

The Influence of Physical Rehabilitation Program on Training and Competitive Activity of the High Qualified Dancers with a Posture Disorders

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Introduction. In the sport and orthopedics frameworks, spine is the most interesting part of body, because during the process of training sessions and competitions, it feels static and dynamic loads.

Some researchers talking about the negative impacting violations of posture on locomotor system [3], and it can be assumed that it is one of the reasons for limiting the growth of sports skills and increase the risk of injury.

Modern physical rehabilitation has a lot of varieties tools and techniques used during the posture disorders but, unfortunately, conventional techniques do not always match the requirements of sport and physical rehabilitation and should include in the list of correctional actions of the functioning athletes [5; 6].

Analysis of Recent Achievements and Publications. When rationally conducted training spine of the athlete adapts to systematically increasing tension and stress: impact, tensile, compressive, torsional stress of the exercise [10]. However, in a modern sports training (daily and 1-2 trainings per day for 3 hours each), the various elements of the spine are subjected to constant traumas and the adverse effects of sports item. In the result, there are specific diseases and abnormalities in the formation of the spine, typical for certain sports. Against this background, there is often stopping the growth of sports results, their reduction or even loss of athletic performance.

On the formation of the posture and spinal condition, different kinds of sport affect differently. If the specificity of sport implies the predominance loads of the particular on the one side of the body, of course the other part characterized by a weakness of the muscles.

The registration of the effect of the features of different kinds of sports on the motor system is essential for the prevention of various orthopedic spinal diseases of the athletes, especially if they've get the posture deformations [9].

The sport dances require diverse training, it's performing in a variety of frequently changing conditions associated with a variety of fast individual actions in a pair.

Sport physiology characterizes the sport dances as a sport of dynamic performance with variable intensity. Training is usually going with a high load for a long time, and includes a lot of motion.

Modern sport dance is characterized by a year-round sports training, high training loads and plenty of competition [1]. During the training sessions and competitions, the spine of the athlete is experiencing by the huge, often asymmetrical, static and dynamic loads. During the competitive and training activities, the body of the dancer exposed some motions: as a tension, compression and torsional stress from exercise, taking adversely affect the health of the athlete, bring to disturbances and some spinal column damage, all of this can be a reason of posture disorders in the high qualified dancers.

The aim of the Research was: to evaluate the influence of the developed physical rehabilitation program on the motor system of athletes and, outcoming, training and competitive activity of the dancers with posture disorders.

Methods used in our Research was: theoretical (as a comprehensive analysis and synthesis of special scientific and methodical literature, internet sources), empirical (as a study and generalization of experience of trainers, development research work, supervision), methods of mathematical statistics.

Results and Discussion. For evaluation of the effectiveness of the developed physical rehabilitation program of the motor system of dancers, specially with posture disorders, there was surveyed a group of high qualified dancers on the the club of sport dance «Supadance» and the Institute of Traumatology and Orthopaedics of Academy of Medical Sciences of Ukraine. The study involved 32 dancers who have qualified sports: Master of Sport of Ukraine, International Master of Sport of Ukraine.

All types of problems with the motor system condition of the dancers have a negative impact on training and competitive activities of athletes. Often, the dancers cannot perform some movements with maximum amplitude, jumping motion because of discomfort or pain, forced to finish the exercise in advance, sometimes even refuse to take part in the competition.

Through the analysis of medical examination of the dancers and scientific literature data, we have developed a questionnaire, consists of 10 questions relating to the main points of the training and competitive activity of the dancers.

Questionnaire for the Athletes

1. Have you ever refused to participate in the competition because of a sore back / knees / feet?
2. Did you feel that it is hard to start training again after the competition?

3. Did you use different kinds of orthopedic appliances (kneepads, fasteners, elastic bandages) during training and competitive process?
4. Have you used analgesics (frost, ointments and tablets) during the season?
5. Do you often use training shoes with low heels instead of the classic because of the pain back / knees / feet?
6. Have you ever noticed that sometimes you cannot perform movements with full amplitude due to discomfort in his back?
8. Did you feel discomfort in your back / knees / feet in everyday life?
9. Did you feel the pain in your back / knees / feet after waking up?
10. Did you feel that you find it hard to perform jumping motion because of discomfort in his back / knees / feet?

