

AN ATTEMPT AT THE CHARACTERISATION OF THE DEVELOPMENT OF MODERN SPORTS GYMNASTICS

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The scientific verification, the synthesis and the analysis of practical as well as theoretical information provide us with a basis for assessing and formulating a number of factors which influence the development of sports gymnastics.

The aim of the article is an attempt at characterising the development of modern sports gymnastics. The following conclusions result from theoretical analysis of the literature which has been available for the last few years, the analysis of the training process of Ukrainian and Russian gymnasts, as well as my own experience gained both as a trainer and a competitor and a long-term researcher interested in our leading Polish gymnasts. The main developmental tendencies concern: an individual's attitude towards the training process, the intensification of the training, a faster mastering of the sports programs owing to the constant development of the methodology, the importance of physical training of the athletes, the unification of the training technology of the gymnasts who represent the advanced level, the improvement of the means which make the training work safer, and a scientific study of the main components of the training technology.

Keywords: Sports gymnastics, developmental tendencies, factors.

INTRODUCTION

The development of modern sports brings with it the necessity of constant unification of the recognition and determination of needs, which are the basis for the creation and the conduct of the long-term training process. The latest scientific research, supported by practical and theoretical knowledge, are indispensable. The synthesis and the analysis of different information provide the groundwork for assessing and formulating a number of factors which influence the development of varied sports disciplines.

For the last couple of years, a dynamic development of sports gymnastics has been observed. The development is caused by the increased level of difficulty of gymnastic programs, improved training technology and novelties in the training process, as well as even the level of sports competition. What characterises modern gymnastics is its direction by the International Gymnastics Federation towards the versatility of the exercises of different structural groups. There are many different factors which decide an athlete's success. The basic ones are training and inborn abilities, such as motor abilities, the right body build, morphological characteristics, and the character of the competitors (Bril, 1986; Hadżajew, 1993; Kums & Vain, 1997; Sawczyn, 2000; Zasada, 1993).

Making gymnastics programs difficult and the stability of their realisation means an increase in the intensity of training at every stage of the training process, which, in turn, can lead to exceeding the adaptive skills of the organism and endangering the athlete's health. Therefore, the modern training process requires some changes in the system of sports preparation based on the latest scientific achievements in this field. In order to understand the character of the above mentioned changes, analyses of the direction of developmental tendencies in sports gymnastic ought to be done.

The aim of the article is an attempt at determining the current developmental tendencies in male sports gymnastics.

METHOD

Characterisation of developmental tendencies in sports gymnastics was, for our purposes, based on theoretical analyses of the literature which has been available for the last few years, the analysis of the training process of Ukrainian and Russian gymnasts, as well as on my own experience gained both as a trainer and a competitor and long-term researcher interested in the leading Polish gymnasts.

RESULTS

The term “developmental tendencies” is exceptionally broad. Not only should it be understood as the development of gymnastics as a sports discipline, but also as the development of techniques and sports devices as well as the aspiration to specify the type of an “ideal gymnast”. The term should also be understood as referring to the theoretical and methodological tasks of the long-term process which determine the directions of cognitive actions (Sawczyn, 2000).

At present, male gymnastics differs a lot from how it was in the sixties. Among many factors which have influenced it one can find the following: the introduction of the obligatory free style exercise into tournaments, as well as the introduction of all the novelties which make gymnastic programs more complex. Modern gymnastics is oriented towards the multi-discipline contest, which has influence not only on the versatile development of motor abilities, but also on the very high level of all requirements connected with the training process of a gymnast (Sawczyn, 1998). One has to mention here the factor of the level of difficulty of the exercises during the competition, which requires from the competitor a high level of physical preparation and efficiency. Owing to the considerable complexity of the gymnastic programs and the training, the factor of the athlete's health has to be taken into consideration. The increasing importance of the regulation of the training process in gymnastics is closely connected with the tendencies one can observe in training technology. The changes are determined by the overall development of modern gymnastics (Sawczyn, 2000).

Therefore, the analysis of the tendencies in the development of modern gymnastics shows that the basic concern of the training process is the constant improvement of technology and technique, especially of those well qualified. It applies especially to the right combination of the technique which is used during the training process and the regulation of the training loads.

Based on the compilation of the knowledge gained as the result of long-term, broad scientific research, the 12 following factors have been determined. These are the factors which influence the condition of modern gymnastics and its development.

