to assess the differences in aspiration level. Method of diagnostic survey was used in research with technique of questionnaire. Assembled results allowed to sight peculiar conditionality of aspirations by the kind of discipline of sport dictate.

Streszczenie Artykuł przedstawia wyniki porównawczych badań perspektywicznych aspiracji młodzieży trenującej pływanie i gry zespołowe. Analizie poddano różnice w poziomie aspiracji pomiędzy przedstawicielami dyscyplin zespołowych i indywidualnych. W badaniach wykorzystano metodę sondażu diagnostycznego z techniką kwestionariusza ankiety. Zebrane wyniki pozwalały dostrzec specyficzne uwarunkowania aspiracji podyktowane przez rodzaj dyscypliny sportu.

Key words: swimming, aspirations, adolescent.

Słowa kluczowe: pływanie, aspiracje, młodzież.

Introduction Aspirations as a phenomenon / mental process exists in the minds of people since ancient times and their understanding is similar (or even identical) to such concepts as "aim" and "ambition". This concept can be found both in the scientific literature and belles-letters (Łukaszewski 2006).

In the social sciences the American and German psychologists took up the problem of aspiration as first (Anderson 1930, Atkinson, Feather 1966, Dembo 1931, Hoppe 1930).

Over the years, the appropriate terminology was developed and the regularity formation and changes occurring within the concept of aspiration were discovered (Jucknat 1937). Following the psychologists research there have been works of representatives of other social sciences. It resulted in creating different views on the problem of aspiration associated with the objectives pursued by educators and sociologists. The interest in this issue of at least three branches of science has led to confusion in terminology and different definition of issues related to the aspirations of the representatives of the various disciplines. It is therefore necessary to analyze these different research approaches, which will establish a common understanding of the problem and make it easier to draw valid conclusions from the study.

As already mentioned the differences in perspective result from the different objectives pursued by psychologists and sociologists. The psychologist will treat aspirations primarily as a psychological process, or the attribute / element of human personality and will be mainly interested in shaping their aspirations and regularities of mental development as
a process. The pedagogue will be most interested in the educational effects which can be applied with proper comprehension of aspirations. For the sociologist, the most important will be the scope and content of the aspirations of different groups of people.

Taking into account that psychologists initiated the study of the aspirations the psychological view will be presented as first.

Aspirations are defined as "intends, strivings, desires, wishes concerning the results of his actions or achievements via the desired state of an individual satisfaction and fulfillment serving as a function of award" (Łukaszewski 2006). Psychology dictionaries define aspirations in the following way: "the desire, the purpose for which the person seeks" (Reber, Reber 2005), "the general tendency of man pushing towards some ideal, the desire to achieve something significant" (Sillamy 1994). At this point one should pay attention to the phenomenon similar to the aspirations namely, expectations. According to Łukaszewski "aspirations are the ideal result of the actions, which is sometimes presented in the form of desires." So they are a component of "ideal self" and relate to the desired results. The expectations are the expected results - based on the results achieved so far, based on experience. In this sense, expectations are a component of the "real me" (Janowski 1977, Lewowicki 1987). Prevailing view among psychologists is that the aspirations and expectations are different, and that mostly aspirations represent a higher level than expectations (Festinger 1942, Lewowicki 1987, Skorny 1980 i. in.). The Festinger studies (Festinger 1942) show that in experimental situations, there are different answers to the question: "What is the result you want to achieve?" And "What's the result you expect to achieve?” The answer to the first question gives information about the level of aspiration, the second and the level of expectations. The above considerations lead to the conclusion that the treatment of aspiration as a component of "ideal self" and the expectations of "real me" overlooked existence of two kinds of aspirations. This includes wishful aspirations included in the "ideal self" and the action aspirations on the results of his actions and intentional states, which together with the expectations of a component of the "real me". This distinction allows separate aspiration or wishful desires, actionaspirations the aspirations and expectations - projections of future state or result of the action (Skorny 1980).

The psychological literature defines aspiration as "subjective measures equivalent to being a certain kind of attitude" (Skorny 1980). Following this recognition of aspiration it should be mentioned that: "The organization of an individual's behavior does not work ever in a random manner. Goal-setting precedes aspiration. Without this attitude, without stability, human behavior would become a series of disordered thoughts and movements with no adaptive sense [...] this attitude is not actually the result of behavior, but the premise of the possibility of providing deliberately targeted and properly equipped "(Prangiszwili 1969).

Another perspective on the issues of aspirations is integrating it in the sphere of theory of motivation. Reykowski expressed the view that aspirations are motivational factor or element of incentive structures (Reykowski 1970). It should be clearly stated that the only motivating factor action level of aspiration (Wlazło 1991).

Such a distinction between these concepts explains the fact well why the success of some people improves effectiveness while in others it causes the fall. A similar remark applies to the failure. One student after receiving an unsatisfactory grade takes the catching-up, and another collapses under its influence. As we know it depends on the level of temperamental reactivity (Strelau, Jurkowski, Putkiewicz 1976, Wlazło 1984).

To sum up, the discussion of the psychological meaning of aspiration can be concluded by the statement that psychologists capture the aspirations as the properties of the psyche that trigger human striving towards selected targets, sometimes in reality (action aspirations), sometimes in imagination (wishful aspirations) (Janowski 1977).

Among sociologists also there is no unified view on issues related to aspirations. When creating definitions sociologist usually refers to the hierarchy of goals, values, which according to him are the foundation of human aspirations. This understanding of the phenomenon of
aspiration occurs in the work of many sociologists. Sokolowska (Sokołowska 1967) claims that aspirations are "generally desires and aspirations of the individual personal future", Lewowicki defines aspirations as a "range of endeavors set by the hierarchy of objectives that the entity accepts and defines as important and which are determinative of it life plans" (Lewowicki 1987).

According to Janowski sociological understanding of the aspirations concerns specific human desires - the values, issues, things that are objects of desire. Thus, if psychologists are interested in rather the nature of aspirations, mental properties of aspirations, a sociologist are interested more in objects of human endeavor (Janowski 1977). The differences in the meaning of the concept of aspiration help understand the diversity of psychological and sociological approach to these issues.

Aspirations and ambitions of people are increasingly being studied in a multilateral manner taking into account aspects specific to both these sciences. Janowski agreeing that the aspirations should be recognized as a whole gives three kinds of understanding of this issue. Namely, aspirations (P) specific to psychologists, aspirations (S) characteristic for sociologists and aspirations (C) typical of people trying to recognize the aspirations as a whole. Aspirations (C) is: "any attempt to define such an aspiration, which combine in themselves the basic relations detected on the basis of research on the psychology of motivation (and within the aspirations of P) with the aspirations total knowledge of collected by sociologists, and so the inclusion in one piece the knowledge about the nature of aspirations of the individual and also on objects commonly used by human beings in a given society desirable" (Janowski 1977).

With this approach, an aspiring involves a lot of theoretical and practical difficulties, among others there may be problems with defining values in sociology.

The approach to aspirations presented by sociologists focuses on wishful aspirations concerning distant objects or states that a person would like to achieve while neglecting action aspirations that allow you to achieve the real objectives.

This view is also characteristic in the work of teaching. "It is also worth mentioning that educational researchers, who take the issues of aspiration, normally involve the influence of the teaching process and the shaping of school care and level of aspirations of students" (Pilch 2003).

In this field of knowledge we are usually dealing with the general definitions, lexical and encyclopedic, or sociological. Sometimes teachers combine to create definitions look typical of psychologists and sociologists. This approach presents, for example, Kozakiewicz, who claims that the aspirations a "desire for something, the desire for something in life, such as the pursuit of specific objectives, the desire to carry out ambitious plans, tasks, etc." (Kozakiewicz 1973). Pedagogical work in the field of aspiration often relate to patterns of future performance. Researchers remaining in the stream of examining the questions of educational aspirations tend to form patterns of values, which for the teachers are socially desirable. Then compare these patterns with those that are recognized by the youth. Speaking of the pedagogical patterns and hierarchies of values must be emphasized that they usually refer to the sociological or cultural understanding of the aspirations.

Defining the issues of aspirations as indicate the above considerations centre around three research approaches (in terms of psychology, pedagogy and sociology), but there are also attempts of focus on the problem of combining to make the above-mentioned representatives of the social sciences. According to Klosowska aspirations are "aware of the needs of the category relating to the objects and values are not currently held, or that require constant renewal, and are considered to be desirable" (Klosowska 1970).

The definition of this concept needs to be found used in the psychology of motivation and aspirations objects important for sociology.

The scientific work concerning aspirations usually use in the term "level of aspiration". According to K. Lewin, "we are talking about aspirations for the action if its result is considered to be achieved as a result of their ability, and if in addition we can distinguish different degrees of difficulty, then we talk about the level of aspirations" (Lewin 1963). "We
encounter the aspiration level (...), mainly in natural conditions, in various forms of human activity. Goal to which man seeks, the way it tends to form in which and this goal is achieved, have for acting a certain value, which is the trigger of his aspirations ” (Dembo 1931). According to the dictionary of psychology (Sillamy 1994) level of aspiration is "a set of goals and desires, to which a person seeks. In the operational terms it is a standard to meet the needs determined by a particular person, in respect of which you can measure it success or failure."Experimental study of aspirations is based on the performance of specific tasks, different levels of difficulty. Determining the degree of difficulty of the task is done by comparing it to a pattern which makes it possible to assess the results of the action (Skorny 1980).

English (English,English1958) argues that the level aspirations are a "pattern (standard), by which a person evaluates their own performance as a success or failure, for the evaluation of what it expects from himself". This pattern serves as a frame of reference is possible to determine the difficulty of the task performed by a person (Skorny 1980).

The degree of difficulty of the task can be determined using a quantitative or qualitative level of difficulty. Quantitative level of difficulty of tasks is used in experimental studies of aspiration. "Throwing an arrow at a target you can get the result from 0 to 10, with the most difficult task is to hit the bull's-eye, or to obtain the maximum result. Throwing five successive bands on the upright pin you can get from 0 to 5 hits in a one round of throws; the result of the maximum, while the most difficult task is to achieve 5 hits. (...) measure of the degree of difficulty of the task designating the level of aspiration may be intended time of its execution" (Skorny 1980), or the number of completed tasks in a given unit of time. Quantitative scale of difficulty allows you to approach the level aspirations and the degree of difficulty of the task in numerical form.

Qualitative scales difficulties lead to the recognition of the difficulty of the task in words (eg, task easy, medium, hard). The simplest qualitative scale is the scale contains only two steps: a difficult and easy task.

The qualitative scales of difficulty are encountered, for example, in studies when a person tested has to declare whether it intends to choose to perform the task very difficult, difficult, with an average degree of difficulty, easy or very easy "(Skorny 1980). The level of difficulty may arise from the exercise itself; knowing the conditions for the task at the same time we know the corresponding degree of difficulty; it may be determined by the difference between the result achieved and the intended result; the degree of difficulty may be contained in the life experience gained in the prior performance of similar tasks; task difficulty assessment may be based on the information obtained by (Skorny 1980). In the scientific literature in the field of humanities and the sciences of physical culture the statement: "you have obtained very good results," it is not the same as the information: "in the long jump you reached 3.75 meters." In the first case we are dealing with the assessment, and the second occurring only with a statement of fact.

