

Academy of Physical Education and Sport in Gdansk  
University of Oradea  
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# **European Journal of Physical & Health Education**

Social and Humanistic Perspective

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Volume 1

Gdansk – Oradea – Palma 2009

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## **Publisher's Note**

The Academy of Physical Education and Sport in Gdańsk co-operating with the University of Oradea in Romania and the University of Balearic Islands in Spain commence publishing the English version of the new journal "European Journal of Physical & Health Education. Social and Humanistic Perspective".

Views and ideas as well as practical actions and experiences which refer to physical and health education will be presented in this journal.

The first volume in an attempt of fulfilling the said ideas by Editorial Staff. We will be most grateful at any time for criticisms and suggestions that will help in preparing the next volumes.

I thank professor Cornel Antal Rector of the University of Oradea, and professor Casas Montserrat Rector of the University of Balearic Islands for their desire to co-operate in editing the journal. I wish all Readers to find pleasure in reading our journal, and I invite them to publish their own materials.

Rector

prof. dr. hab. Tadeusz Huciński



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# **Jędrzej Śniadecki**

## **The Originator of The Polish Thought on Physical Education**

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### **Abstract**

Jędrzej Śniadecki (1768–1838) – the originator of the Polish version of physical education, was an eminent physician, biologist, philosopher and educator of the Enlightenment „On physical education of children” – his great composition, derived from the series of innovative articles on that subject. In Poland, this composition is considered the first theoretical-methodic guide-book about the treatment of the bodily side of a human being. The presented theory (programme assumptions) mainly refers to improving body and moral health but without shaping health personality. Śniadecki’s idea of physical education refers in contemporary pedagogical discussion, to biotechnical concept; it, however, rouses the admiration by its timeless wisdom.

**Key words:** physical education, health, happiness.

### **Introduction**

In pedagogical anthropology there has been a discussion on human beings nature for many years. Scholars ask themselves a question: who is, or should be the most excellent bio-psycho-social-mental being. Educators dispute about matters connected with educational systems. Critical emancipation current (promotes a model of almost non-restricted self-development) is in opposition to conservative one (emphasizes the need of forming the pupil’s personality on the grounds of the proved axionormatives); moral liberalism in education in opposition to moral rigorism (Berner 2006).

In a dualistic concept of human being, an educational ideal was usually determined as a versatile and harmonious development of the individual’s dispositions (e.g. mental, moral, aesthetic and physical) (Grabowski 1997). The Cartesian-Newton paradigm greatly influenced the origins of the first views on physical education. Thus, it was obvious that physical education was considered a field of education which only related to the body side of a human being (abilities and motorical habits as well as physical fitness) (Grabowski 1997).

Jędrzej Śniadecki has been an eminent educator and the originator of Polish version of physical education since the days of the Enlight-

enment. „On physical education of children” – his great composition is now considered in Poland

the first treatise on the purposes of bodily education and pedagogical implementation. Maciej Demel (contemporary eminent theorist of physical education in Poland) writes in his preface to Śniadecki’s treatise that those scholar thoughts and practical recommendations are „a monument of native literature, the monument of thoughts and language as well” (Demel 1989).

### **The historical background and a short biography of Jędrzej Śniadecki**

Prior to a short biography of the Polish originator of physical education, a brief historical background of those days has been presented. The background is important because it allows to understand both the needs and motives of Śniadecki’s activities as well as to show his role in contemporary society.

It is commonly known that the need of exercising a body derives from the ancient times (Egypt, China, Sparta, Rome or Greece) (Zuchora 1993). For many years people have been interested in the practice of exercising a body but as the pedagogical thought that practice became of greater interest just in the Enlightenment.

The Enlightenment Age (called the rationalism period, professed primate lumen naturale

of human mind but not lumen supranaturale of Divine revelation) of XVIII century, was an universal intellectual movement which restored the power of a man and development of science. The beginning of the Age was marked by the „glorious” revolution („free of bloodshed”) in England (1688), and its end – the French Revolution (1789) (Powszechna... 2001, Davies 2009). Empiricism, rationalism, humanitarianism and liberalism were the major ideas of that epoch. The Great French Encyclopedia was published in those days and knowledge became a central symbol of the enlightenment thought. Together with discovering new fields of human knowledge, medical sciences were also being developed (great physicians made it a point of honor to wrestle with poverty and antisanitary living conditions in the whole Europe, they emphasized the importance of prevention and treatment for e.g. smallpox, cholera, flu).

During the time of Jędrzej Śniadecki's education, Europe was in chaos (among others French Revolution, Napoleon wars) and Poland was in decline (partitions of Poland and Grand Duchy of Lithuania). The third partition, in 1795, resulted in removing the state from the European political map for over 120 years. One part of former Poland became a part of the Russian Empire (Davies 2009).

Some reforms emerged in Poland during the Enlightenment Age (Davies 2008). Stanisław Konarski – a priest from the Piarist Order – established in 1740 Collegium Nobilium for educating young men of noble origin. National Education Commission was founded in 1773 and it was „the first ministry of education in Europe”. The Commission replaced deteriorated catholic schools with a new coherent system of government schools. New subjects were promoted, foreign languages and natural sciences. Moreover, they emphasized the importance of physical activity, studying art, or tocology at least. In the Commission statutes from 1783 chapter XXV dealt with physical education (it embraced the general programme of physical exercises and guidelines).

In 1775 the Society of Elementary Books was created with a view to completing a set of handbooks for all classes. Grzegorz Piramowicz, a former Jesuit priest, Secretary of the society,

wrote the main handbook for elementary schools teachers entitled „A teacher's duties in parish schools” in 1787. The National Theatre was founded in those days, Four-year Sejm (Parliament) took deliberations, the 3<sup>rd</sup> of May Constitution was promulgated and the press and journalism thrived. Jędrzej Śniadecki can, for his scholar and journalistic activities, be regarded as one of the most prominent reformers of the I Republic.

Jędrzej Śniadecki was born in Żnin on 30<sup>th</sup> of November 1768 and he died on 11<sup>th</sup> of May 1838 in Vilnius. He was an excellent Polish physician, biologist, philosopher, educator and chemist of his times. He is famous for creating Polish chemistry dictionary. He wrote many scientific works, among others „The origin of chemistry”, „On physical education of children”, „The theory of organic existence”. He was regarded as the originator of hygienics and dietetics as well as a pioneer of physical education in Poland (Demel 1989).

As a pupil he distinguished himself among his schoolmates, at the age of 19 he was privileged by Stanisław August Poniatowski – the King of Poland (Nowicka 2005). In 1771, Jędrzej Śniadecki graduated from the Faculty of Medicine at the Crown/Royal Main School in Kraków (now Jagiellonian University). He also studied at the University of Pavia where he was carrying on profound studies under tutelage of Galvani, Volta, Scarpa, Spallazani and Jan Piotr Frank – a reformer of health service. At the age of 25 he obtained the doctor's degree in philosophy and medicine. From 1793 to 1797 he stayed in Edinburgh and Vienna for his scientific training (he studied with eminent J.P. Frank) (Demel 1989).

Then he was nominated to a position of professor at the Chair of Chemistry and Medicine at the Main School of Grand Duchy of Lithuania (in 1797, the school was then transformed into the University of Vilnius. Jędrzej Śniadecki's fundamental achievements of those days were as follows: creating the rudiments of Polish chemical terminology and writing the first Polish handbook of chemistry („The origin of chemistry relevant to its present state”, published in 1800). The Śniadecki's chemical terminology differed significantly from the one generally accepted in the

world. Some names are still present in Polish language and they have a profound Polish origin, e.g. hydrogen, carbon, silicon, sulphur, oxygen; the names of these chemical elements do not have Latin origin in Polish terminology. In 1808 he discovered ruthenium (he called it „west” in his work „Treatise on the new metal in crude platinum discovered”), however that discovery was not officially accepted (Demel 1989). Jędrzej Śniadecki was quite aware of his scientific achievements; there is an anecdote in a lighter vein. Napoleon Bonaparte, the French emperor, during his stay in Vilnius, entertained a delegation of the university professors. When he learnt that Jędrzej Śniadecki was a chemistry lecturer at the university, the emperor asked: „And what kind of chemistry do you teach?”, „The same as in Paris” was Śniadecki’s off-hand answer.

Undoubtedly the most outstanding composition of Śniadecki was „The theory of organic existence”, published in 1804 which brought him international fame (translated into German and French). The Polish scholar became famous as philosopher, scientist and an originator of evolutionism and transformism. That work inspired the scientific discussion on metabolism (Demel 1989).

During his best scientific years Jędrzej Śniadecki emphasized promotion of new scientific theories but first of all he struggled against ignorance and lack of education of the Lithuanian society. As a member of the Society of Rubble he published in „Gutter News” and used satire on old-Polish traits (called sarmatism) foreign influence, guzzling, drunkenness, ignorance, talkativeness and mania for the use of titles. In the columns of „Dziennik Wileński” („Vilnius Journal”) he promoted scientific knowledge, he mocked at magnetism, belief in vampires and polypragmæsia and also advised using natural means of healing. From 1805 on he began publishing articles entitled „On physical education of children”. The treatise under the same title was published after his death in 1840. From 1806–1836, as a president of the Scientific Medical Society, he imitated creative work of his colleagues (Demel 1989).

After 1822, when the Russian authorities imposed restrictions, Jędrzej Śniadecki retired from active life for five years (he settled in his

country manor called Bołtupie). In 1828 he returned to Vilnius and his work at the university. In 1830, after the November Uprising and closing down of the university, Jędrzej Śniadecki carried on his work at the Medical-Surgeon Academy (the remnant of the University of Vilnius). That period of his life was not as fruitful as the previous one (Demel 1989).

Jędrzej Śniadecki died in Vilnius on the 11<sup>th</sup> of May 1838 and was buried at the cemetery of Horodniki near Oszmiana (Demel 1989).

## **The idea of physical education by Jędrzej Śniadecki**

### **The motives of his activities in the fields of physical and health education**

Physical education as the institutional form was established in Poland during the Enlightenment Age and had a form of „full-grown triad”: organizational (National Education Commission), implementing (model secondary school in Krzemieniec) and theoretical („On physical education of children”) (Demel 2005).

