

Some observations concerning body composition in teenagers with mental disabilities

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Abstract

Background. Research and the application of the best methods for maintaining the optimal body weight have become some of the principal present-day problems. The use of diets to achieve and maintain the ideal body weight has proved to be inefficient unless they are accompanied by a correct physical exercise regime and kinesitherapy.

Aims. This study aims to ascertain whether the practice of physical exercise induces the optimization of body weight and a better physical development. We measured the hypodermic tissue, weight and height of 120 teen-agers (40 pupils with mental disability, 40 swimmers and 40 non-sportsmen). The Parîşcova method and body mass index were used to interpret the data acquired.

Methods. The Parîşcova method was used for the evaluation of the adipose tissue. This method permits the measurement of the subcutaneous tissues with the help of a special device. We evaluated 5 subcutaneous tissues, the same in both girls and boys.

We used the BMI formula to calculate the body mass index. For all categories of the values we calculated the average for the body composition (adipose tissue and the body mass index), in order to interpret the results. The new data were statistically interpreted by graphs using the SPSS program and the t Student test.

Results. There were significant differences between the adipose tissue of the teenagers with mental disabilities compared to the other groups. Also, on average the body mass index for the mental disabled girls was in the overweight category while the other girl groups were in the normal category. However there were no differences in the male groups, though boys with a mental disability were heavier than in the other groups.

Conclusions. At the specific ages researched, the girls presented a greater adipose tissue percent than the boys. Even if the differences were not significant at the level of the researched groups, females demonstrated an increased tendency in the adipose tissue. With or without mental disabilities, all teenagers must keep their weight at a normal level according to their body composition.

Key words: body composition, mental disability, sportsman and nonsportsman teenagers.

The connection between the dynamics of urinary ions and endurance exercise

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Abstract

Background. Physical exercise imposes ever more biological requests upon the sportsman's organism, as a measure of adapting the possible responses to a superior homeostatic level (***, 1996).

Aims. Investigation using the electrolytic circuit for the testing of specific biochemical parameters to highlight the immediate cellular adaptive dynamics, as well as the changes in long term among athletes and cyclists.

Methods. The longitudinal experiment, tracking the modifications of variables at different moments of the subjects after exercise was applied. For this purpose, we considered as an absolute variable the specific type of exercise – athletics or cyclism over a distance of 30 km, and as a dependent variable the urinary level of sodium, potassium and chlorine ions.

Results. The specific postexercise urinary ions levels after 24, 48 and 72 hours pointed out significant quantity variations, which reflects the recovery ability of the renal function under the pressure of aerobic exercise. A clear example can be shown in cyclists, when the variations in the values are highlighted between the three tests (the average of chlorine was 94.60 mEq/l after 24 hours, 92.27mEq/l after 48 hours and only 0.60 mEq/l after 72 hours). According to the significant level of average difference ($p < 0.05$), the anion takes different significant values in both groups of subjects (athletes and cyclists).

Conclusions. The postexercise ionic variations after 24, 48 and 72 hours are related to the capacity of the renal function, strongly affected by endurance exercise. This type of exercise can turn into a stress factor for the nephron's activity, which changes its filtering degree demanded by plasmatic osmolality and ultrafiltering.

Key words: metabolic adaptation, electrolytic balance, endurance exercise, athletes, cyclists.

Difficulty score in group rhythmic gymnastics (Portimão 2007/2008 World Cup series)

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Abstract

Background. A knowledge of the composition of competition elite gymnasts routines gives us a perspective of the evolution of gymnastics.

Aim. The aim of this study is to try to understand if there is a common profile in the choice of difficulty elements in different body groups in gymnasts from different countries and/or from different “training schools”.

Methods. In this study, there were observed 70 different routines, from 23 different countries in 4 different continents, which have competed at the 2007 and 2008 Portimão World Cup Series (PWC). All the groups performed two different routines, one with 5 ropes and the other with 3 hoops and 4 clubs. To analyse the difficulty elements we used competitions forms provided in advance to the competition organisation. We used the competition forms instead of films because in this way the analysis would not be affected by mistakes made by the group during the competition. The official classification used in the FIG (Gymnastics International Federation) Code of Points (FIG, 2005-2008) was used to organise different elements. It classifies the body difficulties in 5 categories: Jumps/Leaps, Balances, Pivots, Flexibility/Waves and Exchanges.