1. Bringing technical mastery to the level of virtuosity by an increase in starting preparation and its intensification. It needs to be emphasised here, that there are a number of people who influence it: trainers, physiologists, psychologists, nutritionists, choreographers and even referees.
2. The constant search for new, more complicated exercises. It is not only about adding another turn to the acrobatics, but doing them around different axes and with new positions of the body. Using the principle of coherence between better results ob-

tained by the champions, the level of difficulty of the exercises and the limitation of the time of the training process. This solution requires using universal methods and optimal measures in order to maintain the level of exercises at the highest level.

3. Modern, fast and effective regeneration within the framework of the training infrastructure. Regeneration plays an important role in gymnastics. During the exercises the muscles are constantly tense, the exercises are repeated. The muscles and joints wear out, which can result in numerous micro injuries that should be eliminated or weakened by deliberate and systematic regeneration using the latest technologies.
4. The increased importance of specific sports training, as well as the accelerated process of the training owing to the advances in methodology. The process of teaching in gymnastics, which occurs in a training unit, is an indispensable part of the training. In order to comply with the requirements, an athlete must master new, more complicated elements and exercises using the sports devices, and the rate at which he or she masters it is closely related to the methodological abilities of his or her trainers.
5. The standardisation of the technology used in sports training at a very high level as a result of the rapid spread of scientific and methodological knowledge. One of the most important elements of standardisation is the information included in the programs, and communicated at various scientific and methodological conferences, during which different problems are discussed and many solutions to them are proposed. This is a very important element, which is necessary for the further development of gymnastics in Poland.
6. Making use of the individual approach towards planning and programming the process of sports training as well as correct proportions of the training are one of the most important factors in the training process in sports gymnastics. One has to mention here the individual approach towards the athletes, the complex control of their physical condition and their skills and abilities at every stage of training. The control of individual parameters of the training loads is indispensable here. The most informative are the following: the overall number of elements which are done, the number of combinations (configurations of the exercises) using the sports devices, the time of the training, the number of elements in the specific training session (PFS), the number of elements at the highest level of difficulty, the percentage of the correctness of the combinations using sports devices as well as jumping over the vaulting horse. The more the training is carefully considered and planned towards the individual needs of each

athlete, the greater chances of obtaining positive effects at a sports event.

7. Making it possible for an athlete to take part in sports events. The aim of this factor is assessment (by systematic test), and the control and verification of the initial condition of an athlete including the mastering of immutable habits. The basic elements of the preparation are the following: a specific efficiency as a symptom of the adaptation of the body to a specific physical and psychological effort as well as the improvement of concentration and emotional balance. It must be emphasised here, that sports events are not only a test of the athlete's psyche, but also aim at making him or her resistant to various stressful situations in which they can find themselves during sports rivalry.
8. The proper, multistage training of the gymnasts for the highest level and the confidence to practise certain elements and combinations of the exercises. This factor is inseparably connected with the proper planning of the training. If an athlete becomes acquainted with the new elements, combinations and configurations early enough, if he or she has enough time to practise them and, above all, to master them and eliminate any errors, it can be expected that they will become confident in doing the exercises and will be successful in the sports event which is to follow. The results of the action are the following: intensive training, mastering technique, efficient managing of all parameters of the training load and the system of criteria of training guidance as well as individual models of sports preparation of gymnasts. The complexity of solving these tasks results from the fact that the elements presented here are formed throughout many stages of the training process and its global techniques constitute the final result.
9. The disappearance of the differences between the periods of the year long training cycle especially observed in the shortening and reduction of the transitional periods, which is a negative factor in developmental tendencies, not only in gymnastics, but also in other sports disciplines. Hard training throughout the year, stressful situations during sports events, all this weakens the athletes both physically and mentally. As many doctors and psychologists claim, each athlete should take a break from training and use the time for intensive regeneration and relaxation during specially organised camps.
10. Developmental tendencies also mean intensive scientific analyses of the main components of the training technology, training simulators and technical means of training guidance. World sport is becoming more and more well-considered, improved and advanced by a number of scientists who take care of the proper course of the training and the devel-

opment and progress of an athlete. It also concerns the whole group of people who support gymnastics technically. These are groups of experts who specialise in the improvement of the sports devices with which the athletes work. This may include work on the material the devices are made of, their construction, as well as the invention of new training simulators which can make the athlete's and the trainer's work easier. One has to mention here the psychologists, physiologists and the doctors who influence the creation and performance of a number of tests which aim at determining the physical and mental condition of the athletes. These include general tests which are widely used as well as specific tests which are for gymnasts only.