The beginning of that important social enterprise occurred unfortunately during the time when Poland politically collapsed. Jędrzej Śniadecki’s treatise can be considered a particular kind of the testament of the 1<sup>st</sup> Republic, it gives guidelines on biological substance of the nation during the time of captivity. He wanted to direct his teaching to Polish families suffering from persecution. Nowadays we may recognize it as a main reason of his activities in the field of physical education (Demel 2005).

Another reason was connected with his sensitivity to the fate of children and youth. The time of travelling through Europe greatly influenced his attitude towards education of children and youth. He visited hospitals, orphanage houses etc. Educational negligence and poor medical care resulted in his interest in the problems of misery among children and he decided to write down his many-year observations in the treatise „On physical education of children” (Demel 1989). A brief presentation given below is connected with the critical opinions of home education system which was typical for noble as well as townspeople’s families. The text is a paraphrase of Śniadecki’s original text (Śniadecki 1997).

### **Critical estimate of noble and townspeople's education system**

Jędrzej Śniadecki criticized the contemporary educational system for its lack of clear educational rules and laws.

He also criticized the one-sidedness of educational process which emphasized a spiritual development of pupils and neglected their physical development.

Śniadecki's observations led him to a belief that civilization destructively affects children's physical growth.

He critically assessed the foreign teachers and their teaching methods.

Śniadecki strictly judged home or family educational system and its disadvantages in comparison with the public forms of education of children and youth.

The negligence and the growth process in educating children and youth was, according to Śniadecki's view, a cardinal educational error.

Furthermore, Jędrzej Śniadecki criticized teachers and parents for their educational errors.

In Jędrzej Śniadecki's „On physical education of children” there is his view and practical programme guidelines on a new version of education. The presented educational programme is reckoned among the best pedagogical literature positions (Demel 1989).

The main theses of the educational programme by Śniadecki have been listed below; they are the paraphrase of the original text (Śniadecki 1997).

### **Jędrzej Śniadecki's educational programme**

He distinguished the difference between practice and theory and he recommended equality and unity of education considering mental, moral, and body elements of human being.

He determined the results of educational influence as – „kalokagathia” – antique, Greek ideal of education.

He recognized physical education as the base of any other educational domain because health is a fundamental base for acquiring life values.

Śniadecki believed that it might be possible to consider natural law in the educational process of children and youth.

Jędrzej Śniadecki emphasized that society determines the educational results because pupils are prepared and taught to be members of the society.

Individual approach in educational process is another important issue in his educational programme.

As a physician, he constantly emphasized the importance of corrective and compensative functions of physical education.

Among many means of physical education, he particularly underlined the effect of play-games in educational process of children and youth.

### **Modern comprehension of Śniadecki's concept of physical education**

The most prominent Polish theorists of physical education (Demel 1989, Demel 2005, Pawlucki 2005, Grabowski 2005, Osiński 2005, Zuchora 2005) have analyzed the concept of physical (medical) education by Jędrzej Śniadecki. That concept has an original meaning both in creating modern version of physical education and in health education. Śniadecki's medical experience influenced his views on the purposes of physical education quite naturally. The health of a body was the most important purpose in his concept and he called the process of pedagogical implementation of that life value – medical education (Demel 1989, Osiński 2005).

He saw the main purpose of this education (he called it: „breeding”) in properly formed physique, developed strength and body qualities as well as good health. Wellness and the whole-life happiness of human being where the ultimate objects of medical education (Demel 1989, Pawlucki 2005, Osiński 2005).

Thus, according to that concept, physical activity was to be the most important educational mean; the activity which stimulates the physical growth of a pupil, and in natural way protects his/her health. A. Pawlucki (2005) has described Śniadecki's multi-factorial health concept – fig. 1.

Body education, in accordance with Śniadecki's concept, greatly affects young people's health. A child's health greatly depends on his/her parents' lifestyle prior to expecting a baby and after giving birth (baby care, nutrition etc.).

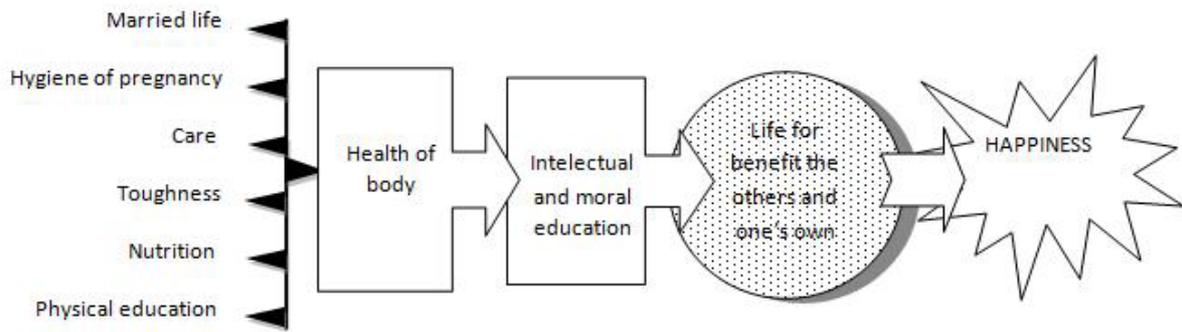


Figure 1. J. Śniadecki's multi-factorial health concept (by A. Pawłucki 2005)

Furthermore, body health influences, to some extent, socially accepted moral and intellectual education and might guarantee people's happiness.

Physical education, according to Śniadecki's concept related to forming pupils' body health, but did not relate to modeling his/her health personality. That kind of a cause-result reduction caused that Śniadecki's concept is nowadays regarded as the biotechnical paradigm of physical education. This paradigm assumes that a bodily change, but not individualistic one, is the most important in physical education. Nowadays, analyzing his concept of physical and health education, we should always refer to the state of educational knowledge in those days. We can then easily find inspiration for developing the humanistic orientation which at present explains the issues of physical and health education. Individualistic paradigm is a central point of this theoretical and methodical orientation (Pawłucki 2005, Grabowski 2005, Osiński 2005, Zuchora 2005). Modeling of pro-health personality is one of the greatest challenge of contemporary education in Poland and in the world.

## Recapitulation

Jędrzej Śniadecki's concept of physical education is the first polish compendium of know-

ledge on education regarding health issues. Those thoughts were created many years ago and they reflect the needs and tendencies of the enlightened rationalism. Firstly, his opinions are reliable, as for those days. Secondly, they express human desire for better and healthier existence. Thirdly, it was the strong voice of duty for prompt reforms in some areas of existence (lifestyle of the contemporary society, education, declared and implemented values).

Although that concept of physical education is, in the present pedagogical discussion, regarded as the biotechnical question, it still amazes us with its timeless wisdom and still is a live issue. Having read his thoughts/opinions we have learnt how an individual should be considered (as a social subject), what the most important value is (mutual welfare and benefit) and what an individual's health affects (multi-factor concept of health).

It is worth emphasizing that many years have passed since the first edition of „On physical education of children” but his concept still inspires many theorists and practitioners of physical education in Poland.

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## Prevention of Child Obesity in Schools: An Intervention Proposal

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### Abstract

Current evidence suggests that numerous dietary and exercise-related initiatives aimed at preventing child obesity are not effective in preventing an increase in weight, but they can help to promote a healthy diet and higher level of physical activity. Being too overweight (obese) can cause health, psychological and social problems among children. Obese children are more likely to have weight and health problems when they are adults. Programmes designed to prevent obesity focus on modifying one or more factors that are considered to be leading to this problem. This bibliographical review includes assessment studies of a variety of intervention programmes that featured an increase in physical activity and dietary changes, either alone or in combination. From the trials, there is no sufficient evidence to prove that any programme in particular can prevent child obesity, although exhaustive strategies aimed at fostering changes in diet and physical activity, together with psychosocial support and changes in the children's background context can help. There is a tendency for more recent initiatives to involve the local community and to include evaluations. Future research might regard changes in favour of the population as a whole as being useful, such as improvements in type of food available in schools and in the availability of safe places for running and playing, and they should evaluate the effects on health and the costs over a period of several years.

**Key words:** Child obesity, school intervention programmes, health.

### Introduction

Adults and children throughout the entire world are suffering from a growing prevalence of obesity and overweight (Ballesteros 2006, Borràs et al 2007). Current estimates of the prevalence of schoolchildren who are overweight or obese in 34 countries vary from figures for Malta (25% overweight, 8% obese), the USA (25% overweight, 7% obese) and Spain (25% overweight, 14% obese) to those of Lithuania (5% overweight, 1% obese) and Latvia (6% overweight, 1% obese) (Janssen 2005). In England, data from an extensive survey of very young children (aged from one month to four) shows a growing predominance of overweight subjects from 1990 on, and current estimates are now similar to those of school-age children (Bundred 2001).

Overweight and obesity among children have significant repercussions on their physical health and psychosocial wellbeing (Hills et al 2007). Many cardiovascular problems typical for obesity in early adulthood are undoubtedly preceded by anomalies that occur in childhood. Hypertriglyceridaemia, high blood pressure and

abnormal glucose tolerance occur with increasing frequency among obese children and teenagers, and children currently suffer from type 2 diabetes (Arslanian 2002). Additionally, child obesity is an independent risk factor in adult obesity. Obese children at the age of over 9 (defined as having a BMI higher than the 95<sup>th</sup> percentile) have up to 80% risk of developing obesity in adulthood (BMI > 28) by the age of 35 (Guo 1999). There is also evidence of an association between obesity in adolescence and an increased risk of health problems in adult life (Power 1997).

### Causes of child obesity

The growing prevalence of child obesity is a result of a higher calorie diet, less physical activity, and lifestyles that are increasingly sedentary. A broad variety of cultural and background issues have been identified as contributing to the problem. Increase in overweight and obesity has occurred in the context of a growing incidence of asthma, behavioural problems and mental health disorders, a reduction in injuries,

an increase in broken families, a reduction in the size of families, urban and metropolitan growth, and less community consensus. These factors have uneven effects across the population. In developed countries, the repercussions are significantly higher among segments of society with more health problems or a lower socioeconomic status. In developing countries, different patterns can be observed, although they are not very clearly defined. This changing background context requires a multi-faceted solution (Budd and Volpe 2006).