The level aspirations may be set based on subjective or objective scale of difficulty. An objective scale of difficulty is determined by the properties of the tasks inherent in itself; scale is dependent on subjective self-specific probability of effective implementation of the task (Skorny1980).

Many authors dealing with the aspirations declare that the subjectively assessed probability of a correct implementation of the tasks and the associated risk of failure are scale of difficulty of the task (Lewin, Dembo, Festinger, Sears 1994, MacClelland, Atkinson, Clark., Lowell 1953, Atkinson, Feather 1966). "According to the above task is more difficult, the lower the subjective probability of effective implementation and the greater the risk, namely, possibility of failure (...) as a measure of subjective task difficulty may also include the expected contribution of effort" (Skorny 1980) needed for the job.

The contribution of the effort as an index of subjective difficulty of the task allows us to distinguish difficult from a risky activity. The difficult task may be classified as activity requiring a lot of effort but it's possible to be performed by a person, whereas the action, where the
outcome depends not on the ability of getting personal but on favorable circumstances independent of human (eg, weather in ski jumping) are called risky. In addition to the division conducted activities can be distinguished, which are both difficult and risky (eg, winning the world championships in the sports field or competition). Difficult action differs from a risky by the degree of likelihood of success or failure experience (Skorny 1980, Wlazlo 1991).

"Subjective and objective difficulty of the task may be different. Sometimes it depends on certain individual characteristics that affect a given individual on his (or her) ability of effective execution of the exercise. (...) Subjective assessment of the degree of difficulty of the task has an impact on the creation of a sense of success or failure occurring after achieving or not achieving the target set by the level of aspirations" (Skorny 1980). Research conducted by M. Jucknat show that the feeling of success or failure takes place only in relation to the tasks that are within the range of difficulties, which according to Hilgard (Hilgard 1967) is called the "realm of personal commitment". These tasks are characterized by a medium degree of difficulty, and the probability of success and failure are very similar (50%: 50%).

Definitions for the terms "aspirations" and "aspiration level" are not unambiguous as apparent from the above considerations and must always opt for a particular method of interpretation. Frequently defined as:

1. the intentions or desires,
2. the selection of tasks with a certain degree of difficulty,
3. the expected outcome of the action.

**Aim of the study**

The research problem was undertaken to determine if there are clear differences in the level of aspiration, depending on the type of sport practiced by athletes surveyed.

**Material and Methods**

Young athletes from sports clubs and schools operating in the city of Wroclaw participated in this research. A total of 200 persons, of which 100 are actively involved in swimming, and 100 in team sports were examined. All of the subjects are taking part in different kinds of active tourism associated with water environment (such as swimming, water games, windsurfing, skimboarding, yachting, basics of freediving). Research was conducted during sport and leisure camp in the place called Pszczew located near to Szarcz lake in july and august 2011. It is worth noting that all of the subjects passed swimming skills test with positive result and by doing so proved that their swimming skills are at least average. Moreover all subjects declare that they feel good when they spend time in water what makes us believe that in the future they will continue to spend their free time on leisure activities or tourism.

<table>
<thead>
<tr>
<th>Sport / Gender</th>
<th>Girls</th>
<th>Boys</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming</td>
<td>61</td>
<td>39</td>
<td>100</td>
</tr>
<tr>
<td>Team sports</td>
<td>53</td>
<td>47</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>86</td>
<td>200</td>
</tr>
</tbody>
</table>

The study was conducted using the method of diagnostic survey with questionnaire technique. Respondents were asked questions regarding, inter alia, the desired level of education, the desired amount of future earnings and questions allowing assessment of system of values. The results will be presented in tabular form (%) and graphs (points). Point scale ranges from 0 to 5 points and a conversion percentage values obtained during the survey. The information collected will be used to assess differences in the level and content of educational and economic aspirations between athletes training swimming and team games players. Second,
the analysis will be presented by young athletes recognized values; especially those in the opinions of respondents will guide their lives in the future.

Table 2. Parents’ education.

<table>
<thead>
<tr>
<th></th>
<th>Elementary</th>
<th>Vocational</th>
<th>Secondary</th>
<th>Higher</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Mother</td>
<td>1</td>
<td>0.5</td>
<td>6</td>
<td>3.1</td>
<td>85</td>
</tr>
<tr>
<td>Father</td>
<td>4</td>
<td>2.2</td>
<td>4</td>
<td>2.2</td>
<td>75</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>1.3</td>
<td>10</td>
<td>2.7</td>
<td>160</td>
</tr>
</tbody>
</table>

*Number of parents does not match with the number of respondents because not all respondents on the study were able to determine the level of education of parents.

The data showing the level of education of parents surveyed allow athletes more complete analysis of the scope of the aspirations of subjects, taking into account of group standards presented by the models, in this case related to the preferred and held education by family members (parents).

The results summarized in Table 2 indicate relatively homogeneous social environment in which subjects are brought up, at least in terms of parents’ education.

The parents most commonly have a university education - 53.6%, then secondary -42.4%, vocational - 2.7% and elementary - 1.3%. The results for both mothers and for fathers are very similar among mothers: higher education 54.1%, secondary 41.5%, vocational 2.2% and 2.2% elementary, among fathers, respectively: higher 53.1%, secondary 43.3%, vocational 3.1% and 0.5% elementary. Educational profile presented by the parents of the young people can indicate at the outset that the level of educational aspirations in the group will be high. However, note that there will always be the aspirations of the people selected for testing, only projections of the aspirations of their parents. In addition, it will probably often wishful aspirations are not reflected in the capabilities possessed.

Results

Analysis of test results allows assessing the level of aspirations of young people training in the field of education and the desired future earnings. First, the predictions of the intended level of education of subjects will be presented. Then the analysis will cover the results illustrating desired level of earnings of subjects. In the final part of the discussion the results of the values that guide and / or intend to guide young athletes will be reviewed.

Table 3. Educational aspirations and the discipline of sport.

<table>
<thead>
<tr>
<th>Discipline of sport</th>
<th>The object of aspiration</th>
<th>Postgraduate studies</th>
<th>Higher studies</th>
<th>College</th>
<th>High School / Technical</th>
<th>Vocational School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Team sports</td>
<td>15</td>
<td>15.0</td>
<td>66</td>
<td>66.0</td>
<td>12</td>
<td>12.0</td>
<td>5</td>
</tr>
<tr>
<td>Swimming</td>
<td>13</td>
<td>13.0</td>
<td>84</td>
<td>84.0</td>
<td>1</td>
<td>1.0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>14.0</td>
<td>150</td>
<td>75.0</td>
<td>13</td>
<td>6.5</td>
<td>6</td>
</tr>
</tbody>
</table>

The results in Table 2 show that a vast majority of subjects intend to complete the education of university level or postgraduate level – 89% of respondents present such plans. Schools of the lower level were chosen by total of 11% of respondents.

Comparison of results obtained by the representatives of different sports indicates a higher level of educational aspirations among swimmers, where 97.0% of respondents intend to reach a university degree or postgraduate studies. However, among athletes practicing team sports the figure equals 81.0%.
Figure 1 shows graphically the value of the level of aspiration study groups. Although the mid-point difference seems small, it can make assumptions on which it can be concluded that the educational aspirations of subjects are high and the athletes in individual disciplines (in this case swimmers) tend to achieve a higher level of ambition than their colleagues who trains a team of discipline.

![Graph showing level of aspiration](image)

Fig. 1. The level of educational aspirations and the discipline of sport

The higher level of educational aspirations in the group swimming might be caused by the specificity of sport. Athletes practicing individual disciplines better able to evaluate their capabilities because the result of competitions depends only on themselves, not on other team members, they can not shed the responsibility for success or failure on fellow team members, etc. Players in turn, are more focused on cooperation, group activities which do not always go hand in hand with high self-evaluation. It is worth to note the influence exerted by various patterns of shaping young people's views of what level of education they should achieve. Most frequently we are dealing with the impact of parents' example as a reference to the anticipated completion of education. Previously conducted studies have shown that

Adolescentsgenerally intend to achieve the level of education of parents, or slightly exceed it. The educational aspirations "significantly affects the family dynamics thatcreates a tradition of social promotion in the family, social professional position of parents, as well as professional and educational aspiration level of parents and their children" (Pilch 2003).

Table 4. The desired level of earnings in the future.

<table>
<thead>
<tr>
<th>The object of aspiration/Discipline of sport</th>
<th>&gt;5000zł</th>
<th>5000zł</th>
<th>4000zł</th>
<th>3000zł</th>
<th>2000zł</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N  %</td>
<td>N  %</td>
<td>N  %</td>
<td>N  %</td>
<td>N  %</td>
<td>N  %</td>
</tr>
<tr>
<td>Team sports</td>
<td>23  23.0</td>
<td>24  24.0</td>
<td>17  17.0</td>
<td>18  18.0</td>
<td>18  18.0</td>
<td>100</td>
</tr>
<tr>
<td>Swimming</td>
<td>41  41.0</td>
<td>22  22.0</td>
<td>11  11.0</td>
<td>20  20.0</td>
<td>6   6.0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>64  32.0</td>
<td>46  23.0</td>
<td>28  14.0</td>
<td>48  24.0</td>
<td>24  12.0</td>
<td>200</td>
</tr>
</tbody>
</table>

A look at projected future earnings shows that young athletes regardless of sport, which they do intend to make the most of 5000 zł and more. This level of earnings is a goal to achieve for 55.0% of subjects, secondly youth mentions earnings at the level of 3000zł - 24.0%, followed by 4000zł - 14.0% and at the end 2000zł - 12.0%. Once again, the higher level of aspiration is presented by athletes who train swimming among which 41.0% intend to earn above 5000zł, which confirms the results obtained in the field of educational aspirations. In the group of team sports players 23.0% of respondents wants to achieve such wages.

125
The height of the economic aspirations presented in Figure 2 is slightly smaller than the educational aspirations, which does not change the fact that it is quite high, and both groups significantly exceed the average. It is worth noting that the difference in level of economic aspirations of team sports players and swimmers is the same as in the case of educational aspirations, and is 0.5 points and its value is lower in both groups of 0.7 points compared to the level of educational aspirations.

Determining the precise level of economic aspiration is a difficult matter, because there is no maximum earnings threshold that man can achieve, so the thresholds proposed in the questionnaire for respondents somehow force them to choose the available options which do not always match to the aspirations and dreams of the subjects.

2. The level of economic aspirations and the discipline of sport

Such a high level of economic aspiration is probably conditioned by several factors. First, young people especially in early adolescence do not realize how much you can earn doing a particular profession. Second, already mentioned above, the principle that children usually set themselves targets equal to or slightly higher than the achievements of their parents. Thirdly, sport as an activity that requires some sacrifice and push their limits presupposes setting very difficult or even impossible goals at any given time (Gracz 1980). Athletes must often take risky decisions, exposing themselves to failure, but unfortunately without any risk in sport there is no success. Therefore, athletes are a group of people, in which there are often found people named by experts on aspirations as "risk-takers" (Hošek 1966, Karolczak-Biernacka 1979, Painta 1984).
When asked about the values preferred by respondents they were asked to allocate the importance to different areas of life. The collected results allow to indicate values most important to young athletes and to determine the expected values and their ranges of future social activities.

