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# OPTIMIZATION OF THE TRAINING PROCESS WITH SKILLED ATHLETES ACROBATIC ROCK AND ROLL IN THE ANNUAL PREPARATION OF MACROCYCLES BASED ON MODEL CHARACTERISTICS

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**Annotation.** *Purpose:* to develop and prove experimentally the content of the special physical and technical training athletes. *Material:* the study involved 36 athletes (18 pairs). *Results:* to determine anthropometric indices athletes to perform matchmaking sports couple. Had the most significant biomechanical parameters of the exercise equipment. Developed a biomechanical model of the target technology implementation competitive exercise. Assessment methodology presented special physical and technical training. The technique of selection of partners based on a pair of sports: anthropometric and growth indicators weighty partner and partner. *Conclusions:* it was determined that the determining factor in successful sports couple acrobatic rock-roll the same rate of development of physical effort in joint actions. Characterized by quickness growth efforts, which develops on the joint angle straightening bio kinematic chain.

**Keywords:** acrobatic, rock and roll, special, physical, training, technical, biomechanical.

## Introduction

Training of qualified sportsmen in acrobatic rock-n-roll is a complex, multi-level and many years' process. Searching of optimal correlation between complexity of acrobatics and quality of dance is one of the most difficult tasks of sportsmen's training. Recent years, in Ukraine there have appeared a trend of sportsmen's quantity reduction in acrobatic rock-n-roll. It is connected with the fact that achievement of high sportsmanship has become more difficult and durable. Constantly increasing contest on international arena puts forward still more new tasks for sportsmen's training. Mastering of international class programs in short period of time and at high level as well as demonstration of stability and reliability of their fulfillment on competitions shall be of the first priority. Traditional means and methods and technologies, available in arsenal of domestic coaches can not cope with such tasks of qualified sportsmen's training [7].

The problems of many years' sport training are rather widely reflected in domestic and foreign literature [10, 11, 13-16]. But, if at initial stage of acrobatic rock-n-roll training problems of sportsmen's training have been paid sufficient attention to [1, 2, 8, 9, 12], the, unfortunately, problems of qualified sportsmen's training are not regarded properly. We have not found any scientific works, devoted to training, organization and control of acrobatic rock-n-roll qualified sportsmen in literature, which was in our access.

The above said witnesses that at present stage of acrobatic rock-n-roll's progress improvement of training process and working out of methodic of evaluation of different sides of qualified sportsmen's fitness is rather demanded. In this connection there has appeared a demand in optimization of acrobatic rock-n-roll qualified sportsmen's training in year macro-cycle.

The works has been fulfilled in compliance with combined plan of scientific-research work in sphere of physical culture and sports for 2011-2015, by topic 2.15 "Control of static-dynamic stability of sportsman's body and system of bodies in kinds of sports with complex coordination of movements" (state registration No. 0111U001726).

## Purpose, tasks of the work, material and methods

*The purpose of the research* is to work out and experimentally verify content of special physical and technical training of acrobatic rock-n-roll qualified sportsmen in year macro cycle, considering model characteristics.

*The tasks of the research* were to determine content of special physical and technical fitness and anthropometric indicators of qualified sportsmen for correct selection of pairs in acrobatic rock-n-roll.

*The methods of the research:* theoretical analysis and generalization of scientific and methodic literature, analysis of video materials, pedagogic observation, pedagogic experiment, questioning, testing, method of expert evaluations, morphological-functional examination, bio-mechanical methods of movements' analysis, methods of mathematical statistics.

In the research 36 sportsmen took part (18 pairs), qualification IMS, MS, CMS, 1<sup>st</sup> degree. In our previous research 14 sportsmen participated (7 pairs of qualification: IMS, MS, CMS). 20 sportsmen participated in pedagogic experiment (10 pairs of qualification CMS, 1<sup>st</sup> degree).

## Results of the research

Analysis of literature sources showed that training of qualified acrobatic rock-n-roll sportsmen is paid insufficient attention to and this results in demand in researches, oriented on improvement of special and technical training, working out of model characteristics of kinds of training. Absence of model characteristics and scientifically grounded methodic of qualified acrobatic rock-n-roll sportsmen's training requires researches in this direction.

For building of model characteristics of special physical training (SPT) we used exercises, which, in general, facilitate demonstration of special physical abilities and interactions of these exercises in pair (see table 1). Besides, we developed evaluation scales, which can be used for receiving of total mark of sport pair, which determine level of

special physical fitness of qualified acrobatic rock-n-roll sportsmen.

Table 1

*Model characteristics of SPT of "M" class category's sportsmen of acrobatic rock-n-roll sportsmen.*

Test	Parameter	Model characteristic
<b>For he-partner</b>		
Backbone strength	Strength, kg	232–258
Main moving	Quantity of repetitions for 20 sec, times	12,1–13,1
Squatting with she-partner	Maximal quantity of repetitions, times	61,2–73,5
<b>For she-partner</b>		
Main moving	Quantity of repetitions for 20 sec, times	12,4–13,4
2 forward rolls, 1 backward roll "tour"	Quantity of repetitions for 30 sec, times	5,7–6,5
Jumping on pedestal	Quantity of repetitions for 20 sec, times	17,0–19,2
<b>For pair</b>		
Back death spiral with «фус»	Maximal quantity of repetitions, times	5,7–7,0
Lower, upper replacement, «fus»	Maximal quantity of repetitions, times	8,7–11,3
Обертання («cugel», «sun», «dulane»)	Maximal quantity of repetitions, times	13,4–17,3

Execution of technically difficult acrobatic elements and acrobatic combinations requires high coordination and optimal difference in partners' height-weight indicators.

Our researches showed that optimal difference of height-weight partners' indicators shall be: for body mass –  $22.6 \pm 1.9$  kg, for body length –  $16.7 \pm 7.1$  cm, for height-weight index –  $97.7 \pm 5.5$  g.cm<sup>-1</sup>.

On the base of worked out model characteristics of anthropometric indicators we selected sport pair of "M" class category. Anthropometric parameters of this sport pair coincide with previously worked out models.

The offered by us methodic of selecting of qualified sportsmen and sportswomen in sport pairs is based on the following:

- Anthropometric and height-weight indicators of partners;
- Level of special physical fitness of partners separately and in pair;
- Technical fitness of partners (fulfillment of dancing and acrobatic elements with complex coordination with high quality).

Analysis of training and competition processes of "M" category's sportsmen permitted to reveal that the basis of technical actions of competition composition of "Acrobatic" program is exercise front death spiral from "fus" [5].

Bio-mechanical analysis of this exercise permitted to determine the most important bio-mechanical parameters of this exercise's technique: phases of this exercise; trajectory of general mass center (GMC) of she-partner; maximal height of she-partner's GMC ( $H$ ); velocity ( $V$ ) of she-partner's GMC; acceleration ( $a$ ) of she-partner's GMC; total applied force ( $F$ ). Besides, we determined algorithm of calculation of force of separately he-partner ( $F_{\text{н-п}}$ ) and she-partner ( $F_{\text{п-ка}}$ ), applied for fulfillment of competition exercise front death spiral from "fus".

At next stage of the research we used developed by us methodic of exercise "front death spiral from "fus" . In its base we put improvement of technique of moving she-partner with minimal deviation from vertical plane as per axis of coordinates and the least passing of she-partner's GMC by horizontal axis [4].

It should be noted that indicators of she-partner's GMC height with fulfillment of competition exercise "front death spiral from "fus" for three stages of our research and bio-mechanical analysis differ significantly. Increment of height indicators was 0.45m, that, in its turn, proves correctness of application of our methodic and developed complex of preparatory exercises for improvement of competition exercise's technique. With overcoming of maximal height by she-partner velocity of her GMC increases. With the help of our methodic and complex of preparatory exercises we achieved increasing of velocity of she-partner's GMC by  $0.41 \text{ m} \cdot \text{sec}^{-1}$ .

As a result of the conducted researches we determined targeted bio-mechanical model of technique of competition exercise "front death spiral from "fus", of category "M" class in acrobatic rock-n-roll (see table 2).

Table 2

**Targeted bio-mechanical model of competition exercise “front death spiral from “fus”, category “M” class in acrobatic rock-n-roll**

Level of simulation:	Parameters	Model characteristics
Geometric	Height of she-partner's GMC, m	3,4
	Angle of she-partner's GMC take off (deviation from vertical plane), degrees	7
	Horizontal travel of she-partner's GMC, m	0.94
	Horizontal travel of she-partner's GMC in unsupported motion, m	0.54
	Angle of knee joint of he-partner's optimal posture, degrees	8.2
	Height of support (“lock” of he-partner's hands) of optimal he-partner's posture, m	0.48
Time	Time of fulfillment of competition exercise “front death spiral from “fus”, sec.	1.97
	Time of she-partner's GMC movement up to upper pint of take off, sec.	1.03
	Time of unsupported movement of she-partner's GMC, sec.	0.66
	Time of partners' interaction before entering in unsupported movement of she-partner's GMC, sec.	0.69
	Time of partners' interaction at the moment of she-partner's contact with he-partner and moving her on parquet, sec.	0.62
Kinematic	Initial velocity of she-partner's GMC, m.s <sup>-1</sup>	1.61
	Vertical velocity of she-partner's GMC in moment of entering in unsupported movement m.s <sup>-1</sup>	4.07
	Mean vertical velocity of she-partner's GMC up to moment of entering in unsupported movement, m.s <sup>-1</sup>	3.55
	Initial horizontal velocity of she-partner's GMC, m.s <sup>-1</sup>	0.2
	Horizontal velocity of she-partner's GMC up to moment of entering in unsupported movement, m.s <sup>-1</sup>	0.5
	Mean horizontal velocity of she-partner's GMC up to moment of entering in unsupported movement, m.s <sup>-1</sup>	0.44
	Initial acceleration of she-partner's GMC, m.s <sup>-2</sup>	10.91
	Initial acceleration of she-partner's GMC at moment of entering in unsupported movement, m/s <sup>-2</sup>	-6.7
Dynamic	Initial total force, applied by both partners to she-partner's GMC, kg.	88.75
	Initial total force, applied by he-partner to she-partner's GMC, kg.	74.41
	Initial total force, applied by she-partner to own GMC, kg.	14.82
	Initial total force, applied by she-partner to own GMC at moment	0.0

Level of simulation:	Parameters	Model characteristics
	of entering in unsupported movement, kg.	
	Total impulse of partners' force applied for entering of she-partner's GMC in unsupported movement, kg.m.s <sup>-1</sup>	24.75
	Impulse of he-partner's force applied for entering of she-partner's GMC in unsupported movement, kg.m.s <sup>-1</sup>	16.3
	Impulse of she-partner's force applied for entering of own GMC in unsupported movement, kg.m.s <sup>-1</sup>	8.45

Thus, as per results of the fulfilled bio-mechanical analysis we specified peculiarities of partners' actions, oriented on improvement of this exercise's technique.

The obtained data permitted to work out program and complexes of exercises for perfection of special and physical fitness of acrobatic rock-n-roll sportsmen.

The conducted analysis of training process of "M" class category's sport pairs in period of year macro-cycle showed:

- application of the offered methodic determines change of strategy and directions of improvement of special and technical fitness of sport pairs;
- new methodic permits to introduce corrections, which facilitate improvement of pair's results at competitions.

Research of dynamic of sport pair's special physical fitness permitted to observe significant changes of strength and speed-power indicators of sportsmen as well as increment of their indicators in their interaction in pair (see fig. 1).

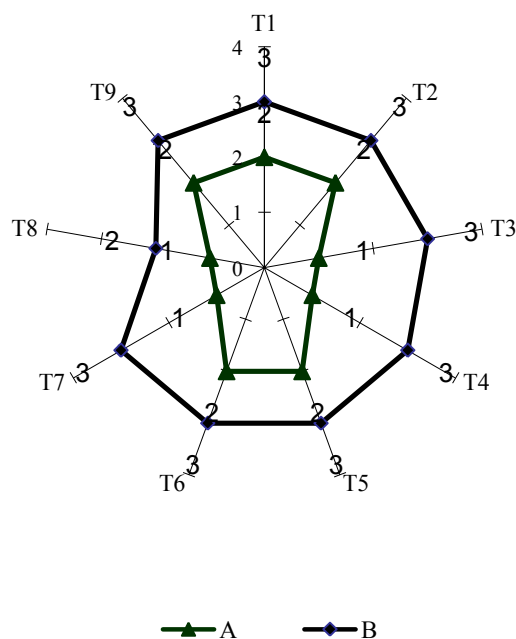


Fig.1. Dynamic of SPT indicators of acrobatic rock-n-roll qualified sportsmen in year macro-cycle of training: T1-T3 –test exercises for he-partner; T4-T6 – test exercises for she-partner; T7-T9 – test exercises for pair; A – before application of our methodic; B – after application of our methodic; T1- strength of backbone (points); T2- main movement for 20 sec (points); T3-squatting with she-partner (points); T4- main movement for 20 sec. (points); T5- 2 forward roll and 1 backward roll, "tour" for 30 sec. (points); T6- jumping on pedestal for 20 sec. (points); T7- back death spiral from "fus" (points); T8- low, upper replacement, "fus" (points); T9- rotation (cugel) (points).

Pedagogic experiment proved effectiveness of new methodic of fulfillment of exercise "front death spiral from



“fus”, considering selection of sport pairs of qualified sportsmen of acrobatic rock-n-roll (n=20). With method of occasional choice pairs were divided in two homogeneous groups (experimental and control). Every group consisted of 5 pairs (10 persons).

It has been determined that experimental methodic facilitates acceleration of sportsmanship growth of acrobatic rock-n-roll qualified sportsmen. We found more expressive improvement of sport results of experimental group's sportsmen, comparing with control; group ( $p < 0.05$ ).

#### Conclusions:

1. We have developed methodic of selection of sport pair on the base of anthropometric partners' parameters as well as height-weight indicators, of their special and physical fitness.

2. We have determined that decisive factor of successful sport pair is equal rate of development of physical force in mutual actions that is characterized by increment of force owing to angle of bending in joints of bio-kinematic links. We also specified targeted bio-mechanical model of “front death spiral from “fus” technique for “M” class category and marked optimal parameters of its' fulfillment in acrobatic rock-n-roll.

3. Application of developed methodic permits to optimize training process of acrobatic rock-n-roll qualified sportsmen, to increase effectiveness of their performances for shorter period of time.

*Further research* implies working out of training programs in this kind of sports and increasing of sport results at all stages of training of qualified sportsmen in acrobatic rock-n-roll.

#### References:

- 1 Artem'ieva G. P. *Kriteriyi vidboru ta prognozuvannia sportivnogo udoskonaliuvannia v akrobatichnomu rok-n-rolu* [Selection criteria and prediction of improvement in sports acrobatic rock 'n' roll], Cand. Diss., Kharkiv, 2007, 21 p.
- 2 Balunova E. N. *Metodika obuchenii detej v akrobaticheskom rok-n-rolle* [Methodology of teaching children in an acrobatic rock and roll], Cand. Diss., Sankt Petersburg, 2009, 162 p.
- 3 Bateeva N. P. *Slobozhans'kij naukovu-sportivnij visnik* [Slobozhansky scientific and sport bulletin], 2012, vol.3, pp. 69-74.
- 4 Bateeva N. P. *Pedagogika, psihologia ta mediko-biologicni problemi fizicnogo viovanna i sportu* [Pedagogics, psychology, medical-biological problems of physical training and sports], 2012, vol.5, pp. 13-16.
- 5 Bateeva N. P. *Slobozhans'kij naukovu-sportivnij visnik* [Slobozhansky scientific and sport bulletin], 2013, vol.3(36), pp. 58-62.
- 6 Bateeva N. P. *Pedagogika, psihologia ta mediko-biologicni problemi fizicnogo viovanna i sportu* [Pedagogics, psychology, medical-biological problems of physical training and sports], 2013, vol.6, pp. 7-12.
- 7 Gamalij V. V. *Biomechanichni aspekti tekhniki rukhovikh dij u sporti* [Biomechanical engineering aspects of motor actions in sport], Kiev, Olympic Literature, 2006, 225 p.
- 8 Kyzim P. N. *Akrobaticheskij rok-n-roll* [Acrobatic rock and roll], Kharkiv, Basis, 1999, 136 p.
- 9 Lucenko L. S. *Optimizaciia trenuvalnogo procesu v akrobatichnomu rok-n-rolu na etapi pochatkovoyi pidgotovki* [Optimization of the training process in acrobatic rock 'n' roll at the stage of initial training], Cand. Diss., Kharkiv, 2005, 22 p.
- 10 Medvedeva I. M. *Sistema podgotovki sportsmenov v figurnom katanii na kon'kakh* [The system of training athletes in figure skating], Kiev, Olympic Literature, 2002, 407 p.
- 11 Mulik V. V. *Slobozhans'kij naukovu-sportivnij visnik* [Slobozhansky scientific and sport bulletin], 2002, vol.5, pp. 104-106.
- 12 Mullagil'dina A. Ia. *Povyshenie effektivnosti trenirovochnogo processa v akrobaticheskom rok-n-rolle* [Improving the efficiency of the training process in an acrobatic rock and roll], Cand. Diss., Kharkov, 1995, 150 p.
- 13 Platonov V.N. *Sistema podgotovki sportsmenov v olimpijskom sporte* [The system of preparation of sportsmen in Olympic sport], Kiev, Olympic Literature, 2004, 808 p.
- 14 Aumiller R. Choreography for Aerial Dance. *Journal of Physical Education, Recreation & Dance*. 2012, vol.83(8), pp. 6-8. doi:10.1080/07303084.2012.10598819.
- 15 Bläsing B., Calvo-Merino B., Cross E.S., Jola C., Honisch J., Stevens C.J. Neurocognitive control in dance perception and performance. *Acta Psychologica*. 2012, vol.139(2), pp. 300-308. doi:10.1016/j.actpsy.2011.12.005.
- 16 Kim N. Reevaluating the Aims of Modern Dance Training in Korea: Toward a Whole Dancer. *Journal of Dance Education*. 2013, vol.13(2), pp. 46-55. doi:10.1080/15290824.2012.755737.



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# PSYCHODIAGNOSTICS IN PHYSICAL REHABILITATION OF STUDENTS WITH SPINAL PATHOLOGY

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**Annotation.** *Purpose:* to determine the main directions and application methods psychodiagnosis with vertebral pathology students. Develop a program of psycho-diagnostics system in physical rehabilitation of students with spinal pathology. *Material.* The study involved 100 students 19-20 years old. *Results.* It is proved that the students (78%) exposed to stressful situations were more prominent functional changes of the spine. Found that patients with psychological testing ensures timely detection of a person's psychological. This allows for timely and efficient start rehabilitation activities and to choose the optimal method of psychological support in the process of physical rehabilitation. *Conclusions.* Complex application psychodiagnosis in three main areas (definition of personality traits, way to respond to stressful situations, determining the parameters of emotional background) allows differentiated and effectively in the process of psychological correction physical rehabilitation students.

**Keywords:** psychological testing, physical rehabilitation, vertebral osteochondrosis, pathology, spine.

## Introduction

Stresses surely influence on life and psychological condition of modern people. Especially expressive this influence is among youth. Results of researches of 18-21 years old persons (M.A. Dmytriyeva, 1979, Yu.V. Telnik et al., 1991) showed that 15% have unsatisfactory nervous-psychic stability, 8% are not satisfied with inter-personal relations, 5% need in additional psychological examinations [4; 5]. It is undoubted that quantity of functional disorders of nervous systems and close to nervous-psychic disorders is increasing. It. In its turn, facilitates progressing of functional disorders of backbone and, in compliance with stress theory, appearing of most frequent degenerative-dystrophic diseases of backbone; it starts a chain of pathological genetic reactions, which result in vertebral osteochondrosis, scoliosis and other diseases of supporting motor system [2; 3; 10; 13].

Most of authors, who studied role of stressful and psychological factors in progressing of neurological symptoms of backbone pathologies, pay special attention to psycho-emotional de-adaptation and type of personal responding to a disease [1; 3; 14]. Alongside with it the problems of modern psycho-diagnostic with vertebral pathologies, which would stipulate wide spectrum of tests [8; 11; 12] for determination differentiated application of psycho-correction in physical rehabilitation, have not been sufficiently elucidated.

The article is a component of scientific research problem of National university of physical culture and sports "Programming and methodic of physical rehabilitation of persons of different nosological and age groups".

## Purpose, tasks of the work, material and methods

*The purpose of the work* is to analyze complex program of psycho-diagnostic for differentiated application of psycho-correction in physical rehabilitation of higher educational students, who have backbone pathologies.

*The tasks of the work:*

1. Determination of main directions and peculiarities of psycho-diagnostic methods' application with vertebral pathologies of students.
2. Determination of effectiveness of differentiated application of psycho-correction on the base of worked out program of psycho-diagnostic in system of students' with backbone pathologies physical rehabilitation.

*The methods and organization of the researches:* we used psycho-physiological clinical methods of examination of students with backbone pathologies (testing); methods of mathematical statistic. We carried out examinations of 19-20 years old students' groups (members of groups had functional disorders of backbone and initial symptoms of vertebral osteochondrosis).

## Results of the research

Physical rehabilitation of students with backbone pathologies at higher educational establishments shall combine valuelogic and rehabilitation aspects and influence on student's personality on three main levels: cognitive, psycho-emotional and somatic.

Cognitive level stipulates influence on mental sphere of student owing to methods of pedagogic and psychological correction, forming of valuelogic education of a patient. Psycho-emotional level stipulates influence of psycho-correcting and psycho-therapeutic methodic of different orientation on students' psycho-emotional condition. Somatic level is connected with system of provisioning of aid with neurologic pathologies of backbone that envisages detail studying of their aetiopathogenesis, constant implementation of new forms of rehabilitation, observation of principles of rehabilitation processes, implementation of innovative technologies of therapeutic massage and therapeutic physical culture. So, complex physical rehabilitation stipulates health related psycho-correcting influence on all levels of rehabilitation process.

Searching new form of rehabilitation process's improvement, for its optimization it is necessary to consider individual-psychological features of their nervous system and changes of psycho emotional condition in process of physical rehabilitation.

Alongside with it, depending on individual psychological features of a personality we shall choose certain method of psycho-correction, which would combine with adjoining action of physical factors in the most harmonious way, in the process of physical rehabilitation [6; 9]. Considering the above said we chose complex of psycho-diagnostic methodic, oriented on optimization of physical rehabilitation of students with backbone pathologies.

Psychological status of the tested was evaluated on the base of talks with students, which were oriented on determination of their usual style of responding, character of relations with surrounding people, presence of psychologically hazard situations, attitude to disease, psycho-diagnostic methods. We divided used by us psycho-diagnostic methodic into three categories: determination of features of character; determination of responding to stress situation; determination of emotional background parameters [6].

The first group of methodic included questionnaire of Shmyshek, questionnaire MINI-MULT (abbreviated variant of MMPI) [15], author's questionnaire "Marathon of stresses" [6] and other. This group of methodic permitted to mark out individual-psychological features of personalities.

Other group of methodic concerns the so-called coping-strategies, which specify main models of behavior and anti-stress strategies.

Third group of methodic determines main parameters of human emotional condition. We used questionnaires of Spilberg, tests SAM (self-feeling, activity, mood), Lusher's methodic and other. Application of such methodic implies two purposes. First – we researched influence of psycho-emotional factors on expressiveness and specificities of deviations in adaptation (in our case we regarded dorsopathy). Secondly, we studied dynamic of psycho-emotional background under influence of rehabilitation methodic. All psycho-diagnostic methodic were very important for choosing of psycho-correction strategy for students with backbone pathologies, but main role in it was played by first group, which was oriented on determination of individual psychological features of personalities and features of their characters (questionnaire of Shmyshek, questionnaires MINI-MULT (abbreviated variant of MMPI) [15], author's questionnaire "Marathon of stresses". Main task of these methodic was determination of character's accentuations, which could point at threshold of stress perceiving, character of progressing of stress situation. As a rule, these methodic were applied before rehabilitation. Accentuation of personality's character was clearly determined with the help of questionnaire by Shmyshel, based on conception of K. Leongard about 10 main types of accentuations [7]. All accentuations belong to peculiarities of character and reflect orientation and depth of affect responses.

1. Hyperthymic personalities with bent to enthusiasm, with high activity, friendly, optimistic.
2. Emotional, affectively mobile with increased sensitiveness and high empathy in sphere of fine emotions.
3. Anxious: such persons have increased anxiousness, uncertainty, absence of belief in own forces, anxiety without any ground.
4. Demonstrative persons with hysteric features of character. Their main features are expressed egocentrism, demand in being the center of attention that often is realized in demonstrative behavior.
5. Disthymic persons with bent to disorders of mood; these people are concentrated on sad sides of life, sometimes they are too serious, are not active; they are afraid of changes.
6. Stagnant, with bent to stagnation of affect and dream-like responses. Such people are ambitious, painfully sensitive, do not forgive ignoring their interests and dignity.
7. Pedantic people, who have domination of emotional rigidity. They are characterized by increased accuracy, strive for order, absence of decisiveness, caution and, alongside with unwillingness and inability to quick changes, to taking responsibility.
8. Cyclothymic people are those, who are bent to depressive responding. Their main feature is change of hyperthymic and disthymic states, which can be unpredictable. Periods of optimism are changed with depressive states.
9. Excitable, having bent to increased impulse responding in sphere of motives. Manner of their communication and behavior often depends not on logic, on rational self evaluation but on impulse, strive, instinct of not controlled motives.
10. Exalted, with bent to affective exaltation. Main feature of them is exalted response. They can be easily excited by happy events and become despaired by sad facts.