11. The improvement of all the factors which may decide about successful training work are, i. e. financial, material, technical, methodological, motivational and many others which can create the basis for good results. I think that the lack of financial resources has been a permanent problem for many Polish sports disciplines. With regard to the fact of how important material and technical security is, it is desirable to remember about biological and methodological security which, de facto, depends on material security. It has been stated that this developmental factor in gymnastics is characterised by an upward tendency and let it remain so.
12. The last factor is the common centralisation of the preparation of the national teams. For example, in one of the best teams in the world, i. e. the Russian and Ukrainian teams, it is determined by the relation 7 : 1 : 2, where 7 is the central preparation, 1 – the training place, 2 – taking part in sports events. The important factor which influences the above mentioned developmental tendencies is the commercialisation of international gymnastics and the unification of the systems of sports preparation of the gymnasts who are dominant in this sports discipline. As one of the signs of uniformity of the preparation system one can include the transition to year long training with a huge part of centralised work, with often one day training using strategic means of physical and technical preparation. The content of individual programs also includes unifying tendencies. Generally accepted preparations with the use of much physical and mental load concern not only national teams, but also a large group of reserve athletes. During the training it is common to model stressful situations which are typical of the conditions during the sports event.

Apart from the above mentioned factors, many researchers whose work it is to verify and determine the modern direction of the development of this sports

discipline, like (Kochanowicz, 1998), claim that the development of gymnastics and, above all, the increase in technical abilities is twofold. On the one hand it is a subject of interest for the press, a number of experts and research institutes. It is caused by high achievement. The constant accumulation and the selection of experiences is done where the champion's achievement, the theory of the training and sports medicine meet. On the other hand, another way to progress in gymnastics – which is more rarely noticed and analysed, and where most of the phenomena seem to be sheltered from scientific observation – is the popularisation of higher standards of technology and sports efficiency and adopting a new cultural model (overcoming mental barriers). Some time ago, doing a free back somersault (with the trunk upright) was all a gymnast could think of. Today young adepts of the discipline infrequently do double free back somersaults with turns around the longitudinal axis. The elements which are accessible to most gymnasts these days, were impracticable a dozen or even a few years ago... It shows that apart from human abilities there are also some mental barriers which define how much and how fast something can be achieved and what exercises and combinations an athlete can do. It suddenly turns out that one can jump in a different way, and the acrobatic elements can be done with turns around different axes. Of course, it includes the overall increase in dexterity, agility, hygiene, as well as quantitative and qualitative increases and the psychophysical predisposition of a gymnast. The mastering and verification of the methods which are used make it possible to achieve mastery among most gymnasts, as well as to bring them closer to the athletes who represent the highest sports level. While analysing the considerations above, one can assume, that the best gymnasts in the world modify the basic rules of sports preparation, introduce new rules and determine new requirements for training loads. One has to mention here the acquisition of new, extremely difficult and complicated combinations. This principle requires a constant revision of sports programs and increased difficulty of the exercises which are done, while taking into consideration the latest developmental tendencies in gymnastics. Apart from this, many gymnasts are characterised by a constant readiness to take part and show their skills and abilities at sports events, or during model and control training or gymnastic shows. This principle leads to reaching a high level of functional stability and doing the exercise in a masterly fashion (Smolewskij & Gawierdowskij, 1999).

The technology of sports preparation of the gymnasts who represent the highest level assumes that sports and technical results as well as normative indexes should be obtained at all stages of the long-term preparation (Arkajew & Suczilin, 1997). The methodological basis for the preparation of highly qualified athletes constitutes, on the one hand, a long-term and prognostic attitude (Suczilin, 1980, 1989), and on the other hand, the principle of outpacing development. It is realised by eliminating the unwanted elements of the training process. The main part of the principle is to outpace the planned difficulty, the quality and the confidence of the exercises that are done during the sports events (Arkajew, 1994). It also makes it possible to outpace physical and emotional development (Sawczyn, 2000).

The functional excess which is used and developed in sports by dosing the sports loads (the amount and intensity), as well as the use of training and supplementary means, all these exceed the work which is done during the competition, based on which an optimal excess should be created, including the quality of its realisation, initial endurance, and physical and mental preparation. It can be done on the basis of creating the models of the sports preparation of the gymnasts and the methods of their achievements.