The values indicated by the respondents as the most important center around the family. Almost all respondents pointed it on top of the list. Second, the cases were selected friends and acquaintances, the third most frequently mentioned school to which subjects attend, in fourth place in the hierarchy of values to young people in sport are matters related to place of residence (residential) subjects, in fifth place is a membership youth organizations, the sixth place, the value is for young athletes patriotism, at the end of the list of respondents usually mention the affairs of other nations. The distribution of answers seems to be reflected in the social mood of famous Polish saying "shirt is closest to the body." Respondents intend to concentrate on family, probably because they are (just like other people), subjected to continued influence of authority and stereotypes accumulated in public awareness about what is right and wrong. When it comes to such a high value of family in the minds of respondents reasons for this are certainly multifaceted and subject to various circumstances. On one hand, keep in mind the impact on human behavior, and thus the hierarchy of values of genetic factors such as sex or maternal instincts, which lead people to mating, and ultimately to found a family. On the other hand, there is the team implementing the social interactions of young people to prefer behaviors and values deemed important by society, which they are members.

Discussion
Discipline of sport as a factor differentiating the level of aspiration to the conclusion that the representatives of the individual disciplines (swimming) have higher prospective aspirations than the athletes who train team games. This trend is evident both in terms of educational aspirations and economic reasons. This dependence can be explained by the already cited the conclusion that the players practicing swimming can count only on their strength in the start situation, so they are better than team sports athletes trained to properly assess their capacity and put in front of more realistic goals. This does not exclude the possibility of occurring interlocking intentions taken or only postulated by swimmers. Sport is an activity that carries with it the necessity to overcome restrictions and break his own weakness, which is why athletes regardless of sport discipline there are always people who have a high propensity for risk. It should be noted here that the risk is usually taken by athletes is well calculated, based on repeated tests, conducted on the training and sparring, so a large extent risk is dictated by the rigorous information about its own capabilities.

The problem of aspiration due to sporting activities was undertaken by many researchers, namely: V. Hošek (Hošek 1966), E. Wasilewski (Wasilewski 1967), P. Painta (Painta 1984), J Gracz (Gracz 1980), B. Karolczak-Biernacka (Karolczak-Biernacka 1979), E. Wlazło (Wlazło 1972a, Wlazło 1979, Wlazło 1971a, Wlazło 1972b).

In terms of outcomes preferred by young people in the future value is not a marked difference between the representatives of different sports. Both athletes who train as swimming and team games accordingly list the same values in the same order. Reasons for this must be sought within the knowledge of developmental psychology, pedagogy, sociology, ethics and axiology. In the course of development (primarily moral) person is subjected to social influence in similar studies obtained by the order.

The first begins to affect our family, then pre-school and, later, colleagues and friends, then the local community, youth organizations, etc.

As indicated by regularity of the moral development of man between the ages of thirteen to sixteen years may pass through three successive phases: a "moral conventionalism," adherence to principles "and moral rationalism" (Łobocki 2002, Muszyński 1987). A young man at that age is no longer sensitive to the assessment of his behavior by some important people from their
surroundings (especially parents) and tries to live like that as often as possible to obtain acceptance of their behavior in these individuals.

Attitudes favorable environment occurs when a young man, their behavior represents the values considered important by his family. This leads to duplication in subsequent generations like the canon of values and the continuous appreciation of it as a tradition or custom, (Łobocki 2002, Muszyński 1987).

Taking into account the issues of moral development it should be added that it does not end in the sixteenth year of life, but is progressing lifelong. In the following years there will probably change in the value system of at least some patients. These changes will rarely concern the whole system of values, and in any case rarely a reevaluation of the entire system takes place in a short period of time usually needed for this unique experience is often tragic. More likely to undergo reconstruction of the individual, specific values, again, when confronted with life experiences (for example, may increase the value of work and career at the expense of the contacts with friends). Furthermore, a mature ability to make changes in the value system of the young people is just emerging, and will develop their potential in later years of life. Concluding reflections on relations between the moral development of with the evolution of the aspirations of young people important fact for this development should be mentioned, which clearly distinguishes it from other aspects of the development of the human body. Namely, the level of development at which a person can be diagnosed only by observation or interview. Unfortunately, when people are observed tend to express such behavior which they believe is expected from the observer, during the interview. Therefore, fairly cautious answers are most popular, few are extreme, far from being recognized as normal in a society, norms and patterns of behavior. This is because people have a natural, innate tendency to conformity, which is not only a human trait. Also, animals that live in groups or herds, abide by the authoritarian leaders of the herd or the same group. Such conduct is dictated by the laws of nature that shaped by natural selection, the survival instinct that tells both the human and animal herd that is safest in (Aronson 2004). A group that wanted to accept a new member and grant him the right to participate, he must know, understand and obey the laws in force in the group. The situation is further complicated by the fact that people tend to be members of more than one social group, often these groups have such different goals and principles that it forces people to choose either to lead a group whose rights are most important and respected always and everywhere, or to produce a person is more than one system of values. In terms of education and other social sciences, a situation which will develop two or more systems of values is detrimental to human development because it allows too much scope for non-compliance with applicable regulations. Lack of precise tools for the study of moral development contributes to the occurrence of the possibility of arrest or even regression of development in this field (Łobocki 2002, Muszyński 1987).

Way of formation of the system is determined by the impact on human socialization mechanisms through which people enter into the realm of first discovery, become familiar with the functioning of society, norms and principles, then mature to understand and comply with these standards and principles in life, and finally develop internalization standards, adopting them as their own and respect them, not because someone tells it, or because everybody does, but because they feel an inner need to remain consistent with their views, beliefs (Łobocki 2003, Łukaszewski 1974, Pankowska 2005, Skorny 1987).

Problem solving, arranging their affairs in accordance with the value system becomes a source of self-acceptance and affects both the level of self-esteem and the level of aspiration.

Conclusions
Although surveyed students are on their way to the emergence of mature value system based on multiple and multi-life experiences, it is already in this age range possible to make some approximations made on the basis of beliefs and views of people close and important, their behavior in specific situations, information about the various ethical systems derived both from own research and experience, and say other people (teachers, priests, coaches, trainers, etc.). Conducting research on the values professed by the youth can not lead to the
conclusions that at any level of development are indicated for the closure system of values. However, they may constitute an important contribution to a better understanding of the regularity of development of characteristics psychological traits (and therefore aspiration), and their functioning and of course can be used to diagnose the level of development of these features presented by the youth.

References
Hoppe F. (1930). Erfolg und misserfolg. Psychologische Forschung, 14, s. 11-12.
Łobocki M. (2002). Wychowanie moralne w zarysie. Impuls, Kraków, s. 32-38.
Wlazło E. (1972). Wpływ sukcesów i niepowodzeń na poziom aspiracji w działalności sportowej. Wychowanie Fizyczne i Higiena Szkolna, 12, s. 31-32.
AGE AS THE ASPIRATION RANGE AND THE LEVEL DISCRIMINATORY FACTOR AMONG THE YOUNG SWIMMERS

Wiek jako czynnik różnicujący poziom i zakres aspiracji młodych pływaków

Aleksander Smoliński, Andrzej Klarowicz, Anna Romanowska-Tolloczko

Academy of Physical Education, Wrocław
aleksander.smolinski@awf.wroc.pl

Number of characters: 41 800 (with abstracts). Number of images: 3 x 1000 characters (lump sum) = 3 000 characters.
Total: Number of characters: 44 800 (with abstracts, summaries and graphics) = 1,12 spreadsheets publishing.

Abstract The article presents the results of the research of perspective aspirations of young people in coaching swimming. The subject analysis is the difference of the aspiration level between representatives from the last classes of the primary school and high school. It takes the advanced method of diagnostic survey in the research with technique of questionnaire. Assembled results allow to see the conditionality of the aspiration creation and training process improvement concerning the interests and exploiting knowledge about the level (horizon) and aspiration contents of young people.

Streszczenie W artykule przedstawiono wyniki badań aspiracji perspektywicznych młodzieży trenującej pływanie. Analizie poddano różnice w poziomie aspiracji uczniów ostatnich klas szkoły podstawowej i ostatnich klas gimnazjum. W badaniach wykorzystano metodę sondażu diagnostycznego z techniką kwestionariusza. Uzyskane wyniki pozwalają na dostrzeżenie swoistych uwarunkowań tworzenia aspiracji i usprawnienie procesu szkoleniowego, dzięki wykorzystaniu w nim wiedzy dotyczącej poziomu (horyzontu) i treści aspiracji młodych ludzi.

Key words: swimming, aspirations, adolescent.

Słowa kluczowe: pływanie, aspiracje, młodzież.

INTRODUCTION Age is an important element in an estimation of human abilities and in many cases it determines the range of actions that are available for the person. The knowledge of the development regularity allows the coach or trainer to match properly a training load, methods, type of exercises etc. Therefore studying this development evolution is essential from the physiological as well as from developmental psychology point of view.

If it comes to knowledge in the field of physiology, anatomy or biomechanics, coaches are usually well – prepared to fulfill their duties. Unfortunately, focusing on “technical” preparation of the contestants to sport competitions, they often forget or not know how a human, especially young one, nervous system function. That is why it is reasonable to draw our attention also to this area of young sportsmen actions.

State of mind (emotions, self-esteem, the aspiration level, etc.) at an initial situation has a significant influence on the possibility of achieving the success (Gracz 1980). Moreover, it is worth to take notice of standards interaction in the group and personal earlier accomplishments estimation of the results which a competitor achieved (Tyszkowa 1972, Tyszkowa 1977, Wlazło, Jędrzejczak 1979, Wlazło 1981, Wlazło 1991, Wlazło 1971a, Wlazło 1971b, Wlazło 1972).
Age, and with it the level of mental and physical development for children and young people should be an important part of evaluating the potential competitor. Cognition and understanding the procedure of human psychophysical evolution will permits the coaches and trainers to work more effectively and the players to achieve better results. According to this it is worth to take into the consideration in what mental state are the athletes and which regularities determine their behavior. For the purpose of this work is to explain what are the aspirations and how they develop in children in this age range. Since the intentions and predictions (aspirations) regarding the future are essential components of human personality, they lived to see a scientific analysis initiated by Anderson and Brandt (Anderson, Brandt 1930), Hoppe (Hoppe 1930) and Dembo (Dembo 1931). As we can see the problem of aspiration is examined in the social sciences (psychology, at the earliest) of nearly one hundred years. In this time the terminology, the scope of research has been elaborated, the development regularities and changes taking place within the aspirations have been established for the individuals and various human communities (Lewin, Dembo, Festinger, Sears 1994). The research of the psychologists, including psychological dictionaries, usually define the aspiration as “a wish, aim which a person tries to reach” (Piaget 1972, Reber, Reber 2005) or “the totality of tendency that pushes a human toward some ideal, the desire to achieve something significant” (Siegel 1991). W. Łukaszewski (Łukaszewski 2006) claims that “aspirations are judgments of the results desired and desirable” and that this judgment is based on a person’s own actions. Aspirations are usually described as „intentions, ambitions, desires, wishes concerning the effects of personal action or achieve by hand of it the desired satisfactory states of an individual that fulfill the role of the prize” (Skorny 1980, Reber, Reber 2005). However, issues related to the aspiration and their level cannot be exhausted so briefly so at this point we should focus on explaining some of the facts which determine human mental and physical development regularities in the age range essential from the point of view of the aspiration evolution and their formation. Progression of man is a consequence of permanent interaction between constant factor – genotype and very dynamic factor with the countless number of components – the surrounding environment. Genetically determined manner of reaction of the body to the multiplicity of the environmental factors is different in every moment due to constant changes of the surrounding in which a man lives and thus – he is transformed (Wolański 1986). Experts of the development regularities emphasize that the hardest period of human life is adolescence – the transition from the childhood to adulthood (Erikson 1997, Obuchowska 2006, Oleszkowicz 1995). The problem of adolescent age range undergoes the continuous discussion, and each division into stages or phases with regard to differences in rhythm and rate of the progression must be simplified.