Special attention was paid to accentuation of character, which express in emotional sphere (emotion, exaltedness). For example studying of interconnection of psychological features and backbone's functional condition of 100 students with functional pathologies of backbone and initial neurological symptoms of osteochondrosis of different backbone sections proved that tested with such accentuation as exaltedness (78% of cases) have the most expressed reflexive changes of skin, muscles and functional condition of backbone. Analysis of fulfilled researches permits to affirm that just presence of some accentuated features of character (those, which make personality more sensitive to stresses) disturbs adequate forming of motion stereotype of a person and is a trigger of backbone functional pathologies' progressing.

There is a need in psychological correction of accentuated features of a personality in rehabilitation and treatment of functional vertebrae pathology. Determination of the mentioned regularities is of significant practical interest. The carried out researches prove that rehabilitation of backbone functional pathologies shall be started with psychological preparation, i.e. with psycho-correction of some features of personality's character; special attention shall be paid to disorders in emotional sphere.

The most known example of personal questionnaire is many-stage questionnaire of state Minnesota (MMPI) [15]. Questionnaire MINI-MULT (abbreviated variant of MMPI) contains 71 questions, 11 scales, including three of them – evaluating.

1. HYPOCHONDRIA (Hs) – “closeness” of the tested to asthenical-neurotic type. The tested with high marks are passive, slow, believe in everything, obedient to any power; they are slow in adaptation, they badly endure changes of circumstances.
2. DEPRESSION (D). High marks were received by sensitive personalities, bent to anxious state, shameful. They are diligent in business, with high morality, responsible but they are not able to take independent decision; they are not self-assured; they are despaired with misfortunes.
3. HYSTERIA (Hy). It is intrinsic to persons, who are bent to neurologic defensive responses of conversion type. They use somatic symptoms as a mean of avoiding responsibility. They solve all problems by escaping in disease. Main feature of such people is wish to look like more important as they are actually, wish to attract attention at any cost. Feeling of such people are shallow, interests are flat.
4. PSYCHOPATHIA (Pd). High marks by this scale witness about social se-adaptation; such people are aggressive, conflict liking; they neglect social standards and values. They have changeable mood, they are sensitive.
6. PARANOIAC (Pa). Main feature of such people according to high marks by this scale is bent to forming of super valuable ideas. This people are single sided, aggressive and vindictive.
7. PSYCHO-ASTHENIA (Pt). It is a diagnosis of persons with distrustful type of character; they are anxious, uncertain with constant doubts.
8. SHIZOID (Se). Persons with high indicators by this scale have schizoid type of behavior. They are able for fine senses and perceiving of abstract images, but everyday happy and sad events are not emotionally responded by them.
9. HYPOMANIA (Ma). Persons with high indicators by this scale have are characterized by optimistic mood independent on circumstances. They are active, energetic and resilient.

Carrying out talk with a patient, it is necessary to pay attention to stresses, endured by the patient during his life. We conducted questioning in compliance with certain schema, which was conventionally titled “Marathons of stresses”. Its purpose was, first of all, to “refresh” in patient’s memory main stressful situation before sessions that make correcting process more committed; secondly, already at stage of talking searching of often repeated stereotype situations, which acute patient’s problems; patient’s main complexes are determined, their emotional and sensitive components. For determination of adequate psychological fitness, considering main peculiarities of psycho-correction methods, in practical work with questionnaire we used most often division into three types of personality: rational, emotional and will psycho-types.

1. Rational. Person is more bent to rational thinking, understanding of surrounding situations; such people often concentrate on higher spiritual spheres, trying to avoid obstacles of everyday life.
2. Will type. Person tries to constantly practice conscious self control that give him (her) sense of protection; such person tries to obey all his (her) life to own will.
3. Emotional. Person lives in world of emotions and tries to avoid stresses, re-switching attention to positive emotions; such person tries to feel positive emotions when meeting friends, relatives, enjoying music, nature, paintings, books and so on.

We carried out correlation analysis of accentuations’ and features of character determinations as per different psychological tests and questionnaires. For this purpose we, first, determined main psycho-types in control and experimental groups with the help of Marathon of stresses questionnaires. At next stage of our research we determined, which accentuations, by questionnaire of Shmyshek and scales of questionnaire MINI-MULT meet requirements of main psycho-types. If, by certain parameters of psycho-diagnostic questionnaires (Shmyshek, MINI-MULT) 70% of the tested met certain main psycho-type, we determined correlation interconnections (see table 1).

Table 1

*Correlation interconnections between main psycho-types as per data of complex psycho-diagnostic system*

№	Main psycho-types (as per questionnaires “Marathone of stresses”)	Accentuations of character as per questionnaire of Shmyshek	Scales as per questionnaire MINI-MULT
1	Rational	Shizo-thymic	SHIZOID (Se).
2	Emotional	Emotional, exalted, demonstrative, hyperthymic	HYSTERIA (Hy). HYPOMANIA (Ma).
3	Will	Easily excited	PARANOIAC (Pa).

Thus, rational psycho-type, as per questionnaire "Marathone of stresses" corresponded to shizothymic and pedantic accentuation (by questionnaire of Shmyshek and scale of shizoid condition of MINI-MULT. Emotional psycho-type correlated with emotional, exalted, demonstrated and hyperthymic accentuation ad scale of hysteria and hypomania as per appropriate questionnaires. Will psycho-type corresponds to accentuation of excitation and scale of paranoiac.

According to determined psycho-types we determined adequate methods of psycho-correction and psycho-therapy:

1. Rational: more bent to rational responding to stresses, to analysis of reasons of situations and seeking logical way out from them. In this case we used rational psycho-therapy in rehabilitation.
2. Emotional: has reduced threshold of stresses' perceiving; such people first of all solve psycho-emotional problems. For such people psycho-therapeutic methodic, influencing on emotional sphere are the most effective: positive psycho-therapy, gestalt therapy, client-centered therapy, methodic of free breathing and etc.
3. Will psycho type uses will for solution of all problems. In this case psycho-diagnostic methodic are suggestive methods of influencing on patient: autogenic training, classic and Erikson's hypnosis and so on.

For determination of effectiveness of differentiated complex of psycho-correction and physical rehabilitation means among students with backbone pathologies we used Lusher's test and questionnaire SAM. By interpreting of Lusher's test we analyzed location of main and auxiliary colors; we considered talks' results. We calculated mean indicators of total deviation from autogenic norm (MD) in points and vegetative coefficient at the beginning, in the middle and at the end of rehabilitation course in groups. For example, in our research we examined 67 students (and fulfilled rehabilitation) of 19-20 years' old age, who periodically complained on initial neurological symptoms of functional pathologies and osteochondrosis of backbone of first stage (34 students – with the help of traditional massage and 33 students with the help of improved methodic of rehabilitation, in which alongside with traditional massage we used psycho-correction). Comparative analysis of results showed higher effectiveness in experimental group than effectiveness of traditional methodic. For example, with improved methodic we completely removed functional blockades in 78% against 47.1% of control group students (difference was 28.7% and was statistically significant  $p < 0.05$ ). Indicators of psycho-emotional status also differed in favor of improved rehabilitation methodic.

For example in experimental group indicators of psycho-emotional sphere as per Lusher's test after rehabilitation course (MD –  $6.5 \pm 0.72$ ; BK –  $1.45 \pm 0.08$ ) were better than indicators of experimental group (MD –  $9.3 \pm 1.02$ ; BK –  $1.03 \pm 0.07$ ): difference of indicators (MD –  $2.8 \pm 1.24$ ; BK –  $0.42 \pm 0.15$ ) was statistically confident ( $p < 0.05$ ). Alongside with it indicators of psych-emotional status also differed in favor of our system (mood, activity and self-feeling) by questionnaire SAM.

### Conclusions:

1. Analysis of application of psycho-diagnostic methodic in combined using of psycho-correction and physical rehabilitation of students with backbone pathologies permitted to specify three main directions of psycho-diagnostics: determination of personality's character features; determination of responding to stresses; determination of parameters of psycho-emotional status. Just such classification of psycho-diagnostic directions permits to consider individual-psychological features of students for optimization of rehabilitation process; peculiarities of their nervous systems and changes of psycho-emotional parameters in the process of physical rehabilitation.
2. Psycho-diagnostic of patients with dorsopathy has not only scientific theoretical importance but it helps to solve practical tasks: ensures timely determination of personality's individual psychological features, which facilitate appearing of functional pathologies of backbone, permit to timely and rationally start rehabilitation as preventive and treatment measures and choose optimal method of psychological maintenance in process of physical rehabilitation.
3. We have proved effectiveness of differentiated application of psycho-correction on the base of developed by us program of psycho-diagnostic in system of complex physical rehabilitation of students with functional backbone pathologies and neurological symptoms of vertebral osteochondrosis of first stage.

Further psycho-diagnostic researches in system of physical rehabilitation of youth with backbone pathologies, implying combined influence on psychological sphere and functional condition of backbone, considering individual psychological features of young people, peculiarities of their nervous system and changes of psycho-emotional parameters, shall facilitate increasing of effectiveness of youth's health improvement.

### References

- 1 Aleksander F. *Psikhosomaticheskaia medicina* [Psychosomatic medicine], Moscow, Humanities research institute, 2001, 336 p.
- 2 Aleksandrovskij Iu.A. *Pogranichnye psikhicheskie rasstrojstva* [Borderline mental disorders], Moscow, 2000, 496 p.
- 3 Grigor'eva V.N. *Zhurnal nevrologii i psikiatrii im. S.S. Korsakova* [Journal of neurology and psychiatry. S.S. Korsakoff's], 1998, vol.98(8), pp. 27–33.
- 4 Kapustin E.N. *Zdorovyj obraz zhizni uchashchejsia molodezhi* [Healthy lifestyle, students], Leningrad, LSU Publ., 1991, 69 p.
- 5 Kogan Iu. N. *Visnik Lugans'kogo nacional'nogo universitetu imeni Tarasa Shevchenka* [Journal of Lugansk National Taras Shevchenko University], 2004, vol.8 (76), pp. 111–114.
- 6 Kotelevs'kij V. I., Liannoij Iu. O., Mikheienko O. I. *Diagnostika ravnja zdorov'ia, psikhosomatichnogo stanu ta iakosti zhittia u students'koyi molodi* [Diagnosis of health, psychosomatic condition and quality of life of students], Sumi, SSPU, 2010, 117 p.
- 7 Leongard K. *Akcentuirovannye lichnosti* [Accentuated personality], Kiev, High School, 1981, 392 p.
- 8 Leonova A.B. *Psikhodiagnostika funktsional'nykh sostoianij cheloveka* [Psychodiagnosics functional states of human], Moscow, MSU Publ., 1994, 200 p.
- 9 Murza V.P. *Psikhologo-fizichna rehabilitaciia* [Psychological and physical rehabilitation], Kiev, OLAN, 2005, 608 p.
- 10 Popelianskij Ia.Iu. *Bolezni perifericheskoy nervnoj sistemy* [Diseases of the peripheral nervous system], Moscow, MED Press Inform, 2009, 325 p.
- 11 Romanova O.S. *Psikhodiagnostika* [Psychognosis], Sankt Petersburg, 2008, 400 p.
- 12 Skripchenko O.V., Volins'ka L.V., Ogorodnijchuk Ie.V. *Vikova ta pedagogichna psikhologiiia* [Developmental and educational psychology], Kiev, Education, 2001, 416 p.
- 13 Timoshenko O. P. *Stress kak etiopatogeneticheskij faktor strukturno-metabolicheskikh povrezhdenij kostnoj i khriashchevoj tkanej* [Stress as etiopathogenic factor of structural and metabolic damage bone and cartilage tissue], Dokt. Diss., Moscow, 1990, 232 p.
- 14 Folkman S., Schaefer C., Lazarus R. S. Cognitive processes as mediators of stress and coping . V. Hamilton, D. M. Warburton (Eds.). *Human stress and cognition: An information processing approach*. N. Y.: Wiley, 1979, pp. 265–298.
- 15 Weinberg . R.A. The Minnesota Adoption Studies: Genetic differences and malleability. *Child Development*, 1983, vol.54, pp. 260-67.

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## COMPARISON AND ASSESSMENT OF THE PARTICIPATION OF POLISH SWIMMERS AT THE OLYMPIC AND PARALYMPIC GAMES IN LONDON

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**Annotation.** *Purpose:* to assess and analyze the results of the Polish national team swimmers (Olympic and Paralympic) at the XIV Summer Games 2012 in London (UK). *Material:* Score Polish swimmers start in London was carried out on the basis of medals won, participation in the finals. London also comparing the results with respect to the personal life record. The studies used the method of improving the outcome of the relative percentages - RPG% (relative performance gain %). It is based on the equation of  $RPG\% = \frac{\text{start time} - \text{end time}}{\text{start time}} \times 100$ . Material was to analyze and develop the results obtained by the Polish swimmers at the XIV Olympic and Paralympic Games in 2012 in London. *Results:* the basic criterion for evaluating the training and participation of Polish swimmers at the games in London was the number of medals won. By this criterion, the Poles showed a rather weak result. Healthy athletes do not receive medals. Thus, they confirmed their poor showing four years ago. Athletes with disabilities unable to get on the podium three times. In relation to the previous games (they won 10 medals) the result was rather weak. *Conclusions:* in terms of participation in the Olympic finals and improve individual life records, the results were slightly better swimmers with disabilities.

**Keywords:** Olympic, Paralympic, games, London, swimming, disabled.

### Introduction

Swimmers have been fighting for medals since Olympic Games 1896. Sportsmen-disabled have been taking part in Para-Olympics form 1<sup>st</sup> Para-Olympics 1960, in Rome. Distance of 100 meter was covered for less than 1 minute by swimmer Jhonny Weissmiller in 1922. Sportsman-disabled managed to reach such result nearly 60 years later and it was the reason of approach to sport as one of alternative form of rehabilitation of disabled. However, for recent 50 years primary rehabilitation character of swimming for disabled made way and basis of sports for them at the highest world level (James and Howe, 2005). It is necessary to say that not only sport result plays the most important role in swimming of disabled. Swimming improves their functional condition that is the most important aspect for prevention from progressing of dysfunction or for health improvement. Swimming of disabled shall be treated as a kind of physical functioning, which develops their skills in life independence and is an element of complex rehabilitation. It happens also that swimming becomes a kind of psychic and social rehabilitation, while appropriate sport result increases personal dignity (McCann, 1996; Kosmol et al., 2004).

To day nobody can doubt that sportsmen-disabled, who train several hours a day, do it only for own rehabilitation. Sport is becoming a profession for them. At present sportsmen-disabled fight not only with own limitations but with adversaries for results (Daly, Vanlandewijck, 1999). Sportsmen disabled train for victory, for records. It is a paradox but their fight and competitions will always make great impression, because their victory is victory over visible for other people limitations (Heazlewood, 2006; Kosmol и др, 2004).

Analysis of World Cup championship in Aindhoven in 2010 world Championship in Berlin in 2011 showed that level of swimming of sportsmen-disabled was progressing. That is why it will be more difficult to train comprehensive swimmer of world level. More and more swimmers-disabled start specializing in certain discipline; level of qualification of minimums grows; society starts to regard sports for disabled as sports for healthy people (Żurowska, Seidel, 2008; Żurowska, Seidel 2009).

At Olympic Games in London medals for swimming were won by United States. Polish swimmers did not win medals and were not classified. At Para-Olympic Games Poland had 3 medals and took 24<sup>th</sup> place, while main roles were played by China, Ukraine and Great Britain.

### Purpose, tasks of the work, material and methods

*The purpose of the research* is to analyze and evaluate results of Polish combined Olympic and Para-Olympic teams at 14<sup>th</sup> summer Games, 2012, London.

#### *Material and methods of the research.*

Evaluation of Poland swimmers starts at Games in London was carried out on the base of quantity of medals and by comparison of results, received in London in respect to personal life record. In our research we used method of relative percent improvement of result– RPG% (relative performance gain %), with the following equation in its basis  $RPG\% = \frac{\text{initial time} - \text{final time}}{\text{initial time}} \times 100$ . This methodic was developed and presented by Vladimit Issurin at seminar for coaches in Palma de Majorka in 2005 (Issurin, 2006). The material of our research was analysis and processing of results, received by Poland swimmers at Olympic and Para-Olympic Games 2012 in London.

### Results of the research

Main criterion of evaluation of training and participation of Poland swimmers in Games in London was quantity of received medals. Unfortunately by this criterion, Polish swimmers showed weak result. Healthy sportsmen did not get any medals and thus, they proved their results, gained four years ago. Sportsmen-disabled managed to get on podium three times, however, in respect to previous Games, where they got 10 medals, result was weaker.

### Participation in Olympic finals

Olympic Games always related to the most prestige sport measures in the world. At present time the fact of participation in Olympic final itself is considered to be prestige achievement among sportsmen (Pac-Pomarnacki, 2008; Karpiński et al., 2005). In London, among swimmers-disabled, in average nearly two from three starts ensured participation in final competition. It seems to be sufficient. But it is necessary to remember that for sportsmen-disabled it is easier to be classified in final that is a result of higher quantity of sport disciplines in swimming. Among healthy sportsmen, in average, every fifth start ensured participation in final (see fig.1).

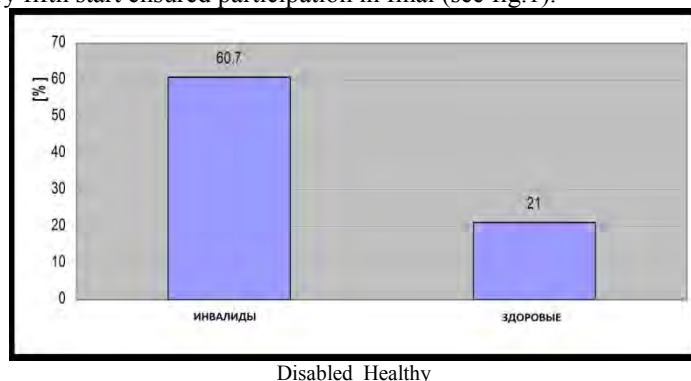


Fig.1. Percentage of disciplines, in which sportsmen-finalists participated in respect to all starts

### Analysis of research's results

Evaluation of modern sport achievements is now rather difficult task. It is connected with growth of sport level in swimming of healthy and disabled sportsmen. This trend, which has been observing already for certain time, is still existing in modern competitions on swimming (Oprychał et al., 2005; Karpiński, Rejdych, 2007). It is proved also by results, achieved by swimmers in London. In most of disciplines winning of gold medals was possible only in case of best result in respect to personal life record. Similar trend was observed among sportsmen-disabled. Unfortunately healthy participants did not improved their best time from 19 individual starts; every competition was less successful than life record (see table 1).

Table 1

Results of Polish swimmers at Olympic Games in London

	Name, surname/ style	Best personal result	Result in Games	Differential of result[s]	Place in Games	RPG [%]
1	Tchórz Alicja - 100 swimming on back	01:01.02	01:01.44	0.42	25	-0.69
2	Tchórz Alicja - 200 swimming on back	02:09.74	02:14.02	4.28	29	-3.3
3	Dowgiert Anna – 50 free style	00:25.23	00:25.59	0.36	30	-1.43
4	Szulich Dawid - 100 swimming on back	01:01.18	01:02.07	0.89	32	-1.45
5	Majchrzak Kacper - 50 free style	00:22.49	00:23.00	0.51	33	-2.27
6	Szczepaniak Karolina 400 complex swimming	04:45.13	04:52.50	7.37	31	-2.58
7	Wilk Katarzyna - 100 free style	00:54.95	00:56.13	1.18	27	-2.15
8	Czeraniak Konrad - 100 butterfly	00:51.15	00:51.78	0.63	8	-1.23
9	Czeraniak Konrad - 100 free style	00:48.22	00:48.44	0.22	9	-0.46
10	Cieślak Marcin - 200 complex swimming	01:59.77	02:00.45	0.68	19	-0.57
11	Cieślak Marcin - 200 b butterfly	01:56.13	01:57.07	0.94	19	-0.81

	Name, surname/ style	Best personal result	Result in Games	Differential of result[s]	Place in Games	RPG [%]
12	Tarczyński Marcin - 100 swimming on back	00:54.12	00:56.06	1.94	27	-3.58
13	Sawrymowicz Mateusz 400 free style	03:48.02	03:53.33	5.31	21	-2.33
14	Sawrymowicz Mateusz 1500 free style	14:45.94	14:54.32	8.38	7	-0.95
15	Jedrzejczak Otylia - 100 butterfly	00:57.84	00:59.31	1.47	25	-2.54
16	Jedrzejczak Otylia - 200 butterfly	02:05.61	02:09.33	3.72	16	-2.96
17	Korzeniowski Paweł - 200 butterfly	01:53.23	01:55.04	1.81	7	-1.6
18	Kawecki Radosław - 200 swimming on back	01:55.28	01:55.59	0.31	4	-0.27
19	Kuczko Sławomir - 200 swimming on back	02:11.51	02:12.51	1	21	-0.76
20	4x200 free style (women)		08:13.76			
21	4x100 complex swimming (men)					

Average worsening of results among healthy swimmers was at level 1.69% (See fig. 2). The least – in discipline 200 meters was received by R.K. – 0.27%, the biggest in 100 meters' swimming on back was received by M.T. – 3.58%.

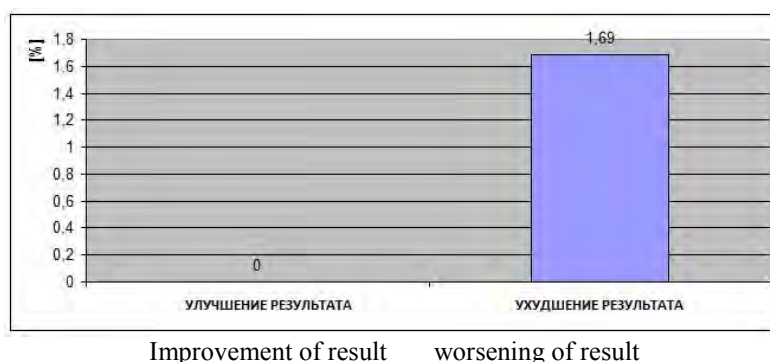


Fig.2. Mean percent worsening of results, received by healthy sportsmen [%]

Sportsmen-disabled improved their life records 9 times from 28 starts (see table 2).

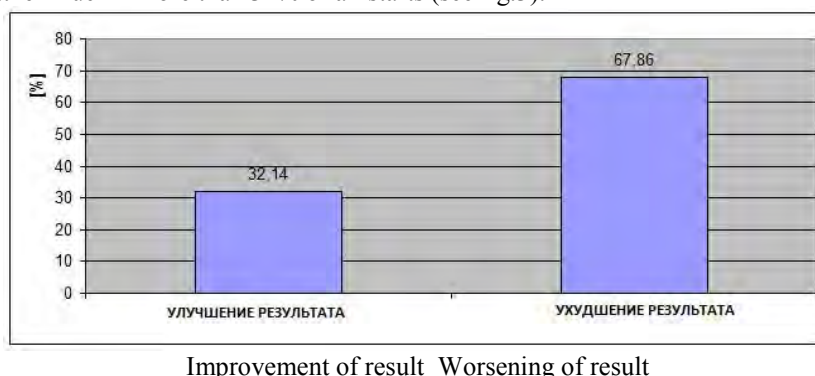
Table 2

*Results of Polish swimmers at Para-Olympic Games in London*

	Name, surname/ style	Best personal result	Result in Games	Differential of result[s]	Place in Games	RPG [%]
1	Mendak Joanna – 100 butterfly					
2	Mendak Joanna - 50 free style	00:28.34	00:28.38	0.04	5	-0.14
3	Mendak Joanna - 200 complex swimming	02:32.46	02:35.38	2.92	4	-1.92
4	Mendak Joanna - 100 free style	01:00.83	01:01.07	0.24	4	-0.39
5	Jabłońska Oliwia - 50 free style	00:30.90	00:30.58	-0.32	14	1.04
6	Jabłońska Oliwia - 100 free style	01:05.99	01:03.76	-2.23	8	3.38
7	Jabłońska Oliwia - 400 free style	04:48.45	04:41.65	-6.8	4	2.36

	Name, surname/ style	Best personal result	Result in Games	Differential of result[s]	Place in Games	RPG [%]
8	Jabłońska Oliwia - 100 butterfly	01:10.44	01:08.55	-1.89	2	2.68
9	Hamer Karolina - 50 breast stroke	01:02.26	01:05.62	3.36	8	-5.4
10	Woźniak Paulina - 100 breast stroke	01:23.23	01:22.45	-0.78	3	0.94
11	Woźniak Paulina - 200 complex swimming	02:39.60	02:44.17	4.57	8	-2.86
12	Woźniak Paulina - 100 butterfly	01:13.57	01:12.52	-1.05	6	1.43
13	Czech Jacek - 50 free style	01:06.01	01:06.41	0.4	4	-0.61
14	Czech Jacek - 100 free style	02:23.55	02:22.84	-0.71	4	0.49
15	Czech Jacek - 50 swimming on back	01:06.44	01:07.74	1.3	5	-1.96
16	Polkowski Grzegorz - 50 free style	00:26.98	00:28.18	1.2	11	-4.45
17	Polkowski Grzegorz - 100 free style	01:00.49	01:02.72	2.23	8	-3.69
18	Polkowski Grzegorz - 100 swimming on back	01:16.28	01:17.32	1.04	12	-1.36
19	Ryszka Marcin - 100 breast stroke	01:21.84	01:22.23	0.39	9	-0.48
20	Ryszka Marcin - 100 free style	01:04.60	01:06.59	1.99	14	-3.08
21	Ryszka Marcin - 400 free style	05:22.93	05:16.68	-6.25	10	1.94
22	Ryszka Marcin - 200 complex swimming	02:44.01	02:43.51	-0.5	10	0.32
23	Paterka Krzysztof - 100 breast stroke	01:12.13	01:14.76	2.63	5	-3.65
24	Pawlik Katarzyna - 50 free style	00:28.92	00:31.37	2.45	17	-8.47
25	Pawlik Katarzyna - 100 free style	01:01.59	01:07.14	5.55	12	-9.01
26	Pawlik Katarzyna - 400 free style	04:33.15	04:43.45	10.3	5	-3.77
27	Pawlik Katarzyna - 100 swimming on back	01:16.67	01:18.49	1.82	13	-2.37
28	Pawlik Katarzyna - 200 complex swimming	02:39.17	02:49.31	10.14	10	-6.37

It seems to be rather much – more than 32% of all starts (see fig.3).



