

DISSERTATIONS AND ARTICLES**Elżbieta Cieśla**

Genetic Determinants of Chosen Motor Predispositions of Children and Youth in Kielce Population – Part II Co-ordination

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The Influence of the Individual Pattern of the Lower Limbs of the Sport Walker on the Moving Torso and Upper Limbs' Movement Ranges During the Start Speed

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International Sports Science Conference „Scientific Management of High Performance” (25-26. February 2005)

Stanowisko Komitetu Rehabilitacji, Kultury Fizycznej i Integracji Społecznej PAN w sprawie polityki badań naukowych i rozwoju kadr w dziedzinie nauk o kulturze fizycznej.

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Genetic Determinants of Chosen Motor Predispositions of Children and Youth in Kielce Population – Part II Co-ordination

The problem of determinations of co-ordination motor abilities was presented in not many scientific publications [1, 2, 3, 4, 5]. The solution of this problem has nowadays great importance in the practice of sport selection and in the analysis of sports achievements. Results of the research allow to determine adjustment abilities of an individual, they help to prepare the line of coaching and also suggest desirable adjustment changes in professional life and physical education. This presentation concentrates on assessment of the strength of genetic conditioning of selected co-ordination motor abilities. 05 full families (mother, father, and a child) were investigated. Measurements of balance, motor-optical coordination, orientation in space and were taken. The ability to notice and to think logically was also measured through J.C. Raven's test of templates.

The strength of genetic control for particular features was established by means of classical methods of genetics of quantity traits and on the basis of resemblance between parents and children. That led to the following calculations:

- intra-family rates of correlation (7-10, 11-14, 15-19 age groups)
- rate of correlation between parents as the measure of assortative mating.
- on the basis of corrected rates of correlation (corrected in case of possible influence of assortative mating) heredity rate was calculated $h^2 = 2C_{sk}$.

The analysis of achieved results led to the following conclusions:

1. It was noticed that sons bear more resemblance than daughters to their parents as far as functional traits are concerned.
2. Full genetic control appeared only in the situation where developmental possibilities were used (age group 15-19).

Wiesław Chwała, Waclaw Mirek, Edward Mleczko, Tadeusz Ruchlewicz

The Influence of the Individual Pattern of the Lower Limbs of the Sport Walker on the Moving Torso and Upper Limbs' Movement Ranges During the Start Speed

Introduce: In the previous researches very rarely the subject of the symmetry and asymmetry of the movement technique of the athletes achieving the world highest level in the sport walking was undertaken.

Goal of the research: The estimation of the asymmetry range in the individual technique pattern of the sport walking of the contestant presenting the international master class level (7th place during the Olympic Games in Athens) using Vicon system which helps in accomplishing three-dimensional analysis of movement.

Methods and resources: Measurement experiment. The registration of the lower and upper limbs movement and torso, shoulders and head's angular changes ranges in presentation multimedia file created in the "Polygon" application was used. The arithmetic averages of the tested movement parameters from 20 walking cycles during the steady speed of $3,91 \pm 0,28 \text{ m} \cdot \text{s}^{-1}$ were estimated. The gathered material was the base for compiling the multimedia report, which included information regarding: angular changes, bone points' movement trajectory,

three-dimensional visualization of the bone structure and muscles detachments. The ranges of movement of the upper limbs joints (in three surfaces in the shoulder joint, in frontal and sagittal surface in the elbow joint), spine's loins segment, thorax and head (in the frontal surface), body weight center's trajectory in the frontal surface were estimated.

Results: Biomechanical description of the individual technique pattern of the sport walker allowed to claim the appearance of the asymmetry in the analyzed parameters. Although the range of the occurrence was in the particular parameters slight, in every case was undesirable. Claimed pattern of technique influenced on so called "lower right limb functional shortening" and lead to asymmetrical pelvis movement, spine's loins segment and thorax and upper limbs. The consequence of this displacement was trouble with sport walking rhythm and increase of the physiological effort cost.

Conclusions: There is a necessity to correct the technical pattern of the sport walking of the tested contestant by reducing or leveling asymmetrical work of the upper and lower limbs and asymmetrical movement of the hips and shoulder belt segment and head. Accomplished materials, difficult to achieve by using simple eye description, can be used in undertaking many actions leading to improve sport results of the tested athlete.