The level of development at the age of 12-13 years.

School age, years of gathering knowledge about the world and themselves, achieving self – reliance at first physical and then social and psychological. All the experience collected in the years of childhood are the resources that are the basis of the identity formation – central process of the next human phase of development. In the early stage of adolescence numerous and intensive changes are made in every previous area of the child functioning. Old models and patterns, shaped in childhood, no longer fulfill their functions, and the new has not yet appeared. Development accomplishments, yet mastered competence, whole knowledge of live and school and particular abilities gained in various circumstances during childhood in this stage of life undergo the time of great trial. A young man begins to gather and seek new physical, social and intellectual experience in order to be able to organize them himself and consolidate into new shapes and patterns, which will better prepare him to the adulthood. This finding yourself de novo, discovering “what am I”, “what resources I administer” and “what am I in people’s eyes” define itself as the process of creation self identity (Bardziejewska 2002). Formation of identity takes place on two plains: personal and social. Determination of personal identity means for an adolescent a choice of goals, values, convictions, interests, needs, ways of thinking and evaluation criteria, which can show to the world as their own. Finding the answer to
the question “who am I”, cause that a human will act coherently and in relatively constant manner in different situations and that will maintain having high self – esteem regardless of various circumstances and difficulties. Attempts are often bound to the risk of making mistakes. All the more so because the formation of the identity does not happen in an isolation, but it is embedded in social and cultural context (Obuchowska 2006). This involves so far the adolescent with a necessity of measuring himself against patterns and emphasis, that come from adults and peers, and from the mass media which describe how should the future adult be like. Repeatedly the multiplicity, diversity and power of interaction of these models force us to make choices under the big pressure. This is also difficult time for those around an adolescent, teachers and parents. Adults, being afraid of the direction to which changes in their child go, at the same time do not provide essential support and start the control excess. An alteration in children put adults in a necessity of introducing changes in their own way of action, running of a family system and many institutions to which youth attends. From the level of satisfying the needs and assuring the support, e.g. by a teacher, depends an effect of the shaping the identity of the young. During the initial stage of adolescence together with a body transformation also comes rapid mental development of the teenager, which has its reflection in alteration of the manner of thinking and experience, so in the emotional area. Growing teenagers begin to see people, surrounding phenomenon in the new light, analyze situations and events which they knew “since always”, plan their doings according to new criteria, and in the result behave in a different way than before. Early adolescence chase can be characterize by high emotional liability and high disproportion between actual meaning of some situations and visions and feeling that this situations cause in teenagers. Strong emotional reactions occur sometimes even emotional bursts towards meaningful people – parents. One of the opposition forms is defiance which is an expression of disagreement for those situations and states of affairs which a growing up teenager perceives as limiting, threatening or particularly inconsistent with his idealistic expectations and visions. Defiance evinces on the plane of experience – internal and on the plane of behavior – external (Oleszkowicz 1995).

Cognitive development refers to all these psychological activities which are related to obtaining, processing, organizing and using knowledge, in other words – to all those skills associated with thinking and knowledge (Birch 2005). The unity of the behavior is visible in between eleven, twelve to fourteen, fifteen years old, when the subject succeed to release himself from the concrete and place the reality in the whole of possible transformations. This last basic decentralization takes place in the edge of childhood and prepares for adolescence, whose main feature is to liberate oneself from the concrete in favour of interest about the future, it is the age of great ideals and dreams (Piaget 1966). Strong emotional reactions can therefore occur when reality does not go together with ideas and ideals. This happens when for instance an adolescent creates his own view of love and is convinced that this one is the only true and real, so should be followed by everyone else. In the similar way parents lose their place on the pedestal, as soon as it appears they are not almighty, omniscient and morally perfect, so far the teenager thought about them. They do not fulfill all his severe criteria of being ideal. The ability of thinking in detachment from the reality induces young people to think about the future, for example which school they will choose, whether they get married or not, if they have children or not and so forth. They can imagine future consequences of actions, that they can take up now, so it is possible to plan in a longer time perspective (Bardziejewska 2002).

With the period of adolescence also develop abstract and logical thinking, capacity for reflection and self – reflection, for moral considerations, perspective comprehension of events and there emerge political and social interests (Beilin 1992, Coleman, Hendry 1990, Donaldson 1986, Ligot 1986, Świda 2000). To imagine oneself in the future as a parent, partner, employee, it is necessary to separate your thoughts from the present, from that what we are and what we do now. One should as well verify oneself in different roles to get to know one's own strong points, preferences, skills, but also limits and weaknesses. Cognitive development in this stage of progression does not proceed regardless of the environment. Many research confirmed the common
observation that the social environment, in which a human grows, affects his cognitive development (Coleman, Hendry 1990). Cognitive and practical freedom allows creating around 12 year of life such a system of knowledge about the surrounding which has a character of behavioral codification of the living space and its elements (Stefańska-Klar 1989). It signifies a recognition of the world in terms of values and one’s own abilities and treating oneself as a potential author of different possibilities of actions with predictable effects, here and now or in determined conditions in the future.

**The level of development at the age of 15 – 16 years.**

In this period of teenager’s life every area intensifies and mutually determines. On this basis a young man builds the feeling of self – esteem, so defines that, how much he likes himself as a human, whether he is happy and if he is satisfied of his previous life (Bee 2004). This self – esteem is by no means the sum of separated evaluations which an adolescent accomplishes in various fields. It is the result of two internal estimations or judgments. First one concerns the perceived dissonance between who he would like to be (or thinks he should be), and who he thinks he is. When the discrepancy is small, then self – esteem in a teenager is usually high. However, the basis of this evaluation is not the divergence “what am I – what I would like to be”, but – first of all – the scale of discrepancy between what the an adolescent desire, and what he claims he managed to achieve. The second main factor that has an influence on self – esteem is so – called total (global) feeling of support, which a young man experiences from the side of important people for him, especially parents and peers (Bee 2004). So for building the sense of self – esteem essential is the belief, that one realize personal, and not imposed by adults, aims and accomplish this, what is relevant for an adolescent (and not for his parents and teachers), but also counts the obtained feeling of social support, mainly from the side of peers. Membership in the group of contemporaries, friendships, intimate relationships provide the chance to better understand the behavior and expectations of the others including the opposite sex and the opportunity to perfect the abilities of adapt to the otherness of other human (Bardziejewska 2002 Hurlock 1985).

In the group of peers an adolescent has a chance to confront how the others see him, and the fact, how he sees himself. The need of unequivocal “self – diagnosis” may be so strong, that the youngster can entirely indentify himself with the groups of reference. He will adopt their philosophy, way of behavior, dressing and so forth. This identification process allows an adolescent to clearly define and distinguish what he is and what he is not. It also helps to detect potential friends and enemies and determine the direction of further actions and proportions. Discovering his own position in the group helps to part with parents and family, which is a necessary condition in searching for his own path and building a mature identity (Bee 2004). The effect of those search (experience) is a progressing emotional stabilization that depends on a controlling an expression of one’s own states of feelings, not relying on emotional environment approbation, including the feelings of parents. Consequently, it prepares the teenager to accept and obey the rules of the society of adults. Young man in adolescence goes through several stages in moral reasoning development: 1) the individualism of instrumental goals and exchange – morality of self interest; 2) mutual expectations, relationships and interpersonal conformity – morality of interpersonal harmony; 3) social system and conscience – morality of law and order (Bee 2004, Kohlberg 1984). Adolescence is a particularly receptive for information, because youth does not fully understand or even imagine themselves, what the world really is. They search for information either about the global world functioning and running of their closest surrounding (e.g. school, sports team, social group). Only when the teenager will form his own view of the world he can confront it with the world of adults, and subsequently adjust it or supplement with his own vision (Świda 2000).

According to I. Obuchowska (Obuchowska 2006), the properties of adolescent thinking and their increasing social experience have an influence on that they take under consideration the behavior of other people and their own. This rise of evaluation terms affects the shaping of attitude and convictions of adolescents that gradually become more and more stable, assuming the form of philosophy of life. Psychological alterations in adolescence cause that the outlook of life has its own specific color of youth: sometimes stormy, offensive, dynamic, and its function is yet about to
develop. The worldview of young people is not only the intellectual understanding of the world, but also its evaluation and encouragement to action. It is indissolubly bound to human morality. Information about the image of the world a young man receive first of all at home, from people he consider as the authority (teachers, coaches, carrers), he learns a lot from friends with whom he spends time with, from books and his own experience and considerations and significantly from mass media (the Internet, television, magazines etc.). The parts of social knowledge that come from individual sources are often incoherent and the teenager has to decide, which of them to choose, accept and adopt as his own. He is guided by the strength of signals and the level on which they suit to his needs and go with his expectations and aspirations. In the discussed period of development by well implemented the pedagogical and educational processes the young man has a chance to reach a mature identity. This means, that after the time of search, the teenager takes up the commitment with reference to what he wants to be, would like to be and what he wants to do in his future life. The structure of identity, which merges his experience and attributes allows his to make choices and consequently follow the chosen path, it also makes him ready to take up the effects of his actions, to the responsibility for himself and other people, entrusted to his care (e.g. younger siblings). From the point of view of shaping the mature identity, a young man needs from an adult adequate and mature assistance, different depending on the stage in which this process takes place. The support he is able to adopt if between him and the adult there is a positive emotional bond, that satisfies both sides, gives the feeling of community, safety, but also stimulates to further development. The great variety of experiences and simultaneously lack of the possibility to confront and unite them may lead to the stage when the unit from the situation to the situation adjusts its self-presentation to the specific requirements. This favors the fragmentation and dispersion of identity. On the other hand, when a school imposes the determined type of obligations, there is danger of their acquisition by the unit and according to them filter its own interpretations and reactions to the other areas of functioning, without noticing the relativity of contexts. The environment, in which the unit functions undoubtedly has a significant role in creating its identity. This surrounding by approving and defining what is acceptable and what is not, “suggests” the individual to assume a given identity.