Improvement of result Worsening of result  
Fig.3. Percentage of disciplines, in which results of sportsmen-disabled were improved or worsened

Among disabled participants mean value of results' improvement was 1.62% - the best was demonstrated by sportswoman O.J. at distance 100 meters(butterfly style) – 3.39% and the worst – by M.R. at 200 meters (complex swimming) – 0.32%. Reducing of result was in average 3.34%. The biggest reduction was shown by K.P. at 100 meters' distance (free style) 9.01%, the least – by J.M. at 50 meters (free style) – 0.14% (see fig.4).

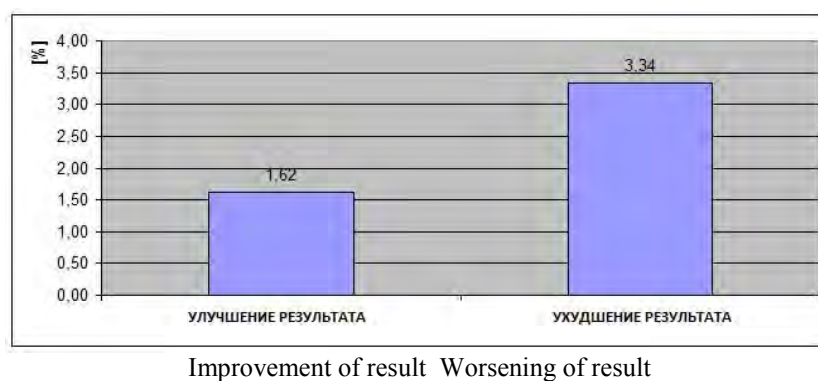


Fig.4. Mean percent value of improvement/worsening of results of sportsmen-disabled [%].

### Discussion

Analyzing trainings and starts of Polish swimmers, healthy ones and disabled, at Games in London, we can make conclusion that for most of sportsmen participation in this kind of competitions is the most important start of 4 years period and, sometimes, of all their careers. Coaches made special plans of trainings for this event and then spent many hours for trainings. Competitions took several days, i.e. rather brief period in respect to time, spent for trainings. Beginning of starts requires maximal mobilization, concentration and the so-called splash of sport form (Costill et al., 1991). Unfortunately, both healthy and disabled swimmers failed. May be sportsmen and coaches could not reach the best form? Or it is only an excuse of participants, who trained too little or who had insufficient motivation? Or the problem is somewhere at deeper level?

In order to "hit home" with form the whole special group is working and just the members of this group is responsible in this case. Before competitions of Olympic level it is very important to plan properly training loads and testing starts. Modification of first and second stages shall be conducted so that sportsmen would have proper rest and would come to competitions in phase of super-compensation. For receiving of this effect it is necessary to correctly plan trainings, rest, biological recreation, diets and, the so called, coming out of trainings, i.e. gradual reducing of loads (Pelayo, 1995; Stewart and Hopkins, 2000).

In swimming of sportsmen-disabled leading places are taken by China, Ukraine and Great Britain; among healthy sportsmen the most advanced are USA, China, France.

Recent time all these combined teams has made great step ahead in results (Martin, 2000), while Polish team froze up at its level. Polish disabled swimmers won only 3 medals. Even more there were results of healthy sportsmen. In spite of the fact that one of the biggest teams in history – 17 members - went to London, it did not win medals. It participated in four finals and did not beat any records of Poland and did not reach any life record. Such destructive combination of team staff and absence of results happened for the first in history. Even four years before London Games situation was not so bad: in spite of the fact that then Polish swimmers were classified in three finals, their cut then records of Poland and their life records. These are undoubted facts pointing at level of swimmers' fitness to the most important competitions of 4 years period.

Before Games in London healthy sportsmen seemed to be in better situation than 4 years ago. Rather strong were members of team, who had not participated in Games yet. Silver prize winner of World cup Konrad Chetniak, gold prize winner of European cup Radoslav Kaventskiy are the sportsmen, who surely hoped for better results. They seemed to do all the best to achieve as good results as possible at the Games. Sportsmen-disabled were in similar situation. Two years earlier Polish swimmers won 11 medals at World cup and three years earlier – in Berlin- 14 medals of European cup. Combined team included world champions Katzhina Pavlik, Ioanna Mandliak. It is an undoubted fact of potentials of Polish combined swimmers' team. So, where are the reasons of so grave defeat?

As far as healthy sportsmen concern reasons of failures, first of all, seem to be bad luck and the so-called "discordance with form". Also we consider prohibition of "speed" suits in favor of textile ones (since beginning of 2010). However in London sportsmen from other countries improved world records and life records. Konrad Chetniak improved two individual life records of Poland at World cup in Shanghai, i.e. in suit of textile. May be the reason is that in Poland there are no conditions for trainings at the highest level. Though recent time Polish swimmers go abroad – for example Konrad Chetniak to Spain or Marcin Tsesliak to Florida in group of coach Greg Troy or Mateush Savrymovuch from group of David Salo – to California. In London such "emigrants", however, demonstrated the same form as other sportsmen. That is why it would be incorrect to say about conditions of trainings. For example Konrad Chetniak competed in 2011, in Shanghai with Michael Felps and at World Championship, in Istanbul, in 2012 Radoslav Kaventskiy defeated Rayan Lohty. So where to find the reasons of failures? May be our coaches are not as fantastic as we thought? In Poland we have little sport circles in higher educational establishments, though in the world just universities create sportsmen. Missy Franklin, triple champion in London was 16 years old, Champions Ruth Mayluti and Kath Lidetskiy were 15 years old each of them. Among sportsmen there were 20 years old boys, such as Chad le Claud from SAR. Two years ago Marcin Tseslak competed with him at Youth Games in Singapore. A year ago le Claud

was did not come in final at 100 meter distance (butterfly style); he was the fifth at distance of 200 meters. But in London he won silver and gold medals in these disciplines.

In their turn, sportsmen-disabled 9 times improved their life record from 28 starts. It seems to be sufficient, because it is 30% from all starts. Unfortunately it permitted to won only 3 medals: gold, silver and bronze. Such reduction – 70% (from 10 in Beijing to 3 in London) can not be excused by financial or organizational problems at first stage of training. One of reasons is surely system of trainings of the best sportsmen, who train, first of all, in clubs, which are restricted in training time because of bad financial situation. It is undoubtedly too insufficient to fight for medals at championship. That is why we think financing shall be oriented, in the first turn, on clubs and then on central training. At last it should be noted that the most remarkable results in starts were achieved by Kataznina Pavlik, swimmer-disabled, current world champion in free style at 400 meters, class S10, who in no discipline reached her best life records. Among healthy women-swimmers she swam relay race 4 x 200 meters by free style worse than at Championship in Poland several months earlier.

#### Conclusions:

1. Basing on quantity of received gold medals participation of healthy sportsmen and disabled swimmers in Games in London should be evaluated negatively.
2. From the point of view of participation in Olympic finals as well as improving of individual life records results of disabled sportsmen were better.

#### References

1. James C., Howe P. The Conceptual Boundaries of Sport for the Disabled: Classification and Athletic Performance. *Journal of the Philosophy of Sport*, 2005, vol.32(2), pp. 133-146.
2. McCann C. Sports for the disabled: the evolution from rehabilitation to competitive sport. *British Journal of Sports Medicine*, 1996, vol.30, pp. 279-280.
3. Kosmol A., Molik B., Morgules N., Maniak M. Paralympic Movement in the early twenty-first century – and the risk of waiting [Ruch paraolimpijski na początku XXI wieku - oczekiwania i zagrożenia]. *The high-performance sport* [Sport Wyczynowy], 2004, vol.5-6, pp. 105-115.
4. Daly DJ., Vanlandewijck Y. Some criteria for evaluating the “fairness” of swimming classification. *Journal of Human Kinetics*, 1999, vol.16, pp. 271-289.
5. Heazlewood T. Prediction versus reality: the use of mathematical models to predict elite performance in swimming and athletics at the Olympic games. *Journal of Sports Science and Medicine*, 2006, vol. 5(4), pp. 541-547.
6. Żurowska A., Seidel W. Comparison of individual aspects of Olympians and Paralympians swimmers [Porównanie wybranych aspektów sportu pływackiego osób pełnosprawnych i niepełnosprawnych]. *Water sports and rescue* [Sporty wodne i ratownictwo], 2008, vol.1, pp. 48-56.
7. Żurowska A., Seidel W. Comparison of the results and the progression of Olympic swimmers paralimpijtssev in 2004-2008 [Porównanie progresji wyników pełnosprawnych i niepełnosprawnych pływaków w latach 2004 – 2008]. *Water sports and Rescue* [Sporty wodne i ratownictwo], 2009, vol. 3, pp.41-48.
8. Issurin V.B. *Evaluation of the final stage preparation to the Athens Olympic Games in the World Leading Swimming National Teams*, 2006, 200 p.
9. Pac-Pomarnacki A., Możdżyńska A., Szczechowicz M., Tkaczyk J. Forecast Olympic Beijing 2008 [Prognoza olimpijska – Pekin 2008]. *The high-performance sport* [Sport Wyczynowy], 2008, vol. 1-3, pp. 7-29.
10. Karpiński R., Sachnowski K., Oprychał C. Changes in preparation of first-class swimmers [Zmiany w szkoleniu pływaków najwyższej klasy]. *Sport Wyczynowy* 2005, vol. 5(6), pp. 25–32.
11. Oprychał C., Karpiński R., Sachnowski K. Process of many years of training high-class swimmers [Proces wieloletniego szkolenia pływaków wysokiej klasy]. *The high-performance sport* [Sport Wyczynowy], 2005, vol.9-10, pp. 57-67.
12. Karpiński R., Rejdych W. Level of achievement of the leading Polish swimmers in 2007 [Poziom osiągnięć czołowych pływaków polskich na tle wyników światowych w 2007 roku]. *The high-performance sport* [Sport Wyczynowy], 2008, vol.1(3), pp. 31–39.
13. Costill D.L., Thomas R., Robergs R.A., Pascoe D., Lambert C., Barr S., Fink W.J. Adaptations to swimming training: Influence of training volume. *Medicine & Science in Sports & Exercise* 1991, vol. 23(3), pp. 371-377.
14. Pelayo P., Moretto P., Robin H. Adaptation of maximal aerobic and anaerobic tests for disabled swimmers. *European Journal of Applied Physiology*, 1995, vol.71, pp. 512-517.
15. Stewart AM, Hopkins WG. Seasonal training and performance of competitive swimmers. *Journal of Sports Sciences*, 2000, vol.18(11), pp. 873-884.
16. Martin DE. Studying trends in sport participation by modeling results of elite-level athletic performance. *Chance*, 2000, vol.13(1), pp.15-17.



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## LAYING THE FOUNDATIONS OF A CULTURE OF HEALTH AS A PEDAGOGICAL PROBLEM

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**Annotation.** *Purpose:* to show the dominant influence of educational - educational process lay the groundwork for a culture of health students. *Material:* processed more than 40 references, conducted a survey, questionnaires and observation of the living conditions of students. *Results:* named main reasons for creating a culture of health of students should be considered as primary pedagogical problem. The preconditions and conditions of the foundations of the culture of youth health, namely: social, educational, health, environmental, economic, geographic, individual. Traced the sequence and phasing of the pedagogical process of building a culture of health of students in the course of many years of teaching in higher education. *Conclusions:* proven pedagogical influence priority basis forming a culture of health of students in the individual development and identity formation for learning in higher education. The sequence and structure of the solution of pedagogical problems of forming the foundations of a culture of health students.

**Keywords:** health culture, student, conditions, pedagogical impact.

### Introduction

Formation of the culture of health, as a process, is the subject of research in different sciences: medicine, theory and methods of physical culture, physiology, psychology, pedagogics and others. Nowadays some questions still remain open: who should realize solving the problem of formation of health culture, and accordingly, who should be responsible before the society for the final result of this process.

Overwhelming majority of the asked students consider ensuring of health immediate business of medical establishments. But in the half of their problems with health, as a number of authors certify, the person can accuse only himself and his way of life (factor of influence to the healthy way of life 50%) [1; 2; 3; 4; 5; 6]. Health care system cannot by itself ensure proper level of health of the population of the country. Medicine treats illnesses, which are mainly in the state of progress [7]. Treatment will be of no use, if the person doesn't have culture of health [8]. At the moment scientific materials confirm the information about negative tendencies in the state of health of students, which are connected with the peculiarities in the system of education. It doesn't help formation of health culture because it depresses its main needs, in particular – the need of movement. That is why the system of education is partially responsible for the situation, which took place with the health of young people [9; 10]. Herein, the important task of educational activity of physical culture is not only formation of the abilities and skills, but also study of the technologies of health culture formation with its further usage in the future. On the basis of the objective conditions of the higher educational establishment, it is necessary to create conditions, choosing proper forms of organization, which can ensure the possibility to form physical culture and its self-development of each student [9; 10; 11]. Therefore there is a necessity of creation in the system of higher educational establishments physical culture of the technology, which would assist forming the need in the development of health culture, appearing as a result of solving contradiction between the desirable and real state of health of the personality, and inciting the student to the mastering in the valeological aspect. The function of the educational establishment is in forming developing space for the collective in general and every personality, in particular, in which continuous development of the need in healthy way of life takes place [9].

Summing up the above mentioned, we should say that formation of physical culture of students is prior pedagogical problem, but it isn't exceptionally pedagogical problem. Pedagogics, with the help of means of pedagogical influence, form qualitative changes of individual physical culture of personality on the basis of information, given by other sciences, namely by: medicine, (hygiene, medical and regenerating physical culture,...), physiology, psychiatry, theory and methods of physical culture, biochemistry, biomechanics, philosophy, religious studies and others.

Similar conclusions we can find in the National purpose-oriented social program of development of physical culture and sports for 2012-2016, where among the prior tasks of development of health culture of young people during the educational process, and so regarding forming of physical culture of students as a pedagogical problem, is mentioned [12]. In this regard prior task of modernization of education is preserving and strengthening of health, formation of health values and healthy way of life. In this new strategy of development and preserving health, gradual shift of the accent from the treating medicine to prophylaxis takes place, which includes active upbringing of a person in hygienic regime, pedagogical prophylaxis of even insignificant deflections in the nerve-psyche and somatic health [13].

### Purpose, tasks of the work, material and methods

*The aim of the research* is to prove dominance of pedagogical influence on forming health culture of the personality of the student.

#### Tasks.

1. To determine the main factors of the environment, which influence the process of forming health culture of the personality.

2. To analyze the conditions under which positive result of pedagogical influence on the process of forming health culture of the personality of the student is possible.
3. To determine optimal succession of pedagogical influence on the personality of the student with the aim to form the bases of health culture.

#### *Methods of the research.*

On the basis of work with literary sources, conducted analysis of the received information, generalizing previous scientific experience, determinations of the main notions of physical culture have been formed.

#### **Results of the research.**

As a result of study of scientific literature we singled out three main reasons, according to which the process of forming students' culture of health can be considered top priority pedagogical problem. The first reason is the fact that the health, first of all, doesn't depend on the outward interference, but on the individual's way of life. As we have mentioned earlier, the health depends on 8 – 10% on the medicine, and on 50 -52% on the way of life [13]. The way of life forms in the process of individual's vital activity. Positive influence on forming way of life can be done with the help of pedagogical influence on the personality. As this determined dependence of person's health from his way of life appears necessity in creating pedagogical theory, directed on preservation and strengthening of health by means and ways of pedagogics [13].

The second reason, why forming students' culture of health is top priority pedagogical problem, is the fact that the system of education is responsible for the quality of specialist's preparation. Herein, as the results of students' survey show, the main reason of their failing to execute necessary daily requirement in movement - is excessive charging with educational work. The reasons of this phenomenon are different. It can be irrational distribution of charging for the students by the teachers, or irrational usage of free from necessary lessons time by the students themselves. But, regardless of the reasons, result is the fact of mass disorder of efferent regime by the students during the time of their studies in higher educational establishment. It negatively reflects on the health of the student, who is the future specialist. The specialist with the low level of health is less competitively able at the labor-market.

The third reason, why forming of students' culture of health is the pedagogical problem, is the fact of the higher educational establishment's influence on the expectancy and, accordingly, on the quality of life of graduating students and their children [14]. That is why, a number of authors propose to enroll forming of healthy way of life into the content of person's education, which correspondingly, will favor growth of the level of health culture among the countrymen [15; 9; 10; 6; 16.].

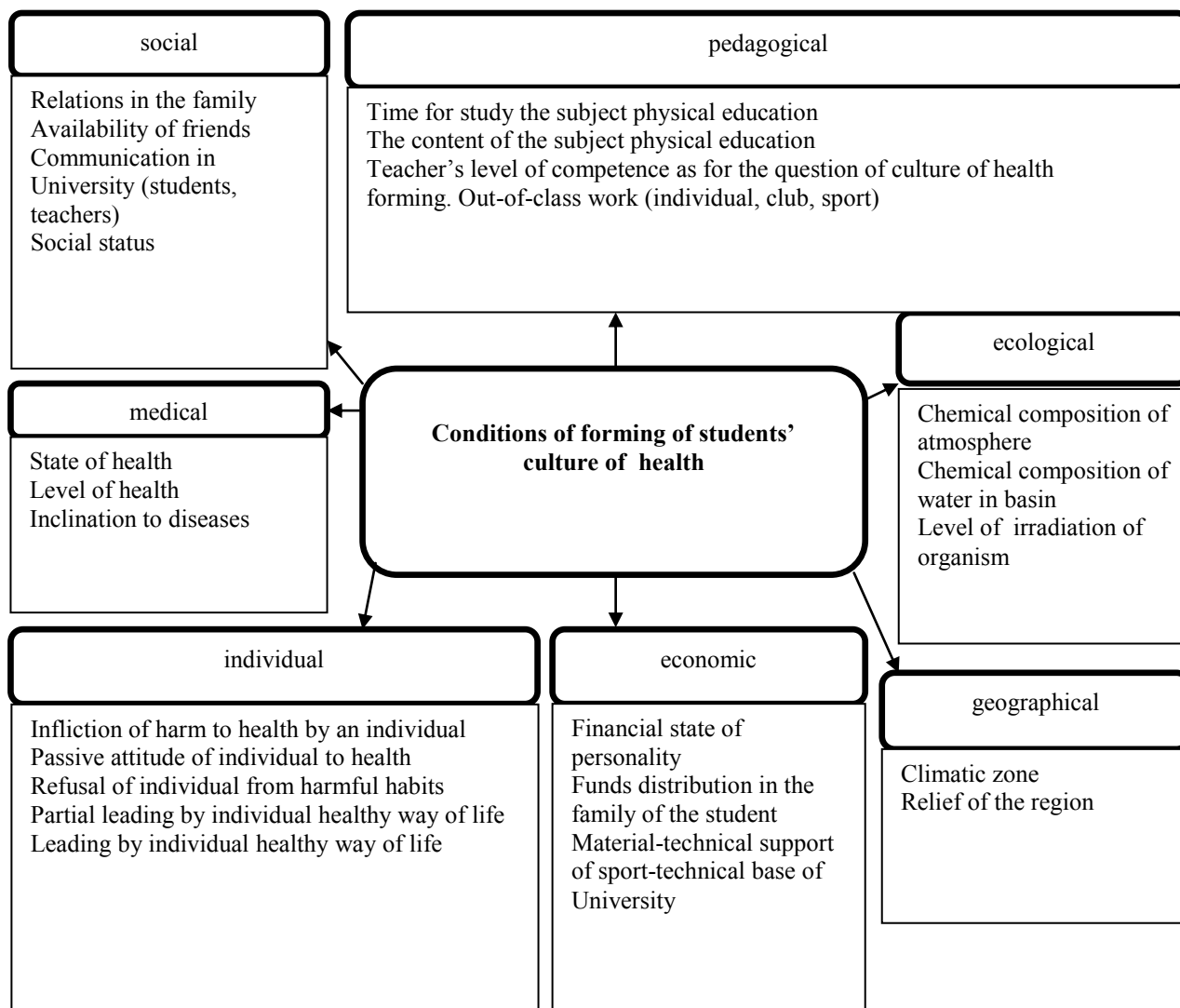
Culture of health, as it was mentioned earlier [17], includes four components. Psychical health – is characterized by the feeling of emotional comfort and it depends on the ability of the student to control his or her emotional state, which, in its turn, depends on the level of his or her good breeding. In the process of studies the student often finds himself or herself in the situations, when he or she has to solve difficult tasks, demanding both intellectual and volitional efforts. In the process of this activity psychological development of the student takes place. Mutually-polite communication with the teachers helps development of the level of good breeding of the students. Social health depends on communicative abilities of the student, which he or she can develop in favorable for this process environment. Social health is closely interrelated with psychological one; they are often identified in scientific literature. The student, partly, is the creator of that socium, in which he or she lives, influencing on the relations in the group or groups in which he or she studies. Herein, the level of his or her social health is directly connected with the social status. Spiritual life allows personality to develop and self-improve creatively, as harmonic personality. The student recognizes the value of doings, chooses for himself or herself the vector of actions for achieving the goal and, by doing so, determines the direction of the further personal development. What social principles, moral or immoral, the student will follow in the activity depends also on the pedagogical process. Physical health characterizes functional state of the organism, it depends on the ability of student to follow right regimes. They are: efferent regime, regime of relaxation, rational nourishment, etc. These tasks are possible to solve in the course of educational process.

Having analyzed the information received on the basis of working out theoretical sources, we determined the main necessary conditions of forming students' culture of health; they are: social, pedagogical, economic, medical, individual, ecological, geographical (see picture 1).

Having conducted the survey, questioning and observation of the conditions of students' life in the hostel, we compared necessary conditions for forming culture of health with the available ones, and came to the following conclusions. Nowadays social, pedagogical, economic conditions are not favorable for the forming students' culture of health. Medical and ecological conditions don't create obstacles for the process of forming. Geographical and individual conditions are favorable for the forming students' culture of health. Preliminary results allowed us to determine the main ways of the further research work. To form personal culture of students' health, we should encounter the problem of overcoming social and economic obstacles; pedagogical problems can be solved owing to the change of the programs of educational process.

Apart from the conditions, the process of forming students' culture of health is influenced by the different factors: sex, age, level of development, and the conditions under which the process of forming culture of health takes place [18; 19; 20; 21].

Knowledge of the conditions of students' culture of health forming allows us to come to the next stage of study of pedagogical influence on the process of culture of health forming, and to examine how this influence happens.



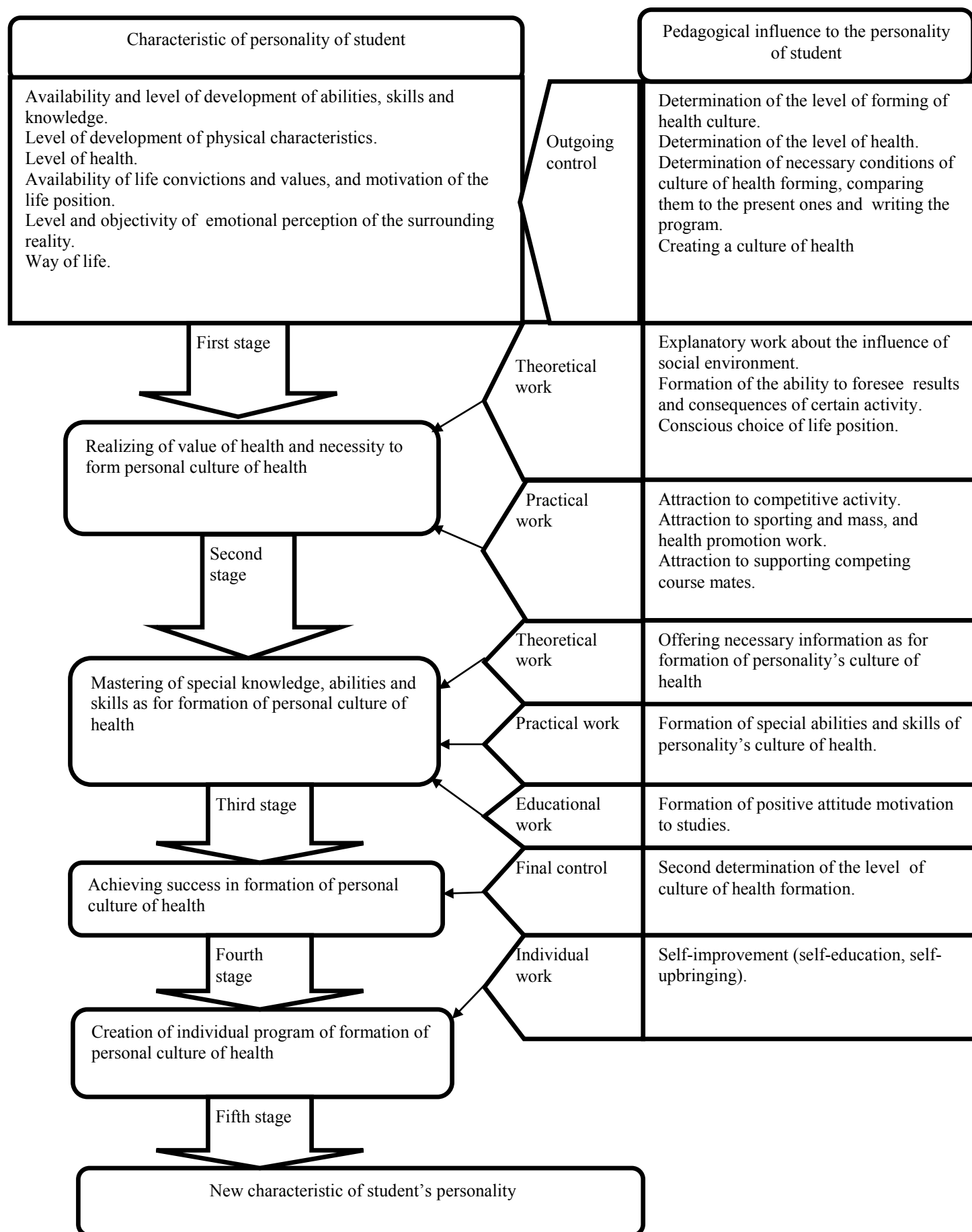
Picture 1. Conditions of forming students' culture of health

This process is passed by the personality in three stages, each of which is characterized by the level of forming of special knowledge, abilities and skills:

1. Low level. It is characterized by the absence of specific content of the goals of health culture forming. There is the desire to improve the level of health. The student makes one-time influence on his or her personality under the influence of outward factors and the objective requests. The means of self-development are outwardly set as well. Self-control is absent, or it is of situational character.