Results. The analysis of the 2007 and 2008 results showed that in the Jumps and for both routines, all groups preferred performing difficulties with different kinds of *jeté* with turn. In the balances category, the balance with horizontal trunk and the balances with different positions of the free leg were the most performed in both competitions. The most frequently used pivots were the pivots with the leg high (in front or side) for the two different types of routines in 2007. However, in PWC 2008, the *fouettés* were the most frequently used pivot in both routines. The preferred flexibility/wave elements used in the sample observed were the splits with the horizontal positions.

The results show that the majority of the exchange elements were performed without body difficulty elements. However, when they include them, the groups chose jumps in both types of routine and in both competitions.

Conclusions. In general a profile for each kind of apparatus could be designed and to compose the difficulty elements, the groups observed, demonstrated a preference for jumps and flexibility/waves in both routines and in both years (2007 and 2008).

Keywords: rhythmic gymnastics groups, difficulty score, evaluation, performance.

Maximal expiratory flow assessment in children's exercise-induced asthma diagnosis

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Abstract

Background. Exercise-induced asthma (EIA) is an attack of asthma that is provoked following strenuous exercises. Both clinical and laboratory observations indicate that short (4 to 10 min intense periods of exercise) are the most likely to trigger asthmatic symptoms. To diagnose EIA in children, a fall of more than 15% in forced expiratory volume in one second (FEV1) after a strenuous exercise or a fall of more than 35% of forced expiratory flow between 25 and 75% of the forced vital capacity (FEF25-75) are commonly used.

Aims. The aim of this study was to distinguish EIA from non-EIA children by means of FEV1 and FEF25-75 changes measured after a strenuous exercise.

Methods. Thirty-six prepubescent asthmatics participated in this study. After an 8-minute exercise at a constant workload, the children were divided into EIA- and non-EIA groups, considering separately on the one hand the fall in FEV1 and on the other hand the fall in FEF25-75.

Results. With the FEV1 method, 15 children (41.6%) had EIA symptoms and 21 children had not. When using the FEF25-75 method, 14 children (38.8%) had symptoms of EIA and 22 had not. Some children were not in the same subgroup regarding the two aforementioned definitions. A discriminatory analysis done on FEV1 and FEF25-75 before and after exercise showed that, respectively 8.33% and 2.78% of the children did not remain in the initial subgroup. This might be explained by the characteristics of the FEF25-75 investigation. FEF25-75 is thought to reflect the status of the small bronchi and is, therefore, not dependent on goodwill.

Conclusions. The results of this study suggest that FEF25-75 appears to be a better discriminating parameter in children's EIA diagnosis than FEV1.

Keywords: children, exercise-induced asthma, forced expiratory flow volume.

Somatic anxiety reduction in elite athletes through biofeedback training. Results of a pilot study

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Abstract

Background. Scientific research has shown many arguments regarding the utilisation of biofeedback devices for amelioration stress related diseases and conditions. Most of these studies used equipment based on the modification of heart rate variability (HRV) and respiratory sinus arrhythmia (RSA).

Aims. Our study tried to assess the impact of portable heart rate variability (HRV) biofeedback device on somatic anxiety in a sample of 12 elite athletes.

Methods. Using a experimental design with repeated measures we found a significant decrease in the level of somatic anxiety for athletes following a biofeedback training. The assessment of somatic anxiety was made through Competitive State Anxiety Inventory-2 (CSAI-2R). Participants found the device more helpful than other relaxation techniques such as mediation, yoga and unassisted breathing techniques.

Results. These preliminary results suggest that a portable respiratory sinus arrhythmia biofeedback appears to be a promising treatment in sport and is easily integrated.

Conclusions. Results also appear to replicate earlier studies using HRV biofeedback that found by creating an autonomic balance through resonant frequency breathing and cognitive focus, leading to increased levels of RSA, proved to be an effective means to induce relaxation. Results support the need for further investigation with more rigorous experimental designs.

Keywords: biofeedback, heart rate variability (HRV), respiratory sinus arrhythmia, somatic anxiety, relaxation.

The effect of restrain stress on the aerobic effort capacity of rats (part I)

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Abstract

Background. Physical exercise, restraint and hipokinezia - are among the experimental factors applied to rats to cause stress in laboratory procedures currently used in different variations in duration and frequency.

Aims. We followed the influence of anakinetic (restrain) experimental stress on the aerobic exercise capacity and spontaneous motility and emotiveness.

Methods. Research has been conducted on two groups (n = 10/lot) of white male rats of Wistar breed, weighing 160-180 g. Group I – control – animals involved in daily swimming for 21 days; group II - animals restrained daily for 6 hours and subsequently subjected to swimming training for 21 days. The indicators to the research were the aerobic exercise capacity, spontaneous motility and emotiveness.