The key issue during adolescence is to use the moratorium, experimentation, testing their own vision, but it is not enough for the adolescent to “become a reformer from an executor” (Piaget 1966). By the action, of course, he verifies his own ideas, but it must be included in the reflection, so that in the next life situation he could make more accurate, more responsible and morally mature choices. So that he could notice problems in broader perspective, not only his own, but also from the point of view of other people or wide understood social rules. This in turn gives a hope for creating the moral thinking on a high level and forming the mature identity, which will be a signpost how to behave in adult life. The great impact on the manner of behavior and conduct of youth in this period of life have information about the effects of their own actions. Information about the obtained results and information that concern the evaluation of these results have strong connection with the aspirations and the feeling of self-esteem. Unfortunately not all form – tutors – educators remember about it.

**MATERIAL AND METHODS**

**Research objective**
The research problem was undertaken to determine if there are well-defined differences in the range of the aspirations level depending on the age of examined sportsmen.

**Evidence and methods of the research**
For the research were chosen the competitors from sports clubs, both school and extramural, in agglomeration of Wroclaw area. In general in the research participated 265 persons including 114 girls and 151 boys in the age of 13 and 16 years old. Research was conducted in schools and sportclubs of young sportsmens during the 2011/2012 school year.
Table 1. The size of individual groups.

<table>
<thead>
<tr>
<th>Age/Gender</th>
<th>Girls</th>
<th>Boys</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 years</td>
<td>61</td>
<td>67</td>
<td>128</td>
</tr>
<tr>
<td>16 years</td>
<td>53</td>
<td>84</td>
<td>137</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>151</td>
<td>265</td>
</tr>
</tbody>
</table>

The research were based on an opinion poll. As the research tool the survey questionnaire was used that contained questions, which concerned i.a. intentional by the respondents education level and the ceiling end of sport career. Analysis of the research results contains the estimation of differences in the expectations of the respondents concerning those two variables depending on the age.

**RESULTS**

Subsection devoted to the effects of the research will allow detect what are the most important desires of the respondents. There will be presented the trends that were observed in a range of the perspective aspirations content. Although the main subject of the study were the aspirations in the education and sport area, there will also be shown the desires of the respondents that concern future dream job or family.

Sport aspirations were described on the base of the answer to the question: “On what level would you like to finish your sport career?”.

Table 2. Predicted level of ending of sports career in the opinion of the respondents.

<table>
<thead>
<tr>
<th></th>
<th>World champion</th>
<th>Country champion</th>
<th>Region champion</th>
<th>City champion</th>
<th>Club champion</th>
<th>Average in club</th>
<th>I don't now</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Girls</td>
<td>17</td>
<td>14.9</td>
<td>13</td>
<td>11.4</td>
<td>4</td>
<td>3.5</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>Boys</td>
<td>41</td>
<td>27.2</td>
<td>21</td>
<td>13.9</td>
<td>12</td>
<td>7.9</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>21.9</td>
<td>34</td>
<td>12.8</td>
<td>16</td>
<td>6.0</td>
<td>6</td>
<td>2.3</td>
</tr>
</tbody>
</table>

The results indicate, that every fifth examined person (21.9%) wants to reach the level of the world champion or Olympic champion. Also every fifth (23.1%) does not intend to achieve anything significant even on the position of the average player in the club. Again every fifth respondent (19.6%) see himself as an average contestant at the end of a career, every seventh examined person wants to become a master of a club (14.3%), and every eighth – country champion. Less than 10 percent of respondents intend to become a champion of the region (6%) and a master of the city (2.3%). Collected results prove, that among the respondents there are persons with very high sport aspirations, average and low, of course, we consider only the perspective aspirations and in majority wishful.
Fig. 1. The level of sport aspirations

The results presented above show the increase of self – consciousness and more adequate evaluation of personal abilities of the respondents. On the basis of above – mentioned data it is possible to confirm the opinion that with the age the self – esteem becomes more related to actual abilities and allows for better predictions of the level that can be obtained by concrete person, and thus aspirations become more precise and possible to satisfy.

During the research the question asked was about the predicted final grades from all subjects in topical class, in secondary school, high school and at the university. Given that the study was conducted in the end of the school year, it can be concluded that the expectations of students about the marks in the class are precise and will allow to estimate if the educational aspirations of the respondents were inflated, adequate or too low.

Table 3. Expected final assessment in the opinion of the respondents.

<table>
<thead>
<tr>
<th>School Assessment</th>
<th>Current class</th>
<th>Secondary school</th>
<th>High school</th>
<th>College/higher studies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>6</td>
<td>17</td>
<td>6.4</td>
<td>9</td>
<td>3.4</td>
</tr>
<tr>
<td>5</td>
<td>105</td>
<td>39.6</td>
<td>91</td>
<td>34.3</td>
</tr>
<tr>
<td>4</td>
<td>92</td>
<td>34.7</td>
<td>118</td>
<td>44.5</td>
</tr>
<tr>
<td>3</td>
<td>42</td>
<td>15.9</td>
<td>37</td>
<td>14.0</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>3.4</td>
<td>10</td>
<td>3.8</td>
</tr>
<tr>
<td>No response</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>265</td>
<td>100.0</td>
<td>265</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The significant majority of respondents – both girls and boys – predict a noticeable advantage of good and very good grades on their school reports, but at the same time in the topical class a small predominance of very good grades (39.6%) over good grades (34.7%) has been noted. In the answers for the questions about the marks in next schools it is stated the tendency to increase the number of good ratings at the expanse of very good. In secondary school the supremacy have good
grades (44.5%), and the very good (34.4%) are on the second place, in high school and at the university the good ratings (high school-46%, study, 45.3%) are the most predicted, and very good (high school-31.3%, study, 28.7%) occupy second place in the expectations of respondents. Furthermore the examined persons predict passing grades (the current class, 15.9%, secondary school - 14%, average-20.8%, study-18.1%), excellent (current class-6.4%, Gimn. - 3.4%, average-1.1%, study-4.9%) and acceptable (the current class-3.4%, Gimn. - 3.8%, average-0.6%, study-1.5%).

Fig. 2 Expected final assessment and age of the respondents.

The observed tendency to increase the number of predicted good grades and decrease the amount of very good in the next schools testifies that the respondents posses information about the work system and difficulties bound to the study in school at the higher rank. However, the top level of ratings that have been foreseen by the examined people proves having high and quite adequate aspirations in the range of education. About the fact, that these aspirations are accurate, testifies the low number of anticipated extreme grades. The respondents chose evaluations, which they suppose to obtain on the basis of their previous progress in study and knowledge about the level of education in the next stages of training that are gained usually from older friends or siblings. The height of predicted ratings seems to confirm the desired by the respondents top education degree and can attest to high social prestige of education in their local environment and strong motivation created to reach the intentional educational goals.

Due to the fact that the aspirations which concern the desired level of education are usually connected to professional aspirations and that the obtained training by the given person almost always co – decides (together with interests, family tradition, temperament, etc.) about the choice of the profession which this person will execute, the next will be discussed the answer to the question about the character of the future job of the respondents.

The examined people were asked to determine the character of predicted future job. They made a decision on the basis of proposed in the questionnaire groups of related occupations i.e. for instance “medical profession”, “technical profession”, “economical profession”, “administrative and legal profession”, etc. In the connection with big dispersion of answers and small amount of particular groups, the statistical tests for this question were not performed. Moreover, the research was rather to provide information about the interests and possible directions of education of the respondents.
The most popular are occupations connected with sports, chosen by 38.1% of the respondents, on the second place are medical professions, chosen by 12.8% people, and on the third – administrative and legal professions which 9.4% of students want to perform. The most frequently chosen professions require long studies and the overcome of considerable difficulties, which confirms the declared high level of educational aspirations of the examined. It should be noted, that the desires that concern the education level, probably will yet be verified whereas further education in schools of higher rank (secondary school for thirteen-year olds and high school for sixteen-years olds). Therefore it is possible, that under the influence of school difficulties or other circumstances not necessarily associated directly with school, the intentions of the respondents bound to the level of education may be decreased or increased.

In the conclusion of the analysis of the effects received from the questionnaire will be presented the assumptions of the respondents about the future family. The examined people were asked “Are you going to start a family in the future?”, “what are the most important family issues for you?” etc. The given answers will allow to gain information about the personal place of family in the value system of young sportsmen that finish primary and secondary school.

Almost all respondents declare the willing to start their own family, to the question “are you going to start the family in the future?” answers “definitely yes” and “rather yes” was given by 94.4% of the respondents, the reluctant relation for having a family presents 4.5%, and 1.1% did not give any answer. Among girls it is possible to see the tendency to increase the number of “definitely yes” together with the age (from 60.7% for thirteen-year olds and to 64.1% for sixteen-year olds). In the group of boys, however, the decrease of the amount of this answer has been noted – from 62.7% among thirteen-year olds to 51.2% among sixteen-year olds. In the field of the respond “rather yes” the opposite trend emerges, in the group of girls 32.8% among thirteen-year olds and 28.3% among sixteen-year olds, boys appropriately 31.3% and 45.2%. Answers “rather not” was given by 1.6% of thirteen-year old girls and 7.6% sixteen-year old, boys 6% thirteen years old and 3.6% sixteen years old. Three girls in the age of thirteen years old din not give the respond at all (1.1% of the respondents).

<table>
<thead>
<tr>
<th></th>
<th>Girls 13 years old</th>
<th>Boys 13 years old</th>
<th>Girls 16 years old</th>
<th>Boys 16 years old</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>technical profession</td>
<td>6.8</td>
<td>1.5</td>
<td>2.3</td>
<td>6.4</td>
<td>9.4</td>
</tr>
<tr>
<td>educational profession</td>
<td>12.8</td>
<td>6.4</td>
<td>9.4</td>
<td>6.4</td>
<td>8.7</td>
</tr>
<tr>
<td>economical profession</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>administrative/legal profession</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>retail and service profession</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>artistical profession</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>sports profession</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>other professions</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>0</td>
</tr>
</tbody>
</table>
Results presented in the table 4 allow to notice the social conditionality of aspirations bound to starting the family. The high percentage that is inclined to start the family in the future might testify (58.9%) that the respondents undergo the phenomenon of social conformism and in this connection they focus their desires, that concern the family, around the stereotype legitimated by the tradition indicating that the typical way of life is to finish school, get a job and start the family. Results collected in the table 5 show how important the issues bound to functioning of the family for the examined people. As the most significant (57.7%) and very important (36.6%) are considered by 94.3% of the respondents. It is counted by 5.7% of the respondents as middling importance.

Table 5. Importance of the family cases in the opinion of the respondents.