We performed a surveying three times:

- The first survey of the dancers (1st period);
- A year after the first surveying (athletes continued to train as usual, but we just have seen the impact of their activities on the motor system) (2nd period);
- After the introduction the developed physical rehabilitation program, adapted for training and competitive activity dancers (3rd period).

Table 1

Results of the interview

Phase	Question									
	1	2	3	4	5	6	7	8	9	10
<i>I</i>	12	17	9	12	10	17	14	15	9	14
<i>II</i>	13	19	12	13	12	18	16	16	10	15
<i>III</i>	0	5	5	4	4	4	3	4	1	4
<i>Difference between I and II</i>	1	2	3	1	2	1	2	1	1	1
<i>Difference between II and III</i>	13	14	7	9	8	14	13	12	9	11

From the Table 1 data, we can see that the athletes responded in the affirmative to all of these questions, confirms the experience discomfort in the motor system, and it get the negative influence on their training and competitive activity.

In the first phase of the study because of discomfort in the musculoskeletal system we've got these results: 12 athletes had to refuse to participate in the competition; 17 athletes felt that it is hard for them to start training after the competition; 9 dancers used a variety of orthopedic appliances; 12 dancers used analgesics; 10 athletes often replaced with standard-heeled shoes on the shoe at a lower heel; 17 athletes could not perform the movement with full amplitude; 14 dancers had to stop training because of pain; 15 dancers felt discomfort in motor system not only in sports but also in everyday life; 9 people have confirmed that they feel pain after waking up; 14 athletes feel that that it is difficult for them to perform jumping movement.

In the second phase of the study, the number of affirmative answers has increased to each question (answer 1–3). It was done because every year dancers have increasing training intensity and loading, influencing on the motor system.

After the implementation of physical rehabilitation program with objective as a correction of posture disorders, relaxation of muscles after training and competitive activity, formation an optimal movement patterns and maintaining a high level of the dancer's performance, the indicators are there follows: no one athlete would not have to refuse to participate in the competition; 5 athletes felt that it's hard to start training after the event; 5 dancers used a variety of orthopedic appliances; 5 dancers used analgesics; 4 athletes often replaced with standard-heeled shoes on the shoe at a lower heel; 4 athletes is not able to perform movements with full amplitude; 3 dancers had to stop training because of pain; 4 dancers felt discomfort in musculoskeletal system not only in sports but also in everyday life; Only one athlete continued to feel pain after waking up; 4 athletes feel that it is difficult to perform jumping movement.

The main feature of the proposed program used was the correction of posture in high qualified dancers, during all of the periods of physical rehabilitation, that were selected in accordance with the periods of year-cycle of training (Fig. 1).

Developed physical rehabilitation program includes four periods, there are follows: adaptation period (duration was 3 months), training and correction period (duration was 3 months), stabilization period (duration was 3 months) and supporting period (duration was 4 months).

Implementation of the physical rehabilitation program in the training activities of the dancers is constructed as follows:

- the exercise is performed as a warm-up exercise for 15 minutes, consisted from 7–10 exercises, allows to prepare for the upcoming motor system loads;