The main aim of this review is to determine how effective intervention is in the field of education, healthcare and psychological, family or behavioural therapy, counselling and treatment when it focuses on diet, physical activity and promotion of a certain lifestyle directed at preventing obesity or an increase in weight among children, assessed according to changes in the body mass index (BMI). The specific objectives are:

- To assess the effect of intervention through dietary education versus physical activity on changes in the BMI, prevalence of obesity, rate of weight gain and other results among children under the age of 18;
- To assess the effect of intervention through physical activity versus a control group on changes in the BMI, prevalence of obesity, rate of weight gain and other results among children under the age of 18;
- To assess the combined effects of intervention through dietary education and physical activity versus a control group on changes in the BMI, prevalence of obesity, rate of weight gain and other results among children under the age of 18.

## **Materials and methods**

### **Inclusion criteria**

The data was included from randomized and non-randomized control trials lasting for a minimum of 12 weeks. The studies were classified as long-term studies (lasting at least one year) or short-term studies (lasting at least 12 weeks). The length of the study refers to the intervention programme itself or to a combination of an intervention programme and a monitoring phase.

The method consists of a systematic review of intervention programmes aimed at preventing

obesity among children and adolescents, using six electronic databases (Pubmed, Psychlist, SCOPUS, Ovid Medline, Sportdiscus and Embase), including studies up to December 2006.

### **Types of participants**

There were chosen studies that used children under the age of 18 at the beginning of the trial. This included studies where the children's family was involved in the intervention programme, provided that separate data could be obtained for the children. Likewise, there were included studies of intervention programmes featuring children already obese at the beginning of the trial in order to reflect the approach of the public health services, which acknowledge prevalence of a certain weight range for the child population. Studies on intervention programmes were excluded if they were designed to prevent obesity among pregnant women or children with a critical illness or serious co-morbidity.

## **Results**

### **The combined effects of dietary intervention programmes and physical activity**

The Pathways RCT (randomized control trial) (Caballero 2003), conducted in the USA, involved 1704 children from 41 schools randomly allocated to an intervention or control group. The children were third or fourth-grade US citizens (aged 8 to 11), at an average age of 7.6 (SD: 0.6). At the baseline, the mean BMI was 19.0 for the intervention group and 19.1 for the control group, with a mean subscapular skinfold thickness (mm) for the triceps of 13.3 and 13.1 respectively (the SD were not given). Pathway was a multi-site, multi-faceted intervention programme, based on schools, aimed at reducing the percentage of body fat. The programme, coordinated by existing school staff, had 4 components: 1) a change in dietary intake, 2) an increase in physical activity, 3) a classroom curriculum focused on healthy eating and a healthy lifestyle, and 4) a family-involvement programme. The curricular programme included two 45-minute sessions a week for 12 weeks in the third and fourth grade and 8 weeks in the fifth grade. The US Department of Agriculture and Pathways Behavioural Guidelines were used to modify the food provided in schools so as to introduce a

more low-fat diet. The activity-based components consisted of physical education in schools (30 minutes of moderate to vigorous activity three to five times a week), a games module, and breaks with exercise in the classroom (from two to ten minutes each time). Family involvement included action packs to take home with ideas for meals and family events in school, like cookery demonstrations or physical activity. Details of the control group were not reported and so probably this group received the normal curricular programme. The results were measured at the baseline and after three years. They included the BMI, subscapular skinfold thickness of the triceps, and percentage of body fat, together with behaviour in terms of diet, physical exercise and knowledge. Although information about the concealment of the randomized allocation process, was not made available there were other methodological issues, like errors in the unit of analysis. Pathway was based on the Social Cognitive Theory. At the end of the three year period, no significant differences were found in the BMI, subscapular skinfold thickness or percentage of body fat. The findings of the movement sensor (which assessed physical activity) were not significantly different either when the intervention and control groups were compared, but there was a tendency to move in the right direction. Observed school meals showed a diet with a reduced fat content (percentage of energy from fat: intervention group 28.2; control group 32.4; CI of 95%: - 7.1 to -1.3), and there were significant results in the intervention group when the personally reported data was analysed (their 24-hour delay intake recall and a questionnaire on physical activity).

The randomized control trial by Mueller et al. in Germany (Mueller 2001) collected initial data on 1640 children, although the intervention programme was initially conducted with just 414 of them, with 6 schools randomly assigned to a control or intervention group (Kiel Obesity Prevention Study, KOPS). The children were aged between five and seven and were recruited from a general population among whom 20.7% of this age group was overweight or obese. The median BMI (no reported DE) for the children at the baseline was 15.4 for the control group and 15.2 for the intervention group, and the median sub-

scapular skinfold thickness (mm) for the triceps of 297 children (no reported DE) was 10.7 and 10.9 respectively. The control group had a mean percentage of overweight children of 27.7%, as compared with 24.1% for the intervention group. The intervention programme featured nutritional education and "active breaks" during the curricular programme. Key messages that were given were to eat fruit and vegetables every day, reduce consumption of food with a high fat content, keep active for at least one hour a day, and reduce the time spent in front of the television to less than one hour a day. The programme was managed by a skilled nutritionist, working in cooperation with a teacher. Family intervention was also offered, plus a structured programme of sports for families with obese or overweight children or obese parents (n=25). The control group received the usual schooling during the period, but a crossover year in the middle was included. The measurements that were used to collect results were the BMI, subscapular skinfold thickness of the triceps after a year, and behaviour relating to diet and physical activity after three months and one year. After three months, the subjects' personally reported awareness and conduct had improved significantly in the intervention group. After a year, there was no difference in the mean change in the BMI of children in the control and intervention groups: 16.3 (control group) and 16.1 (intervention group).

Another randomized control trial conducted in England, Be Smart (Warren 2003), randomly assigned 218 children from 3 schools to four conditions (a nutrition group, physical activity group, combined nutrition and physical activity group, and control group). The children (51% boys) were aged between five and seven, with a mean age of 6.1 (SD: 0.6). There was no significant difference in the mean BMI (SD) at the beginning, which for all of the groups was 15.9 (2.1). Neither was there any difference in the percentage of children classified as being obese, with a percentage of 4% for all groups (Obesity was defined as a BMI higher than the 98th percentile, as per the reference charts of the *International Obesity Task Force*). The intervention programme lasted for 20 weeks, over a period of four school terms (about 14 months), and it took

place at lunchtime clubs, where the research team provided an interactive nutritional programme or physical activities by ages, including a 'parent' age group. The intervention programme was aimed at raising the value of desirable behaviour through message reinforcement, helping the participants to taste healthy food, providing non-competitive activities and developing related skills. The control group received an education programme that covered non-nutritional aspects of food and human biology. The results at the baseline and after the intervention programme focused on the BMI, behaviour in terms of diet and physical activity, and nutritional knowledge. Methodologically speaking it was not a rigorous study, since information on several points was not reported. Nonetheless, it was based on the Social Learning Theory. In the final phase, no significant changes were observed in overweight or obesity rates as a result of the three different approaches that were taken, and the number of subjects was too small for statistical analyses. Positive significant changes were found in personally reported knowledge and dietary intakes in the four groups, with some evidence of an improvement in physical activity in the intervention groups. The questionnaires for parents on the frequency of food intakes showed very little change, because at the baseline they reported an intake that was low in fat and moderate to high in fibre. This study may have been subject to ceiling effects, since the target population had received a relatively good education and 39% of the parents had a degree or postgraduate qualification. The evaluation of the intervention included lesson evaluations, phone calls and letters to parents, together with a survey of key messages to assess their impact. The parents and teachers also filled in a survey on satisfaction. In synthesis, the children enjoyed the practical tasks, questionnaires and food tasting, 83% of the parents thought their children had benefited from the programme and all the teachers believed that the components should be integrated in the syllabus of the subject *Personal, Social, Health and Citizenship Education*. However, a lack of trained staff might prevent the initiative from continuing.

### **'Physical activity versus control group' intervention programme**

In another randomized control trial in the USA, lasting for 12 weeks (Pangrazi 2003), 606 children were randomly allocated by school ( $n = 35$ ) to four groups. The children were in the fourth grade (aged nine to ten, with a mean age of 9.8 [SD: 0.6]), including 315 girls and 291 boys. Baseline data was not presented. The programme, called PLAY (*Promoting Lifestyle Activity for Youth*), comprised 4 groups: PE & PLAY, PLAY alone, PE alone, and a control group (with neither PE nor PLAY). Physical activity was measured using the YAMAX pedometer at the beginning and the end of the intervention programme for four days on each occasion, with recorded questionnaires to identify activities and missing data. The PLAY intervention programme comprised three stages: Step 1: promoting play behaviour (first week) with the participation of teachers and students, walks and less time standing or sitting. The children received information on the importance of physical activity and they identified suitable adult role models. Step 2: teacher-directed activities (three weeks) with games and fun activities which could be done outside school. Step 3: encouraging self-directed activity (eight weeks), in which the students tried to do 30 minutes of activity per day outside school, without the teacher. In the control and PE groups, the children were given log sheets similar to those of the PLAY group, but they were asked to record their out-of-school activities (active and sedentary). The results (the BMI and step count) were measured at the beginning and after 12 weeks. The study seemed to have methodological limitations, because information on several methodological issues was not reported. However, it only used relatively objective results and it has been adopted in primary schools in Arizona, where 24,000 children have had access to it. This intervention programme has probably improved with experience, but it lacked theoretical foundations. Protection against contamination was assumed by including children who could have taken part in the programme before. When the BMI was monitored after the intervention programme, the results were not significantly different when schools taking part in the intervention programme were

compared with the control group. However, girls were significantly more active in the PE & PLAY group and PE group, but not in the PLAY group alone when compared with girls from the control group. The boys did not show significant differences in the step count, because boys in the non-treatment group were initially more active than average 10-year-olds in the area (data from a previous study).

In Spain, the Nin@s en Movimiento programme (Gussinyer 2008), by Vall d'Hebron Maternal & Children's Hospital, achieved more hopeful results, with a reduction in weight by 83.72% of the children taking part in it. The programme we propose is based on the fundamentals of Nin@s en Movimiento.