<table>
<thead>
<tr>
<th></th>
<th>Girls 13 years</th>
<th>Boys 13 years</th>
<th>Girls 16 years</th>
<th>Boys 16 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Most important</td>
<td>31</td>
<td>50.8</td>
<td>38</td>
<td>56.7</td>
<td>37</td>
</tr>
<tr>
<td>Very essential</td>
<td>25</td>
<td>41</td>
<td>23</td>
<td>34.3</td>
<td>15</td>
</tr>
<tr>
<td>Average important</td>
<td>5</td>
<td>8.2</td>
<td>6</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>61</td>
<td>100,0</td>
<td>67</td>
<td>100,0</td>
<td>53</td>
</tr>
</tbody>
</table>

The family is the most important in the opinion of 50.8% girls in the age of 13 years old and 69.8% in the age of sixteen, between boys 56.7% - thirteen years old and 55.9% - sixteen. They are very essential for 41% thirteen-year old girls and 28.3% of sixteen. For boys 34.3%- 13 and 40.5%- 16 years old. The answer „average important” has been given by the 8.2% of the thirteen years old girls and 1.9% of sixteen, among boys adequately 9% and 3.6%. The respondents did not choose the respond “little important” and “not important”. The answers granted by the youth present very optimistic image of the intentions concerning the future family, however, in the light of demographic data indicating for aging polish society it can be assumed, that during the future life family issues will be pushed aside, probably due to necessity of participating in long-term education or by the professional career requirements.

DISCUSSION

The age may be recognized as the discriminatory facture of the aspirations of examined young people. As it comes out of the research, between thirteen-year olds and sixteen changes occur in the level of aspirations. The perspective aspirations development was higher among thirteen-year olds than sixteen. However, these aspirations are not supported by well – grounded convictions about the ability of realizing them, so the aspirations of thirteen-year olds are a little extortionated with the relation to their skills than the aspirations of sixteens. Young people attending third class of secondary school have much bigger knowledge supply and more often confronted their own intentions with the abilities, and is better prepared to precisely evaluate them, and in the consequence to pose in front of them goals, which they manage to achieve by using available means and forces.

Thus it appears, that aspirations of thirteen-year olds are not only inflated with the relation to their abilities and skills, but also they seem to be more wishful than executive. Nevertheless, aspirations of sixteen-year olds can be treated as more appropriate (real) with the relation to their own
achievements and skills, what means that they are less wishful. The problem of the connection of the age with aspirations was studied by i.a. A. Sokolowska, Z. Skorny, Tyszkowa and others (Sillamy 1994, Skorny 1980, Sokoluk 2003, Sokolowska 1967, Tanner 1963, Tyszkowa 1972). The result of the research was just partly compatible with the results obtained among young sportsmen.

CONCLUSIONS

The above considerations allow to suggest the conclusion that thirteen years old children are not yet able to precisely evaluate their abilities and on this basis predict the effects of their own actions and determine themselves real goals. Therefore indispensable is the help of the coaches in creating possible aims and choosing the right ways to accomplish them.

On the other hand youth in the age of sixteen copes with this problem better, which allows them to make more mature decisions concerning both constitute and realise goals. But still it does not mean that the aspirations of sixteen – year olds are completely mature and adequate to their abilities. It is necessary to remember about the development regularities both physical as well as mental and emotional, which affects the aspirations progression. Around the sixteenth year of life begins a period of great potential possibilities of the body (physical, mental and emotional), then a human is ready to take up the biggest challenges. Only by experience many successes and failures, the young people are led to reliable and real estimation of their own abilities, and what is more – also to reliable and quite real aspirations.

It is worth to take notice of non-agitated in this essay the problem of persistence in the task situations. Studies on this question let us notice the dependence between the aspiration level, and perseverance in solving tasks (Painta 1984).

REFERENCES

Wlazło E.(1972). Wpływ sukcesów i niepowodzeń na poziom aspiracji w działalności sportowej. Wychowanie Fizyczne i Higiena Szkolna, 12, s. 31-32.
IMPLEMENTATION OF THE NATIONAL PREVENTION PROGRAM
THE DOLPHINS WOPR - SMALL IS SAFE

Ewa Zieliński¹, JoannaWieczorek¹, KingaGrobelska¹, PrzemysławPaciorek¹,
Jerzy Telak², TomaszZalewski³, KatarzynaPietkun⁵, JoannaSimińska⁵,
KrystynaNowacka⁴, ElżbietaNurczyńska⁵

¹Department of Emergency Medicine, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University
²Main Board of the WOPR
³Department of Tourism, Department of Earth Sciences, University of Szczecin
⁴Clinic Rehabilitation Collegium Medicum in Bydgoszcz
⁵Department of Anesthesiology and Intensive Care, Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University

Number of characters: 31 000 (with abstracts). Number of images: 8 x 1000 characters (lump sum)= 8 000 characters.
Total: Number of characters: 39 000 (with abstracts, summaries and graphics)=0,975 spreadsheets publishing.

Streszczenie

Wodne Ochotnicze Pogotowie Ratunkowe, zwane dalej „WOPR”, działa na podstawie Ustawy z dnia 7 kwietnia 1989 roku Prawo o stowarzyszeniach, Ustawy z dnia 24 kwietnia 2003 roku o działalności pożytku publicznego i o wolontariacie, Ustawy z dnia 18 sierpnia 2011 roku o bezpieczeństwie osób przebywających na obszarach wodnych, Ustawy z dnia 8 września 2006 roku o Państwowym Ratownictwie Medycznym i innych przepisów oraz na podstawie Statutu. WROPR realizuje także różne programy profilaktyczne m.i.m. program „Z Delfinkiem WOPR – small jest bezpiecznie” dla dzieci z zakresu nauczania pływania. Program ten jest realizowany na terenie całej Polski z inicjatywy Zarządu Głównego WOPR w Warszawie.

Abstract:
Voluntary Water Rescue, here in after referred to as "WOPR", operates under the Law of 7 April 1989 Law on Associations, the Law of 24 April 2003 on Public Benefit and Volunteer Work Act of 18 August 2011 on the safety of persons residing water areas, the Act of 8 September 2006 by the State Emergency Medical Services and other regulation sand on the Statute too. WROPR also implementing various prevention programs, i.e. program "The Dolphins WOPR safe" for children in teaching swimming. This program has been implemented throughout the Polish because of WOPR Management in Warsaw initiative.

Słowa kluczowe: WOPR, pierwsza pomoc, przedszkolak, nauka pływania.

Keywords: Water Rescue, first aid, preschool, learning to swim.

WOPR aim is to conduct rescue operations, notably by organizing and helping those who have been injured or are exposed to the danger of loss of life or health in the water. WOPR in pursuit of its objectives, in particular:
– organize, direct, coordinate and directly leads rescue operations;
– interacts with the public and other stakeholders state defense, security and public policy in general and the protection of civil and aquatic environments;
– participates or leads rescue the common threats, natural disasters or technical failures, including floods and fires in the waters;
– documented organizational measures and maintain a record of rescue operations;
– reveals risk of personal safety in the areas of water, including vessels and bathers and practicing water sports and recreation;
– provides information about threats to water areas relevant municipal council;
shall review and issue a safety certificate for bathing sites used for bathing, swimming pools and other facilities with pool and basins;

- seems expertise and opinions in the field of water security, including measures useful in water rescue, provides services in the field of water rescue, initiates and conducts research on the safety of the waters;

- established specific programs and specialized training courses in the field of water rescue and defines the powers of lifeguards and instructors in the organization;

- trained lifeguards, lifeguards and instructors and guides rescue dogs;

- suitable water levels rescuers and trainers within the organization;

- project can lead to prevention, prevention and education in the field of security in the areas of water and prevents alcoholism;

- teaches swimming and excellent swimming skills;

- examines and issues documents and badges confirming the ability to swim;

- operates sports, recreation and tourism, and organizes competitions;

- promotes ethics lifeguards and strengthens the links organizational members;

- keep a record of their rescue vessels;

- exchanges of experience and cooperation with related national organizations and foreign and international communities. [3]

The idea of prevention program, the Dolphins WOPR - small safe ", was to create a positive and safe attitudes and behavior of school children and their parents in situations that threaten health and life. Children aged 5-6 years are grateful pedagogical treatment facility. It is easy to learn the basic rules of safety and rescue operations simple. Knowledge and skills in the field of safety education should be implemented at the stage of primary education. The "world without danger" introduces children form WOPR-small dolphin who accompanied lifeguard, helps children understand what they should avoid, and how they should behave in an emergency situation in the water.

Figure 1 Sign ZG WOPR - Educational Program, the Dolphins WOPR-small safe"

Tasks for WOPR:

1) Develop a comprehensive schedule of activities related to the implementation of the program;

2) the presentation of the program objectives of local government representatives, directors of kindergartens and become familiar with the proposed activities;

3) to provide the materials necessary to implement the program;

4) conducting classes from pre-school teachers involved
in the program and their parents;
5) conducting activities with children in the program issues;
6) cooperation with local media to publish information about the executed program.

Figure 2 The implementation of the program, the Dolphins WOPR-small safe” in kindergarten NIVEA Poznan. Instructors WOPR Ewa Zielinski and Philip Orlowski children become familiar with the equipment insurance used in water rescue, Author: E. Zielinski, archive their own

Figure 3 The implementation of the program, the Dolphins WOPR - small safe "in kindergarten NIVEA Poznan. Coloring books of a safe behavior on the water

Tasks for kindergarten:
1) pre-school teachers participated in the program;
2) inclusion in work plans and plans to work with the parents of issues related to preventive program "The Dolphins WOPR-small safe”;
3) conduct drawing classes (competition) on the topic “What do you associate the water?” - Recommended as an introduction to the program prior to the implementation of the 4 schedule;
4) co-organizing classes at the swimming pool or in the field, and contests organized as part of the program;
5) developing and teaching classes, which continue the activities carried out by the dolphin WOPR-
small and his guest.

Figure 4 Implementation of the program, the Dolphins WOPR - small safe "in the nursery" in Kindergarten No. 68 in Bydgoszcz.

The program was rich, equipped "with materials and teaching aids and educational information, such as: posters, banners, educational boards, brochures for coloring books, crayons, stickers, dolphin mascot WOPR - small, jacket, belt rescue" eel ", , Buoys SP, puffed sleeves, boards, pasta, stamps "It's safe", certificates, T-shirts, , Lollipops, promotional bags.

Figure 5 Poster educational program ZG WOPR

Below are the lesson plans WOPR "with Dolphins WOPR-small swim safely." The lesson plans are the intellectual property of ZG WOPR
SUGGESTED COURSE 1
MEETING WITH TEACHERS Preschool Education
AND PARENTS
Topic: Introduction to the program "preschooler".
Date: ........................
Number of students: ...........................
Place classes: sitting room in the nursery ..............................
Tasks of the course:
  a) Main: Introduction to the program "preschooler"
  b) Additional information: The presentation of the benefits of exercise in the water.
Accent tutorial: drawing attention to the care of children with body hygiene.