Ryszard Litkowycz, Adam Zając, Zbigniew Waśkiewicz

Ontogenetical Variability of Morphological and Struktural Predisposition of Basketball Players at Different Stages of Development

Introduction. Current data allows to pinpoint the main factors determining game effectiveness in basketball.

They include: body size and body proportions, muscle structure, anaerobic power and mental traits. Among motor abilities speed, agility, explosive and maximal strength of the lower and upper limbs are most often listed as crucial for success in basketball.

The purpose of the work. Morphological predispositions are among the most important determinants of success of many sport disciplines. Current data indicate that basketball players are significantly taller than the average population. It thus seems very important to determine which morphological and structural traits significantly differentiate young basketball players from the general population thus giving them high predictability in the selection process.

Material and methods. The main objective of this research was to evaluate the morphological and structural potential of young basketball players what can significantly improve the selection and training process. The research material included 3 age groups of basketball players (13-14, 15-16, 17-18 years old) with equal control groups composed of non athletes. All subjects were submitted to anthropometric measurements from which several indices were calculated.

Results. The results indicate that basketball players differ significantly in most anthropometric variables from the general population. This data should be applied in the selection process of young talents in basketball.

REVIEW PAPERS

Agnieszka Zagórska, Anna Czopek, Jolana Obniska, Maciej Pawlowski

The Role of Physical Activity in the Treatment of Depression

This article reviews the studies on the effects of physical activity on depression and mood. Systematic review of randomized and nonrandomized controlled trials (obtained from electronic data bases: Medline, Embase, Science Direct) reveals effectiveness of exercise as an intervention in the management of depression. This article also reviews the methodology problems, conceptions and theories that have explained the mechanisms of action of physical activity on depression. Base on literature it has been found that the benefits are significant in cause of aerobic exercises, using of large muscle groups (jogging, swimming, cycling, walking) of moderate and low intensity, lasting for 15 – 20 minutes and performed a minimum of three hours a week. To determine the effectiveness of exercises in reducing symptoms of depression more of further research is necessary.

REVIEWS

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Motor Learning and Performance by R.A. Schmidt and C.A. Wrisberg (Third Edition)

Wacław Petryński

Nikolai Aleksandrovitsch Bernshtein – *On Dexterity and its Development*; Motor Learning

The N.A. Bernstein's work „*On dexterity and its development*” can be divided into two main thematic blocks. The first one, discussed in the paper “*Nikolai Aleksandrovitsch Bernstein – On dexterity and its development; motor control*”, deals with movements control. The other one, being the main issue of this article, is a theory of movements, habits (skills) and complex sensorimotor performances learning. Discussing creation of sensorimotor patterns the Author deals also with errors which should be avoided during the learning-teaching process. It seems that Bernstein does not appreciate the role played by the fifth of his levels, namely the E one, i.e. fully cortical symbolic transformations level. Abstract thinking, which is characteristic of mainly humans, runs just on that level. Besides the ability to operate with symbols (words), the other base of abstract thinking is perceiving the time as a versatile factor ordering the sequence of events. It seems that already over half a century old Bernstein's theory can constitute a very good basis of ordering the whole contemporary motor control and motor learning science.

ANNOUNCEMENTS

Jan Jaszczanin, Edward Mleczko, Povilas Karoblis

International Sports Science Conference „Scientific Management of High Performance” (25-26. February 2005)

In Vilnius, Lithuania, on 25-26 of February 2005 the 8 th International Sports Science Conference „**Scientific Management of High Performance Athletes’ Training**” took place. During those two days everybody had the opportunity to hear 6 papers at the plenary meeting, 62 reports at the 5 section meetings and 22 scientific reports at the billboards session. Over 60 authors from 9 countries: Armenia, Belarus, Israel, Finland, Spain, Lithuania, Poland, Russia and Ukraine presented their works. The effort of organizing this prestigious conference was undertaken traditionally by members of the Lithuanian Department of the Physical Culture and Sport, University of Pedagogics in Vilnius, Lithuanian Olympic Committee, Lithuanian Centre of the Sport Information. In this report the short information about the conference were presented.

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