2. Medium level. It is characterized by the putting specific goals and tasks of self-development of health culture, which have nothing to do with the personality in general, but only some qualities and abilities. The actions directed to the self-development depend on the outward circumstances. Own personality is the object of the student's study, who shows activity in determination of the goals of self-improvement, and who receives some knowledge of self-development. From time to time the student reports about the work he or she has done.

3. High level. It is characterized by conducting by the student individual and thorough analysis and specific formulating the goals of self-development of the culture of health. The student realizes the abilities of their realization in the process of practical work. He or she individually fulfills and plans, marks the ways and means of self-improvements, finds unique methods of the work on himself or herself. The student easily notices the forming influence of his or her valeological actions. Self-control is done at the level of skill. Correction of the intermediate and final results of the process of self-development of health culture takes place easily and unconstrainedly [9].



Picture 2. Diagram of pedagogical influence on the components of the process of forming students' fundamentals of health culture during one semester.

At each stage the student's personality undergoes corresponding pedagogical influence with the aim of realization of the stage's tasks. In higher educational establishment forming student's culture of health is done under the effect of purposeful pedagogical influence. The process of forming student's culture of health begins with the outgoing control of the students' state and the conditions, necessary for the realization of the process. On the basis of the received information the program of forming student's culture of health for one semester is created. The program of forming student's culture of health is realized with the help of the chosen, according to the didactic and specific principles, special knowledge and efferent skills. Forming positive motivation happens in the process of practical fulfillment of exercises and conversations. Theoretical material, which is offered to the students chiefly on electronic data storage devices, in the forms of video materials and lectures, is also explained in the form of conversations. In the period between the semesters the students continue individual preparation by the individual programs, agreed by the teacher. After finishing the program, the second control takes place, the results are informed to the students, and, taking into account their wishes, the correction of the working programs for the next semester is done (see picture 2).

### Conclusions.

Forming the bases of the culture of health is top priority pedagogical problem, because in the process of purposeful pedagogical influence the personality receives new knowledge, special abilities and skills, which make up the basis of health culture, are formed.

The conditions for forming students' culture of health are chiefly unfavorable, when speaking about the majority we should mention that the students show individual readiness to lead healthy way of life and form personal culture of health. This process is impeded by the pedagogical, economic and social conditions, namely, the content of educational material and the level of teachers' preparation remains insufficient for conducting forming students' culture of health.

Irrational distribution of charge to the student leads to overexertion. Negative influence on health has transition to hundred-grade system of evaluation, to be more precise, the mechanism of completing the missed due to the illness lessons, is not perfect. Because of the fear to lose the grades, the students attend lessons being ill, favoring thus spreading the illness among other participants of educational process. Social advertising support more unhealthy way of life, it goes about the advertisement of tobacco products and alcohol, violence, cruelty and fear prevails in informational networks. Because of the insufficient material support, the students combine studies and work, which negatively influences their progress in studies. That is why, forming culture of health for many students is out-of-date question, it is because they are busier with solving top priority, to their mind tasks, namely their studies for the ability to receive scholarship, which allows them to secure their primary needs in food and clothes.

Under such conditions the process of forming students' culture of health will be realized by means of development of individual qualities of the student, as a way to counteract negative influence of antisocial advertisement. This, in its turn, should be realized at the lessons and shouldn't create additional problems as for the search of free time for the students. Besides, the students should do physical-curative exercises only due to their own initiative. The content of lessons should help development of the bases of students' culture of health, which in its turn, should be supported by the study of special curative methods.

So, solving pedagogical problem as for the forming students' culture of health depends first and foremost on the correctly written programs of studying educational material. The content of lessons should meet the specific conditions under which the lessons in the higher educational establishment are conducted, and in the same time it should guarantee solving of the tasks of the lesson. The curriculum is written by the teacher that is why the teacher is responsible for the effectiveness of forming students' culture of health in the higher educational establishment, where he or she works. The conditions of conducting lessons in different higher educational establishment are different and that's why there couldn't be universal program of forming health culture of all Ukrainian students. But it is possible to determine main ways of influence on the personality with the aim to develop his or her skills of leading healthy way of life and forming culture of health. Created on the basis of this research program can become the grounds for creating other more perfect programs.

For the complete solving of pedagogical problem of forming students' bases of health culture, a number of changes should be done in the programs of preparation specialists of physical culture. These changes should be directed both to the studies of special methods of curative exercises and to the teaching of specialist as a highly developed physically cultural personality.

*Perspectives of the further researches in this direction.* The question of search of effective and inexpensive in use methods of curative exercises remains open. That is why in the further researches the questions of contextual-organizational and methodological bases of forming special knowledge and efferent skills of the students' culture of health should be studied.

### References:

1. Kosheva L.V. *Formuvannia osobistisnikh vlastivostej studentiv zasobami fizichnogo vikhovannia* [The personality characteristics of students by means of physical education]. Kramators'k, DDMA, 2008, 96 p.
2. Makarenko V. K., Grigor'eva O.D., Toma Zh.V. *Sportivnyj psikholog* [Sports psychologist], 2009, vol.2(17), pp. 63–67.
3. Preobrazhenskaia O.N. *Fiziceskoe vospitanie studentov* [Physical Education of Students], 2010, vol.1,m pp. 87–90.
4. Sokolenko E.I. *Fiziceskoe vospitanie studentov tvorceskikh special'nostej* [Physical Education of the Students of Creative Profession], 2006, vol.4, pp. 153–157.
5. Akhverdova O.A., Magin V.A. *Teoriia i praktika fizicheskoi kul'tury* [Theory and practice of physical culture], 2002, vol.9, pp. 5 – 7.
6. Karpova I. B., Korchins'kij V. L., Zotov A. V. *Fizichna kul'tura ta formuvannia zdorovogo sposobu zhittia* [Physical education and promotion of healthy lifestyles], Kiev, KNEU, 2005, 104 p.
7. Apanasenko G.L. *Valeologiya na rubezhe vekov* [Valeology turn of the century], Donetsk, USSU, 2000, 148 p.
8. Ziskina M.A., Kaiumova S.A., Pastukhina R.I. *Nekotorye voprosy podgotovki shkol'nogo valeologa* [Some questions training school valeologist], Tyumen, 1996, 200 p.
9. Kozhanov V.V. *Teoriia i praktika fizicheskoi kul'tury* [Theory and practice of physical culture], 2006, vol.2, pp. 12 – 14.
10. Sokolenko E. I. *Fiziceskoe vospitanie studentov tvorceskikh special'nostej* [Physical Education of the Students of Creative Profession], 2006, vol.4, pp. 153–157.
11. Zagviazinskij V.I. *Teoriia i praktika fizicheskoi kul'tury* [Theory and practice of physical culture], 2005, vol.8, pp. 59 – 61.
12. Afashova A.A. *Vesnik Adygejskogo Gosudarstvennogo universiteta* [Bulletin of the Adyghe State University], 2008, vol.5, pp. 22 – 25.
13. Osaulenko O. G. *Statistichnij shchorichnik Ukrainy za 2010 rik* [Statistical Yearbook of Ukraine for 2010], Kiev, Ltd. "August Trade", 2011, 240 p.
14. Efimova V.M. *Kul'tura zdorov'ia* [Culture of health], 2006, vol.1, pp. 177 – 181.
15. Piotrovski L. M. *Sravnitel'nyj analiz teorii i opyta raboty v stranakh socialisticheskogo sodruzhestva i nekotorykh kapitalisticheskikh stranakh* [Comparative analysis of the theory and experience in socialist countries and some capitalist countries], Cand. Diss., Leningrad, 1981, 23 p.
16. Khalajcan A.P. *Pedagogika, psihologia ta mediko-biologichni problemi fizichnogo vikhovannia i sportu* [Pedagogics, psychology, medical-biological problems of physical training and sports], 2014, vol.3, pp. 79 – 84. doi:10.6084/m9.figshare.938185
17. Mikitiuk O.M. *Sportivna nauka Ukrainy* [Sport science of Ukraine], 2009, vol.2(22), pp. 66–73.
18. Lepofsky M. D. A report card on the Charter's Guarantee of Equality to Persons with Disabilities After 10 Year – What Progress? What prospects? *National Journal of Constitutional Law*. 1997, vol.7, pp. 263–241.
19. Edwards D.J., Edwards S.D., Basson C.J. Psychological Well – Being and Physical Self-Esteem in Sport and Exercise. *International Journal of Mental Health Promotion*, 2004, vol.6(1), pp. 25–32.

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## BASIC PRINCIPLES OF RENEWAL OF SPORTSMEN WITH MYOFASCIAL BY A PAIN SYNDROME TAKING INTO ACCOUNT THE PSYCHOLOGICAL ASPECT OF THEIR REHABILITATION

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**Annotation.** Purpose: to examine and learn the fundamentals of the recovery of athletes with myofascial pain syndrome, taking into account the psychological aspect of their rehabilitation. Material: the data analyzed and summarized the scientific and methodological literature; sites on the internet. Results: the analysis of specialized literature on development features myofascial pain syndrome in athletes. Myofascial pain syndrome is widespread in sports practice. It is characterized by muscle spasms and trigger points, palpation of which there is a growing pain. The basic principles of the recovery of athletes with myofascial pain syndrome. The questions of the effectiveness of rehabilitation measures, taking into account the influence of psychological factors on the recovery of athletes. Conclusions: the presented strategy is comprehensive physical rehabilitation. Recommended keeping the basic principles of the recovery of athletes and the psychological aspect of their rehabilitation.

**Keywords**: athletes, myofascial, muscular, physical, rehabilitation.

### Introduction

Theoretical analysis of scientific-methodic literature showed that for achieving of results in sportsmen's with myofascial syndrome sport workability rehabilitation, there are required quite new approaches to means and methods of physical rehabilitation, which would meet individual features of sportsmen, facilitate maximally effective realization of their interests, bents and abilities [4, 5, 6]. In this connection, at present time, one of the most important tasks of traumatology is creation of treatment-prevention measures' system, which would facilitate revelation of unfavorable after effects of physical loads on supporting motor system at early stages, timely stimulation of regenerative and compensating potentials of sportsman's organism and his return to full fledged training and competition functioning. [2, 4, 8]. Injures or diseases of sportsmen's supporting motor system is accompanied by sudden and sharp stoppage of training functioning, cause disordering of motion stereotype that results in painful reaction of whole organism [2, 3, 5]. Sudden stoppage of sport's practicing facilitates destruction of conditioned reflexive links, which were developed during many years' trainings [3, 4, 9]. Functional condition of all organs and systems of organism worsens, reduction of physical potentials happen, psychological problems appear. Negative emotions, connected with feelings (of trauma's after effects), alarm of losing sport form depress sportsman that still more accelerate the process of de-training [1, 7, 8]. Pain syndrome can be conditioned either by acute trauma or durable regular micro-traumas of back and lumbar soft tissues. Pain is a limiting factor in sportsmen's functioning [2, 9, 10].

Myofascial pain syndrome (MFPS) is a myosalgia, which is characterized by local and reflected pain. Specific feature of this pathology is presence of changes in soft, mainly in muscle and ligament, structures, in the so-called myofascial trigger points (MFTP) [1, 9, 10]. Just owing to this fact rehabilitation of sportsmen with MFPS is so urgent.

In physical rehabilitation they mark out the following types of rehabilitation [3, 5, 6]:

- current – in the process of training;
- urgent – after training;
- postponed – in several hours or days after training.

Dynamic of rehabilitation processes develops in sequence: first heart beats rate (HBR) is restored as well as breathing, then BP and vital capacity of lungs (VCL), later – indicators of main metabolism and bio-chemical indicators of blood and urina (milk acid, CRNN and other) [3, 4, 5]. With it, speed of recreational processes in muscles influence on both on intensity and duration of load, endured by sportsman and on its character. Recreation of muscular tonus and strength after static mode of work (isometric tension) goes slower than after dynamic (isotonic) work of the same duration [1, 2, 3]. In available literature we did not find information about main principles of sportsmen's with myofascial pain syndrome rehabilitation, considering psychological aspect of rehabilitation ([http://vmede.org/sait/?id=Le4ebnaya\\_fizkultura\\_epifanov\\_2007&menu=Le4ebnaya\\_fizkultura\\_epifanov\\_2007&page=17](http://vmede.org/sait/?id=Le4ebnaya_fizkultura_epifanov_2007&menu=Le4ebnaya_fizkultura_epifanov_2007&page=17); <http://bibliofond.ru/view.aspx?id=9403>; <http://www.booksmed.com/lechebnaya-fizkultura/1009-medicinskaya-reabilitaciya-epifanov.html>) [12-17].

That id why this direction, as a component of complex program of sportsmen's with MFPS rehabilitation is still urgent.

The work has been fulfilled in compliance with “Combined plan of SRW in sphere of physical education and sports for 2006-2010” of Ministry of Ukraine of family, youth and sports, by topic 4.3.2.1, it. “Physical rehabilitation with traumatism in sports with complex coordination” as well as in compliance with “Combined plan of SRW in sphere of physical education and sports for 2011-2015” of Ministry of Ukraine of family, youth and sports, by topic 4.4. “Improvement of organizational and methodic principles of physical rehabilitation's programming with dysfunctions in different systems of human organism”.

Purpose, tasks of the work, material and methods

The purpose of the work is to study the problem and systemize modern scientific-methodic literature, devoted to rehabilitation of sportsmen with MFPS, considering psychological aspect of their rehabilitation.

Material and methods of the research: theoretical analysis and generalization of scientific-methodic literature data, the data of internet and special literature, devoted to this problem.

### Results of the research

Modern sport is characterized by quick growth of sportsmanship that results from increasing of scope and intensity of training loads. This, in its turn, sets higher requirements to sportsman's supporting motor system. However, in certain conditions there can appear overloading and over tension that inevitably results in injuries and traumas [1, 2, 3].

Determination of rational combination of training and recreational methods at different stages is decisive in solution of rehabilitation problems [7, 8, 9]. Analysis of scientific-methodic literature permitted for us to formulate five main principles of rehabilitation in shortest possible period without any damage for health [1, 3, 5].

1. Principle of urgency is quick and prompt express aid, diagnostic-medical measures, qualified solution of expert questions, concerning prospects for sportsman to continue trainings or competition functioning or urgent hospitalization. Non observance of this principle results in repeated trauma and overloading of earlier damaged tissues that negatively influences on further rehabilitation and in the future can even close sport activity for the sportsman.

2. Principle "stage-by-stage" implies application of rehabilitation means in compliance with phase and stage of disease or trauma. Observation of "stage-by-stage" principle in rehabilitation means that every sportsman shall compulsory pass three stages: stage of medical rehabilitation, stage of sport rehabilitation and stage of sport training. Every of these stages has own purpose and tasks.

Non-observance of this principle, with not complete rehabilitation of nervous-muscle system's rehabilitation, results in repeated traumas.

3. Principle of complex and systemic character implies application of patho-genetically grounded medical-biological and pedagogic means of rehabilitation (medical treatment, psycho-correction, therapeutic physical culture (TPC), physio-therapy). Non-observance of this principle can also serve as a reason of repeated trauma.

4. Principle of individualization and adequacy means selection of rehabilitation means personally for every sportsman, considering the character of trauma, time, passed since injuring, age, sport qualification, sex and personal features of a sportsman.

In selection of rehabilitation means, in order to maintain sportsman's fitness (psycho-correction, TPC (correction by body positions, physical exercises in room, in TPC hall in swimming pool, traction therapy), physio-therapy, manual therapy, reflex therapy, sport eating, special trainings) the determining factor is not so the character of sportsman's functioning as his (her) general condition. That is why volume and intensity of loads in complex rehabilitation shall be differentiated. The higher qualification of sportsman is the earlier special means of training shall be included in rehabilitation measures. Sportsman's motion regime shall be built so that since the first days it could resist reduction of general workability and de-training condition.

5. Principle of dosing is based on necessity to load sportsman in definite scope and intensity. It ensures optimization of functions of motion segment and internal organs as well as dynamic control of their functional rehabilitation [1, 2, 5].

Indicator of rehabilitation's effectiveness is restoration of sportsman's physical and psychological potentials at high level. V.A. Yepifanov underlines that application of recreational means in sport practice is based on observing of a number of general methodic principles, the most important of which are the following [5, 10, 11]:

- effectiveness of recreational means depends on character and scope of training loads;
- repeated application of one and the same means reduces their results;
- complex application of several recreational means increases influence of each of them and their total effect;
- adaptation to means of "local" influence is quicker than to means of general influence.

With composing of individual schema of rehabilitation means' application doctor shall consider a number of very important moments, ignoring of which can result in very serious after-effects for sportsmen:

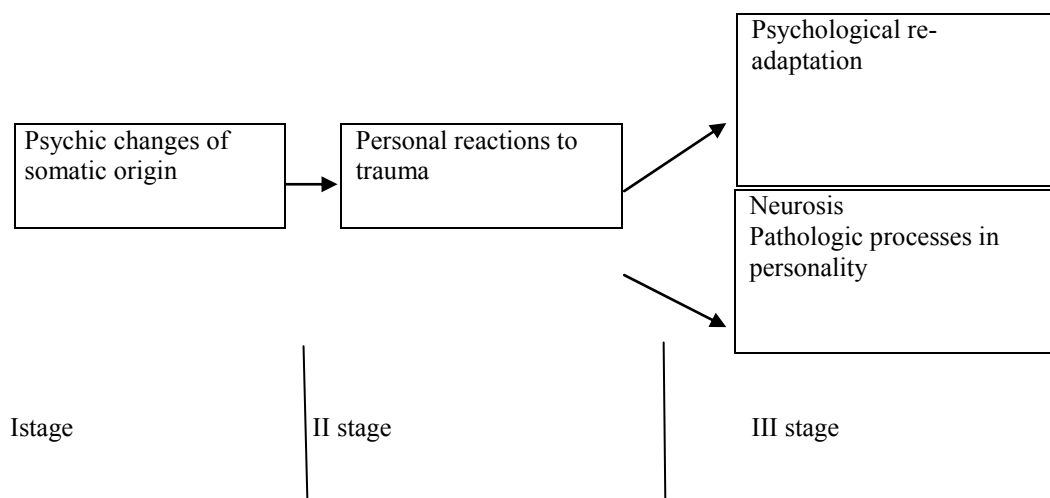
- after high by scope and intensity load it is purposeful to use, mainly, general means (for example sauna in combination with massage and water procedures, balneologic procedures);
- if, mainly, separate groups of muscles were loaded (for example muscles of upper and lower limbs, torso and so on) then application of "local" influences ( segmental-reflexive massage, point massage, vibration massage and etc.) in combination with local physio-therapy would be effective.

It is also necessary to consider that psychological factors significantly influence on many sides of medical-rehabilitation process and, in general, play a key role [4, 5, 7]. This is because they accelerate normal process of psychological re-adaptation to changed, as a result of trauma, life (sport) situation, ensure prophylaxis and treatment of progressing inter-personal changes, which are serious obstacle for sportsman's rehabilitation (see fig.1).

First stage is characterized by psychic changes of, mainly, somatic origin, when sportsman starts feeling anxiety, confusion, motion discomfort, disorders of sleep [15, 16, 17].

At the second stage forming of psychological reaction to trauma completes (2<sup>nd</sup>-3<sup>rd</sup> months of disease), which can be adequate and neurotic. As a criterion, distinguishing one type of psychological reaction from other, combination of behavior indicators can serve [18, 19, 20].

Usually, by 4<sup>th</sup> month since the beginning of traumatic disease reactions to damage of supporting motor system reduce nearly to zero. In dynamic of psychological state the third stage starts, when most of patients become psychologically re-adapt and psychological status of such patients practically does not differ from pre-morbid [21, 22, 23].



*Fig.1. Psychological changes at different stages of traumatic disease (I stage – 1<sup>st</sup> week, II stage – first 3 weeks, III stage – tardy period of disease) by V.A. Yepifanov, 2007*

It is necessary to note that a number of patients endure deepening, fixing and transformation of psychic changes in more steady disorders than on first stage of the disease: neurosis and pathologies of personality (hypochondria, depression). Dynamic of sportsmen's psychological status is influenced by three groups of factors: personal, somatic origin and environmental [7, 16, 20]. Just owing to this fact knowledge of sportsman personality's features permits to large extent to predict character, expressiveness and dynamic of neurotic changes with traumas of supporting motor system [12, 13, 14].

In certain cases it is necessary since the first days to carry psycho-prophylaxis in order to avoid undesirable psychic changes.

The system of stage-by stage psychological rehabilitation permits to prevent from progressing of psychopathologic changes, facilitates achieving of rehabilitation's final target – recreation of personality's and sport status of patient.

#### **Conclusions:**

1. Analysis and generalization of modern scientific-methodic literature permitted to determine directions of scientific researches, devoted to rehabilitation, prophylaxis and prevention from traumas of supporting motor system, in particular of sportsmen with MFPS.
2. Restoration of sportsman's physical and psychological potentials at high level is indicators of rehabilitation's effectiveness.
3. In this work we presented strategy of complex physical rehabilitation, considering main principles of rehabilitation of sportsmen with MFPS and psychological aspect of their rehabilitation.

The prospects of further researches are connected with improvement of psychological maintenance of workability rehabilitation program for sportsmen with MFPS, who specialize in arching and with timely implementation of such measures for prophylaxis of repeated traumatism.

## References

- 1 Valeev N.M. *Vosstanovlenie rabotosposobnosti sportsmenov posle travm oporno-dvigatel'nogo apparata* [Restoration of working capacity athletes after injuries of the musculoskeletal system], Moscow, Physical Culture and Sport, 2009, 304 p.
- 2 Epifanov V.A. *Vosstanovitel'naia medicina* [Regenerative medicine], GEOTAR Media Publ., 2013, 416 p.
- 3 Epifanov V.A. *Lechebnaia fizicheskaia kul'tura i massazh* [Therapeutic physical culture and Massage], GEOTAR Media Publ., 2014, 528 p.
- 4 Epifanov V.A. *Lechebnaia fizkul'tura i sportivnaia medicina* [Physiotherapy and sports medicine], 2007, 568 p.
- 5 Epifanov V.A., Epifanov A.V. *Reabilitaciia v nevrologii* [Rehabilitation in Neurology], GEOTAR Media Publ., 2014, 416 p.
- 6 Epifanov V.A. *Reabilitaciia v travmatologii* [Rehabilitation in traumatology], GEOTAR Media Publ., 2010, 336 p.
- 7 Mel'nikova E.A. *Vosstanovlenie rabotosposobnosti sportsmenov posle travm oporno-dvigatel'nogo apparata c ispol'zovaniem psikhologicheskogo soprovozhdeniia* [Restoration of working capacity athletes after injuries of the musculoskeletal system using c psychological support], Cand. Diss., Kiev, 2012, 224 p.
- 8 Osipova A. *Obshchaia psikhokorrekciiia* [Overall psychocorrection], Sphere Publ., 2008, 512 p.
- 9 Sokrut V.N. *Medicinskaia reabilitaciia v sporte* [Medical rehabilitation in sport], Donetsk, Chestnut, 2011, 620 p.
- 10 Trevell ZH.G., Simons D.G., Simons L.S. *Miofascial'nye boli i disfunkcii* [Myofascial pain and dysfunction], Moscow, Medicine, 2005, T.1, 1192 p.
- 11 Fergusson L.U. *Lechenie miofascial'noj boli* [Treatment of myofascial pain], Moscow, MEDpress-inform, 2008, 544 p.
- 12 Chang C-W., Chen Y-R., Chang K-F. Evidence of neuroaxonal degeneration in myofascial pain syndrome: A study of neuromuscular jitter by axonal microstimulation. *European Journal of Pain*. 2008, vol.12(8), pp. 1026-1030. doi:10.1016/j.ejpain.2008.01.012.
- 13 Gerwin R.D. Diagnosis of Myofascial Pain Syndrome. *Physical Medicine and Rehabilitation Clinics of North America*. 2014, vol.25(2), pp. 341-355. doi:10.1016/j.pmr.2014.01.011.
- 14 Giamberardino M.A., Affaitati G., Fabrizio A., Costantini R. Myofascial pain syndromes and their evaluation. *Best Practice & Research Clinical Rheumatology*. 2011, vol.25(2), pp. 185-198. doi:10.1016/j.berh.2011.01.002.
- 15 Kim D.S., Jeong T.Y., Kim Y-K., Chang W.H., Yoon J-G., Lee S.C. Usefulness of a myofascial trigger point injection for groin pain in patients with chronic prostatitis/chronic pelvic pain syndrome: a pilot study. *Archives of Physical Medicine and Rehabilitation*. 2013, vol.94(5), pp. 930-936. doi:10.1016/j.apmr.2012.12.011.
- 16 Sharan D., Jacob B.N., Ajeesh P.S., Bookout J.B., Barathur R.R. The effect of cetylated fatty esters and physical therapy on myofascial pain syndrome of the neck. *Journal of Bodywork and Movement Therapies*. 2011, vol.15(3), pp. 363-374. doi:10.1016/j.jbmt.2010.02.004.
- 17 Sharan D., Jacob B.N., Ajeesh P.S., Bookout J.B., Barathur R.R. The effect of cetylated fatty esters and physical therapy on myofascial pain syndrome of the neck. *Journal of Bodywork and Movement Therapies*. 2011, vol.15(3), pp. 363-374. doi:10.1016/j.jbmt.2010.02.004.