Figure 1

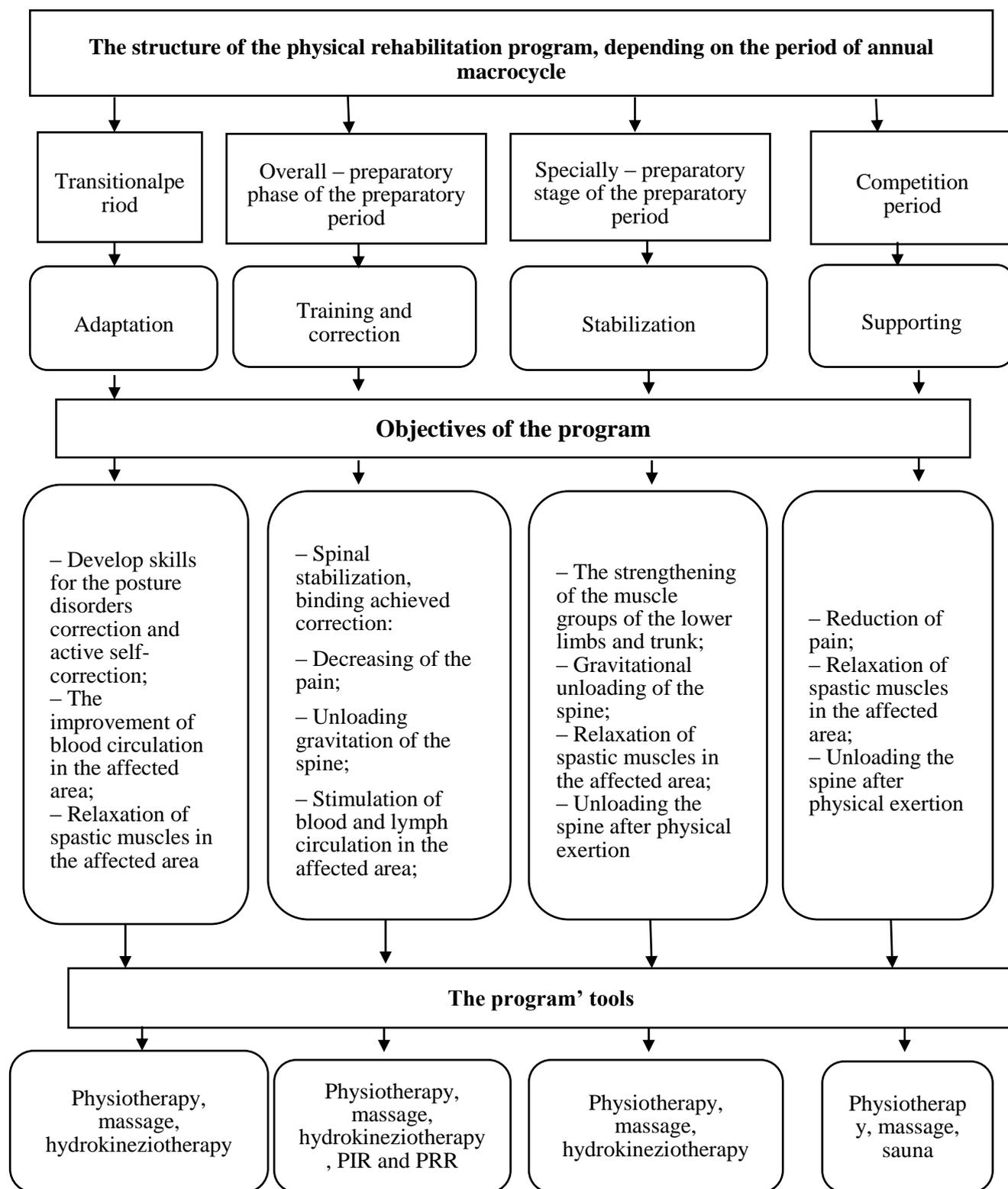


Figure 1. Structure of the physical rehabilitation program, depending on the period of annual macrocycle

- after training for 30 minutes, 10-15 exercises for reducing the negative impact of asymmetric loads, provided a forced posture in sport dancing;
- Performing some special classes, used the physical rehabilitation tools: as a postisometric relaxation and proprioceptive relaxation (PIR and PRR); hydrokineziotherapy; sauna, etc.

Conclusions. As a result of our research, we proposed the developed physical rehabilitation program for the posture disorders correction of the high qualified dancers. Performance of our proposed questionnaire

improved significantly, which confirms the positive impact of the program of physical rehabilitation, and it proves its effectiveness.

In future, we planned more deep study of the impact of the developed physical rehabilitation program on the musculoskeletal system and, consequently, training and competitive activity dancers.