<table>
<thead>
<tr>
<th>Part of classes</th>
<th>Task name and description</th>
<th>Duration</th>
<th>Organizational-methodological remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Introducing oneself and welcome class tutors and parents, providing the subject of the meeting, encouraging class participants for the active attitude during classes</td>
<td>5 min</td>
<td>Instructor stands face to face with the group of listeners, establishes eye contact with everyone, asks each of parents to say the name of their child, and finally the class tutors said the name of the Group preschool pupils.</td>
</tr>
<tr>
<td>Main part of class</td>
<td>Plan of meeting: 1. Preface 2. Organization of the „Pres-school pupil” program 3. Why the program “Pres-school pupil” was created? 4. Raising funds 5. Gifts 6. Cooperation with pres-schools and parents</td>
<td>35 min</td>
<td>The instructor explain why it was decided to implement the &quot;Preschooler&quot; program, what are the benefits of this project (short outline of the drowning statistics and accidents around the water areas with the participation of children). The instructor provides those responsible for program and organizational conditions related to the implementation of the tasks arising from the program. This site displays a schedule of activities. The instructor introduces people responsible for the program and organizational conditions related to the implementation of the tasks included in the program. In this part of classes instructor shows the schedule of activities. Instructor presents the history of creating the program. Instructor introduces sponsors of the program. Instructor presents all gifts which will be given to children. The instructor is trying to lead that conversation so to emphasize the utmost importance of cooperation as preschool institutions, families and rescuers. Instructor emphasize the great significance of the cooperation of the pres-school as the institution with families and with lifeguards. He underlines that only cooperation in the same direction - assuring safety for our children - will bring expected effects. Instructor informs participants that children can take in the program only after obtaining a permission of parents or carers of child. Next the instructor ensures parents, that the image of the child won't be published without their approval. Finally instructor hands out to parents and carers appropriate form of their agreement and explains how to fill them up.</td>
</tr>
<tr>
<td>Completion</td>
<td>1. Summary. 2. Questions. 3. Discussion. 4. Conclusions. 5. Goodbye.</td>
<td>5 min</td>
<td>For the rest of the meeting shall ensure a friendly atmosphere. Instructor recapitulates classes, answers all questions as well as leads a discussion with participants. Through the entire meeting instructor takes care about amicable atmosphere of participants. At the end instructor collects agreements and says goodbye to the course participants.</td>
</tr>
</tbody>
</table>

Materials and equipment used to implement topic: banner, posters, educational boards, coloring booklet for children, jacket, puffed sleeves, eels, buoys SP, boards, toys, T-shirts, cards, certificates, stamps "It's safe."
### SUGGESTED COURSE 2

**ACTIVITIES WITH CHILDREN KINDERGARTEN**

**Topic:** Introduction to the principles of safe bathing.

**Date:**
- Age: 5 years
- Sex exercisers: ...... ...... girls and boys.
- Number of children: ...............
- Place classes: sitting room in the nursery ...........................................

**Tasks of the course:**
1. **a) Main:** learning the principles of safe bathing.
2. **b) Additional information:** The study of basic characters existing in the swimming pool: no swimming, an infirmary, a bathing beach.

**Shaping:**
- skills: knows and follows safety rules and know to whom to go to the beach for help
- messages knows the colors scared, he knows he can swim to the yellow buoy.

**Accent tutorial:** drawing attention to the need for exercise

<table>
<thead>
<tr>
<th>Part of classes</th>
<th>Task name and description</th>
<th>Duration</th>
<th>Organizational-methodological remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>Instructor introduces himself and welcomes the group, gives the subject and tasks of the lesson, encourages children for the active involvement in classes.</td>
<td>5 min</td>
<td>Instructor with WOPR Small Dolphin enters by a side entrance.</td>
</tr>
<tr>
<td><strong>Część główna</strong></td>
<td></td>
<td>35 min</td>
<td>Instructor with the WOPR Small Dolphin has put on fins, mask and a tube, toed thrown over his shoulder, bag with eating and drinking. Recitation of the text by instructor and the WOPR Small Dolphin.</td>
</tr>
<tr>
<td></td>
<td>Instructor recites and shows one by one the pictures number 4 and 5 from the colouring book.</td>
<td></td>
<td>Instructor recites and shows one by one the pictures number 6 and 7 from the colouring book.</td>
</tr>
<tr>
<td></td>
<td>Instructor recites and shows one by one the pictures number 8 and 9 from the colouring book.</td>
<td></td>
<td>Instructor recites and shows one by one the pictures number 1 and 2 from the colouring book.</td>
</tr>
<tr>
<td></td>
<td>Instructor recites and shows one by one the pictures number 1, 2 and 3 from the colouring book.</td>
<td></td>
<td>Instructor recites and shows one by one the pictures number 4 and 5 from the colouring book.</td>
</tr>
<tr>
<td></td>
<td>Instructor shows one by one the pictures number 6 and 7 from the colouring book.</td>
<td></td>
<td>Instructor recites and shows one by one the pictures number 8 and 9 from the colouring book.</td>
</tr>
</tbody>
</table>

**Materials and equipment used to implement topic:** educational boards, coloring books, crayons, screen, overhead projector, fins, mask, snorkel, towel giveaway with food, drink and sunscreen Nivea cream.
### SUGGESTED COURSE 3
Meeting with the dolphins WOPR-SMALL THE POOL LOT. I

**Subject:** Science safe behavior at the swimming pool.

**Date:**
- **Age:** 5 years.
- **Sex exercisers:** ...... ..... girls and boys.
- **Number of children:** .................
- **Place activities:** swimming ...........................

**Tasks of the course:**
- a) learn safe behavior at the swimming pool,
- b) Additional information: read the rules of use of the swimming pool.

**Shaping:**
- skills, to know and comply with safety rules and regulations pool,
- motoryczność: development of swimming skills,
- news: he knows and respects the ban on eating immediately before and after the bath.

**Accent tutorial:** pay attention to taking care of the hygiene of the body

<table>
<thead>
<tr>
<th>Part of classes</th>
<th>Task name and description</th>
<th>Duration</th>
<th>Organizational-methodological remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>The instructor introduces himself and welcomes the group, is giving the subject and the purpose to the lesson, encourages children for the active involvement in classes, checks a time sheets, remind principles of the safety, checks whether children have appropriate bathing dresses.</td>
<td>5 min</td>
<td>During the course the instructor stands facing the Group and uses the words comprehensible for 5 year olds, says loud and clear.</td>
</tr>
<tr>
<td>Main part</td>
<td>1. The instructor asks children, whether they know how the lifeguard looks like and whether they recognize him on the swimming pool.</td>
<td>35 min</td>
<td>The instructor is coming along with children up to the lifeguard working on the swimming pool and asks him to tell children, what is included in his duties – keeps a dialogue with children, supplement their statements, guides and asks them: where from they so much know, whether they are able already to swim and do know roles of behaving on the swimming pool? The instructor discusses clauses of regulations and encourages children to the conversation, asks them why yes, and not differently, think, leads to the proper course of comprehension.</td>
</tr>
</tbody>
</table>
|                 | 2. The instructor along with children goes to the place, where regulations of using the swimming pool are place and discusses among others the most important points:  
  - obligation of the bath under the supervisory body of adults and the lifeguard,  
  - fellow to the roles of hygiene before and after the water bath,  
  - obligation of swimming in the bathing dress. |          | The instructor establishes the dialogue with children, asks them to tell WOPR Small Dolphin, how to properly behave before the entry to water, during the water bath and after the exit from the water, or children can alone to take a bath at the swimming pool, whether must be under the care of adults and why this way is - the Small Dolphin asks questions, and children answer. |
|                 | 3. The instructor with WOPR Small Dolphin shows children around the swimming pool, indicates depths on the swimming pool, discusses and demonstrates the rescue equipment being at the swimming pool, discusses manners of safe connections and the exit from the swimming pool. |          | The instructor places children dispersed, everyone has room for exercises, children take a leaf out of the lifeguard and dress air sleeves, pick the small boards up, before entering water one more time instructor checks the number of children and reminds them the roles of safety around water areas. Instructor conducts short swimming test for children which wearing air sleeves and using the boards, also he gives to each child a stamp “It is safely”. |
|                 | 4. Warm-up conducted by the instructor and WOPR Small Dolphin on the land, distributing the equipment, safe entry to the water, game in the water, special exercises, become acquainted with the possibilities-swimming abilities of children, short swimming test using the rescue board and sleeves, spontaneous behaviours of children in the water with the adherence to the roles of the safety, the partnership and the obedience. |
|                 | 5. Calming the organism, safe exit from the water, collecting the sports equipment used during the classes. |          | The instructor helps children to collect equipment and puts it on the right place, then directs the children to wipe the body with a towel and in a group, checks the numbers of children. Instructor collects the air sleeves in order to use them on the next lessons. |
| Final part      | The instructor together with WOPR Small Dolphin discusses tasks carried out during the lesson, summarizes classes and encourages children to learn swimming as well as safe using the water baths under the supervision of the lifeguard and adults in the protected water areas, remains children about the roles of a safety and hygiene when being around water areas, says children goodbye. | 5 min    | The instructor via WOPR Small Dolphin praises entire group, also asks them to paint the adult and the lifeguard at the swimming pool for next classes. |

**Equipment used to implement topic:** jacket, puffed sleeves, eels, buoys SP boards.

**Notes:** The only one rescuer is a maximum group of 15 children in the classroom are also present: the parents or guardians and teachers of pre-school education. The tasks of the above-mentioned persons must close eye on children's behavior in the classroom to the pool and the immediate response to any children's behavior that may lead to an accident.
SUGGESTED COURSE 4
Meeting with the dolphins WOPR-SMALL THE POOL LOT. II
Subject: Science safe behavior at the swimming pool.
Date: ....
Age: 5 years.
Sex exercisers: ..... ...... girls and boys.
Number of children: ..........

Place activities: swimming ..............................................................

Tasks of the course:
a) Main: learning to move safely in the water,
b) Additional science dipping his face into the water.

Shaping:
– skills: knows and respects the principles of safe movement in the water, runs the rescuer's face immersed in water,
– motory: development of coordination and reaction speed
– messages knows and applies the principles of safe entry into the water.

Accent tutorial: drawing attention to the observance of safety rules while swimming with inflatable toys.