### Practical applications

Results of the studies show that so far have intervention programmes have had little significant effect on children's weights, except for the Nin@s en Movimiento programme. This review brings a paradoxical situation to light. At a time when preventing obesity has become a priority for the public health services, only a limited number of studies on intervention programmes are available for analysing findings.

We strongly recommend that all intervention programmes are accompanied by a well designed, carefully analysed assessment of the programme, facilitating a sufficiently powerful statistical analysis to demonstrate what works, what does not and who it is useful for.

### Proposed intervention programme

Table 1. Scope of intervention in the prevention of child obesity in schools

INDIVIDUAL	FAMILY/SCHOOL	MUNICIPAL	REGIONAL
	Leisure activities		
	Sports facilities	HEALTH SERVICE	URBAN PLANNING DEPT.
INCREASED ENERGY EXPENDITURE	Domestic tasks		
	School transport	SCHOOLS	EDUCATION AUTHORITY
	Place of study		
	Family games	SOCIAL SERVICES	DEPT. OF HEALTH & CONSUMERISM
	Physical education		
BETTER NUTRITION	Out-of-school sports activities	FOOD	MASS MEDIA
	School dining rooms		
	Family diet		

Initiatives in schools:

- Support for institutional public health campaigns and creation of school campaigns.
- Partial redesign of physical education as a subject.
- Development of innovative intervention projects in schools.
- Intervention in school dining rooms and nutritional control of school meals.
- The provision of equipment for doing physical exercise during break times in schools.
- Finding out the level of physical activity and physical condition of our schoolchildren.

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# Flexibility and Abdominal Strength Among Young Student: Eurofit Protocol

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## Abstract

The performance level of young people is often used to define the well-being. Indeed, several studies and correlations with health conditions (e.g. obesity and growth) are combined. In Italy there is lack of investigation in order to define the physical level of children and adolescents. Thus during the last school year there was assessed a protocol to collect performance data of the youth. Over than 4000 subjects (10–13) grouped according to ages were tested during the Physical Education (PE) lessons by their teachers. All instructions about testing phases were selected within Eurofit battery test. In particular, Sit and Up's (SUP) and Sit and Reach (SAR) were assessed to evaluate endurance of abdominal muscles and flexibility of the lower back. The height was very similar between sexes, at 10–11 (about 150 cm) and similar growth (on average 11,5 cm) are registered in the following two years. Also the weight showed a similar tendency within gender, starting with 43 Kg and reaching 53 Kg and 50 Kg (male–female; s.d. 10 kg). The SAR test shows relevant differences (about 23 and 16 cm, female and male respectively) with 9 cm of variability in each year for both groups. In the SUP test, male reach 19, 20 and 22 complete elevations while female did not perform more than 18. Boys showed similar performance to Mediterranean area students while the comparison with north Europe countries is generally negative. Critical performance suggests improvement in PE lessons both from a qualitative and a quantitative point of view.

**Key words:** Eurofit battery test, Abdominal, Strength, Flexibility.

## Introduction

Physical activity (PA) and fitness are related to a large number of health outcomes (Freitas 2007, Philippaerts 2006). Indeed, during childhood and adolescence regular PA is associated with improvement in physiological health and being promoted as an objective for disease prevention (Verstraete 2007, Vaeyens 2006).

Several studies have correlated the performance level with different lifespan condition leading researcher to assess a shared protocol for testing physical performance. Indeed, since 1988 within Council of Europe (CE) the Eurofit battery test (EBT) was accepted by numerous European countries as an uniform procedure for the assessment of health-related, functional and motor status of people.

Differences within gender and manhood (Saygin 2007, Freitas 2002), intellectual disability (Van de Vliet 2006), living areas influence (urban or rural; Ozdirenc 2005, Tsimeas 2005) or sport practice (Serbescu 2006, Verstraete 2007) have

been investigated in different country (not only in Europe, Huang & Malina 2002). In Italy this kind of investigation is lacking (at least for wide subjects samples): status favors the spread of a general thought on a decrease in physical performance. Thus, the aim of this study was to establish the normative value for physical fitness among Italian children and adolescents. So, a performance database could be used as a baseline for further health-correlated investigations and for between countries comparison.

## Materials and methods

### Subjects

Young students were recruited in Milano province (Lombardia region) during the implementation of a project (called Motorfit) proposed by the regional office of public instruction (Regional Institute for Educational Research, ex-IRRE). Criteria for selection were that the subjects were healthy, aged 10–13 (corresponding

to middle school) and active during Physical Education (PE) lessons. In particular “healthy” was defined as having no history of any illness considered to be likely to affect growth and PA.

The final sample comprised 4111 subjects (2100 male, 2011 female – table 1) grouped according to gender. For each gender, subgroups

were made according to ages: 10 to 11, 11 to 12, 12 to 13 years.

Informed consent from the parents of students was obtained before data collection.

Table 1. Anthropometric characteristic about young students. Data divided within age and sex. Numerosity relative to all group is also reported

Age (years)	Sex	N	Height (cm)	Weight (Kg)	BMI (Kg/m <sup>2</sup> )
10–11	M	647	148,93±7,15	43,10±9,24	19,31±3,24
	F	657	149,85±7,75	43,00±9,63	19,03±3,37
11–12	M	768	155,29±8,55	47,92±12,02	19,70±3,83
	F	698	155,86±6,47	47,52±9,64	19,50±3,45
12–13	M	685	162,41±8,64	53,61±11,82	20,18±3,43
	F	656	159,49±6,57	50,88±8,82	19,98±3,15

## Measurements

Performance and ability variables were selected within the EBT protocol (Council of Europe 1988) so that the results could later be compared with the results of other research studies carried out in Europe (Jürimäe 2007, Sollerhed 2008). All variables are strictly defined and were not influenced by the authors of this paper. The measuring instruments were either the same as or similar to those prescribed and described in the instructions for the realization of EBT.

In particular, the items chosen in this study were Sit and Up’s (SUP) and Sit and Reach (SAR) tests: two trials to evaluate musculoskeletal characteristics (respectively endurance of abdominal muscles and flexibility of the lower back, hamstring, buttocks).

Following a brief description of the test are reported:

SUP – The subject lies on a mat in a supine position with fingers laced tightly behind the neck and the elbows pointing directly forward. Both knees are flexed. With both feet being held down by a partner, the subject curls the trunk until the elbows touches the thighs and then returns to the starting position. Trunk rotation are not permitted. The subject repeats this motion as rapidly as possible for 30 seconds. The score is the number of completed sit-ups in 30 seconds.

SAR – The subject sits on the floor, without shoes, box with and puts the feet flat against the the knees fully extended. The arms are extended forward with one hand placed on top of the other.

The subject then reaches directly forward, palms down, as far as possible along the measuring scale on the top of the box. The maximum distance reached with the tip of the fingers by forward flexion of the trunk is measured. Each subject was given two trials and the best results held for at least one second were chosen. The score is the maximum reach to the nearest centimeter.

## Study design

The protocol was run during October 2008 in the schools that freely joined to Motorfit project. Data were collected by PE teachers after a specific task training. Indeed, prior to starting the study, the teachers were involved in the project undertook training sessions in order to guarantee the standardization, validation and reliability of the measurements.

The Eurofit items included in this study were SAR and SUP tests. All trials were performed during PE lessons. Height was measured with a fixed stadiometer to the nearest 0.5 cm and weight was measured with a beam balance to

the nearest 0.2 kg. All data recorded in the same format table was sent by e-mail to the regional office of public instruction (PE department). Consequently, experts had collected all data to set a general database.

## Results

Physical characteristics of the subjects are shown in table 1. The height of male and female is very similar to 10–11 (149 cm and 150 cm respectively) such as the relative variability (sd = 8 cm of males, sd = 7 cm of females). During growth the variation in height is moderately different: 10 cm for male and 13 cm for females. Also the weight showed a similar tendency for

males and females. Indeed, both gender start with 43 Kg at 10–11 and reach 53 Kg and 50 Kg in the following two years (males, females). The variability relating to weight is very similar: about 10 Kg and 9 Kg for males and females respectively.

In contrast with anthropometric properties, the physical levels are different within gender (table 2 and figure 1). Indeed, the SAR test shows relevant differences (comparing females to males) but variability was more than 9 cm in both groups (sex) for each years. In particular, female reach (on average) 22,61 cm while same-age male 15,84 cm.

Table 2. SAR test results. Mean e standard deviation

Age (years)	S A R (cm)			
	M		F	
	mean	sd	mean	sd
10-11	15,75	9,6	22,11	9,38
11-12	15,37	9,39	22,37	9,26
12-13	16,40	9,78	23,37	9,57

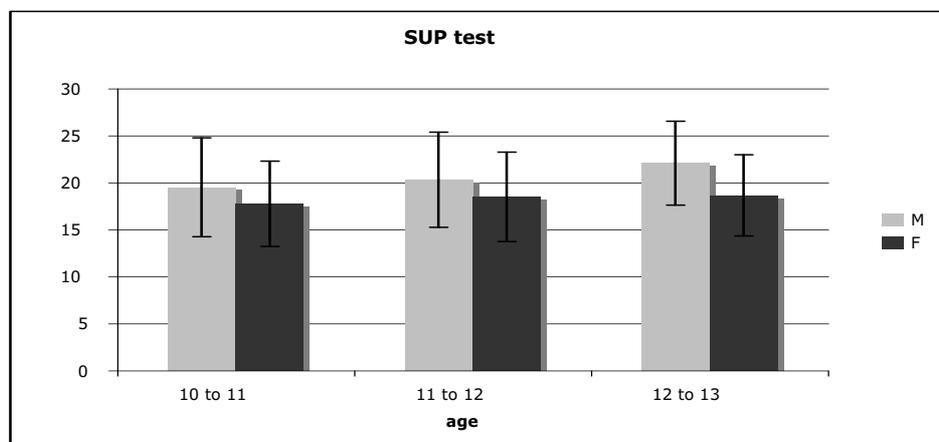


Figure 1. SUP test results. Data about man and female performance

In the SUP test, instead, males performed better results than females (fig. 1). Indeed, males reach 19, 20 and 22 complete elevations while females did not perform more than 18 elevations. Instead, the variability was similar: close to 5 and 4 (females and males).