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Adstract

In modern sport, at the moment, little mass attention is paid to the correction of disorders of the motor system in athletes and, in particular, highly qualified dancers. The aim of the research was: to evaluate the influence of the developed physical rehabilitation program on the motor system of athletes and, outcoming, training and competitive activity of the dancers with posture disorders. Methods, used in our research was: theoretical (as a comprehensive analysis and synthesis of special scientific and methodical literature, internet sources), empirical (as a study and generalization of experience of trainers, development research work, supervision), methods of mathematical statistics. For evaluation of the effectiveness of the developed physical rehabilitation program on the motor system of dancers, there was surveyed a group of highly qualified dancers on the basis of The Sports Dance Club «Supadans» and the Institute of Traumatology and Orthopaedics, Academy of Medical Sciences of Ukraine, surveying composed of 32 athletes. Through the analysis of medical examination of the dancers and scientific literature data, we have developed a questionnaire, consists of 10 questions relating to the main points of the training and competitive activity of the dancers. The developed physical rehabilitation program adapted to the annual cycle of sports training, consists of four periods, including such tools: as a gymnastics, hydrokineziotherapy, massage, PIR and the PRR, the elements of physical therapy.

Key words: sports dance, motor system, training activity, competitive activity, physical rehabilitation.

Тетяна Рожкова. Вплив програми фізичної реабілітації на тренувальну та змагальну діяльність танцюристів високої кваліфікації із порушенням постави. У сучасному спорті сьогодні недостатньо уваги приділяється питанню корекції порушень опорно-рухового апарату в спортсменів і, зокрема, висококваліфікованих танцюристів. Мета роботи – оцінити вплив розробленої програми фізичної реабілітації на опорно-руховий апарат спортсменів і, як наслідок, – на тренувальну й змагальну діяльність танцюристів із порушеннями постави. Методи дослідження – теоретичні (комплексний аналіз і синтез спеціальної науково-методичної літератури, інтернет-джерел); емпіричні (вивчення та узагальнення досвіду роботи тренерів, дослідно-пошукова робота, спостереження); методи математичної статистики. Щоб оцінити ефективність застосування розробленої нами програми фізичної реабілітації на опорно-руховий апарат танцюристів, обстежено групу спортсменів високої кваліфікації на базі клубу спортивного танцю «Супаданс» й Інституту травматології та ортопедії АМН України у складі 32 спортсменів. Для оцінки ефективності нашої програми розроблено та використано опитувальник. Представлені результати доводять позитивний вплив програми на опорно-руховий апарат спортсменів і, як наслідок, – на тренувальну та змагальну діяльність танцюристів. Розроблено програму фізичної реабілітації, адаптовану під річний цикл спортивної підготовки, що складається з чотирьох періодів, які включають лікувальну гімнастику, гідрокінезітерапію, масаж, ППР і ППР, елементи фізіотерапії.

Ключові слова: спортивні танці, опорно-руховий апарат, тренувальна діяльність, змагальна діяльність, фізична реабілітація.

Татьяна Рожкова. Влияние программы физической реабилитации на тренировочную и соревновательную деятельность танцоров высокой квалификации с нарушениями осанки. В современном спорте на данный момент недостаточно внимания уделяется вопросу коррекции нарушений опорно-двигательного аппарата у спортсменов и, в частности, у высококвалифицированных танцоров. Цель работы – оценить влияние разработанной программы физической реабилитации на опорно-двигательный аппарат спортсменов и, как следствие, – на тренировочную и соревновательную деятельность танцоров с нарушениями осанки. Методы исследования – теоретические (комплексный анализ и синтез специальной научно-методической литературы, интернет-источников); эмпирические (изучение и обобщение опыта работы тренеров, опытно-поисковая работа, наблюдение);

методы математической статистики. Чтобы оценить эффективность применения разработанной нами программы физической реабилитации на опорно-двигательный аппарат танцоров, обследована группа спортсменов высокой квалификации на базе клуба спортивного танца «Супаданс» и Института травматологии и ортопедии АМН Украины в составе 32 спортсменов. Для оценки эффективности нашей программы разработан и использован опросник, представленные результаты доказывают положительное влияние программы на опорно-двигательный аппарат спортсменов и, как следствие, – на тренировочную и соревновательную деятельность танцоров. Разработана программа физической реабилитации, адаптированная под годичный цикл спортивной подготовки, состоящая из четырех периодов, включающих в себя лечебную гимнастику, гидрокинезитерапию, массаж, ПИР и ППР, элементы физиотерапии.

Ключевые слова: спортивные танцы, опорно-двигательный аппарат, тренировочная деятельность, соревновательная деятельность, физическая реабилитация.