<table>
<thead>
<tr>
<th>Part of the course activities</th>
<th>The name and description of the tasks</th>
<th>Time</th>
<th>View of organizational-methodical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>The instructor introduces himself and welcomes the group, gives the topic and the purpose to the lesson, encourages children for the active involvement in classes, checks the number of children and whether each child has appropriate bathing dress, reminds roles of safety.</td>
<td>5 min</td>
<td>During the course the instructor stands facing the Group and uses the words comprehensible for 5 year olds, says loud and clear. The instructor demonstrates safe entry into the water. He has prepared the equipment for swimming lessons one set for each participant. The instructor collects from pre-primary education teachers the coloured small books, which will be evaluated and distribution of prizes will be on the last classes.</td>
</tr>
<tr>
<td>Main part of class</td>
<td>1. Warm-up conducted by the instructor and WOPR Small Dolphin on the land, handing out the equipment, safe enter to water, play in the water with the possibility of making spontaneous behaviours of children and keeps the roles of safety and friendships.</td>
<td>35 min</td>
<td>The instructor places children dispersed, everyone has room for exercises, children take a leaf out of the lifeguard and dress air sleeves, pick the small boards up, before entering water one more time instructor checks the number of children and reminds them the roles of safety around water areas. Children all the time wearing air sleeves. In order to perform the warm-up the instructor also use the SP buoy, rescue wastcoats and eels. After the warm-up the not-used equipment is being collected by the instructor and taken out of water to the swimming pool edge. After the warm-up the not-used equipment is being collected by the instructor and taken out of water to the swimming pool edge.</td>
</tr>
<tr>
<td></td>
<td>2. Games in water: Heron: Herons: children wade in the water high raising their knees and scoop water up with hands, loud saying their names. Mirror: children observe and take a leaf out of instructor moves.</td>
<td></td>
<td>The instructor demonstrates walk of heron.</td>
</tr>
<tr>
<td></td>
<td>Motor boats and sailing boats: children on the signal of the &quot;sailing boat&quot; run in the water with raised hands, and on the signal of the &quot;motor boats&quot; stop and plunge the mouth to water and blow air, trying to imitate the loud whir of the engine. Express train: children stand in the row, keep are clutch behind bars and create the train which is being moved in different directions. To the signal of the instructor: &quot;express train&quot; - the train speeds up. To the signal: &quot;station Warsaw&quot; - the train is being stopped.</td>
<td></td>
<td>The instructor demonstrates walk of the elephant, ants, stork, movement of the locomotive, jumps of the little frog, jumps on one and two legs to different distances and the height; moves in different directions. The instructor pays attention to the speed of the reaction, appropriate exhalation to water while immersing the face of children. The instructor pays attention so that the train creates the integrity, and individual rail wagon didn't disconnect itself.</td>
</tr>
<tr>
<td></td>
<td>Butterflies: children perform the cramp of shoulders and the deep knee bend in the water plunge the chin and make alternate moves of shoulders above water and in the water. Cloudboats: children splash themselves mutually with water, make quick moves of the swimming board pull closer and push it away.</td>
<td></td>
<td>The instructor says loud name of each child, which &quot;didn't wipe&quot; his eyes after splashing.</td>
</tr>
<tr>
<td></td>
<td>Good morning, goodbye: to the signal of instructor &quot;good morning&quot;, children &quot;take off&quot; swimming boards from their heads and bow down to the colleague, to the signal: &quot;goodbye&quot; they put the swimming board on their heads, hold it with both hands and before plunging the head to water say to the colleague &quot;goodbye&quot;.</td>
<td></td>
<td>Children are placed in two rows opposite themselves. Each child has a swimming board. The instructor hands out swimming boards saying to children: &quot;pass on&quot;. The Swimming Board is being kept with both hands vertically at the front. The instructor pays attention so that children don't turn or didn't cover eyes while mutual splashing as well as he pays attention to the discipline and the same controlling the discipline and performance of his orders.</td>
</tr>
<tr>
<td></td>
<td>6. Calming the body, safe exit from water, collecting the equipment used during classes.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Setting: march dispersed: every child has a swimming board. While performing the exercise, instructor should pay attention so that every child says hello and goodbye to all children from the group.

The instructor helps children to collect equipment and puts it on the right place, then directs the children to wipe the body with a towel and stood in a group, checks the number of children. Instructor collects the air sleeves in order to use them on the next lessons.

Final part

The instructor together with WOPR Small Dolphin discusses tasks carried out during the lesson, summarizes classes and encourages children to learn swimming as well as safe using the water baths under the supervision of the lifeguard and adults on the protected water areas, remains children about the roles of a safety and hygiene when being around water areas, says children goodbye.

Final part

The instructor via WOPR Small Dolphin praises entire group, asks teachers of the preschool education for collecting all small books coloured in and handing over them to the instructor for the next classes.

Figure 6 Implementation of the program, the Dolphins WOPR - small safe "in kindergarten No 68 in Bydgoszcz. Instructor WOPR Alexander Skaliy presents the characters on the beaches

Figure 7 Ewa Zielinski implementation of the program, the Dolphins WOPR - small safe "in Malta in Poznan. Classes by Instructor Lecturer WOPR Ewa Zielinski
Equipment used to implement topic: jacket, puffed sleeves, eels, buoys SP, swimming boards.

Figure. 8 Implementation of the program, the Dolphins WOPR - small safe "in Malta in Poznan. In the water with children in swimming lessons are: WOPR instructor Philip Orlowski and Sebastian Szyszka

Notes: The only one rescuer is a maximum group of 15 children in the classroom are also present: the parents or guardians and teachers of pre-school education. The tasks of the above-mentioned persons must close eye on children's behavior in the classroom to the pool and the immediate response to any children's behavior that may lead to an accident.

Summation
In 2012, shares with dolphins WOPR-small feel safe, was carried out in 50 kindergartens in different localities. As part of a collaboration with kindergartens and swimming pool, which was conducted classes on staying safe on the water areas. The agreed premises provided information and educational materials (banners, posters). After completing the course the pool equipment was handed swimming pool and is used for swimming, even in the classroom that are not associated with the action. WOPR by WOPR field unit managers appointed instructors responsible for carrying out activities in accordance with organizational guidelines transferred. In addition, for the correctness of the classes in different cities responded provincial Steering Group Operations WOPR, and the whole office on behalf of the Board of the WOPR, coordinated by a designated person. In view of the information in the local media campaign with dolphins WOPR-small feel safe was very popular, with the result that the WOPR released numerous statements by directors of kindergartens with a desire to participate in the program in 2013.

Bibliografia
INTRODUCTION

1. Presentation of the speaker

2. "RedFed" = Flemish Lifesaving Federation

3. Activities:
   - Education of all kinds of Lifesavers
   - First Aid, BLS, AED
   - Lifesaving Competitions
   - Car in Water
   - Investigation into causes of drowning
“REDFED” – DROWNINGS BY CARS LANDING IN THE WATER

1. Profound study and investigations

2. Behavior of cars in water.

3. Information from:
   - survivors
   - witnesses
   - rescue and medical services
   - police
   - foreign lifesaving organizations

3. Many tests in various circumstances

FINDINGS:

- Yearly hundreds of vehicles end involuntary in water
- 65% of the accidents are lethal
- There is absence of realistic directives

DECISION:

“RedFed” has to do something in this matter
AIM OF THIS LECTURE:

Procure more survival chances to passengers, by:

1. Publishing the experiences of “RedFed” and procure directives to:
   - Lifesavers
   - Rescue Services
   - Users of vehicles
   - Everybody

2. Organization of:
   - Demonstrations
   - Specific classes
   - Presentations – Lectures

3. Distribution of folders
VISUAL CONCLUSIONS

1. Every car floats first and sinks only afterwards

2. The floating time depends on:
   > kind of car
   > way of landing in the water
   > damage to the bodywork
   > location of the engine and load
   > air bubble

3. Three phases:
   > Floating phase
   > Sinking phase
   > Positioning on the Bottom

---

Floating phase  Sinking phase

Position on the bottom
CONCLUSIONS - PEOPLE

Unexpectedly

Survival chances decrease by sinking and depend on:

- Person: man, woman, child
- Physical factor:
  - General condition
  - Swimmer or not
  - Injuries
- Psychological factor
  - Self-preservation
  - Fear
  - Panic

IMMEDIATE ACTIONS

- RELEASE SECURITY BELTS
- ABANDON VEHICLE AS QUICKLY AS POSSIBLE !!!
- BEST SWIMMER OR THE MOST APPRIATE ONE, GET OUT FIRST
FLOATING PHASE
Escape through WINDOWS

- How to open (Electric or Manual)? Attention half open (Kids)
- Break windows with Rescue Hammer or other instrument
- How to get out?

FLOATING PHASE
Escape through WINDOWS and help others

- Open as above
- How to get out?
- How to save others?
FLOATING PHASE
Escape through DOORS and help others

SINKING PHASE
Escape through windows and doors and help others

- Open and get out as before
- AIR BUBBLE
- How to get out,
- How to help others
- The lifesaver keeps firm contact with the car
SINKING PHASE
Escape through windows and doors and help others

POSITIONING ON THE BOTTOM
ESCAPE AND RESCUE

- Open and get out as before
- Air Bubble
- The lifesaver keeps firm contact with the car
- In deep water do NOT go first for breathing at the surface but help immediately
- Push of from bodywork
POSITIONING ON THE BOTTOM

ESCAPE AND RESCUE

SAVING and HELPING as WITNESSES

FROM THE BANK AND IN THE WATER

- Call for specialized help
- How to get into the water?
- Aids – Hammer, rope, etc
- Break windows and open doors
- Floating car = boat – pull and push with helpers
SPECIFIC COURSE

- Based on experimental test
- Open for everybody
- Minimum theory, maximum practice
- Realistic, but SAFETY FIRST
- Possible in open water (lakes) and swimming pools up to 3 meters

Required staff:
- One director
- Five divers
- Two assistants for winch or traction vehicle
- Three instructors
- One First Aid specialist
REQUIRED MATERIAL:

- a little car
- a winch or a vehicle to pull out the car
- an appropriate slope

Contents:

- Registration
- Didactical film with explanation
- Underwater exercises
- Different exercises in the car
- CPR instruction
- Deliver certificates
USEFUL INFORMATION

1. Extraordinary vehicles

- Weight
- Armored windows
- Special doorlocks
- Other

USEFUL INFORMATION

2. Airbags
USEFUL INFORMATION

3. Bringing ashore:

- Crane
- Special air bag or tall tube
- Slope

CONCLUSION

<KNOW THE DANGER AND THE DANGER WILL BE LESS DANGEROUS>

- In spite of all precautions, there will always be vehicles that end up in the water unintentionally and people losing their live in those accidents.

<THE NUMBER OF VICTIMS CAN ONLY BE REDUCED BY:>

- providing the necessary information to car passengers and rescuers
- organizing trainings and courses as shown in the film
QUESTIONS?

STRANGE BUT REAL

➢ Example of bringing vehicles ashore

➢ Difficult choice

"Hey Paddy, we’ve got dis here car ta pull out."
“Shamus, we’re pullin’ it up now.”

“Here Paddy, what happens if da crane can’t hold it?”
“Shamus me lad, don’t you even tink about dat happening.”
“Hoy Paddy, oi didn’t even tink it, oh shoit!”

“Shamus, moi boy, go get a bigga crane.”
“Alroight, Paddy.”
“Ah Shamus, dis bigga crane is doin’ da job well.”

“Dat it is Paddy, dat it is.”
“Now for da first crane Shamus, up it cooms.”

“What’s happening Paddy, what’s happening.”
"Oh f*#k Shamus, we've got to get an even bigga crane!"

"Hold these, I have to go back for my Wife"
THANK YOU FOR YOUR KIND ATTENTION
Number of characters: 444 000 (with abstracts). Number of images: 118 x 1000 characters (lump sum)=118 000 characters. Total: Number of characters: 562 000 (with abstracts, summaries and graphics)=14,05 sheet publications.