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## STRENGTH AND CONDITIONING PRACTICES OF IRAN Wrestling League STRENGTH AND CONDITIONING COACHES

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**Annotation.** *Purpose:* The purpose of this study describes the results of a survey of the practices of Iranian Wrestling League strength and conditioning (IWL S&C) coaches. *Material:* The response rate was 88.5% (100 of 113). The contents survey examines include: (a) background information, (b) physical testing, (c) flexibility development, (d) speed development, (e) plyometrics, (f) strength/power development, (g) unique aspects, and (h) comments from coaches providing additional information. *Results:* Results indicate, in part, that coaches assess an average of 7.3 parameters of fitness, with tests speed being the most common. All coaches used a variety of flexibility development strategies. Results reveal that all of IWL S&C coaches follow a periodization model. Speed as the first priority (100%) and muscular endurance, power and strength as second priority (97%) of importance in evaluating their athletes. Sixty-six percent coaches (66%) indicated that their athletes used Olympic-style lifts. All coaches employed plyometric exercises with their athletes. Ninety-two percent (92%) of the coaches reported that used plyometric trainings for increasing the speed of their wrestlers and 82% of the coaches used plyometric jump in place exercises as regular practice in their trainings. *Conclusions:* The squat and its variations, as well as the Olympic-style lifts and their variations, were the most frequently used exercises. The survey serves as a review and a source of applied information and new ideas.

**Keywords:** Periodization, speed, power, Plyometrics, flexibility, strength.

### Introduction

Since the beginning of time, wrestling has been one of the major physical activities of mankind. For certain, wrestling is one of the earliest recorded sports and it was one of the first sport disciplines to be included in the program of the ancient Olympic Games. Wrestling is the most popular sport in Iran with 37 medals in the Olympic Games and success reflects a deep-rooted connection to this sport among Iranians (25). Having only technical capacity and tactical qualification in practice level are not enough adequate to win the competition (10). Nowadays, the theory of wrestling, methods of training, biomechanics, physiology, assessment and evaluation of wrestling are considered as important factors for wrestlers in their preparation for competition (1). The use of physical fitness tests for the measurement of the current status of the wrestler can provide both the wrestler and coach with information relative to the wrestler's current physiologic capability and can allow them to compare that capacity with reference values from appropriate peer groups. Also, the assessment of current status reveals strengths and relative weaknesses and can become the basis for the development of an optimal training program (Mirzaei et al., 2009). A recent surveys the much resources are available have described the components of wrestling scientifically evaluated aspects physical conditioning (1, 3, 4, 15, 20, 25, 27, 30, 33, 34, 36, 37, 39, 40, 41, and 43), because one of the challenges confronting the coaches and sport scientists is to understand the physical and physiological factors contributing to successful wrestling (Mirzaei et al., 2009). Competitive wrestling activity is extremely dynamic in nature, encompassing repeated explosive movements at a high intensity that alternates with submaximal work (18). Surveys of strength and conditioning practices offer comprehensive information about the modalities of professional practices. Thus, coaches have access to a serviceable source of the collective ideas of others that they can use to compare with, and potentially incorporate into, their own practices. At this time, no similar source of information exists for strength and conditioning a study of training methods used by wrestling coaches. Surveys are an effective method of determining contemporary strength and conditioning practices. They have been used to examine strength and conditioning program of college (6, 7, 9, 10, 16, 23, 24, and 30) and professional (12, 13, 14, and 35) athletes and coaches. The responsibilities of the Iran wrestling league strength and conditioning (IWL S&C) coaches are many, including program design, exercise technique, organization and administration, and testing and evaluation. The purpose of this survey was to examine a variety of strength and conditioning practices and collective knowledge of IWL S&C coaches and describe the common and the unique strength and conditioning practices employed by these coaches.

### Methods

#### Experimental Approach to the Problem

We managed the professional sports survey, previously derived from studying of Simenz and dugan (35) that to provide comprehensive descriptive information about the practices of IWL S&C coaches and to extend previous surveys on the professional sports. This study was designed because of testing the hypothesis that IWL S&C coaches follow contemporary, scientifically based principles of strength and conditioning and that the majority of these coaches would be willing to share their ideas through this survey.

#### Survey

The survey, strength and conditioning practices of professional strength and conditioning coaches, was somewhat adjusted from that of Simenz and dugan (35) for this application. The original survey was pilot tested with an

advisory group of S&C coaches and exercise experts, particular in this field; furthermore, this survey composed mainly of 8 sections: background information, physical testing, flexibility development, speed development, plyometrics, strength/power development, unique aspects of the coaches' program, and comments, and was based on the national strength and conditioning Association's 1988 Role Deliniation Study (28). The survey compared all of the relevant obtained results with those of the previous professional sports surveys (12-14, 35).

### Data Collection

Participants in this study were defined as membership in the National Wrestling Federation (NWF). A listing in the NWF membership directory for Iranian coaches who were coaching as Iran Wrestling League coaches. After receiving approval from the NWF, the vast majority of survey in present study was conducted via face-to-face interviewing. We met all of S&C coaches; afterwards, for talking about introductory letter describing the project and they agreed to cooperate with us. At this audience we interviewed 100 coaches S&C for this survey. 113 IWL S&C coaches who were surveyed responded, Representing 30 of the provinces of the Iran (approximately in over the nationwide). Data were collected from October 2011 to August 2013. After completion of data collection and analysis, a report of survey findings was mailed to all IWL S&C coaches participating in the survey, and no coach or team name also was associated with any responses.

### Statistical Analyses

The survey contained fixed-response and open-ended questions. Answers to open-ended questions were content-analyzed according to methods described by Patton, 1990 (29), and previous related studies in other surveys of professional sports strength and conditioning practices (12, 13, 14, and 35). The responses of the coaches IWL S&C to questions are delineated as row data. Researchers were acquaintance with qualitative methods of sports science research and content analysis. During data analysis, three researchers evaluated and generated all the raw data and higher-order themes via independent, inductive content analysis for each research questions and compared independently generated themes until researchers consensus was reached at each level of analysis and then it best represented the raw data making summit the themes. At the point of development of higher-order themes, deductive analysis was used to confirm that all raw data themes were represented.

### Results

#### Background Information

The survey population was conducted on 100 of 113 (88.5%) IWL S&C coaches granted to the face-to-face or telephone interviewing survey. Thirteen IWL S&C coach indirectly pretexted to participate in this survey. Ten IWL S&C coach granted directly telephone interviewing survey to participate.

All of the coaches reported averaged 6.74 and 13.16 years in their present positions and profession, respectively. All of coaches also reported having an assistant and needed having assistants. More than half of the coaches (64%) had master's degrees.

#### Physical Testing

The allocation of the analysis fitness components was second section of this survey that assessed variables of physical testing. According to previous related studies (12, 13, 14, and 35), coaches were asked from the how often and what times of the year variables of athlete fitness were tested (Figure 1), what parameters of fitness were tested (Figure 2), and what specific tests were used. All of the IWL S&C coaches reported testing athletes. Coaches reported testing an average of 7.3 parameters of fitness using specific tests. Approximately half (51%) of the IWL S&C coaches who selected "other" reported in general preparation phase evaluated aerobic base, heavy resistance, flexibility and %body fat by 33 coaches, and early pre-season or off-season training are measuring and reserved for maximum muscular strength, was reported by 12 coaches, measuring pre-season and in-season body composition "weekly (weight)," "monthly (weight and body fat)" and "the in-season whenever possible situations," each of which was reported by 27, 17 and 11 coaches, respectively. Regarding which variables of physical fitness were measured and what specific tests were used, 97 IWL S&C coaches reported measuring muscular strength, muscular endurance and muscular power. Methods specific were used for muscular strength included the "upper back," and "bench presses," reported by 54 coaches; a (lower body) "leg squat test," reported by 53 coaches; a (lower body) "leg press," reported by 37 coaches; "1 repetition maximum (RM) bench/ deadlift/ squat," reported by 40 coaches; and reported by 15 coaches: "hand toes power test". 71 IWL S&C coaches who reported measuring muscular power, Methods specific were used for testing muscular power included a "satch press," 41 coaches tested the "vertical jump or jumping from a crouch," 65 coaches tested the "clean and Jerk," 36 coaches tested the "power cleans," other muscular power tests used included the "power ball toss," and (lower body) "load jump" tested by 5 coaches. 82 IWL S&C coaches who reported measuring muscular endurance, Methods specific were used for testing muscular strength included a "1 minute sit-up test," 68 coaches tested the "RMdips test," 43 coaches tested the "pull-up / chin up Test." Other tests for muscular endurance include the "push-up," "maximum bench press test," and "trunk lift test," "parallel Squats (max reps at 130% of body wt)," "rope climbs in 5 minutes (5m)," reported by 36, 21, 33, 30, and 32 coaches, respectively. Sixty-seven IWL S&C coaches tested acceleration using tests include a "40 yard dash test," reported by 59 coaches; and reported by 15 coaches testing a "20-m spring." All of the IWL S&C coaches tested for athlete speed. Methods used included a "36 meter sprint test" reported by 79 coaches; "50 meter sprint" reported by 27 caches. Other coaches reported various tests of 30-to 60 yard dash. Ninety-one IWL S&C coaches reported testing anaerobic capacity. Some of the tests revealed by coaches, include a "running- based anaerobic sprint test (RAST)," reported by 35 coaches; "800-m run," reported by 33 coaches tested. Other coaches reported various tests of "30-second Wingate test," and "400 m run," each report by 8 coaches. Fifty



IWL S&C coaches reported measuring body composition. 32 coaches used “skin calipers,” and reported testing “% body fat.” Seventy-one IWL S&C coaches stated that they measure agility. 37 coaches reported testing “zigzag run,” and “4×9 m run test,” report by 64 coaches. Other tests included a “test,” and “Illinois test,” each report by 2 coaches, and a “cone shuttle drill test” reported by 1 coach. Eighty-six IWL S&C coaches expressed that they measure flexibility. Methods included a “sit and reach test” reported by 67 coaches; “ankle extension test,” reported by 18 coaches; and testing “shoulder flexibility test,” reported by 2 coaches. Fifty-two IWL S&C coaches declared that they measured cardiovascular endurance. Methods used included a “2400 m cooper test,” reported by 39 coaches; “2 minute cooper test,” reported by 45 coaches; “Bruce test,” reported by 7 coaches; and 11 coaches using the “300 yard shuttle test.” Thirty-eight IWL S&C coaches said they measured anthropometric measurements on their wrestlers. Twenty coaches reported measuring “weight,” and 12 coaches reported indicated “% body fat,” “skinfolds and calipers.

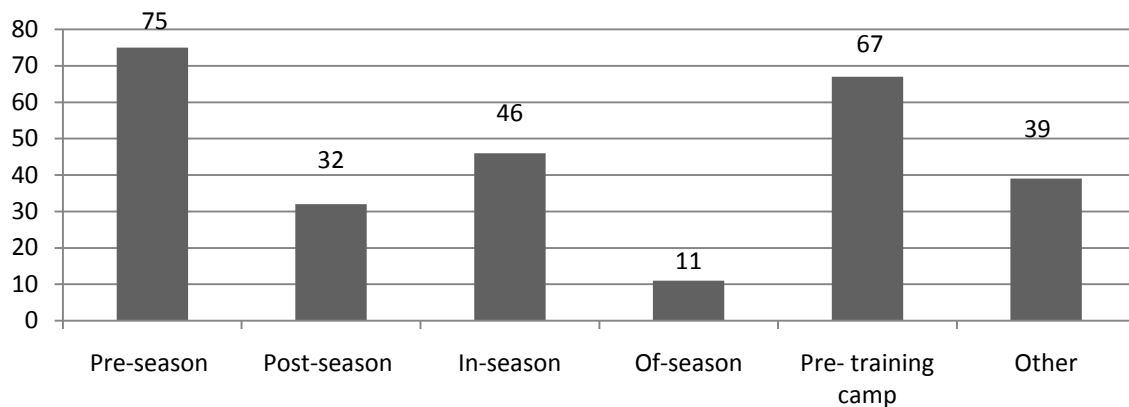


Figure 1. Times when variables of athlete fitness are formally measured.

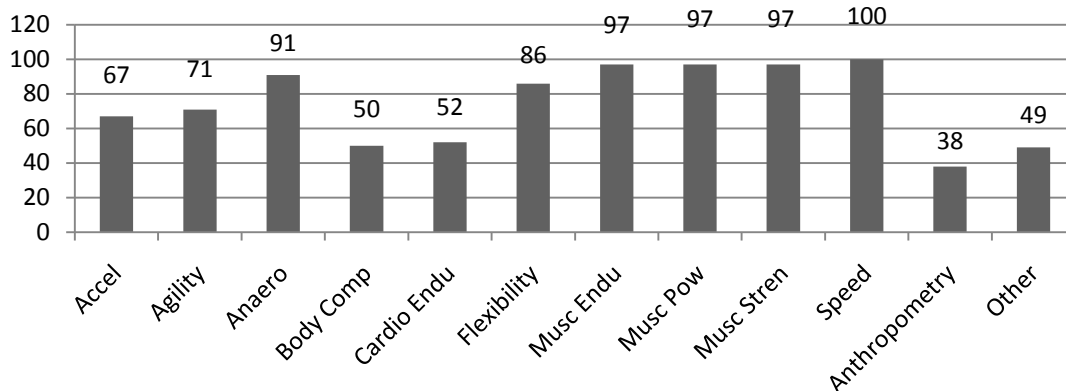


Figure 2. Variables of athlete fitness tested.

### Flexibility Development

The eighty-six of the 100 IWL S&C coaches all reported that their teams performed some type of flexibility training. Only six coaches of 86 coaches not indicated that their teams performed static stretching, while 30 coaches denoted that they employed dynamic stretching exercises. 13 coaches reported employed proprioceptive neuromuscular facilitation (PNF) stretching exercises. Coaches were inquired to indicate when athletes were encouraged or required to perform flexibility exercises (Figure 3), the duration of the typical flexibility session (Figure 4), and the duration that athletes were encouraged to hold a static stretch (Figure 5). Comments to this question included “flexibility development has negative effects on power athletes in competition,” “static stretching should be used to each after activities.” The mean average duration of the typical flexibility session was  $10.2 \pm 2.8$  minutes. The mean average duration an IWL athlete was encouraged to hold a static stretch was  $10.31 \pm 2.9$  seconds.

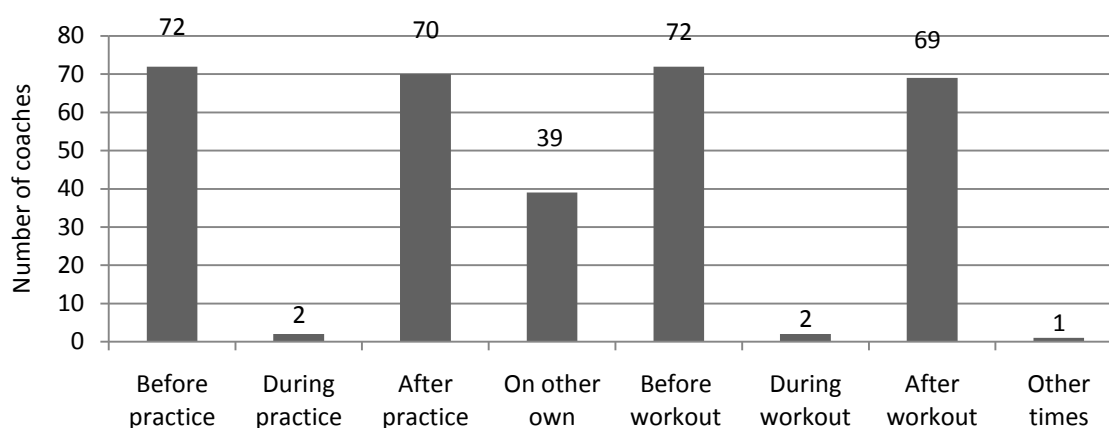


Figure 3. Times when athletes are encouraged or required to perform flexibility exercises.

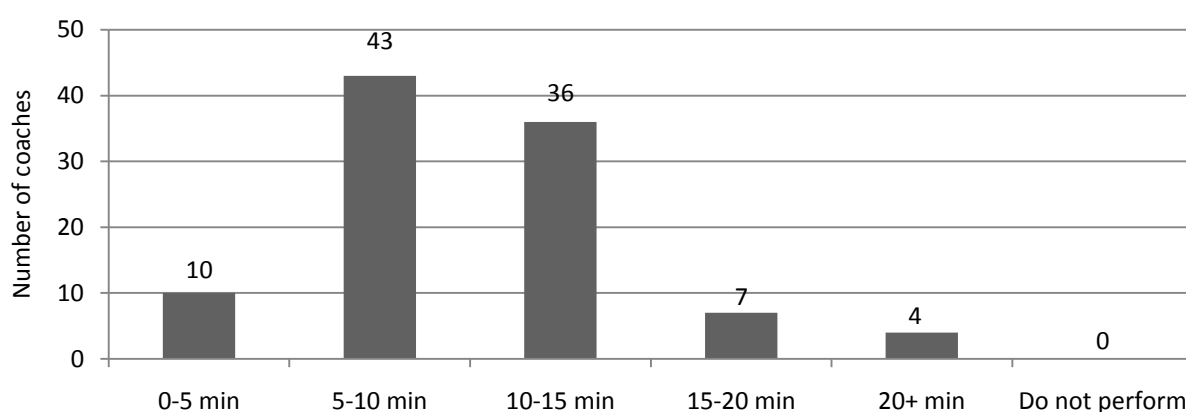


Figure 4. Length (in minutes) of flexibility development session.

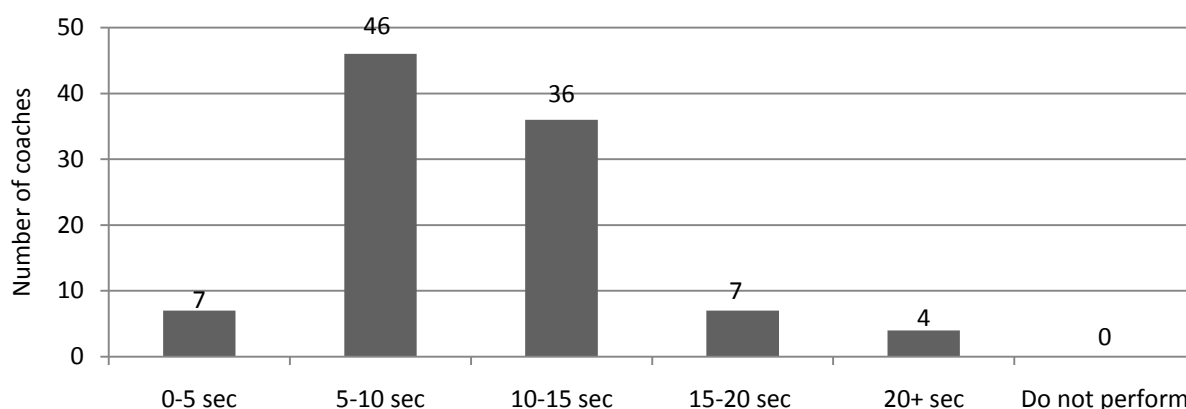


Figure 5. Amount of time (in seconds) athletes are encourage to hold a static stretch.

### Speed Development

All of (100%) IWL S&C coaches reported incorporating some type of a speed development exercise into their program (Figure 6). Ninety-two coaches reported using plyometrics training such as ~~Max~~ex drills; 1-3 set, 6-8 reps, 2-minute rest," to increase speed. Seventy-one coaches reported using over-speed running such as ~~downhill~~ running," and 69 coaches reported using form running such as ~~all~~ repetitions," ~~high~~ knee running or quick feet drill," ~~butt~~ kickers," and ~~tempo~~ run." Thirty-one coaches indicated using speed endurance workout such as ~~af~~tlek run," and ~~Interval~~ training." Twenty-four coaches reported using resisted running. Fourteen coaches responded to the ~~other~~" part indicating that they used ~~high~~ intensity shuttle run," ~~Tw~~ing methods," and ~~cross~~ drill." Results, also, clarified that 46 coaches inclined to employ speed development training year around.

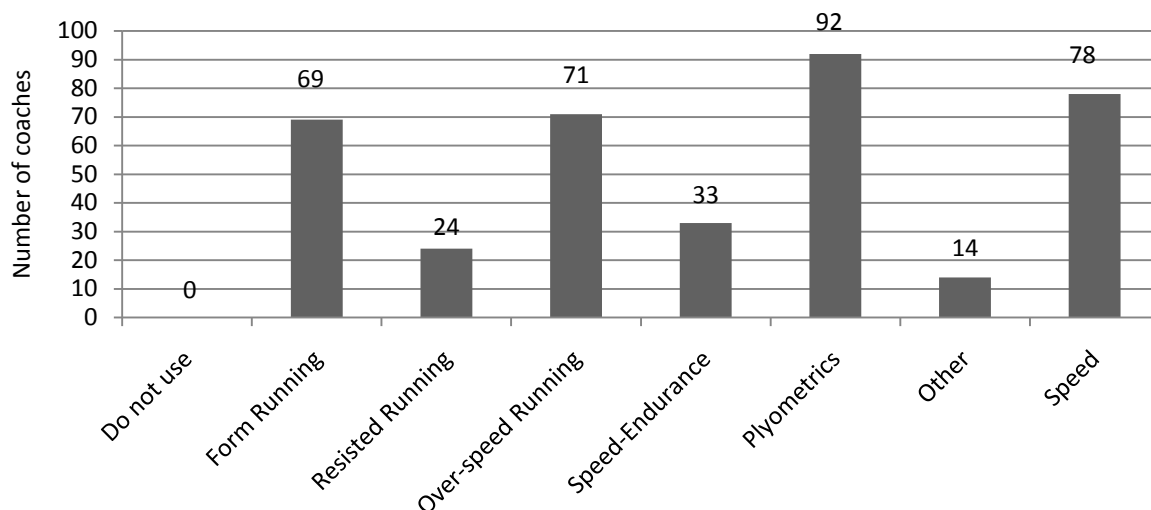


Figure 6. Used types of speed-development exercises

### Plyometrics

One-hundred of 100 (100%) IWL S&C coaches reported using plyometrics. All of coaches responded to this questions that how and when plyometric exercises are used and how they integrated plyometric training into the weight-training program (figures 7-9, respectively). Figure 10 describes identify the types of plyometric exercises regularly used in their program. Eighty coaches reported they used the types of plyometric training for speed development. Sixty-four reported they used plyometric training for upper body power. Moreover, fifty-four respond was added into comment that they employed plyometric training for lower body power. Thirty-four coaches reported they used plyometric training for improving vertical jump, and 31 stated they used plyometric training for total body training.

Sixty-four coaches reported they incorporated plyometric training year-round, and 52 reported they incorporated plyometric training during pre-training camp, 48 stated that they incorporated plyometric training during pre-season, and incorporated plyometric training during training camp, and 18 coaches incorporated plyometric training during post-season, and 16 coaches quoted using plyometric training during in-season. Comments made

By IWLS&C coaches concerning the stage, cycle, and Phase of plyometric training incorporation included: "urging athletes upon plyometric training during in-season made a mistake and may be result in excessive pressure on them," "off-season is the best time for this training."

Coaches were asked how they integrated plyometric training into the weight-training program (figure 9). Thirty-five coaches reported that they conducted plyometric training and weight-training workouts both on separate days and after the weight training on same day, and 16 responded that they performed plyometric training before the weight training on same day, and 14 coaches reported using complex training with plyometric training and weight training combined in the same workout. Comments included: "depending on time and opportunity, it was employed," "when we feel that progress is not good."

In response to the question about identify the types of plyometric exercises regularly used in their program (figure 10). Eighty-two coaches reported using jump in place plyometrics, 74 coaches used standing jumps plyometrics, 68 coaches used multiple hops or jumps, 66 coaches employed depth jumps, 65 coaches employed upper-body plyometrics, and 61 coaches indicated that they used box drills. Thirty coaches who responded "other" provided additional information about the types of plyometric exercises regularly used in their program, these responses included: "occasionally combined one or more type of plyometric with acrobatic movement," "squat jumps training," and "medicine ball training."

The last question in this section was estimate the annual number of injuries as a result of plyometric training.

Forty-one coaches reported seldom plyometric training injuries, and 20 coaches each responded (no & yes) plyometric training injuries.

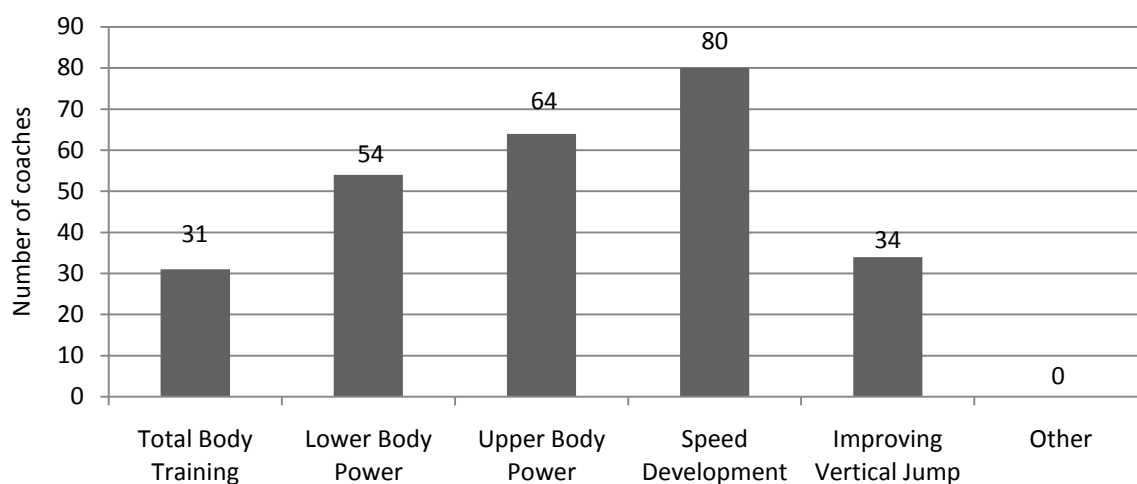


Figure 7. Types of plyometric training used.