Results. Training for 21 days caused significant increases in the aerobic exercise capacity in group I on days 7, 14 and 21 compared to baseline values. Anakinetic stress and 21 days training induced in group II minor increases in aerobic exercise capacity in 7 to 14 days and increases in 21 days. 21 days training determined a significant reduction in spontaneous motility and emotiveness in group I. Anakinetic stress and training for 21 days caused in group II a significant decrease of spontaneous motility without significant changes in spontaneous emotiveness. Aerobic exercise capacity showed a good correlation with emotiveness in both groups.

Conclusions. Significant increase of aerobic capacity by training and significant decreases of the spontaneous motility and emotiveness compared to base time values could contribute to the improvement of physical performance in athletes.

Keywords: restrain stress, aerobic exercise capacity, spontaneous motility, emotiveness.

The effect of restrain stress on the oxidant/antioxidant balance of trained rats (part II)

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Abstract

Background. Physical exercise, restraint and hipokinesia are among the factors applied to experimental rats to cause stress in laboratory tests.

Aims. To perform an experiment: anakinetic chronic stress influence on aerobic exercise capacity; the influence of stress on the anakinetic balance oxidants/antioxidants (O/AO) in rats trained to exercise.

Methods. Research was conducted on two groups (n = 10/lot) of white male rats of Wistar breed, weighing 160-180 g. Group I – control – animals involved in daily swimming for 21 days; group II – animals restrained daily for 6 hours and subsequently subjected to swimming training for 21 days. The indicators to the research were the aerobic exercise capacity, malondialdehyde (MDA), carbonyl proteins (PC), hydrogen donors (DH) and sulfhydryl groups (SH).

Results. Physical training by swimming for 21 days (group I) caused significant increases in aerobic exercise capacity compared with the initial batch and daily stress anakinetic and training within the same period of time (group II). Stress anakinetic daily training for 21 days (group II) caused significant decreases in aerobic capacity in the exercise-trained group (group I) and increased significantly the aerobic exercise capacity at the end of period (T₃) versus time T₀, T₁ and T₂. Physical training by swimming tests to exhaustion for 21 days caused significant increases of MDA, significant decreases and increases of DH insensitive PC and SH groups versus the baseline values. Anakinetic stress and training provided daily for 21 days (group II) caused insignificant decrease of MDA, significant decreases and increases of DH insensitive PC and SH groups from the start. After 21 days of training the two groups differed significantly for MDA and there were insignificant differences for other indicators of balance A/AO.

Conclusions. Increasing capacity through exercise training is associated with increased oxidative stress and decreased defense antioxidant. The anakinetic stress adversely affects aerobic capacity in exercise-trained rats, while decreases were shown in the defense antioxidant capacity.

Keywords: anakinetic stress, aerobic exercise capacity, oxidative stress.

The effect of phosphocreatine supplementation on the oxidants/antioxidants balance during physical exercise

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Abstract

Background. Creatine (CR) is one of the most widespread dietary supplements, mainly used in physical activity as an energogen.

Aims. The influence of phosphocreatine (PCR) among sports people on the oxidants/antioxidants (O/AO) equilibrium and on the creatinine (CRN) is explored.

Methods. The research was conducted on two groups of athletes control group I (n=8): students at the Faculty of Sports and Physical Education of the Babeș-Bolyai University, (average age 25.4 ± 0.6 years, average weight 80.5 kg); and exercise group II, n=8 – athletes exercise, trained for 21 days with daily phosphocreatine (Phospho creatin-R) supplementation. Samples were taken on day 0 (before training – T₁) and on day 21 (after training – T₂). The following biochemical urine indicators were analyzed: malondialdehyde (MDA), hydrogen donors (DH) and creatinine (CRN).

Results. A 21-days training, with and without PCR supplementation, does not influence the increase of MDA elimination in sportspeople. Urine elimination of MDA significantly increases in both groups. After 21 days of training a significant decrease of urine elimination of DH was observed. The elimination is not influenced by the administration of PCR. The training leads to a significant increase of CRN elimination which is not influenced by the CR supplementation. SO is maintained after 21 days of training in athletes with and without PCR supplementation. The O/AO equilibrium, which has been analyzed in the urine samples of athletes trained for 21 days, is influenced by the PCR intake. Oxidative stress is maintained owing to MDA, which also increases associated with the decrease of the antioxidant effect based on DH.

Conclusions. PCR supplementation among athletes has an energogenic effect without reducing oxidative stress.

Keywords: phosphocreatine, athletes, exercise, oxidative stress, creatinine.