## Discussion

Several studies reported results about children's and adolescent's performance relating to

different countries and within different health condition correlations. Rural or urban living areas (Tsimeas 2005, Ozdirenc 2005), growth (Philipaerts 2006), biological manhood (Freitas 2002, Saygin 2007), socio-economic status (Freitas 2007), overweight and obesity (Casajus 2007, Deforche 2003, Tokmakidis 2006), PA level (Vaeyens 2006, Verstraete 2007) have been related to physical performance. Indeed, the original idea of CE was the physical performance like

a predictor of well being status or health growth. In this way the EBT has easily applied and the instruction provided by the CE was found extremely useful.

As like suggested by Serbescu (2006) the secular trend in motor performance of children and adolescents shows a decline but longitudinal studies are still not widespread (at least in Europe, Jürimäe 2007, Volbekiene 2007, Westerstahl 2003). In this European situation, the present study try to define the Italian performance baseline relating to children.

Italian boys showed SUP performance similar but lower than their peers from other countries. Indeed, young non-elite soccer player (12–13) performed in SUP test about 24 elevations (Vaeyens 2006): similar mean result also obtained by young Flemish boys (control sample, 12–17) in a comparison study with their vegetarian peers (Hebbelinc 1999). While only Spanish males (Casajus 2007) performed the SUP test like the Italians; our females, unfortunately, did not performe excellent SUP test. Indeed, they did not reach over than 18,66 elevation especially if compared whit Spanish and Flemish students of the same age (over than 20, Casajus 2007, Hebbelinc 1999) and even more if combined with Portuguese and Brazilian females (over than 26 elevation, Freitas 2002).

From a flexibility point of view, the SAR male performance highlights a critical Italian condition. Indeed, the Italian boys compared with north countries showed a low level performance (up to 6 cm of difference, Jurimae & Saar 2003, Vaeyens 2006) and in best cases reach similar results to Spanish (15,8 cm, Casajus 2007) and rural area Turkish boys (15,4 cm, Ozdirenc 2005).

Instead, females performed a test following a similar common tendency among different

countries (Jurimae & Saar 2003, Ortega 2005, Tsimeas 2005).

In conclusion the performance scored by Italian boys has shown a poor condition (or at least increasable for females): the level of abdominal strength and low back flexibility is inferior than among other European countries' students and improvements are desirable.

Cultural disinclination to stretching training are in particular the most significant poor cause of results in SAR test. Indeed, the risk is the involvement in performance condition as found by Westerstahl (2003) in a secular trend study (from 1974 to 1995) assessed among 16 years old students (secondary school).

From this point of view, the present study could represent the first Italian performance baseline useful to assess further physical condition study (urban and rural differences), PA correlations (sport practice influence), growing related modification and new inter-countries comparison (trend between different state).

Improvements of PE course in schools, definition of close program in content and cultural diffusion of benefits resulting from constant stretching and strength training are, in our opinion, the possible Italian solutions.

Indeed, according to these result the Ministry of Education, recently, have radiated the new indication to improve the PE contents and to define the sports activity in school environment.

### **Acknowledgements**

The authors are endlessly grateful to all students, who took part in this study demonstrating careful and hard work. Special acknowledgements to all Physical Education teachers for the protocol assessment and to Mr. Marco Grassini B.Sc. for database implementation.

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## **Identity of Contemporary Physical Education – Crisis or Evolution?**

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### **Abstract**

The article is an attempt to define the identity of contemporary physical education in the scientific theory and to answer the question on what kind of physical education can be an irreplaceable component of the curricula. A review of the definitions of physical education functioning in the European scientific theory was made from the Polish point of view. Significant differences in understanding and defining the identity and mission of physical education were shown. The subject of comparative analysis are also physical education curricula. In conclusion, the author finds the Polish and West European scientific theories of physical education convergent, simultaneously pointing out the differences. He also defines the identity of physical education which has a secure place in contemporary systems of school education. Nowadays only physical education which provides all students with joy of regular motoric activity, solid bases for physical, psychic and social health as well as competencies essential to actively participate in physical (movement) culture can be considered an important and essential component of a modern educational system.

**Key words:** physical education, identity, curriculum.

### **Introduction**

When in 1999 the First World Summit on Physical Education was organized in Berlin the materials informing about the need of such a meeting indicated an extremely difficult situation in which school physical education was. The proposed motto of the conference which gathered representatives of scientific theory and educational practice was "Silent crisis of physical education". The findings presented during the Berlin meeting as well as those of the Second World Summit on Physical Education held in Magglingen, Switzerland (2005) confirmed the global character of difficulties and worrying tendencies observed in physical education on all continents (Hardman 1999; 2002).

The quality of school physical education understood as the state and group of features which undergo assessment and are closely connected with the social and individual perception of the educational offer has been a subject of widespread criticism for at least 40 years. International findings show decreasing interest in physical activity and declining level of motor efficiency among children and young people (Bos 2003, Brettschneider 2003, CDDS 2002, De Knop 2002, EUPEA 2005, Hardman, Marshall 1999, 2005, Hardman 2007, Kurz 2002, Prze-

węda, Dobosz 2003, Timmermann 1996 et al.). Nowadays hypokineses encompasses 30% of the European school population. In this group it has been observed that cases of hypertension, obesity and overweight caused by sedentary lifestyle are more numerous than among physically fitter students. More frequent is also anorexia and bulimia incidence as well as drug addiction which in turn can be connected with lack of body acceptance and low self-esteem (CDDS 2002).

Taking the above into consideration, usually critical opinions and often divergent expectations from physical education as a school subject, expressed by students, their parents, doctors, teachers, psychologists and representatives of non-educational circle, cannot be a surprise. The fact provoking most anxiety, however, is no unanimity on the identity and mission of school physical education among physical education teachers, representatives of the scientific theory, who at the same time are university teachers in schools, which train teachers of the above mentioned subject as well as among educational, self-government and state authorities. Significant differences in understanding and defining the identity and mission of physical education were shown in studies carried out by many authors

(among others Frołowicz 2002; Laporte 1995; Crum 1993).

As early as in 1992 Larry Locke (1992) claimed that if physical education was to be an important subject in the XXI st century, the previous model would have to be destroyed and everything should be started from the beginning. *US News Letter* put forward a thesis that if physical education was a business venture, it would have gone bankrupt 15 years ago.

Great concern about the fate of physical education in the XXIst school education curriculum was expressed by the participants of a scientific conference in Ghent University organized in 2007 to celebrate the centenary of opening the first European faculty of education of this university. However, the question whether physical education will survive the next 100 years was not answered explicitly. In the opinion of most speakers the future of physical education seems to be uncertain.

How do representatives of the Polish and European scientific theory define the identity and mission of the XXIst century physical education?

Is there any convergence of opinions among scholars in this respect?

What is the aim of physical education reform in the European countries?

Is it enough to change the curriculum or are big organizational changes necessary at the same time (for example, abandoning organized classes and introducing optional classes)?

Or perhaps the most important changes are those in the educational system for physical education teachers?

In this work identity there is a notion which enables distinguishing between two objects. The object's identity can be defined by making use of its identifier. Whereas the quality of physical education is a state and group of features which undergo assessment, closely related to the social and individual perception of the educational offer.

Scientific approach towards answers to such questions demands sound analysis of contemporary tendencies observed in the European physical education, one bearing in mind George Santayama's warning: "Those who cannot remember the past are condemned to repeat it".

Rich and long history of physical education in the European curricula suggests that it should be a commonly accepted component of each educational system. Yet educational activity aiming solely at high physical fitness of children and young people does not seem to be a sufficient justification for incorporating physical education in the curricula any more.

### **Physical education identity in the scientific theory**

The necessity for great reforms was called for already in the 1970s by Maciej Demel, author of the manoeuvre of re-pedagogisation of physical education (Demel 1976). The essence of changes in the educational doctrine was aptly expressed by B. Crum, who defined physical education as a process of preparing young people for conscious, independent, satisfying and lifelong participation in the movement culture (Crum 2007). For those reasons also the concept of physical fitness is evolving. Until recently the most important was fitness linked with technical and tactical skills. Nowadays the centre of gravity is moving towards fitness connected with health (*health related fitness*) in the lifelong perspective (Pośpiech 2005). Since the following do not raise any doubts:

- need for educating children and young people in the matter of body,
- need for educating in the matter of lifelong body care,
- necessity of physical education in the process.

In the scientific theory there are many definitions of physical education.

The European Physical Education Association (EUPEA) conventions in Helsinki, Finland (1993) and in Limerick, Ireland (1994) were devoted among others to works on defining the identity of the European physical education. The following consensus was reached in this matter:

- physical education makes unique contribution to the process of all students' education; one cannot speak about versatile and harmonious development of children and young people without physical education (*No education without physical education*),
- physical education is generally connected with movement learning-teaching and is a way of

using physical activity in order to enrich educational experiences of all students,

– each country has its own cultural identity, and each student, regardless of his/her abilities, sex and origin, has the right to participate in physical education classes which should provide:

- a) wide basis of physical competencies and knowledge on physical activity,
- b) support for the natural process of body development,
- c) promotion of health and physical fitness as well as understanding the essence and meaning of healthy lifestyle,
- d) self-accomplishment and self-acceptance in the somatic and motoric context,
- e) ability to solve problems and cooperate with other students in the scope of physical activity and sport,
- f) development of long-lasting positive attitude towards physical activity,
- g) lifelong interest and participation in different forms of physical activity,
- h) opportunity for one's development as an independent and responsible member of the society.

Searching for analogy with other school subjects preparing for different social roles and participation in culture, many scholars emphasize that the mission of physical education in the XXIst century should equip students with competency necessary to practise physical activity and sport for the whole life, to actively and fully participate in their professional and family life and relaxation.

This systemic and prospective approach determines high quality of physical education and sport, distinguishing them from incidental and occasional classes (Talbot 1999).

Physical education is not only "learning to move", but also "moving to learn" (Sugden, Talbot 1998).

"Learning to move" is the most frequent way of understanding physical education perceived as a process of teaching physical skills, shaping motoric abilities, learning about one's own body and its physical capabilities .