What is described as a model in sport is usually a collection of factors which guarantee the achievement of a certain level of mastery and the expected results. Looking at the model of the top athletes, sports activity is in first place. It can potentially guarantee the highest results and their stability. One of the main conditions which can decide about getting good results is the high level of the preparation factors. It is assumed that model characteristics lead to eliminating imperfections in the athletes' preparation, forming physical features which are not so well developed and reaching the level of sports mastery. The principle of the importance of the individual features and abilities is vital for sports gymnastics. In this discipline the individual skills and abilities are improved in the particular sports activity of the multi-discipline event. This is what makes the preparation in gymnastics different from other sports disciplines (Czeburajew & Kaczajew, 1986; Czeburajew & Arkajew, 1997).

The analysis of tendencies has shown that the improvement of training technology is the basic task of the training process, especially with regard to highly qualified athletes. It is high qualifications which result from effective, long-term training, in which one can see many issues that can be a subject to further scientific research.

REFERENCES

- Arkajew, Ł. (1994). *Integralnaya podgotovka gimnastov*. Autoreferat pracy doktorskiej. Moskwa: I. K. F.
- Arkajew, Ł., & Suczilin, N. T. (1997). *Metabiologičeskie osnovy sovremennoj sistemy podgotovki sportsmenov vysshego klassa. Teoriya i metodyka fizičeskoj kultury, 11*, 17–25.
- Bril, M. S. (1986). *Principy i metodicheskie osnovy aktivnogo otbora shkolnikov dlya sportivnogo sovershenstvovaniya*. Praca habilitacyjna. Moskwa: GCFK.
- Ciechalewska, A. (1983). Dobór, selekcja i rozwój dziewcząt uprawiających gimnastykę sportową, praca zbiorowa. *Zeszyt Naukowy, 28*. Kraków: AWF.
- Czeburajew, W. S., & Arkajew, Ł. (1997). Analiz sorevnovatelnoj deyatelnosti vysokokvalificirovannykh gimnastov. *Tendenci rozvitya sporta vysshich dostizhenij*, 420–428. Moskwa: WNIIFK.
- Czeburajew, W. S., & Kaczajew, W. J. (1986). Analiz trenirovochnych nagruzok na predsorevnovatelnom etape podgotovki gimnastov. *Nauczno-Sportivnyj Vertnik, 2*, 16–20.
- Doniew, D. (1968). Opit za sozdavanie na normativy za priniyatie na gimnastichki v specializirovannye sportivnye shkoły. *Mezhdunarodna nauchna konferencya posvetena na detsko-junoshevskij sport*. Moskwa: Mied. i Fiz.
- Hadżijew, N. (1993). Analysis of some characteristics of the Olympic games in Barcelona 92. *USA gymnastics technique, 7*, 34–37.
- Karniewicz, J. (1971). *Charakterystyka morfologiczna a sprawność fizyczna czołowych gimnastyków polskich na tle wybranych zespołów europejskich*. Dysertacja doktorska. Poznań: AWF.
- Karniewicz, J., & Kochanowicz, K. (1984). Analiza wieku, wysokości i ciężaru ciała gimnastyków – uczestników XII Igrzysk Olimpijskich. *Monografie Podręczniki Skrypty, 208*, 311–319. Poznań: AWF.
- Kochanowicz, K. (1998). *Kompleksowa kontrola w gimnastyce sportowej*. Gdańsk: AWF.
- Kums, T., & Vain, A. (1997). Adaptation of the skeletal system to training loads in gymnastics. *Sport science in a changing world of sports*, 842–843. Copenhagen.
- Milcerowa, H. (1971). Budowa somatyczna jako kryterium selekcji sportowej. *Wybrane zagadnienia selekcji w sporcie, 1*, 51–109. Warszawa: PKOL.
- Sawczyn, S., Marzenko, J., & Szachlin, B. (1998). Główne czynniki współczesnej technologii przygotowania określające ogólne nałożenie i treść obciążeń treningowych gimnastyków o wysokich kwalifikacjach. *Problemy optymalizacji treningu*, 53–58. Gdańsk: AWF.
- Sawczyn, S. (2000). Obciążenia treningowe w gimnastyce sportowej w wieloletnim procesie przygotowań. *Sekcja Polska międzynarodowego stowarzyszenia motoryki sportowej: Sport gimnastyczny i taniec w badaniach naukowych*. Gdańsk: AWF.
- Smolewskij, W. M., & Gawierdowskij, J. K. (1999). Sportivnaya gimnastika. *Olimpijskaya literatura*, 412. Kijew.
- Suczilin, N. G. (1980). Osnovy perspektivno-prognosticheskogo programmirovaniya technicheskogo masterstva gimnastov. *Gimnastika, 2*, 42–48.
- Suczilin, N. G. (1989). *Stanovlenie i sovershenstvovanie technicheskogo masterstva v uprazhneniyach progressivnoj slozhnosti*. Praca doktorska. Moskwa: FIS.
- Zaciorski, W. M. (1979). *Osnovy sportivnoj metrologii*. Moskwa: FIS.
- Zasada, M. (1993). *Dynamika rozwoju cech somatycznych i motorycznych chłopców na wczesnym etapie szkolenia gimnastycznego*. Praca doktorska. Poznań: AWF.
- Ziemlińska, A. (1981). *Wpływ intensywnego treningu gimnastycznego na rozwój somatyczny i dojrzewanie dzieci*. Warszawa: AWF.