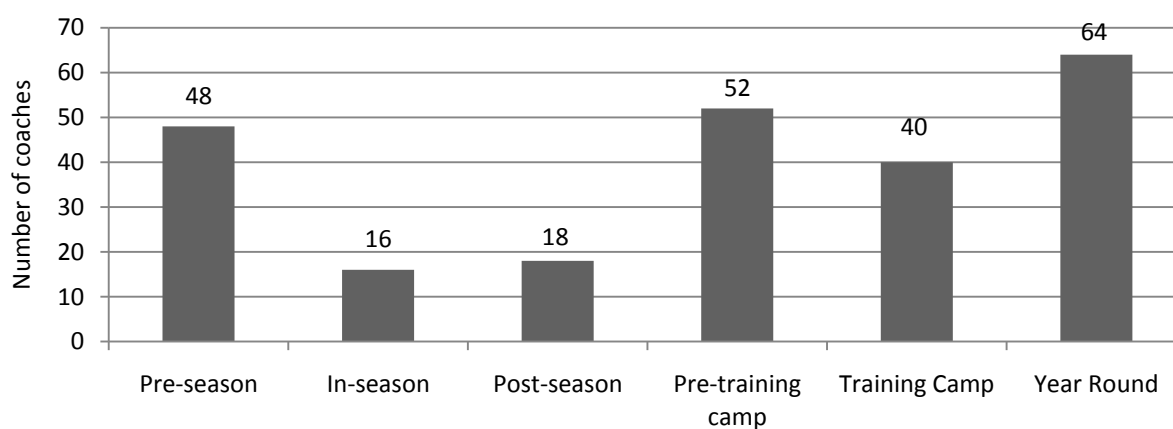


Figure 8. The stage, cycle, and phase of training in which Iran Wrestling League strength and conditioning coaches incorporate plyometric training.

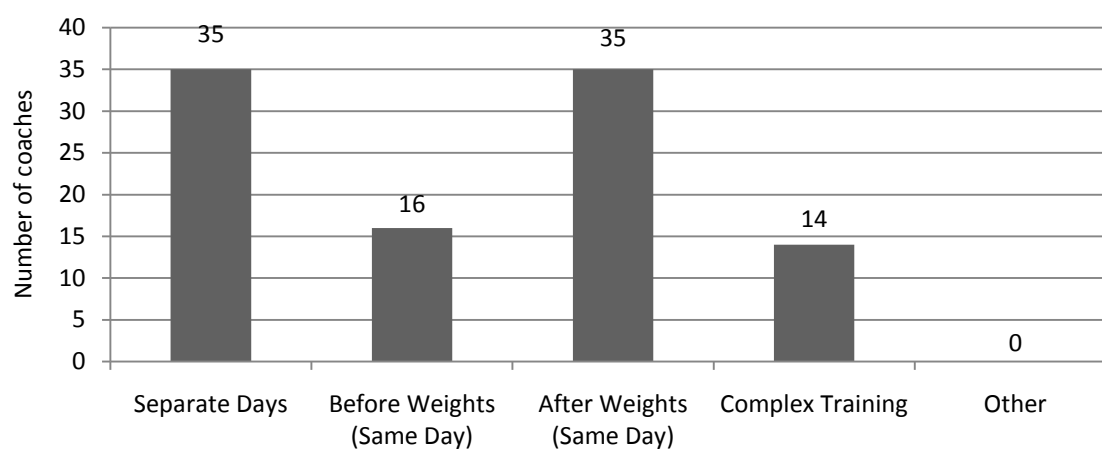


Figure 9. Method of integration for plyometric training and weight training.

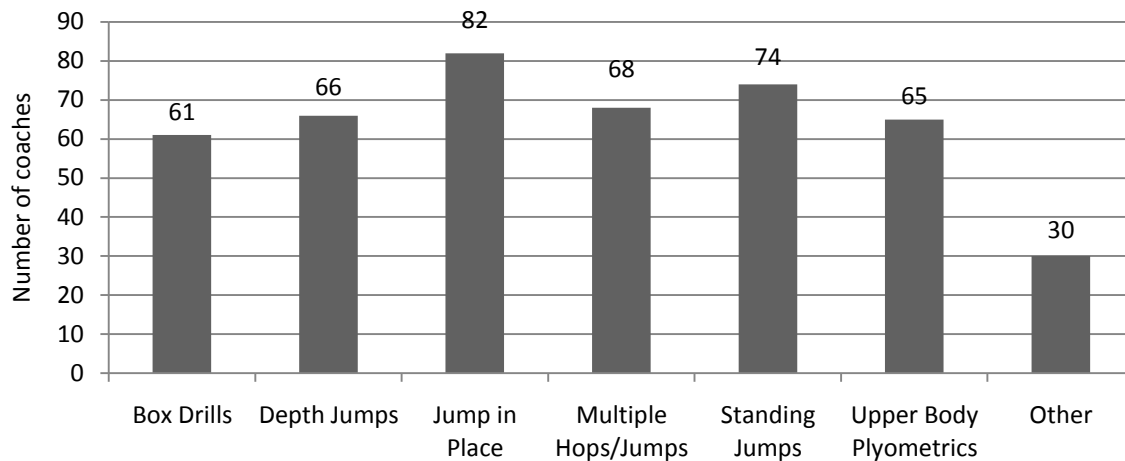


Figure 10. Plyometric exercises regularly employed.

### Strength/Power Development

The first question in this section was asked to determine the number of days per week that athletes participated in an off-season strength/power development program. Seventy coaches reported 3 days per week. Twenty-two coaches reported 2 days per week. The average of all the IWL S&C coaches' responses was 2.68 days per week. A comment of this question from 37 coaches was consisting of: "adequate power scale and conditioning wrestlers categorized how many days is enough for that." The subsequent question was the survey assessed the average length of these off-season resistance training workouts (figure 11). Forty two coaches reported that workouts were 45-60 minutes long, 23 reported that workouts lasted 30-45 minutes, 14 reported that workouts lasted 15-30 minutes, 12 reported that workouts lasted 0-15 minutes, and 9 reported that workouts lasted 60 minutes or longer. A comment of 28 coaches included: "maybe changed or not." In the third question were asked from coaches that how many days of the week their athletes participate in in-season strength/power development activities.

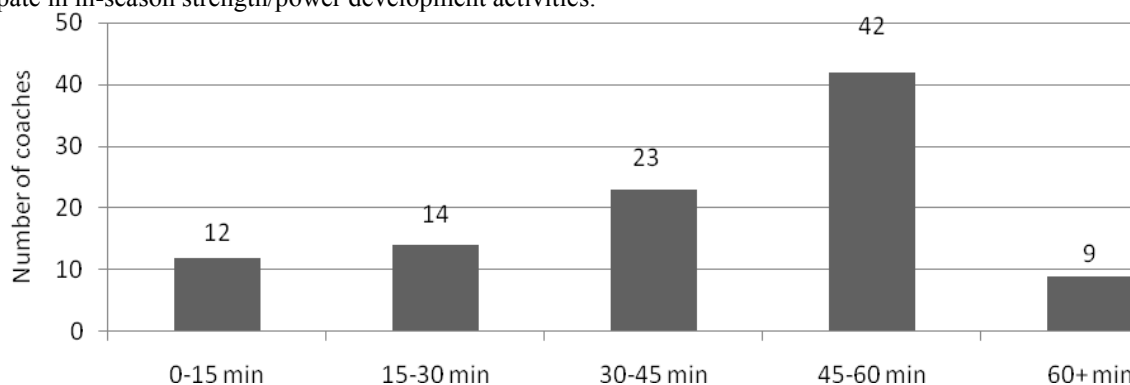


Figure 11. Average length of Iran Wrestling League strength and conditioning coaches off-season weightlifting workouts.

All of IWL S&C coaches responded the question. The average of all the IWL S&C coaches' responses was 1.89 days weight training per week of in-season training. 22 coaches made comment on question for example "I'd rather not employ or less intensity weight training in-season training." The fourth question evaluated the average duration of these in-season training workouts. Forty-seven coaches reported that workouts were 45-60 minutes long, 27 coaches reported that workouts lasted 30-45 minutes, 24 coaches reported that workouts lasted 15-30 minutes, and 2 coaches reported that workouts were 60 minutes or longer. The fifth question in the strength/power section of the survey asked IWL S&C coaches if they used Olympic style (weightlifting) exercises or their variations; 83 coaches reported they did, and 17 coaches endorsed "if we have the time."

Question six in this section of the survey asked whether coaches use of machines in training program. All but seventeen coaches reported seldom or no use of machines. Seventeen coaches' responses include: "lack equipment," "rehabilitation," and "the only for off-season."

Question 7 in the strength/power development asked IWL S&C coaches to identify, in order of importance, the 5 resistance-training exercises that were most important in their program. All of the coaches responded to this question. On the basis of these responses, sixty-two coaches reported that the squat or its variations were the most important exercises. Twenty-nine coaches reported that the Olympic lifts were most important exercises. Nine coaches each reported that other exercises were most important.

For the second most important exercises, 36 coaches identified ~~–squat~~” or ~~—squat~~ variations.” Thirty-five coaches indicated bench press were most important. Fifteen coaches reported that variations of the Olympic lifts were the second most important exercises. Fourteen coaches each identified different exercises as the second important exercises in their programs.

Twenty-eight coaches indicated that the Olympic lifts were the third most important exercise in their programs. Twenty-six coaches each indicated that ~~–bench~~ press.” Twenty-five coaches reported that the snatch press was important exercise. Twenty-one coaches reported 14 different exercises as the third most important in their programs.

The fourth most important exercise according to the coaches included Olympic lift variations, as indicated by 39 coaches, and bench press, indicated by 31 coaches. Seventeen coaches reported that squat variations were the fourth most important exercises. Thirteen coaches each identified different exercises as the fourth most important in their programs.

The fifth most important exercise according to the coaches included leg press, as indicated by 21 coaches. Sixty-six coaches each reported that ~~–deadlift~~,” ~~–power~~ and jerk,” ~~—lunge~~ variations,” ~~–pull-up~~,” and ~~–clean~~,” were the fifth most important exercises. Nineteen coaches each identified different exercises as the fifth most important in their programs.

The eighth question in this section assessed the IWL S&C coaches’ conceptualization of training, specifically inquiring about the use of a periodization model (PM), training phases, and cycles. Responses were content analyzed into 2 categories, including a periodization model and a non-periodization model (NPM). One-hundred of 100 (100%) coaches responded conceptualization training according to PM.

Coaches were also asked to in section; describe the name of training cycle, time of the year the training cycle is used, and the length of the training cycle. Table 1 presents higher-order themes, number of responses, and select raw data representing responses to these questions. Fifty-nine coaches indicated sport season, and 35 coaches described the length of training cycles as being between 2 and 8 weeks long.

The nine question in this section asked how coaches determined training loads. All of the coaches assign the training loads their athletes. Thirty-seven coaches observed that RM and 19 coaches monitored body weight in the training loads. Table 2 depicts summary coaches’ responses to this question.

Table 1.

*Conceptualization of training.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Sport season	59	Preparatory phase (general and specific), competitive (off and in-season), Transition, with tapering at training camp.
Physiological adaptations/cycles	35	Hypertrophy off-season (4 wks). Strength off, in-season (3, 9 wks). Power off, in-season (3, 9 wks). Transition (2 wks)
Annual	27	<del>–Year</del> round,” <del>–developing</del> a model plan based on yearly observations.”
Multi-cycles	11	Suggesting a monocycle is for novice athletes. Tricycles are recommended only for international athletes.
Miscellaneous	8	<del>–Same</del> exercises during the off-season switch to other exercises during the competitive season.”
No answer	31	

Table 2.

*Determination of training loads.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
%Repetition Maximum	37	Use the maximum weight lifted is recorded.
body weight	19	A fighter doesn't want to do so much weight, because it inhibits flexibility
progressive training	16	<del>–I</del> like use of FPLP (Flat pyramid loading pattern) method”
Miscellaneous	28	<del>–The</del> amount of overload should be enough for each exercise.”
No answer	-	

Question 10 in this section of the survey evaluated the number of sets and reps used in the off-season. Table 3 is described coaches’ responses to this question. Question 11 in this section of the survey evaluated the number of sets and reps used in the in-season. These responses to this question are depicted in table 4.

Table 3.

*Sets and repetitions used during off-season program.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Phase and cycle, Sets and repetition range	66	Start by 50% 1RM ,2–3 sets, 15–20 reps; hypertrophy 4 sets, 10 reps; basic strength 3-4 sets, 6-8 reps; strength/power 3–4 sets, 4-6 reps.
Conceptual reply	13	In off-season consists of high volume and low intensity training (weight 50-60% 1RM, 3-5 set; 10-15 reps).
No answer	21	

Table 4.

*Sets and repetitions used during in-season program.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Sets and repetition range	72	2-4 set, 4-6 reps; 2-3 set, 3 reps; 2 set, 1RM.
Conceptual reply	8	Depends on time competition, maintenance power and strength by higher intensity and lower volume.
No answer	20	

Table 5.

*Unique aspect of each IWL strength and conditioning program.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Assistance exercises	9	–We should recruit smaller muscle groups that can be incorporated into the routine. They can be useful for maintaining a balance.”
Program organization Specificity	9	Training load is dependent on the athlete's previous training history and athletes' readiness.
Rest Periods	8	–One minute is suggested for rest periods hypertrophy and rest periods of 3-5 minutes are also recommended for power training.”
Sport specific	6	–In my opinion, agility and speed training can also be integrated into the 2 – 3 day per week conditioning program in in-season such as dummy throw coefficient.”
Evaluation and testing	7	–Except physical fitness tests we need different tests to forecast athletes' performance,” —w should monitor how our players respond to challenges and difficult situations,” –Watching videotape can give we a fresh perspective on our wrestlers.”
Exercise Injuries	8	–We should be carful abrupt increase in frequency, intensity and duration of exercise, strength, contribute to injuries in athletes.”
Specific exercises listed	28	Wrestlers' get-ups with resistance 3 sets, 6 reps; Tennis Ball Drop; Power drop; Backward throw.
Miscellaneous	19	–Having a quick reaction time is important for evasion skills of the wrestlers.”
No reply	6	

### Unique Aspects of the Program

The last section of the survey depends on unique aspects of the IWL S&C programs. The first question in this section of the survey evaluated what they thought was unique about their program. Responses were content analyzed into 9 categories: (a) assistance exercises, (b) program organization Specificity, (c) rest Periods, (d) sport specific, (e) evaluation and testing, (f) exercise Injuries, (g) specific exercises listed, (h) miscellaneous, (i) no reply. Table 5 summarizes the coaches' responses to this question.

Question 2 in this section inquired what coaches would like to do differently with their strength and conditioning programs. Responses were analyzed into themes such as (a) equipment, budget, time, (b) change exercises, (c) no changes. These responses to this question are depicted in table 6.



Table 6.

*How IWL strength and conditioning coaches would change their programs.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Equipment, budget, time	73	Shortage (i.e., income, assistant, machine training, floor space, machine testing, time for weight training and develop cardiovascular system)
Change exercises	8	Despite shortages I incorporate technique movements with balance, power, strength, and speed.
No changes	7	–Types changing are risked for adaptation athletes”
No reply	12	

### Comments

The final section of the survey was designed to provide the coaches an opportunity to make comments. Seventy-one coaches filled out a variety of comments. These responses are depicted in table

Table 7.

*Comments.*

Higher-order themes	Number of responses	Select raw data representing responses to this question
Request for knowledge of the findings	21	–I would to seeing your results finding”
Thanks and appreciation	23	–Thank for your effort”
Forgive	9	–Sorry if not comprehensive data”
Miscellaneous	18	–This study is beneficial and much easier to create a program training”

### Discussion

This study is first extensive survey IWL S&C practices. The survey response rate 100 of 113 (88.5%) coaches is higher than response rates association with surveys of professional Basketball (69%), baseball (70%), hockey (77%) football and (87%) strength and conditioning coaches (12, 13,14, 35), and the response rates of college 29.7% (10), 42.7% (9), 59% (24), and 61.97% (7) strength and conditioning surveys. The higher than response rate was because of the use of interview face-to-face in coaches.

The coaches who responded to this survey averaged 13.16 years of experience, compared with the average experience of S&C coaches in the MLB (5.14 years), NHL (6.28 years), NFL (6.52 years), and the NBA (9.55 years) (12, 13, 14, 35). May be the longer than years of experience was because the coaches have mastered knowing how to preserve your athletes' confidence. Furthermore, each IWL S&C coaches have one assistant, which is further of reports by other S&C coaches (12, 13, 14, and 35).

All IWL S&C coaches reported testing athletes, results indicate, in part, that coaches assess an average of 7.3 parameters of fitness using 7.8 specific tests, which is similar to the NBA S&C coaches, who tested an average of 7.3 parameters of fitness using 7.8 specific tests (35), and in other surveys of professional S&C practices tested with 3.7-10.0 specific tests (12-14). Similar to survey HS S&C (10) and unlike previous surveys of professional S&C practices (12-14, 35), majority IWL S&C coaches reported testing speed.

Majority of the IWL S&C coaches employed static stretching (80%), whereas 63% these coaches used dynamic stretching, which is very close to that professional S&C practices (12-14, 35), but unlike HS S&C practice; 95% HS S&C coaches used dynamic stretching. In fact recent research suggests that static stretching may not be beneficial before training or athletic performance (44, 45). Dynamic stretching seems to be more appropriate as part of the warm up (23). All IWL S&C coaches trained athletes for speed development, resembling their MLB (30 of 30) and NBA (16 of 20), but is dissimilar to NHL (7 of 23) and NFL (9 of 26) counterparts. Sixty-seven of IWL coaches tested athletes for acceleration, this is greater what were tested by coaches in any of the professional sports previously assessed (12-14, 35). Conversely, body composition was the variable of athlete fitness least tested by IWL S&C coaches (50%), which is less than the NBA (95%) (35), the NHL (87%) (12) and the NFL (77%) (13). More IWL coaches tested muscular (power, strength, endurance), which is consistent with existing literature relating to the large anaerobic and strength/power components needed for wrestling performance, or maybe were because of the using explosive techniques, short duration, high-intensity intermittent exercise lasting a total duration of 6 minutes (3 2-min bouts) (8, 25), which is very close to the NHL S&C practices (12). All NHL coaches reported for strength and (19 of 23) coaches tested power. Response rate by IWL coaches was alike the NBA coaches (35). All IWL S&C coaches similar to NBA S&C coaches (35) and HS S&C coaches (10) used plyometrics with their athletes; also this finding is slightly greater in previous surveys of college and professional sports including MLB (95.2%), NHL (91.3%), Division I (90%), and NFL (73%)(12, 13, 14, 24 and 35).

Regarding program design, the average frequency of the IWL coaches' off-season and in-season training program was 2.68 and 1.89 days a week, respectively, which are less than the previous surveys collage and professional

S&C exercises (12-14, 24, 35). A number of coaches commented that they had many training program with superabundant shortage (i.e., assistant, machine training, floor space, machine testing) and little contact time with players during the season in the road. More (83%) of the IWL coaches used Olympic-style weightlifting, this present finding is less than the NHL (100%), HS (97%), NBA (95%), NFL (88%) and Division I (85%); but is greater in contrast to 24% MLB. It seems that for some strength coaches they are the way to go and that for others they are irrelevant and a waste of time. According to reported by IWL coaches, variations squats and Olympic lifts were most important exercises very close to previously surveys professional S&C coaches.

All of the IWL coaches utilized a PM in their programs, compared with 94.7% in the HS, 91.3% in the NHL, 85% in the NBA, and 69% in the NFL (10, 12, 13, 14, 24 and 35).

The practices of IWL S&C coaches are correspond with surveys NBA and NHL practices in aspects: plyometrics, flexibility, infrequent injuries, speed development, periodization and Olympic lifting. Differences include conceptualization of training and testing. The IWL S&C coaches none claimed to use nonperiodized programming, which is contrast with NFL S&C coaches (12, 13, and 35).

### Practical applications

This article gives an account of the practices of IWL S&C coaches until will be found in agreement method. Based on the results of the aforementioned studies, Iran wrestling league coaches and the coaches at all levels can use source of data describing wrestling strength and conditioning practices, also can utilize it as a benchmark of strength and conditioning practices and a potential source of new ideas for enhance their programs.

### References

1. Arabaci R., Cankaya C. The effect of seasonal training program on some physiological parameters among cadet and junior wrestlers. *International Journal of Human Science*. 2008, vol.6(4), pp. 1-4.
2. Buford T.W., Rossi S.J., Smith D.B. The effect of a competitive Wrestling season on body weight, hydration and muscular performance in collegiate wrestlers. *Journal of strength and Conditioning Research*. 2006, vol.20(3), pp. 689-692.
3. Buford T.W., Smith D.B. Seasonal changes of Body Mass, Body Composition, and Muscular Performance in Collegiate Wrestlers. *International Journal of Sports Physiology and Performance*. 2008, vol.3, pp. 176-184.
4. Callan S.D., Brunner D.M., Devolve K.I., Mulligan S.E., Hesson J., Wilber R.L. Physiological profiles of elite freestyle wrestlers. *Journal of Strength and Conditioning Research*. 2000, vol.14, pp. 162-169.
5. Cisa, C.J., Johanson S. Pre season body composition built and strength predictors of high school wrestling success. *Journal of Applied Sport Science Research*, 1987, vol.1, pp. 66-70.
6. Christian V.K., Seymour J. Specific power adaptations relative to strength: power training. *Journal of Strength & Conditioning Research*. 1985, vol.7(1), pp. 32-34.
7. Craft J. Football core exercises of selected universities. *Journal of Strength & Conditioning Research*. 1992, vol.14(5), pp. 13-16.
8. Cipriano N. A technical-tactical analysis of freestyle wrestling. *Journal of Strength & Conditioning Research*. 1993, vol.7, pp. 133-140.
9. Durell D.L., Pujol T.J., Barnes J.T. A survey of the scientific data and training methods utilized by collegiate strength and conditioning coaches. *Journal of Strength & Conditioning Research*. 2003, vol.17, pp. 368-373.
10. Duehring, MD, Feldmann, CR, and Ebben, WP. Strength and conditioning practices of United States high school strength and conditioning coaches. *Journal of Strength & Conditioning Research*. 2009, vol.23(8), pp. 2188-2203.
11. Duncan M.J., Hankey J. Concurrent validity of the backwards overhead medicine ball throw as a test of explosive power in adolescents. *Medicine in Sport*. 2010, vol.14(3), pp. 102-107.
12. Ebben W.P., Carroll R., Simenz C. Strength and Conditioning Practices of National Hockey League Strength and Conditioning Coaches. *Journal of Strength & Conditioning Research*. 2004, vol.18, pp. 889-897.
13. Ebben W.P., Blackard D.O. Strength and Conditioning Practices of National Football League Strength and Conditioning Coaches. *Journal of Strength & Conditioning Research*. 2001, vol.15, pp. 48-58.
14. Ebben William P., Hintz Marilyn J., Simenz Christofer J. *Strength and Conditioning Practices of Major League Baseball Strength and Conditioning Coaches*. 2005, 160 p.
15. Ecerson J., Johanson D. Changes in body composition, strength and muscular power in high school wrestlers. *Pediatric exercise science*. 1998, vol.1, pp. 39 - 52.
16. Forti D.S. *The study of off-season football strength and conditioning programs at selected major colleges*. Eugene, Oregon: Microfilm Publications, University of Oregon, 1984, 200 p.
17. Gibala M.J., Little J.P., Essen M.V., Wilkin G.P., Burgomaster K.A., Safdar A. Short-term sprint interval versus traditional endurance training: similar initial adaptations in human skeletal muscle and exercise performance. *Journal of Physiology*. 2006, vol.575, pp. 901-911.
18. Horswill C.A. Applied physiology of amateur wrestling. *Sports Medicine*. 1992, vol.14, pp. 114-143.
19. Horswill C.A., Galea P. Comparison of maximum aerobic power, maximum anaerobic power, and skinfold thickness of elite and none lite junior wrestlers. *International journal of Sports Medicine*. 1989, vol.10, pp. 165-168.
20. James N. Roemmich, Sinning W.E. Weight lose and wrestling Training: effects on nutrition growth, maturation, body composition and strength. *Journal of Applied Physiology*. 1997, vol.82(6), pp. 1751-1759.
21. Kelly J.M, Gorni B.A. The effects of collegiate wrestling season on body composition, cardiovascular fitness and muscular strength and endurance. *Medicine & Science in Sports*. 1978, vol.10(2), pp. 119-24.
22. Kraemer W.J. A series of studies—the physiological basis for strength training in American football: Fact over philosophy. *Journal of Strength & Conditioning Research*. 1997, vol.11, pp. 131-142.
23. McMillian D.J., Moore J.H., Hatler B.S., Taylor D.C. Dynamic vs, static stretching warm up: The effect power and agility performance. *Journal of Strength & Conditioning Research*. 2006, vol.20, pp. 492-498.