Whereas "moving to learn" concerns physical activity as a context and means of teaching. The aim is to achieve a whole range of educa-

tional results, for example adequate and efficient behaviour and activity (Talbot 1999).

In cooperation with other subjects physical education should develop behavioral competencies which determine mental and psychological attitude towards solving particular situations and problems. According to B. Crum, a student should gain the following basic competency:

- be able to adjust action to the situation,
- appreciate and be able to organize exercises for health,
- act as a critical sport consumer,
- maintain detachment from media information (Crum, 1993).

B. Crum (1998) carried out a pilot study at 13 European universities which educate teachers of physical education, asking among others about the curriculum doctrine accepted by them and educational institutions in their country. It showed that different concepts can function in the same country, or even at the same university. B. Crum (1998) observed that in Finland, Norway, Sweden, Holland and Great Britain physical education is perceived as a teaching-learning process but most countries are dominated by a doctrine which is a mixture of the concepts "training of the physical", "education through the physical" and "teaching-learning".

According to K. Hardman (1996), the goals of physical education are:

- development of versatile physical fitness and health,
- guarantee of optimal physical development and a range of physical competencies,
- students' positive attitude towards the needs of their bodies (from self-assessment to independent development control),
- moral education which includes behaviour and values as well as sensitivity to other people and environment,
- students' socialization,
- making students aware of the benefits from systematic and lifelong physical activity,
- shaping the sense of responsibility for safety during exercises,
- making students aware of cultural values of physical and sports activity.

In the Polish scientific theory a real breakthrough was the replacement of the biotechnological paradigm with the pedagogical one, which

by M. Demel was called a re-pedagogisation of physical education. Reducing physical education to the subject responsible solely for the student's morphofunctional development pushes it into the educational background (Demel 1989). The paradigmatic change was also a result of social changes and development of humanities. In H. Grabowski's opinion a more appropriate name for contemporary physical education would be "physical shaping and education" since it must "include both short-term shaping of the body and shaping personality caring for the body" (Grabowski 2000, p. 53). According to the same author "working on the body (...) can be treated as education only if its intention and defined goal is to shape personality able and ready to independently care for health and fitness after the educational relation has stopped (...)" (Grabowski 1997, p. 63). A similar definition of physical education is given by W. Osiński. Putting even more emphasis on the intention to make changes in the student's personality, he leans towards the name "education and physical shaping", which, in his opinion, "makes deliberate and conscious activity oriented towards creating a suitable set of attitudes and orientations, conveying basic information as well as towards getting accustomed to strengthening against environmental stimuli and gaining motoric fitness, improving function and body posture; those categories determine one's behaviour towards their physical (bodily) form" (Osiński 1996). S. Strzyżewski (1986, p. 22) claimed that the principal goal of physical education was "both improvement of the student's body and psychomotoric functions and forming such a system of knowledge, skills and habits as well as attitudes towards physical culture that in practice will manifest itself in aspiration and activity to maintain high physical fitness and health all life long".

A frequent source of dispute over the quality of school physical education is equating means with goals of physical education. According to M. Demel, "physical education is neither a sum of individual sport disciplines nor, all the more, a nursery school for professional sport". In the re-pedagogised version it was expressed in the formula "education concerning body" (Demel 1989).

The concept of cultural competency as an effect of physical education on personality is an elaboration on such understanding of physical education (Pawłucki 1992).

According to A. Pawłucki, the quality of student's care for his/her body depends on the level of his/her competencies:

- axiological (knowledge of the sense of such effort),
- communicative (knowledge of its content),
- technological (knowledge on the way of acting),
- realisation (skills and fitness).

In the light of "education for human body values" concept (Pawłucki 1992) physical education should not only stimulate somatic and motoric development but also support development of the student's health, recreational, aesthetic and dancing as well as sport competencies.

The analysis of quality standards of contemporary physical education in the Polish and West European scientific theory shows big similarity in the way they are defined. In both cases the pedagogical character of the process and necessity to shape the desired behavioural and instrumental competency are emphasized. At the same time the difference in emphasizing and defining educational priorities is noticeable. In the West European scientific theory smaller emphasis is put on the physical (bodily) goal and effects of physical education which is a subsystem of movement culture and not of physical culture, as it is in the Polish theory of physical education. B. Crum's new paradigm of physical education does not at all consider morphotic results as a criterion of physical education quality, taking into consideration only the level of the student's axiological and behavioural competencies.

The manoeuvre of re-pedagogisation did not lead to rejection of the achievements to date of the theory of physical education, which makes next models of physical education (which do not deny the meaning of short-term body improvement) extend the catalogue of "duties" of the subject and physical education teachers. As a consequence, the quality standard of physical education defined by the Polish and European scientific theory becomes more and more of a challenge for the school practice. At the same time the circle of physical education teachers

more and more often expresses opinions about divergence between the scientific theory and school reality.

### **Physical education curricula**

Physical education and sport are perceived as an important part of school curricula of the EU countries. EU educational policy is to harmonise curricula of all the members, not contrasting it with regional identity and otherness. Physical education and school sport have an active participation in the process. In some countries sport has a significant influence on physical education curricula. In many cases one can even talk about its domination over physical education. The European physical education is seeking appropriate relations with its ally and “neighbour” – sport. The neighbourhood can be very beneficial for physical education, but on one condition – that it will not lose its educational identity (Laporte 1998). The starting point for talks with educational authorities should be a thesis that “tasks of the school teacher of physical education are much more extensive than those of the club coach” (Laporte 1999, p. 38).

In the last decade many European countries have revised their physical education curricula. Apart from physical education the things emphasized are tasks of health and ecological education as well as preparation for participation in “movement culture”. The quality of physical education is to be guaranteed by minimal achievements standards which are drawn up in many countries and are the major tool for assessing teachers’ and schools’ work (Pośpiech 2003).

Scientific works on the issue are rather rare. W. Laporte (1999), analysing physical education curricula in particular EU countries, came to a conclusion that there are no significant differences among them. All of them emphasize physical fitness, motoric competency, sport skills, educational and health values of motoric activity. The only difference is putting emphasis on different aspects. Countries which for a long time have been influenced by Swedish gymnastics consider health and physical fitness as priorities of physical education. Countries with rich sports traditions have different preferences.

The results of the sports lobby and medical circle pressure on the authors of reforms of school

physical education in many countries are not only considerable changes in physical education curricula but also new names of the subject.

Although physical education functions as the name of the school subject in most European countries, changes of the name are implemented or attempted more and more often:

- sport or sport classes – Germany (1976), Denmark, Slovenia,
- physical and sport education – France,
- (teaching) movement and sport – Holland (2005), Austria,
- motor learning and sport – Italy,
- health and sport – Sweden.

Physical education curriculum in Great Britain defines the role and tasks of the subject in the following way:

- it educates children and young people by using the body and knowledge on it and its movement,
- it stimulates physical development and teaches young people to appreciate the benefits from participation in physical activity at school and after it has finished,
- it develops physical competencies and enables students to participate in valuable forms of physical activity,
- it develops the sense of movement aesthetics,
- it helps to reliably self-assess one’s physical and motoric development,
- and to accept one’s „physicality”,
- it facilitates managing situations of victory and defeat in individual and group competition,
- it develops the ability to solve problems,
- it strengthens bonds between school and environment.

The above helps to answer the question: What characterizes a high quality physical education?

ENSSHEE (European Network of Sport Science Health Education and Employment), analysing the goals of physical education described in the school curricula of the European countries, attempted to define what is common or very similar in each of them, what could be called the goal of the European physical education. In the opinion of the authors of the research physical education is an important factor of harmonious, versatile and balanced human development. It provides versatility of school’s educational influ-

ences by enabling all students to participate in organised, curricular and extracurricular movement-based classes. Physical education plays a significant role in shaping cognitive and psychomotoric skills. It also affects students' socialization and their aesthetic and moral education. Physical education has a significant influence on the increase of life quality. By creating bases in primary school, developing and improving

acquired competencies in secondary school, it educates for lifelong motoric activity.

A report prepared by K. Hardman (2001), ordered by the Council of Europe Committee for the Development of Sport, covered 33 European countries and includes, among others, a ranking of physical education goals described in national curricula (table 1 and 2).

Table 1. Ranking of curricular goals in primary schools (Hardman, 2001)

Goals	Order
Motoric competencies	1
Physical development	2
Motoric skills	3=
Human development/ontogenesis	3=
Health and good mood	5
Social development	6
Active lifestyle	7
Intellectual (cognitive) development	8
Interpersonal skills	9
Moral development	10
Physical fitness	11
Preparation for lifelong physical activity	12
Participation in valuable forms of physical activity	13
Self-assessment ability (body structure and fitness)	14
Aesthetics improvement (figure)	15
Ability to solve problems	16

Table 2. Ranking of curricular goals in secondary schools (Hardman, 2001)

Goals	Order
Motoric skills	1
Physical development	2
Motoric competencies	3
Health and good mood	4
Active lifestyle	5
Human development/ontogenesis	6
Preparation for lifelong physical activity	7
Social development	8
Physical fitness	9
Interpersonal skills	10
Intellectual (cognitive) development	11=
Moral development	11=
Participation in valuable forms of physical activity	13
Self-assessment ability (body structure and fitness)	14
Ability to solve problems	15
Aesthetics (figure) improvement	16

Motoric competencies (skills), physical development and motoric skills are the three most important goals of physical education in European primary schools. The same goals, but in

a different order, were recognised as a priority in secondary schools. Self-assessment ability, ability to solve problems and aesthetics (figure) improvement are the three goals regarded as the

least important ones of physical education (in a reversed order) in both types of European educational systems.

Goals of physical education are placed in the axiological image of the society. The hierarchy of preferred values is not permanent and has been undergoing constant changes over the centuries. At the turn of the second and third millennium we are clearly observing creation of a new system of social values within our reality, called physical culture in Poland and movement culture in most West European countries. "Discovering of body", „sportification of the society" (Crum, 1999) are examples of new cultural tendencies which significantly influence the evolution of social expectations connected with the quality of physical education in European schools.