The biometric potential of boys with a mental deficiency compared with that of boys from the general educational system

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Abstract

Premises. The fact that the Physical Education and Sport Activities – Special Education Syllabus has been developed without taking into account the biometric potential of children with severe mental deficiency is the basis of this study which analyzes the level of biometric potential development of these children. The level of biometric potential of children with severe mental deficiency is compared to that of students from the general education system in order that after the instructive-educational process, similar levels can be attained.

Objectives. The aim of the study is to compare the biometric profiles of the boys from the special education system with those of the boys from the general education system in the 5th grade and to highlight the major differences between them from a motric point of view. There are major differences between the two groups of subjects and establishing these differences should lead to the development of some real stimulation programs that will improve the instructive-educational process for physical education and sport subjects - special education.

Methods. The research was conducted between September 2008 - February 2009. During this period subjects from two special educational schools and subjects from two schools which are part of the general educational system were evaluated.

The students' selection was done on a fully random basis, organizing two groups of 15 boys from the 5th grade, one composed of students with a mental deficiency and the other one of students from the general educational system. The evaluation of the two groups was completed using the Brockport test battery, adapted tests from the biometric potential of the school population, the Matorin test and the Flamingo balance test which is part of the Eurofit Testing Battery. The SPSS statistical program was used to process the collected data.

Results. The obtained results were positive, reinforcing the hypothesis that, in terms of statistical-mathematical methods, significant differences regarding the speed of movement, the aerobic endurance, the force of the upper limbs and abdominal muscles, the vertebral, scapulohumeral and coxofemoral joint mobility, the coordination and the balance were recorded.

Conclusions. Given the differences between the two groups of students, the development and the implementation of some programs should be proposed that will stimulate the poor motric abilities. Finally, a methodological framework for the implementation of physical education and sport adapted for students with severe mental deficiency should be created.

Keywords: mental deficiency, special education, mass education, biometric potential.

Physical activity and psychical iatrogenesis in elderly

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Abstract

Background. Physical activity is indispensable in the elderly. Institutionalized elderly people frequently present depression, which can be treated with the help of the physical, psychical and social benefits of a regular physical exercise program.

Aims. The institutionalized elderly were evaluated for depression, physical activity and its benefits.

Methods. The research was carried out on two groups of institutionalized elderly people, men and women, with an average age of more than 73 years. We determined the physical activity index, depression index and cognitive functions based on the Mini Mental State Examination.

Results. Our results showed a higher depression score when the physical activity index was lower and a higher MMSE score when the physical activity index was higher.

Conclusions. Physical activity of institutionalized elderly people has beneficial anti-iatrogenic effects, fighting depression and iatrogenic illnesses due to institutionalization.

Keywords: physical activity index, elderly, institutionalized, depression, iatrogenic.

Estrogens involved in the modulation of behavioral response in female rats

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Abstract

Background. Observations on the influence of estrogens on motor and emotional behavior were the basis of this experimental study on spontaneous involuntary motility and emotional reactions in female rats, in which a menopause by ovariectomy was surgically induced and they received estrogen replacement therapy.

Aims. The present study aimed to analyze the motor behavior and certain emotional reactions in ovariectomized female rats, to which early and late treatment with estrogen was administered post surgery.

Methods. Twenty-four white Wistar female rats of 220-250 g were included in the study. They were divided into four groups of 6 animals each, as follows: group I - controls, group II - with ovariectomy, group III - with ovariectomy and treatment with hexestrolum diacetate 1250 µg/kg body weight at 7 days and 30 days post operatively, group IV - with ovariectomy and treatment with hexestrolum diacetate 1250 µg/kg body weight and 30 days post operatively. After 30 days following the last administration of estrogen the animals were placed in an „open-field” environment. The analysis included the number of crossings inside the marked area, the number of risings in the vertical, the duration (seconds) of stops in the center of the area, the number of defecations and that of quick movements of the paws.

Results. The rats of group III were the most mobile in terms of number of crossings and risings in the vertical when compared with those of group II and IV. In group III the duration of stops, which highlighted the orientation of the ovariectomized animals in „open-field”, was quite similar to that in the control group. The smallest number of defecations and quick movements of the paws was found in group III. However, no statistical significance was found here in comparison to that in the other ovariectomized rats.

Conclusions. A decrease in the motor function, behavioral and psycho-cognitive disorders were found in female rats after an ovariectomy. Ameliorated modifications were however detected only in the animals which were treated early with estrogen following an ovariectomy.