24. McClellan T., Stone W.J. A survey of football strength and conditioning programs for Division I NCAA universities. *Journal of Strength & Conditioning Research*. 1986, vol.8(2), pp. 34-36.
25. Mirzaei B., Curby D.G., Rahmani-Nia F., Moghadasi M. Physiological profile of elite Iranian junior freestyle wrestlers. *Journal of Strength & Conditioning Research*. 2009, vol.23(8), pp. 2339-2344.
26. Mirzaei B., Curby D.G., Rahmani-Nia, Lotfi N. *The relationship between flexibility, speed and agility measures of successful wrestlers*. Kinaithropometry. UK(Inpress) 2011, 168 p.
27. Mirzaei B., Curby D.G., Lotfi N. Physical fitness measuring of cadet wrestlers. *International journal of wrestling and science*. 2011, vol.1(1), pp. 53-56
28. National strength and conditioning association. *1988 Role Delineation Study*. Raleigh: Columbia Assessment Services, Inc. 1988. 60 p.
29. Patton M.Q. *Qualitative evaluation and research methods*. Newbury Park, CA: Sage Publications. 1990. 216 p.
30. Pullo F.M. A profile of NCAA Division I strength and conditioning coaches. *Journal of Applied Sport Science Research*. 1992, vol.6, pp. 55-62.
31. Roemmich J.N., Frappier J.P. Physiological determination of wrestling success in high school athletes. *Pediatric exercise science*, 1993, vol.5(2), pp. 134-144.
32. Roemmich J.N., Sinning W.E. Sport-Seasonal Changes in Body Composition, Growth, Power and Strength of Adolescent Wrestlers. *International Journal of Sports Medicine*. 1996, vol.17(2), pp. 92-99.
33. Sharratt M.T., Taylor A.W., Song T.M.K. physiological profile of elite Canadian Freestyle wrestlers. *Canadian journal of applied sport sciences*. 1986, vol.11(2), pp. 100-5.
34. Shriver L.H., Betts M.E. Changes in bodyweight, body composition, and eating attitudes in high school wrestlers. *International Journal of Sport Nutrition and Exercise Metabolism*. 1986, vol.19, pp. 424-432.
35. Simenz C.J., Dugan C.A., Ebben W.P. Strength and Conditioning Practices of National Basketball Association Strength Coaches. *Journal of Strength & Conditioning Research*. 2005, vol.19(3), pp. 495-504.
36. Song T.M.K., Garvie G.T. Anthropometric, flexibility, strength and physiological measures of Canadian wrestlers and comparison of Canadian and Japanese Olympic wrestlers. *Canadian journal of applied sport sciences*. 1980, vol.5, pp. 1-8.
37. Stine G., Ratliff R., Shirman L. Physical profile of wrestler al the NCAA champion ships. *Journal of Sports Medicine and Physical Fitness*. 1998, vol.1, pp. 135-138.
38. Sutherland T.M., Wiley J.P. Survey of Strength and Conditioning Services for Professional Athletes in Four Sports. *Journal of Strength & Conditioning Research*. 1997, vol.11, pp. 266-268.
39. Terbizan D.T., Seljevoel P.J. Physiological profile of age-group wrestling. *Journal of sport medicine and physical fitness*. 1996, vol.36(3), pp. 178-85.
40. Terry H., Glen G. Influences of Body-Size Variables on Age-Related Increases in Isokinetic Peak Torque in Young Wrestlers. *Medicine & Science in Sports & Exercise*. 2010, vol. 24(9), pp. 2358-2365.
41. Vardar S.A., Tezel S., Ozturk L., Kaya O. The relationship between body composition and anaerobic performance of elite young wrestlers. *Journal of Sports Science and Medicine*. 2007, vol.6, pp. 34-38.
42. Whitley J.D, Montana L. Relation between reaction time and movement time in college wrestlers. *Perceptual and motor skills*. 1992, vol.1, pp. 171-176.
43. Yoon J. Physiological profile of elite senior wrestlers. *Sports Medicine*. 2002, vol.32, pp. 225- 233.
44. Marek S.M., Cramer J.T., Fincher A.L. Acute effects of static and proprioceptive neuromuscular facilitation stretching on muscle strength and power output. *Journal of Athletic Training*. 2005, vol.40, pp. 94-103.
45. Carmer J.T., Housh T.J., Weir J.P. The acute effects of static stretching on peak torque, mean power output, electromyography, and mechanomyography. *European Journal of Applied Physiology*. 2005, vol.93, pp. 530-539.

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## THE CORRELATIONS AMONG THE COMPLEX OF SPINE-PELVIS TRAITS AND THE FEET TRAITS IN BOYS AGED 4 TO 6 YEARS

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**Annotation.** *Purpose:* Early diagnosis is one of meaningful elements of prevention and treatment of postural defects. The objective of the study was an attempt to determine the correlations among the spine – pelvis traits and the feet traits in the population of boys aged 4 to 6 years living in rural areas and cities. *Material and method:* The study group covered 1506 boys aged 4 to 6 years. The measurement of 104 traits of the spine-pelvis and feet complex was conducted by means of the projection Moiré method for computer-based examination of body posture. *Results:* there is not much publications on the influence and correlations between the complex of the pelvis-spine traits and the feet traits. There is a correlation between the forming foot type and formation of the spine. The proposed Steinmetz suggestion assuming that if the spine can be corrected with the foot then the foot can be corrected by means of the spine, raises a number of doubts. The author emphasizes the meaning of wearing corrective footwear since proper foot positioning provided by special shoes cannot be the cause of spinal deformities. *Conclusions:* The spine-pelvis trait in the population of boys most frequently revealing significant influence on the feet traits is the height and depth of thoracic kyphosis. The foot trait among the population of boys living in cities most frequently revealing significant influence on the spine-pelvis traits was the value of the right foot length. In the rural population significant influence on the spine-pelvis traits was revealed by: the length and height of the fifth longitudinal arch of the left foot.

**Keywords:** spine, pelvis, foot, boys, prevention, treatment.

### Introduction

The percentage of postural deformities and mistakes observed in Polish society is different and it varies depending on sex, age and region [12, 13, 11, 10]. Relevant Polish literature provides numerous papers on the assessment of postural conditions in children and youth across different age groups as well as the range of analyzed features [20, 2, 6, 1, 15, 7, 14, 3]. Particularly concerning seem to be all spatial asymmetries within the spine-pelvis traits as the human body functions most effectively only when the position of all body segments in relation to one another is correct in terms of biomechanics. If only one of these segments is asymmetric, the upper and lower parts try to compensate for it [18,17]. Current development needs can be identified, among other things, by: assessing the development proportionality concerning certain traits of the body structure and the aspects of physical fitness as well as a general orthopedic examination as prevention of postural defects. The purpose of such an activity is to identify “the weakest link” within body structures and functions, namely, to search for an element whose development should be stimulated in the near future by making it easier for the body to achieve the dynamic balance in accordance with body kinetics and dynamics – being equivalent to increasing the health potential. A foot may be such a primary link.

Identifying the occurrence of a parallel process of progression or regression of the values related to selected traits of spine-pelvis and feet, does not necessarily need to mean coexistence or interdependence. Coexistence in time when the research is conducted every few years, months or even weeks may be just coexistence, but it may also be interdependence. The period of time from providing a stimulus to displaying an effect will be here a determinant. If this effect was immediate it would be sufficient to measure the traits selected for the purpose of the study before providing a stimulus and after the lapse of such a short time, assuming that all other properties have not been modified. This requires a carefully planned experiment though, which seems to be impossible in anthropology, especially in the situation where the object of observation is a human being. For the purpose of the study it was assumed that the causes are homogeneous whereas the effect depends on the cause because all respondents came from the same region of Poland and there were six editions of the study each of which took half a year. Additionally, it was assumed that body height is modified by background and lifestyle. However, body height, as a result of an integrating role of human body, is connected with bone structure, body mass and the composition of body tissues, among other things. Modifications of each of these elements will exert influence on the structure of the skeletal system and therefore, on the biodynamic relations within the skeletal system elements. However, analyzing only the correlations among individual parts in the same subjects living in the same area and using only correlation methods, we will obtain only the scale of interdependence which does not determine whether it is coexistence or the cause and effect relationship. Only in-depth statistical analysis and biomechanical knowledge displayed by the researcher will allow one to recognize whether it is coexistence or interdependence.

The objective of the study was determination of the correlations among the spine – pelvis traits and the feet traits in the population of boys aged 4 to 6 years.

## Methodology

The study was conducted in randomly chosen kindergartens in rural areas and cities of the Region of Warmia and Mazury and the Region of Pomorze upon obtaining permission from the Bioethics Commission, the Education Office in Olsztyn, the director of the kindergarten, the teacher in charge of a given kindergarten unit, the parent and the child. The general criteria for a child to be qualified for the study were to identify during the study a required number of similar body postures in healthy children. The study group covered 1506 boys aged 4 to 6 years. Respondents living in cities constituted 48.27 % (727 boys) of the study group, while inhabitants of rural areas – 51.72 % (779 boys). Observation concerned 104 traits of the spine-pelvis and feet complex across particular age groups. For this purpose there was used the projection Moiré method for computer-based examination of body posture. Research methods and techniques were consistent with the assumed principles [9].

## Statistical methods

Measurement results concerning boys aged from 4 to 6 years gathered during six half year editions were subjected to statistical analysis. Due to extensive research material there were determined the values of order statistics (arithmetic mean, quartiles), distribution of traits (standard deviation) and symmetry indicators (asymmetry index, concentration index) providing an overview of the analyzed traits considering age groups and the sex. For selected 104 traits the analysis concerned the significance of changes within mean values over subsequent years within one sex, correlation and multiple regression to determine correlations among the feet traits and a complex of the spine-pelvis traits. The relationships between the spine and pelvis traits and the feet traits were determined based on linear regression analysis. The selection of significant spine and pelvis traits was conducted by means of the backward method using t-Student and F-Snedecor tests.

## Research results

### Correlations among the complex of the spine-pelvis traits and the feet traits

#### Boys living in cities

The spine-pelvis traits which most frequently revealed a significant relationship with the feet traits included (in descending order): the height and depth of thoracic kyphosis, less frequently: the value of maximum deflection of spinous process line, asymmetry value, scapula height, less frequently: the width of asymmetric trunk triangles (when the left one is wider), Figure 1.

The spine-pelvis traits most frequently revealed a significant correlation with feet traits (in descending order): the length of the right foot and the height of the second longitudinal arch of the right foot, less frequently the height of the fourth longitudinal arch of the left foot, less frequently the height of the third one of the right foot and the height of the fifth arch of the left foot.

As far as the analyzed traits in the sagittal plane are concerned, significant correlations with the feet traits were most frequently displayed by: the height of thoracic kyphosis which affected: the value of toe 5 varus deformity and the transverse arch of both feet, the length and width as well as the height of the fifth arch of the right foot and the fourth one of the left foot. Less frequently with the depth of thoracic kyphosis which affected the length of both feet, the value of toe 5 varus deformity, transverse arch and length of the second and the width of the third longitudinal arch of the left foot, the surface of plantokonturogram and the height of the fifth arch of the right foot.

As far as the analyzed traits in the frontal plane are concerned, significant correlations with the feet traits were most frequently displayed by: the value of scapula height asymmetry which significantly affected the length of the second, the height of the fifth and the width of the fourth longitudinal arch of the left foot, the length of the third, the height of the second and third arch of the right foot. Less frequently the value of maximum deflection of spinous process line which affected the width of the second longitudinal arch of the right foot and the first one of the left foot, the length and height of the fourth arch, the width and surface of plantokonturogram of the left foot. Less frequently the value of asymmetric trunk triangles (when the left one is wider) which affected the width of the first and fourth longitudinal arch of the right foot, the height of the fifth and the width of the fourth arch of the left foot.

As regards the analyzed traits in the transverse plane, significant correlations with the feet traits were most frequently displayed by: the value of scapula projection asymmetry (when the left scapula is more protruding) affecting the transverse arch, the height of the second longitudinal arch and the width of the right foot.

#### Boys living in rural areas

The spine-pelvis traits most frequently revealing significant correlations with the feet traits included (in descending order): the height of thoracic kyphosis, the left pelvic tilt angle, less frequently: the length of thoracic kyphosis, less frequently the angle of trunk flexion to the right, the value of scapula projection asymmetry, Figure 1.

The spine-pelvis traits most frequently revealed a significant correlation with the feet traits (in descending order): the width of the first longitudinal arch of the right foot, less frequently the value of the transverse arch of the left foot, less frequently the width of the third longitudinal arch of the left and right foot.

As far as the analyzed traits in the sagittal plane are concerned, significant correlations among the feet traits were most frequently displayed by: the height of thoracic kyphosis affecting the length and height of the fifth, the width of the first and third longitudinal arch of the right foot, the height of the fifth arch and the width of the third arch of the left foot. Less often the length of thoracic kyphosis affecting the transverse arch of the left foot, the length of the third arch of the right foot, the height of the first and fifth arch and the width of the third arch of the left foot.

As far as the analyzed traits in the frontal plane are concerned, significant correlations among the feet traits were most frequently displayed by: the pelvic tilt angle which significantly affected the length of the second, third and



fifth longitudinal arch of the left foot, the width of the third and fifth longitudinal arch of the right foot. Less frequently the angle of trunk flexion to the right significantly affected the width and transverse arch of both feet.

As regards the analyzed traits in the transverse plane, significant correlations among the feet traits were most frequently displayed by: the value of scapula projection asymmetry affecting the width of the first and fifth longitudinal arch of the right foot as well as the width of the second and third arch of the left foot.

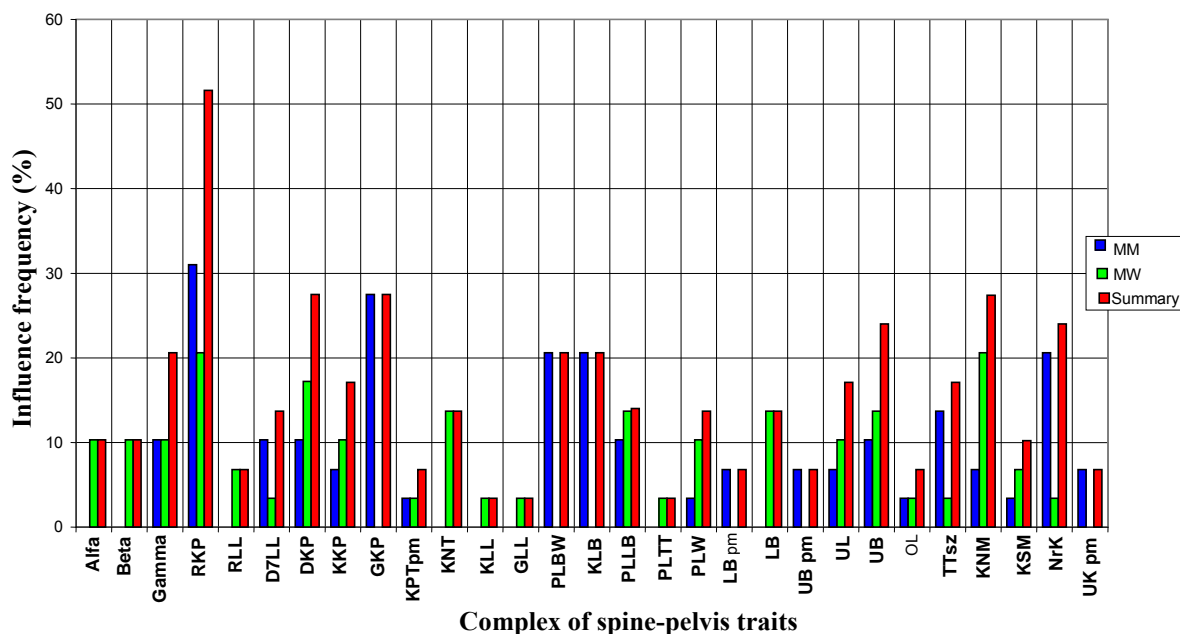


Fig. 1 Percentage of significant correlations among the complex of the spine-pelvis traits and the feet traits in the population of boys aged 4 to 6 years from rural areas and cities (n) MM=727, MW=779

### The correlations between the feet traits and the complex of the pelvis-spine traits

Boys living in cities.

The feet traits most often revealing a significant correlation with the complex of the spine-pelvic traits were displayed by (in descending order): the length of the right foot, the value of toe 5 varus deformity on the right foot, less frequently the length of the fifth longitudinal arch of the left foot, the height of the first and second longitudinal arch of the right foot, the width of the fourth and fifth longitudinal arch of the left foot, Figure 2.

The feet traits most frequently displayed a correlation with (in descending order): the value of asymmetry in the width of trunk triangles when the right triangle was wider, the value of scapula height asymmetry when the right scapula was in a higher position, the height of the right scapula angle, the thoracic-lumbar spine angle and the depth of thoracic kyphosis.

As far as the analyzed traits of the left foot are concerned, significant correlations with the complex of the spine-pelvis traits were most frequently displayed by: the value of plantokonturogram surface which affected the thoracic-lumbar spine angle, lumbar lordosis length, the value of the right lower scapula angle, height asymmetry of the lower scapula angles (when the right one is in higher position), the value of maximum deflection of spinous process line and trunk flexion angle in sagittal plane.

Boys living in rural areas.

The feet traits most frequently revealing a significant correlation with the complex of the spine-pelvis traits included (in descending order): the length of the fifth longitudinal arch of the left foot, revealing a correlation with the thoracic-lumbar spine angle, the height of thoracic kyphosis, the height and depth of lumbar lordosis. The height of the fifth longitudinal arch of the left foot, revealing a correlation with: the height of the right scapula angle, the value of asymmetric trunk triangles height when the right one is in higher position, the value of maximum deflection of spinous process line to the left, Figure 2.

The feet traits most frequently displayed correlations with (in descending order): the height of the lower right scapula angle and the value of asymmetric trunk triangles height when the right one is in higher position, less often with the lumbosacral angle and lumbar lordosis depth.

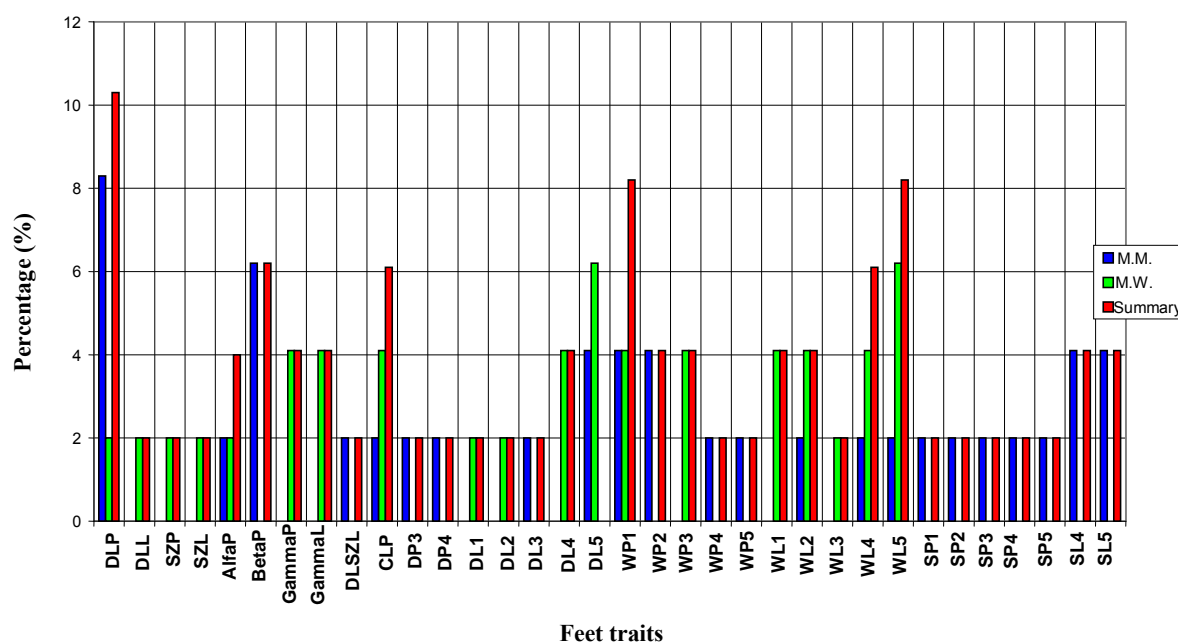


Fig. 2 Frequency of significant influence of feet traits on the complex of spine-pelvis traits in the population of boys aged 4 to 6 years from rural areas and cities (n) MM=727, MW=779

### Discourse

There are only few publications on the influence and correlations between the complex of the pelvis-spine traits and the feet traits. Steinmetz [19] assumes there is a correlation between the forming foot type and formation of the spine. However, the proposed suggestion assuming that if the spine can be corrected with the foot then the foot can be corrected by means of the spine, raises a number of doubts. In addition, the author emphasizes the meaning of wearing corrective footwear since proper foot positioning provided by special shoes cannot be the cause of spinal deformities. Pilot studies conducted by Drzał-Grabiec and Snela [4] in the population of girls and boys aged from 7 to 9 years revealed correlations between the longitudinal arch of the right and left foot measured with Clarke's angle and the length parameters describing the body posture.

### Conclusions

1. The spine-pelvis trait in the population of boys most frequently revealing significant influence on the feet traits is the height and depth of thoracic kyphosis. These traits most frequently displayed significant influence on the height of the second longitudinal arch and the length of the right foot. Among the rural population of boys significant influence on the feet traits was revealed by: the height of thoracic kyphosis and the pelvic tilt angle to the left. They most often displayed significant influence on: the width of the first longitudinal arch of the right foot and transverse arch of the left one.
2. The foot trait among the population of boys living in cities most frequently revealing significant influence on the spine-pelvis traits was the value of the right foot length. These traits most often displayed significant influence on the value of trunk triangles width asymmetry when the right triangle is wider. In the rural population significant influence on the spine-pelvis traits was revealed by: the length and height of the fifth longitudinal arch of the left foot. These most often displayed significant influence on the value of asymmetric trunk triangles height when the right one was in higher position.

### References:

- 1 Białko A. Postural defects and lateral spinal curvatures in children from Zachodniopomorskie Province, *Scientific Conference on Physical activity of people at different age*, Polish Scientific Society of Physical Culture, 2004, pp. 203-210.
- 2 Bitman F., Badke G. Postural disorders in children and youth. *Journal of Physical Education and School Hygiene*, 1988, vol.6, pp. 34-39.
- 3 Dąbrowska J., Rudzińska A., Witkoś J., Gędek M. *Changes in body posture in children during the period of two years of school education*, All-Polish Scientific Conference, 6-8.06.08, Bielsko Biała, 2008, pp. 89-96.
- 4 Drzał-Grabiec J., Snela P. Spinal curvatures and foot defects in children: an experimental study. *Spine*, 2012, vol.1, pp. 36-47.
- 5 Grabarczyk M., Jankowiak J. Body postures in children from selected background. *Ontogenesis and health promotion*, University of Zielona Góra Press, 2002, pp. 87-89.



- 6 Kasperczyk T., Szmigiel C. Body postures in children and youth based on ontogenetic determinants, *Spondyliatra*, 1990, vol.2(2/3), pp. 28 - 31.
- 7 Knapczyk M. Assessment findings concerning body posture in 6 and 13-year old children from kindergartens and schools located in Wilda district in Poznań, *International Scientific Conference on Physical development of children and youth, their motor activity in health and selected disease entities*, Poznań, 2004, pp. 15-20.
- 8 Miałkowska J. Postural development in children and youth aged 7-14 years. *Studies and Monographs* [Studia i Monografie], 2001, vol.59, pp. 187-201.
- 9 Mrozkowiak M. *Determinants of selected postural parameters and their variability based on the Moiré method*. University of Zielona Góra Press, 2010, pp. 59 - 70.
- 10 Mrozkowiak M. Sexual differentiation in prevalence of correct body postures, postural defects and scoliosis in children and youth aged 4-19 in selected regions of Poland. *Physical activity of people at different age*. 2007, vol.11(2), pp. 110-116.
- 11 Mrozkowiak M. Environmental differentiation in prevalence of correct body postures, postural defects and scoliosis in children and youth aged 4-19 in selected regions of Poland. *Physical activity of people at different age*. 2007, vol.11(2), pp. 105-109.
- 12 Mrozkowiak M. Age differentiation in prevalence of correct body postures, postural defects and scoliosis in children and youth aged 4-19 in selected provinces of Poland. *Annales Universitatis Mariae Curie-Skłodowska, Sectio D: Medicina*, 2007, vol.62(18/5), pp. 189-192.
- 13 Mrozkowiak M. Diverse prevalence of correct body postures, postural defects and scoliosis in children and youth aged 4-19 in selected regions of Poland. *Physical activity of people at different age*. 2007, vol.11(2), pp. 99-104.
- 14 Nowotny J., Czupryna K., Rudzińska A., Nowotny-Czupryna O. *Body postures in 13-year old children against their postures at the age of 7*. All-Polish Scientific Conference, Bielsko Biala. 2008, pp. 56-64.
- 15 Prętkiewicz-Abacjew E., Wróblewska A., Zajt-Kwiatkowska J., Rogo B., Zeyland-Malawka E. Observations and comments on the assessment of body posture based on the study using the Moiré method. *Pediatrics Poland* [Pediatria Polska], 2001, vol.76(9), pp. 643-650.
- 16 Przewęda R. Health status of Polish youth. *Physical education and sport*. 1997, vol.16(1-2), pp. 15-45.
- 17 Shumway-Cook, Horak M. *Balance rehabilitation in the neurologic patient: course syllabus*. Seattle: Neuroscience Education and Research Associatep. 1992, pp. 67-74.
- 18 Shumway-Cook, Woollacott M. *Motor control. Theory and practical applications*. 2001, 200 p.
- 19 Steinmetz M. Foot, spine, stroke and lachaussure [Le pied, le rachis, la course et lachaussure]. *Sports Medicine* [Medicine du Sport], 1984, vol.58(1), pp. 34-45.
- 20 Wolański N. Types of body postures and their definitions. *Physical culture*, 1957, vol.11(7), pp. 520 - 529.