"Discussion on the identity and quality prompts us to look at classes in a different way and, at the same time, to discover things which we have not spotted so far or which we have lost sight of" (Kurz 2004). In B. Crum's opinion (1993) physical education, being a teaching-learning process, must have functional values "here and now", different on each teaching stage. The studies carried out in many European countries show that more and more students claim that physical education is boring and teachers do not know or ignore the needs and expectations of the young generation.

An important factor which weakens students' motivation for classes is, in the opinion of many West European theoreticians and practitioners of physical education, a growing gap between what is offered by non-school institutions (mainly media and sports equipment producers) in the field of sport and recreational activity and by traditional physical education offered by schools (Pośpiech, Wojnar 1999). Findings of my own research carried out in the years 2004–2005 in southern Poland do not fully confirm such opinions since most respondents (79,8% of boys and 63,9% of girls) chose team games to be the most favourite and expected form of motoric activity during physical education classes while percentage of students interested in unconventional sports (forms of physical activity) was really small.

Findings of K. Hardman's study (1999) also showed that sports games are the most popular

in schools on all continents. Undoubtedly, the problem of students' preferences connected with class content, important from the viewpoint of physical education quality, requires further systematic and detailed research.

Theoreticians pay attention to difference between two notions: *output* and *outcome*. *Output* is what can be regarded as an effect of a lesson at the end, whereas *outcome* is what remains from the achieved effect in further usage. According to D. Timmermann, education is good and its value is revealed only in the course of using it, both to its owner (subject of education) and to people making use of it (for example employers) [Timmermann 1996]. In relation to physical education it means that its high quality manifests itself in students' healthy and active lifestyle after finishing school.

In many European countries the priority goal of school curricula is to arouse and reinforce students' movement, fun and sport culture. So what changes should occur in the doctrine and practice of school physical education? Assuming that competencies are a measure of success of school systems, physical education, in G. Bonaventure's opinion (1998), should develop them in such fields as health, healthy lifestyle, motoric fitness, safety and culture.

In the European physical education one can observe two new tendencies in formulating and implementing school curricula, such as freedom of content and overall support.

Freedom of content manifests itself mainly in the fact that curricula in most European countries, undergoing reforms, are withdrawing from the material (content) image of education and upbringing to define the expected effects of the process, while requirement standards and class content connected with them are defined by individual teachers or teachers' conferences.

Contemporary concepts of the European physical education are also aiming at supporting fully the student's development, which includes his/her physical-motoric, cognitive, socialising and emotional aspects. Teacher and his/her students are part of the school system which is part of the local society, country, nation or the world. Optimization of each of those systems depends to some extent on how the others function, because processes within each system

influence the whole system, either positively or negatively. But do teachers and students perceive each other as possible partners? Are parents and teachers partners? Do parents accept the role of first teachers for their children, and are teachers prone to support them in this respect? Answers to those questions are the same answers to questions about conditions for the quality of education and physical education in the next years. Since high quality of physical education seems to be the most important tool in the struggle for the appropriate place of physical education in school curricula and perhaps even for its survival in the XXIst century.

## Conclusions

1. The hierarchy of goals and essence of contemporary physical education in the Polish and West European scientific theory coincide, unanimously emphasizing its pedagogical and prospective character and the need to shape behavioural and instrumental competencies.
2. However, some factual and terminological differences are noticeable. In the West European scientific theory smaller emphasis is put on the physical (bodily) aspects of physical education which is a subsystem of movement culture and not of physical culture, as it is in the Polish theory of physical education.
3. What seems to be common for most authors of definitions of the European physical education is understanding it as a pedagogical operationalisation of movement culture (or physical culture, mainly in the countries of Central Eastern Europe).
4. Nowadays only physical education which provides all students with joy of regular motoric activity, solid bases for physical, psychic and social health as well as competencies essential to actively participate in physical (movement) culture can be considered an important and essential component of a modern educational system.

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## Romanian Athletes' Information Level on Doping Phenomenon – Risk Factor For Prohibited Substances Use

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### Abstract

The paper, realized within the project "Risk Factors of Doping Behavior related to Personality Structure and Social Environment of the Athletes", carried out with the support of World Anti-doping Agency (WADA) (2007–2008) and managed by Romanian Anti-Doping Agency (ANAD) (Project Responsible prof. dr. Graziela Vajiala), emphasize the relation between athletes' information level concerning doping phenomenon and temptation to use prohibited substances. This relation is analyzed within personality factors considered responsible for the decision to adopt this blamed behavior in sport.

**Key words:** doping phenomenon, performance sport, education.

### Introduction

The phenomenon of prohibited substances use among athletes, intending to artificially increase their performance has its origins in the ancient times and it is now so present, as it is supported and fed by the professional sport, so much commercialized and mediated.

In researches about doping in sport there were described different explanatory models. *The "Risk and Protective Factors"* model is developed by Find Youth Info (2009) and it is a Program Tool Risk Factors, where the risk factors are shown as conversely protective factors. Risk factors and *protective factors* are distributed in five categories:

- Individual,
- Family,
- School,
- Peer group,
- Community.

The factors of this model present psychosocial determination and they are related especially to anti-social behaviour, such as accepting drugs, intellectual disabilities, life stressors, low parent educational level, inadequate school climate, etc.

Another model is based on Ajzens' Theory of Planned Behaviour and Bandura's Self-Efficacy Theory (Wiefferink et al. 2006). The background variables: a) know-ledge, personal goals, sport modality, demographic characteris-

tics; b) the system of attitudes, social influence, and c) self-efficacy, are notable. These variables will lead one way or another, together or independently, to Intentional Behaviour. Intentional Behaviour may be obstructed (we consider both moral censorship and the fear of sanctions main obstacles).

In *The Petroczi-Aldman* (2008) model, the authors think the risk factors are distributed in three structures: 1. Personality Factors (performance enhancement, commitment, low self-esteem, high trait anxiety); 2. Systemic Factors (motivational climate, authority structure), and 3. Situational Factors (peer interaction, role model, environmental factors). Some personality traits can act as inhibitors of doping engagement (e.g. positive and stable self-esteem, conscientiousness and low risk-taking propensity) (McNair et al.1992).

*The Romanian Anti-Doping Agency Model* (2007) listed risk factors into three groups:

1. Individuals,
2. Social,
3. Situation.

Social factors are: 1. Group membership: family, class or business, professional, leisure group, sports team, sports club, 2. Social environments – the media, civil society, 3. Social representation and status of the sports athletes (Epuran 2007, Vâjială 2007).

The risk factors are variables associated to the risk, in terms of probability, where one or more variable in some circumstances may be a boost for a deviant behaviour such as the use of prohibited substances among athletes. Within risk factors, ANAD introduced also the athletes' information level on doping phenomenon (Berbecaru et al. 1998, Potzaichin et al. 2008). According to WADA "prevention of doping in sport supposes to increase the conscience about the real problems inside this phenomenon, to disseminate relevant and correct information, and also to influence beliefs, attitudes and behaviors in a positive manner".

### Purpose

This paper presents the relation between some Romanian athletes' information level on doping phenomenon and their temptation to use prohibited substances.

### Sample

In this research, we investigate the opinion of 1404 athletes of different sport disciplines (track and field, handball, cycling, box, tennis), seniors and juniors, between 16 to 21 years old. The best performances of these athletes are different from the results of national to international level.

### Research methods

Within the research methods used in the above mentioned project, we retain for this paper the information provided by Profile of Mood States (POMS) proposed by McNair et al. (1992) and by the Questionnaire for athletes (McNair et al 1992).

Out of the 57 questions, 9 put the athletes' information level about doping phenomenon in evidence. In this paper we present four aspects regarding the level of information: knowledge about Prohibited List, knowledge about the sanctions, sources of information and utility of information. The level of information was analyzed related to personality traits identified with POMS test. The questionnaire *Profile of Mood States* (POMS) includes scales with relevance for the personality and behavior traits that are studied. These scales are:

1. Tension / Anxiety,
2. Depression / Dejection,
3. Anger / Hostility,
4. Vigor / Activity,
5. Fatigue / Inertia,
6. Confusion / Bewilderment.

### Results and interpretation

To put the risk factor concerning the prohibited substances use in evidence, the athletes' answers were related to the attitude of acceptance of these substances: using or temptation to use it. In order to characterize the population exposed to a higher risk of doping use, there were emphasized the mood states manifestations for the athletes who hadn't fit in the group mean.

*The athletes' information level* in what doping phenomenon concerns was established by the following aspects:

- *The athletes know about the Prohibited List.* The analysis of the answers revealed that 86.6% (1216) of the subjects know there is a prohibited list – fig 1.

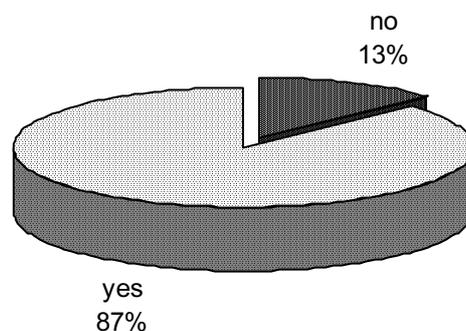


Figure 1. The athletes know about the Prohibited List

81% (115) of the athletes (10.11% – 142 athletes) who used or still use prohibited substances or methods know the Prohibited List. From the ones stating they used or would use prohibited substances or methods (144), 118 athletes know what prohibited list is, while 26 are tempted to keep on using them. The number of athletes who know the prohibited list but in the same time are still tempted to use prohibited substances is 67 (19 juniors and 48 seniors). The number of seniors is significantly different from the one of juniors ( $\chi^2=12.7$ , at  $p=0.05$ ).

Within the same group, the number of athletes (41 athletes – (61.2%) with increased values of pressure factors ( $\chi^2=7.90$ , at  $p=0.05$ ) is significantly different of the athletes with values below the average of the group. The same with the athletes with values above average on the depression factors (38 athletes, meaning 56.7%) ( $\chi^2=9.24$ , at  $p=0.05$ ) which is more than of the ones with values of the depression below the average. In the same time, 35 athletes (15 juniors and 20 seniors) out of 67 have other results than the first three places in national and international competitions.