**POKUS O CHARAKTERIZACI VÝVOJE
MODERNÍ SPORTOVNÍ GYMNASTIKY**
(Souhrn anglického textu)

Vědecké ověřování, syntéza a analýza různých praktických i teoretických informací poskytují základ pro hodnocení a formulaci četných faktorů ovlivňujících vývoj sportovní gymnastiky.

Cílem článku je pokus o charakterizování vývoje moderní sportovní gymnastiky. Následující závěry vyplývají z teoretické analýzy literatury posledních několika let, z analýzy tréninkového procesu ukrajinských a ruských gymnastů, z vlastních zkušeností získaných ve funkci trenéra i soutěžícího a z dlouhodobého výzkumu předních polských gymnastů. Hlavními vývojovými tendencemi jsou individuální přístup k tréninkovému procesu, intenzifikace tréninku, rychlejší zvládnání sportovních programů vzhledem k neustálému vývoji metodiky, důležitost tělesné přípravy sportovců, sjednocování tréninkového procesu gymnastů vrcholové úrovně, zlepšování prostředků zajišťujících bezpečnější tréninkovou práci a vědecký výzkum hlavních součástí tréninkové přípravy.

Klíčová slova: sportovní gymnastika, vývojové tendence, faktory.

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Scientific orientation

Main areas of the scientific interests concern the determination of the influence of the intensified sports activity on physical and motor development among the gymnasts of varied age who practise sports gymnastics.

The research assumptions aim at determining the ways of optimisation of the control and methodology of the training process with respect to determination of practical direction of programming and planning of the training process.

In order to obtain the intended tasks, the systematic, multistage and multidirectional researches are conducted among the gymnasts at varied stages of sports and physical development.

First-line publication

- Sawczyn, S., Shakhlin, B., & Zasada, M. (2005). *The supervision of training loads of gymnasts*. Kiev: Wydawnictwo Naukowy Świt.
- Zasada, M., Sawczyn, S., & Miszczenko B. (2006). *Physical and functional preparation of young gymnasts in the long-term training process*. Kiev: Wydawnictwo Naukowy Świt.
- Sawczyn, S., Shakhlin, B., & Zasada, M. (2006). *Model characteristics of training loads in top level gymnasts*. Gdańsk: AWFIS.
- Zasada, M. (2002). *Changes in the development of motor coordination related to sports training process of young gymnasts*. Gdańsk: AWFIS.
- Zasada, M. (2004). *The young gymnast's specific endurance abilities related to induced fatigue decrease of body balance function*. Częstochowa: Politechnika.
- Zasada, M. (2005). *Change in body balance and voluntary attention of young gymnasts induced by training session fatigue at the initial stage of preparation*. Biała Podlaska: Zamiejscowy wydział Wychowania Fizycznego.
- Zasada, M. (2005). *Induced fatigue of training bout changes of young gymnastics body balance abilities as resultants of alteration in CNS functional state*. Kiev: National University of Physical Education and Sport of Ukraine.
- Zasada, M., & Sawczyn, S. (2005). *Changes of body balance function of young gymnasts ewlated to specific fatigue of training session. 10th Annual congress of the European college of sport science*. Belgrade.
- Sawczyn, S., & Zasada, M. (2006). *The aerobic power in relation to sustaining of high training loads in young gymnastics. 11th annual congress of the European college of sport science*. Lausanne.
- Zasada, M. (2006). *The effects of young gymnasts' special physical preparation on the primary stage of longterm training*. Gdańsk: AWFIS.
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