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# A COMPARISON MENTAL HEALTH, PHYSICAL SYMPTOMS, ANXIETY AND SLEEPING DISORDERS AND DISORDERS IN SOCIAL FUNCTION AMONG MALE AND FEMALE ATHLETES AND NON-ATHLETES STUDENTS

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**Annotation.** *Purpose:* The purpose of this study was to comparison mental health, Physical symptoms, Anxiety and sleeping disorders and Disorders in social function among male and female athletes and non-athletes students. *Methods:* The target population consisted entirely male of female athletes and non-athletes students in University of Guilan. After translate of standard General Health Questionnaires (GHQ), and adjust of some question, questionnaires were evaluated by professors of faculty of physical education and sport sciences. The reliability guided Cronbach Alpha value of (0.83). Among them 90 male athlete and 90 male non-athlete with mean. The collected data was analyzed by t-test, one-way ANOVA. *Result:* There were significant difference mean scores between in four mental health scales, physical symptoms, anxiety and sleep disorders and impaired social functioning athlete and non-athlete in both groups. *Conclusion:* Therefore, with fewer psychological problems in an athlete, physical activity can be purpose strategies as appropriate, easy and inexpensive to improve mental health among male and female non- athlete students.

**Keyword:** mental health, male, female, athletes, non-athletes.

## Introduction

By development of science and technology and abundance of recreational facilities and foods, compared with past years, people live more comfortably. So that very few people suffer from hunger and deficiency of main daily facilities; but in spite of development and material comfort, many nervous breakdowns such as; bewilderment, not objectiveness, anger, depression, moral weakness and thousands of many other problems come to the existence and affected most people. To the point that according, to specialist viewpoints, more than half of physical illnesses of patients who go to medical centers have mental bases. Mental health means feeling of comfort toward your-self and others, and its measures are success, social balance, state of being realistic, social agreement and feeling of value ability. Different studies proved that exercising and sport has good effects on body and mental health (Richard et al. 2001). Results of these studies showed that unwillingness about participation in exercising results in mental illnesses such as: decrease of personal will, decrease of efficiency and false beliefs about health (Richardson et al. 2005). Thirelaway reported that participating in physical activities result in preparation that this factor has positive relation with development of mental health, behavior and the more physical activity becomes the more mental and manner health scores become (Thirelaway et al. 1997). Hyper analysis considerations, reported a significant relation between the decrease of stress and exercising (Debra et al.2004; Teychenne et al. 2008), decrease of depression and exercising (Craft et al. 2008; Ostlie et al 2010 ) and increase of total time of sleep and exercising (Mailey et al. 2010). Furthermore (Plante et al. 1994), concluded that exercising causes better behavior, mental health, growth in self- esteem and self confidence. MacConille., (2003), knows many important factors for making happiness and mental health that one of its important ones are exercising and body activity. Lowry et al., (2000), showed realm of relations between exercising, mental health and social whole sameness that there is the close relation between physical health d improvement of mental characteristics. For example, when symptoms of mental hurt increases, aerobics are ability decreases, for this reason, having a weak body condition in mental patients is important (Lee et al. 2003). Knechtle., (2004), reports that exercising makes development of mental health and behavior disorders decrease after exercising. Is the result of production of happy making substances produce by the body because of exercising. Although expanding of new methods of exercising, for improvement of physical activities in people who have mental problems and illnesses like diabetes and vessel and heart despises is very useful and effective (Thirlaway et al. 1997); on the other hand, in some studies, it turned out that athletes have the fewer aggressive manner and more positive manners than non-athletes, in the point of customs (Nabkasorn et al. 2005). Brassington., (2003), reported that the level of mental health of high school athlete students is better than others (Brassington et al. 2003). Studies who focus on the comparison between mental health in athletes and non-athletes reported significant differences in two slight measures of stress and depression (Nabkasorn et al. 2005), difference in each for the measures (Esfahani. 2002), differences only in depression slight measure (Harris et al. 2006). Generally, about types of exercises and relation with the increase of mental health and decrease of mental pressure. Are many paradoxical theories? The opposite point of this view that is posed by foreign researchers and shows that totally more than useful effects, exercising can make some mental troubles too. In other words, physical activities can make troubles for mental health, especially when exercising is difficult and compressed (Stuart et al. 2011). A result of some studies showed that relation between doing exercises and improvement of a manner doesn't seem to be a certain and general thing (Peluso et al. 2005; Engels et al. 2006). Furthermore, very few studies deal with comparison between mental health in athletes and non-athletes students simultaneously and this

question is raising that whether exercising cause improvement of mental health in athlete students rather than other students? Whether doing some difficult exercises by athlete students for preparation of a competition, makes troubles for mental health? Hence, current research with the purpose of comparison between mental health, Physical symptoms, Anxiety and sleeping disorders and Disorders in social function among male and female students who are athletes or not, is done.

### Materials and Methods

Current study is functional in a descriptive way from view of using attained results. The target population consisted entirely male of female athletes and non- athlete students in University of Guilan. For this reason 180 athlete and 180 non-athlete male and female students were chosen randomly.

### Application of the Investigation and collecting the data

Purpose and necessity of study for every experiment have been explained. Then the questionnaire of general health (GHQ- 28) that for the first time was organized by Goldberg (1972) and is applied widespread for recognizing slight mental disorders in different situations, has been distributed. The 28- questions form of this questionnaire is the most common and best known among its types. In this research, we have used 28-questions from that have four measures and each measure includes seven questions. These measures include:

- A. Body symptoms.
- B. Stress and disorders in sleeping symptoms.
- C. Disorders in social function.
- D. Depression symptoms.

Way of grading is the simple grading system of Likert 0, 1, 2, 3 that the total grade of a person will be maximal. In this questionnaire, the more grade of an individual means less mental health of him/ her and the less grades of an individual mean more mental health. It means people with grade bellow 23 are not considering as patients and ill people. Different studies in Iran and the world confirm high validity and stability of the general health questionnaire, proved its perpetuity in high level (Kritz-Silverstein et al. 2001). Furthermore, in current research with correction of some questions by asking from some justifiability factitious specialists, and its stability was attained through Cronbach Alpha value of (0.83) that has a great credit. At the end data were attained and coded and for analysis of data descriptive and inferential statistics ANOVA and t- student was used.

### Results

Anthropometric characteristics of tested things are reported in table 1. In table 2 and 3, mental health average in an athlete male and female students showed a significant differences with non- athlete male and female students ( $P < 0.05$ ). As a result, athlete male and female students have better mental health than non- athlete ones. Furthermore, results of research showed that in comparison to averages, physical symptoms of athlete male and female students with non- athlete ones were a significant difference ( $P < 0.05$ ) and athlete students had more physical symptoms than non-athlete students. In addition, in comparison with average rate of depression, athlete male and female students had less depression, and their difference was significant too ( $P < 0.05$ ). While in comparison with an average of mental health rate, physical symptoms, disorder in social function and depression among an athlete male and female students and non-athlete one's differences weren't significant ( $P > 0.05$ ) (Fig 1, 2).

Table 1

*Subject characteristics*

Testers	N	Age (year)	Height (Cm)	Weight (kg)	Body Mass Index(kg/m <sup>2</sup> )
Female athletes	90	22.13±5.8	166.23±4	62±4.4	22.4±1.9
Female non-athletes	90	21.84±1.1	162±4.41	63±6.6	23.6±1.7
Male athletes	90	22.13±6.6	170.13±4.5	67±1.4	23.1±2.1
Male non-athletes	90	22.34±2.1	168±4.1	69±6.6	24.9±1.1

Table 2

*Condition of female athletes and non- athletes mental health*

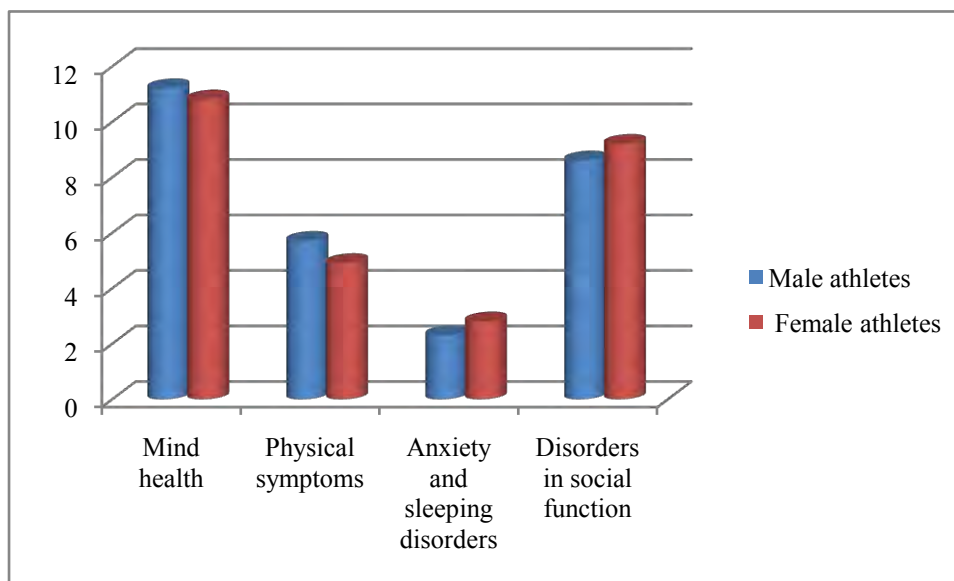
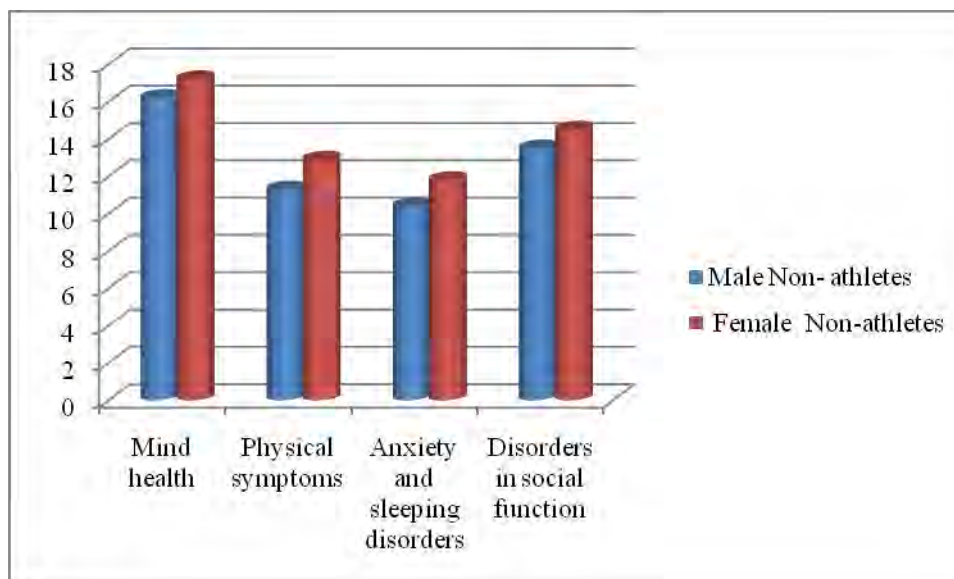
Group studies realms Mental health	athletes	Non- athletes	P value*
	Mean and standard derivation	Mean and standard derivation	
Mind health	11.2±1.3	16.2± 2.3	*0.03
Physical symptoms	5.7± 2.7	11.3± 3.5	*0.05
Anxiety and sleeping disorders	2.3± 1.3	10.4± 1.8	*0.01
Disorders in social function	8.6± 2.1	13.5± 2.8	*0.03

Significant in scale ( $P < 0.05$ )

Table 3

*Condition of female athlete and non- athlete students mental health*

Group studies realms Mental health	athletes	Non- athletes	P value*
	Mean and standard deviation	Mean and standard deviation	
Mind health	10.8± 1.8	17.2± 3.3	*0.04
Physical symptoms	4.9± 1	12.9± 2	*0.02
Anxiety and sleeping disorders	2.8± 1.8	11.8± 2.8	*0.02
Disorders in social function	9.2± 1	14.5± 1.2	*0.04

Significant in scale ( $P < 0.05$ )*Pic. 1. Comparison between male and female athletes mental health**Pic. 2. Comparison between male and female non- athlete's mental health***Discussion**

The research has shown the average of scores in athlete male and female students is lower than the average of non- athlete male and female students in the case of mental health. This contrast is significant and it is the explanatory of better mental health in athlete students, comparing with non-athlete ones. Norvell et al., (1997), showed that exercising program has great affect in getting mental health. Macmahan., (1990), reported physical exercises have a good result in decreasing anxiety, depression and increasing self-confidence. King et al., (1993), found in his studies that exercise continuously is important and effective in making advantages for body and mind. Haddad has also

declared the relation between exercise and mental health in both negative and positive way. He showed that there is appositive relation between sport and depression, anxiety and stress. Result of heads research showed athlete students have better mental health in comparing with non-athlete students (Haddad.1994). Teychenne et al., (2008), reported that the differences in two criteria, depression and anxiety, are significant between the athlete students ordinary ones. Esfahani., (2002), also described the differences in four criteria in the case of mental health between the athlete and non-athlete females that were significant. In Harris et al., (2006), the relation between sport and mental health, difference are just in small scale. According to people resemblance in this research in the case of age, year of entering university, and marriage condition, we can say that the difference among the athletes and that make them to have positive feeling toward mental health, is regular exercising activity. According to physical complaint between male and female who are athlete and who are not, there is a significant contrast between them that is shows lower complaint and better healthy feeling in athlete and non- athlete students have suffered more from depression. The studies reported significant connection in decreasing depression, anxiety and exhaustion in males and females, increasing of brain Alfa ( $\alpha$ ) waves (Waves related to relaxation resulted in psychological advantages like decreasing depression and anxiety) (Motl et al. 2004), control slight mental sign to medium sign especially in depression and anxiety (Paluska et al. 2000), social- mental health increasing for individuals which are important (Rejeski. 1994). Results of studies represent that sport activities with low intensity cause to decreasing sensitivity in central receivers and it is because of increasing Serotonin made by exhaustion which depends on extreme sport activities. One of the possible mechanisms for improving behaviors under the sports activities is increasing of the Serotonin and metabolism (Rejeski. 1994). So it can be result of increasing Serotonin and using for depression treatment with making a proper exercising program. There is a significant contrast between the athlete male and female and non- athlete ones in social function disorders in comparison to non- athletes. Morgan statements also showed athletes in comparing with ordinary people gain more privileges in positive mental properties and these mental and spiritual healthy properties have significant differences between athletes and ordinary people (Harris et al. 2006).

In Landers studies some incoherent results conveyed that offer exercises with low intensity that has better effects on people's mental health while other studies assert that aerobic exercises whit medium intensity is more useful and also other studies claim that aerobic exercises with high intensity is more effective these contradictions cause others to offer new method that according to it everyone select its own intensity for exercising (Lander et al. 1994). Tsutsumi et al., (1997), showed that a period of resistive sport activities with low intensity comparing to extreme exercises has significant improvement in mental and temperament condition in old people, that also has been reported in previous researches (Zervas et al. 1993; Raglin. 1990; Berger et al. 1992; Petruzzello et al. 1991), for example in the report of Petruzzello et al., (1991), an upside down relation between exercise intensity and behavior improving. It seems that different mechanism has effects in different intensities. For example based on Endorphins hypothesis there is a noticeable expectation in increasing Endorphins scales when actively is lower than 60-70%  $Vo_{2max}$ . On the other hand, same psychological mechanism like distraction hypothesis could be the result of digression of exhaustion and exercise pressure for improvement in the mental and behavior condition (Petruzzello et al. 1991; Berger et al. 1992; Clapp et al. 1999) claimed that physical exercises affect improvement of behavior in two ways. One way is releasing of Endorphins and the other one is decreasing Cortisol doze, (the hormone that releases by neurotic pressure in blood) (Clapp et al. 1997). Endorphins are natural drugs for decreasing pains that cause to making gracious feeling physical exercises have multiplier effects in Endorphins units. On the other hand Dilozenzo et al., (1999), and other researchers reach to this result that proper physical exercise has useful effects in serotonin increase (effective hormone in improvement of behaviors). Thus, it seems that exercises help to more Endorphins reach to the body and remains for long time during exercising (Clapp et al. 1997). Although the mechanism that causes regular exercise improve mental health, is not exactly transparent, a lot of different theories have been stated. Because of this, for example, the effect of mental health and physical activities is encounter with three hypotheses: distraction, self efficiency and social interaction (Tsutsumi et al. 1997). According to distraction hypothesis, one digression from undesirable motivator causes improvement in self efficiency hypothesis, exercise activity can be introduced as a controversial activity (Tsutsumi et al. 1997).

According to social interaction hypothesis, communication and inborn social relationships founded as much as the bilateral reciprocal protection between the people during the exercises. More ever two psychological hypotheses (monoamins and Endorphins) protect from the effects of exercising on mental health, too. Physical activities based on the first hypothesis a cause to increase the neurotic conciliators (monoamins) existing in Synapses play the role of anti-depression. Based on second hypothesis, exercises cause to release Endorphins and especially Beta Endorphins that its effects on the central neurotic system that cause to calmness feelings and improve behaviors after exercising (Mirzaei. 2007). According to the results of research, we can say that regular exercise activities can be the reason of the mental health and proper physical activities that cause increasing self confidence. It is also one of the ways of controlling and treating the anxiety and depression in the vulnerable group. Especially physical activities related to aerobics and durable activities such as: running, walking, swimming and bicycle riding which are done in almost long time, cause physiological changes and decreasing reactions made by mental pressure in body. Thus, according to the lesser psychological problems in athletes, we can claim that physical activities as strategies and proper guidelines and also an easy and cheap way, seems to be more essential for increasing mental health.



## References

- 1 Berger B.G., & Cwen D.R. Preliminary analysis of causal relationship between swimming and stress reduction: intense exercise may negate the effects. *International Journal of sport psychology*. 1992, vol. 23, pp. 70 – 85.
- 2 Brassington G. High school student Athletes: Associations between Intensity of participation and Health factors. *Clinical Pediatrics*. 2003, vol.42 (8), pp. 697-701.
- 3 Clapp L.L., Richardson T.M., Smith F.J., Wang M., Clapp J.A., & Pieroni E.R. Acute effects of thirty minutes of high intensity intermittent exercise on patients with chronic fatigue syndrome. *Physical Therapy*. 19997, vol. 9(8), pp. 749-756.
- 4 Craft L.L., Perna F.A., Freund K.M., Culpepper L. Psychosocial correlates of exercise in women with self-reported depressive symptoms. *Journal of Physical Activity and Health*. 2008, vol. 5, pp. 469–80.
- 5 Debra J.C., Marc R.L., Daniel M.L. Aerobic physical activity effects on psychological well-being in low-income Hispanic children. *Perceptual and Motor Skills*. 2004, vol. 98, pp. 319-324.
- 6 Dilonzo T.M., Bargman E.P., Stucky-rop R., Brassington G.S., Frensch P.A., Lafontaine T. Long-term effect of aerobic exercise on psychological outcome. *Preventive Medicine*. 1999, vol. 28, pp. 75-85.
- 7 Engels H.J., Currie J.S., Luek C.C., Wirth J.C. Bench/ step training with and without extremity loading. Effects on muscular fitness, body composition profile, and psychological effect. *Journal of Sports Medicine and Physical Fitness*. 2006, vol. 42(1), pp. 71-8.
- 8 Esfahani N. Effect exercise on mental health in later physically, anxiety, sleep disturbance, depression and social functioning Zahra University. *Motion Research Quarterly*. 2002, vol. 12, pp. 86-75.
- 9 Haddad N. Relationship between mental health and physical fitness athletes and female non-athlete students. *Physical Education MSc thesis*, Tehran University. 1994, vol. 1, pp. 17-16.
- 10 Harris A., Cronkite R., Moos R. Physical activity, exercise coping and depression in a 10 year cohort study of depressed patients. *Journal of Affective Disorders*. 2006, vol. 93, pp. 79-85.
- 11 King A., Taylor C. Effects of different intensities and formats of 12 months of training psychology outcomes in older adults. *Health psychology*. 1993, vol. 12, pp. 292 – 300.
- 12 Knechtle B. Influence of physical activity on mental well-being and psychiatric disorders. *Article in German Schweiz Rundsch Med Prax*. 2004, vol. 25, 93 (35), pp. 1403-11.
- 13 Kritz-Silverstein D., Barrett-Connor E., Corbeau C. Cross-sectional and prospective study of exercise and depressed mood in the elderly. *American Journal of Epidemiology*. 2001, vol. 153(6), pp. 596-603.
- 14 Lander D., Petruzzello S. Physical activity, Fitness and anxiety. *Human Kinetic*. 1994, vol. 28, pp. 820- 868.
- 15 Lee C., Russell A. Effect of physical activity on well-being among older Australian women: Cross- Sectional and longitudinal analyses. *Journal of Psychosomatic Research*. 2003, vol.54 (2), pp. 155-160.
- 16 Lowry R., Galuska D.A., Fulton J.E., Wechsler H., Kannl C., Jan J.L. Physical activity, food choice, and weight management goals and practices among US college students. *American Journal of Preventive Medicine*. 2000, vol. 18, pp. 18-27.
- 17 Macmahon J. The psychological benefits of exercise and the treatment of delinquent adolescent. *Sports Medicine*. 1990, vol. 83, pp. 344-51.
- 18 Mailey E.L., Wójcicki T.R., Motl R.W., Hu L., Strauser D.R., Collins K.D., Mcauley E. Internet-delivered physical activity intervention for college students with mental health disorders: A randomized pilot trial Psychology. *Health and Medicine*. 2010, vol. 15 (6), pp. 646-659.
- 19 Mc Conille B. Revealed: nine ways to find your inner happiness. *Personality and individual differences*. 2003, vol. 1, pp. 26-27.
- 20 Mirzaei B. Mood profile compared modes wrestler's national teams in the field of youth and adults, and free culture. *Olympic Journal*. 2007, vol. 1, pp. 33.
- 21 Motl R.W., Birnbaum A.S., Kubik M.Y., Dishman R.K. Naturally occurring changes in physical activity are inversely related to depressive symptoms during early adolescence. *Medical psychology*. 2004, vol. 66, pp. 336-42.
- 22 Nabkasorn C., Miyai N., Sootmongkol A. Effects of physical exercise on depression, neuroendocrine stress hormones and physiological fitness in adolescent females with depressive symptoms. *European Journal of Public Health*. 2005, vol.16(2), pp. 179–184.
- 23 Norvell N., Belles D. Psychological and physical benefits of circuit weight training in law enforcement personal. *Journal of Consulting & Clinical Psychology*. 1997, vol. 1, pp. 12: 89.
- 24 Ostlie K., Magnus P., Skjeldal O.H., Garfelt B. Mental health and satisfaction with life among upper limb amputees: a Norwegian population-based survey comparing adult acquired major upper limb amputees with a control group. *Disability and Rehabilitation*. 2010, vol. 33 (17, 18), pp. 1594 – 607.
- 25 Paluska S.A., Schwenk T.L. Physical activity and mental health: current concepts. *Sports Medicine*. 2000, vol. 29(3), pp. 45-51.
- 26 Peluso MA, Silveira LH. Physical activity and mental health: the association between exercise and mood. *Clinics*. 2005, vol. 60(1), pp. 61-70.
- 27 Petruzzello S.J., Lander D.M., Hatfield B.D., Kubitz K.A., Salazar W.A. Meta analysis of the anxiety reducing effect of acute and chronic exercise: Outcomes and mechanisms. *Sport Medicine*. 1991, vol.11, pp. 143 – 182.

- 28 Plante T.G., Judith R. Physical fitness and enhanced psychological health. *Current Psychological Reviews*. 1994, vol. 3, pp. 21-26.
- 29 Raglin J.S. Exercise and mental health beneficial and detrimental effects. *Sport Medicine*. 1990, vol. 9, pp. 323 – 329.
- 30 Rejeski W. Dose – responsive use from a psychosocial perspective. *Human Kinetics*. 1994, vol. 54, pp. 1040 -55.
- 31 Richard S., Strauss M.D., Daria Rodzilsky R.D., Gail B., Michelle Colin R. Psychosocial Correlates of Physical Activity in Healthy Children. *Archives of Pediatrics and Adolescent Medicine*. 2001, vol. 155, pp. 897-902.
- 32 Richardson C.R., Foulkner G., Mcdevitt J., Skrinar G.S., Hutchinson D.S., Piette J.D. Integrating physical activity into mental health services for persons with serious mental illness. *Journal of the American Psychiatric Association*. 2005, vol. 56 (3), pp. 324 – 31.
- 33 Stuart J.H.B., Asare M. Physical activity and mental health in children and adolescents: a review of reviews. *British Journal of Sports Medicine*. 2011, vol. 45, pp. 886-895.
- 34 Teychenne M., Ball K., Salmon J. Associations between physical activity and depressive symptoms in women. *International journal of behavioral nutrition and physical activity*. 2008, vol. 1, pp. 5: 27.
- 35 Thirlaway K., Benton D. participation physical activity and cardiovascular fitness have different effect on mental health and mood. *Journal psychosomatic Research*. 1997, vol. 17, pp. 46-51.
- 36 Tsutsumi T., Don B.M., Zaichkowsky L.D., Delizonna L.L. Physical fitness psychological benefits of strength training in community dwelling older adults. *Applied human science*. 1997, vol.16 (6), pp. 257 -268.
- 37 Zervas Y., Ekkekakis P., Emmanuel C., Psychoudaki M., Kakkos V. The acute effects of increasing levels of aerobic Exercise on mood's state. *Psychology*. 1993, vol. 2, pp. 133 -143.

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