Out of the athletes who do not know about the list (13.4%), 21 are tempted to use prohibited substances, 10 juniors and 11 seniors. The difference between juniors and seniors' number is not significant  $p=0.05$  ( $\chi^2=3.36$ ). Out of the athletes who are tempted to continue the use of prohibited substances although they are aware the substances are prohibited, 6 athletes use such substances (all of them seniors), 5 had used (4 juniors and 1 senior) them and 20 persons would use them in future (4 juniors and 16 seniors). As for the spontaneous psychical states, these athletes registered values above the group's average on pressure factors (18 athletes – 11 juniors, 7 seniors) and depression (15 athletes – 8 juniors, 7 seniors), but also fatigue (14 athletes – 8 juniors, 6 seniors) and confusion (14 athletes – 9 juniors, 5 seniors).

- *The athletes know about the sanctions in case of prohibited substances or methods' use.* Out of 1404 subjects, 93,4% (1311) say they know they would be sanctioned if they used prohibited substances or methods – fig. 2.

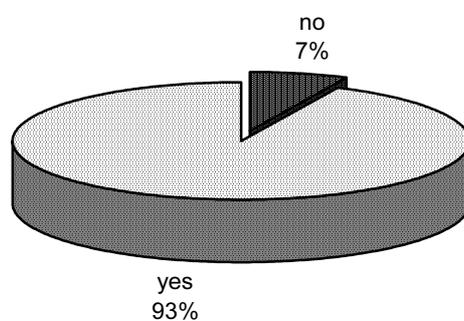


Figure 2. The athletes know about the sanctions in case of prohibited substances or methods' use

Out of the athletes who know they would be sanctioned if they use prohibited substances, 69 (21 juniors and 48 seniors) state they are tempted to use such means. The numerical difference between the two categories of athletes is significant  $p=0.05$  ( $\chi^2=12.58$ ). Most of the athletes, no matter from which category, do not have noticeable results.

The same as in the case of the previous item, we notice that out of this category of respondents 42 athletes (12 juniors and 30 seniors)

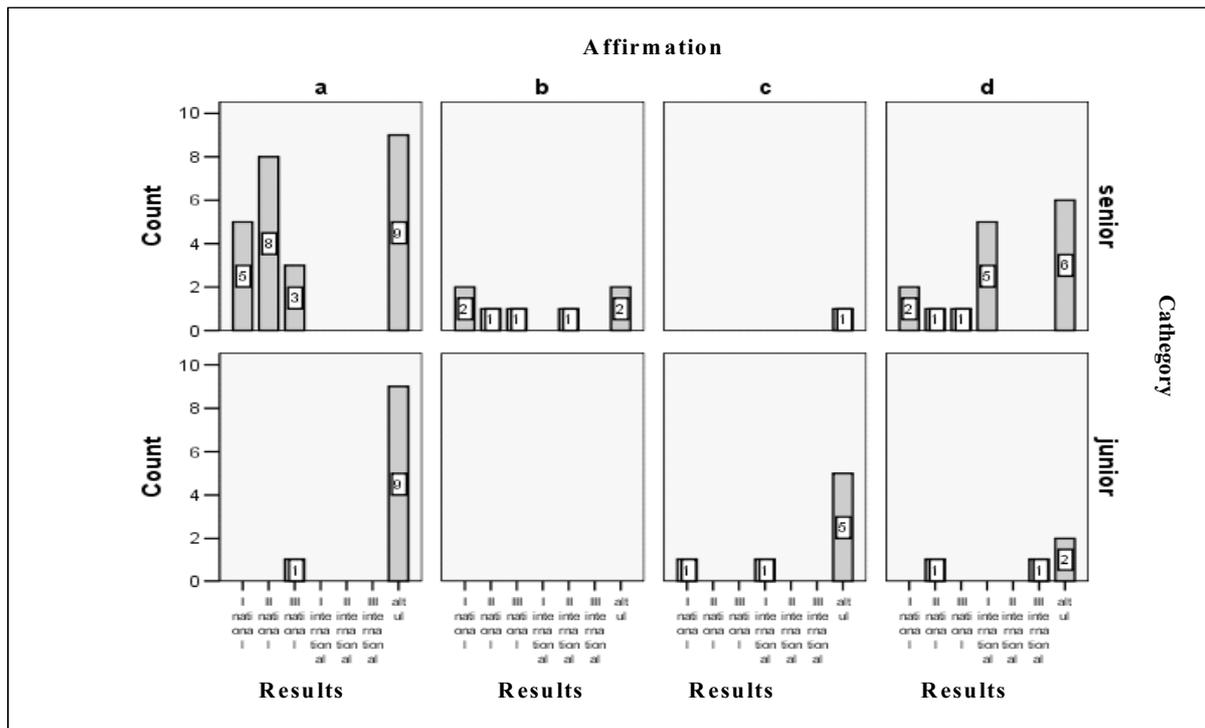
show values for pressure above the group's average while 37 athletes (11 juniors, 26 seniors) show greater values of depression.

The number of the athletes who do not know about the sanctions but would be tempted to use is 19 (9 juniors, 10 seniors). The insignificant difference between the two categories (at  $p=0.05$ ,  $\chi^2=3.06$ ), allow us to state there is an equal risk of use among the ones who do not know about the sanctions.

In relation to the group's average, these athletes feel more pressure (17 athletes – 9 juniors, 8 seniors), suffer from more depression (16 athletes – 7 juniors, 9 seniors), and a higher level of confusion (13 athletes – 8 juniors, 5 seniors). No significant differences between the categories of athletes were identified. Consequently, we state that not knowing the sanctions is equally a risk factor for both categories of athletes especially for those with weak results, who are more

tempted to become prohibited substances' users.

Out of the athletes who know the sanctions and are tempted to use prohibited substances, 7 senior athletes use prohibited substances now, 8 (7 juniors and 1 senior) used them and 19 athletes (4 juniors, 15 seniors) might use them in future – fig. 3.



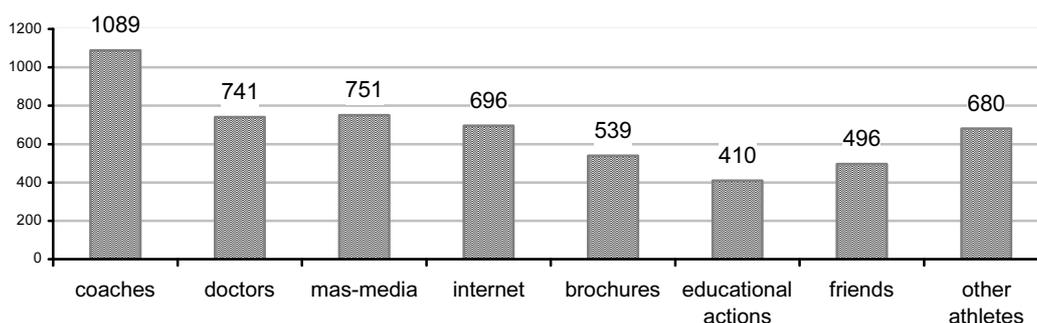


Diagram 4. Source of information

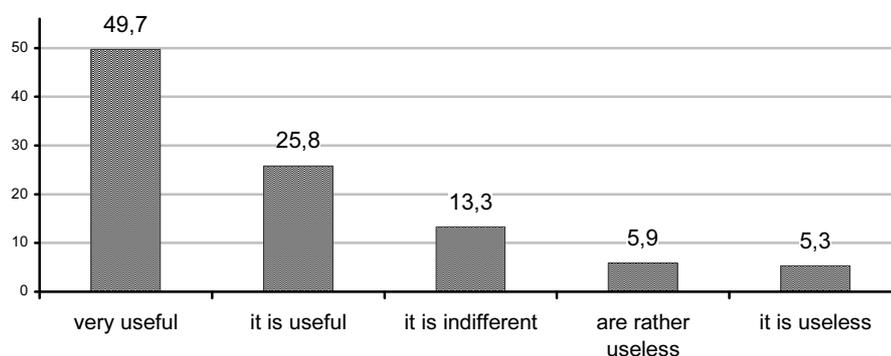


Figure 5. The usefulness of the information (in %)

We highlight the fact that 85% of the ones who need information are the ones who are not tempted to use prohibited substances and 91% will never use them. At the opposite pole, there are athletes who think the information's usefulness is very low (157 athletes) and say they would be tempted to use prohibited substances in future (13%) or would even use (14%). Out of the athletes who think the information on doping substances is very useful and useful, 43 athletes (12 juniors, 31 seniors) are still tempted to use doping. 25 athletes show values of pressure above the average of the group (10 juniors, 15 seniors), while 23 of them (9 juniors, 14 seniors) show values of the depression factor above the average of the group. No significant differences were shown by applying the signification test (square  $\chi$ ) of the difference between the averages of the two groups, juniors and seniors, on these factors. Most of the athletes in such a situation (13 athletes out of 23) haven't had important results in national and international competitions. At the same time, it can be noticed that 24 athletes state that they used, are

using or shall use this kind of substances. Most of those who declared using substances, are senior athletes. The athletes considering that the doping information has low utility and they are tempted to appeal to such methods of artificially increasing their performance are about 18 (9 juniors and 9 seniors). Most of them – 12 athletes, present over average values for tension and depression. The differences between seniors and juniors are not significant at  $p=0.05$ . Among the 18 athletes, only 4 of them state that they were or they will be users.

## Conclusions

1. Despite the fact that the prohibited list is known especially by the lack of results, the seniors with pressure-anxiety states and enforced depression are more tempted to use prohibited substances.

2. No matter which sport category they practice, the subjects with other results than the first three places in national and international competitions were characterized by pressure and depression. Despite the fact they know about the

sanctions, this would not stop them from using prohibited substances or methods. The athletes take this risk being fully aware.

3. These answers show that the educational actions should be addressed to coaches because both, juniors and seniors, trust them.

4. The athletes having other results than the first three places in national and international competitions, seniors or juniors and with over average results for tension and depression factors, are tempted to use prohibited substances

even if they consider the doping information useful.

Finally, we appreciate that athletes' information level on doping phenomenon is not an independent risk factor for prohibited substances use. Anyway, without this information and against the background of some momentary mental state resulting from failures or lack of results, number of people who would turn to methods and means for artificial increase of sport performance would be higher.

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**European Journal of Physical & Health Education.  
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