Keywords: ovariectomy, female rats, open-field, estrogen.

Modern terminology regarding lumbar spine pathology among athletes

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Abstract

Lumbar spine pathology is a public health issue for the general population owing to the huge number of affected persons and to its medical and social consequences. Still, there are few studies conducted on top athletes with this problem reported in the international literature. We also noticed a lack of set principles for the low back pain syndrome standard treatment in this special category of patients. Sport related traumas are difficult to be classified. Most of these lesions determine local inflammatory tissular response, but some of the intimate tissular damage has a degenerative response. The physician in charge with dealing with sports trauma, diagnostic and treatment has to be familiar with the acute and chronic evolution of lumbosacral spine trauma and with the normal biological capacity of healing in sportsmen. We will separate macrotrauma and microtrauma as a modern approach to this type of pathology. Therefore a modern macrotrauma classification for athletes is presented taking into account the trauma appearance and the morphological lesions. We offer the most used terms in the literature and we consider of great importance the knowledge of these terms in order to establish a valid algorithm for an accurate diagnosis and a specific treatment protocol.

Keywords: lumbar spine, sportsman, trauma, specific treatment.

Ear diseases in athletic activities

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Abstract

Sport activity and high performance can be influenced and limited by specific accidents that require emergency treatment in order to provide a quick and complete recovery.

During the practice of different disciplines in sport, external, medium or internal ear traumas and infections are frequent. These emergencies must be prevented, diagnosed and correctly treated by an otorhinolaryngologist, because every interruption in a sportsman/woman's activity can negatively influence their performance and their sport career can be put to an end.

Keywords: otitis, athletes, trauma.

The general basis of motion – foundations in motor education

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Abstract

This paper draws attention to the subject of human motricity. In a long career as practitioners or instructors of specialists in this domain, we have found that young people today are moving away from what means “control”, co-ordination or efficiency which signifies the movements performed in various forms of gymnastic performances. Thus, this study invites specialists in physical education, sports training, kinesitherapy or in leisure activities, to analyze the aspects which are the basis of the various forms of movement. Of course, we shall not be able to present all aspects, but in fact only the bases of the various physical structures.

Keywords: motricity, psycho-motor education, co-ordination.

A project regarding the building and efficient exploitation of cable transportation system

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Abstract

Romania represents an important tourist destination in the region. However, tourist marketing has not changed in time, and it cannot compete with similar tourist offers existing on the international market. The Romanian tourist structures, especially those concerning entertaining activities, are old and unattractive. Tourist services and programs lack imagination, their quality is poor, while the quality-cost ratio is inconclusive. These are the reasons why the last 20 years have witnessed a constant decrease of the external tourist demand for Romania. Modernization, restructuring, creation of new competitive tourist products are necessary.

The analysis of the mountain tourism potential, oriented towards winter sports, especially skiing, evidenced the necessity of developing projects of the extension and upgrading of skiing facilities, cable transportation installations; other winter sports such as cross country skiing, walking, bobsled, sledding, snowboard, are also in need for new facilities.

For Romania to be acknowledged as an international tourist destination for winter sports, the general infrastructure must be improved: building new ski and snowboard slopes with modern cable transportation systems, artificial snow installations, nocturnal systems, along with the development of accommodation and catering facilities.

Given the fact that tourist safety is a primary concern worldwide, both regarding the cable transportation and the ski slopes, international safety standards must be rigorously observed. This study will identify the domains for ski practicing, cable railways and ski lifts that will be declared fit for public use.

Keywords: ski lift, cable railways, winter sports, tourism.

Physical activities in the vision of ancient Greek philosophers

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Abstract

History means not only facts and events, but also real people and their personal lives, with their qualities and faults, in a specific period. We can explain why we chose a fragmentary reconstruction of the history of human physical activities. We based our study on the sources of the written text, but we tried to go beyond them, searching for answers behind words and sentences.

The human being is the only entity that lives and expresses him in full consciousness. The human being placed himself in the center of his creation, in order to make him perfect.

By the help of antique thinkers, in this creative effort, the human being became aware that he has some native predispositions, a future basis for his improvement. Among these predispositions, the motric aptitudes are well defined; they are a gift for man, making his own accomplishment easier.

From the earliest times the human being became aware that physical activities were important for his well being. Early Greek philosophers realized that sport competitions influenced private and social lives, preserved the idea of human physical movement, and helped the development and accomplishment of motric aptitudes and abilities including utilitarian ones as they strived towards the common idea of human perfection.

Keywords: philosophy, sophists, physical competitions, Socrates, Plato, Aristoteles.