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Physiotherapy in sport

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ABSTRACT

Both among amateurs and professionals who want to achieve the best possible achievements, sports physiotherapy has a wide field of action. For many years now, the role of physiotherapy in the comprehensive preparation of athletes for a given sport has increased noticeably. Physiotherapy in sport is found, among other things, as a test of predisposition to practice a given discipline, preparation of the body for exercise, health monitoring, post-workout regeneration and injury prevention and treatment. In addition, there are many studies showing the impact of a given sport on the human body.

Keywords: physiotherapy, rehabilitation, sport, personal training

INTRODUCTION

The athlete's pursuit of a goal is often overwhelmed with many injuries. For many athletes, just reaching the top of their sporting careers is not an indicator of full success. Many of them dream of staying on top for a longer period of time. Unfortunately, at every step there are heavy loads, both physical and psychological. They accompany during as well as after the training, and even before as a motor preparation of the athlete to take the burden of high intensity and long duration of the effort. In order to prevent this and to properly lead an amateur/professional athlete it is

worth starting the so-called sports physiotherapy, which is a very wide range of work with an amateur/professional. It is not only useful in the fight against injuries, but also plays a significant role in improving sporting performance. Physiotherapy in sport is found, among others, as a test of predisposition to practice a given discipline, the impact of a given discipline on the body, preparation of the body for exercise, health monitoring, post-workout regeneration and injury prevention and treatment. The paper presents research of scientists and examples of possibilities of modern physiotherapy in sport on the basis of selected papers published in a reputable journal "Fizjoterapia polska".

MAIN PART

Drężewska et al. in the paper "Ocena wpływu dynamicznego plastrowania na zmianę wybranych cech motorycznych u tancerek hipermobilnych" examined 44 jazz dancers whose age range ranged from 18 to 25 years. The study material consisted of people with pain and hypermobility in the lower part of the body according to Sachse. Drężewska et al. used tests evaluating lower body disorders: Patrick Fabre's test, abdominal compression test and SLR test. The study group consisted of 26 patients in whom the authors applied the Kinesio Taping method, which lasted 3 weeks with weekly change of the tape. The control group consisted of 18 patients. Muscle strength before and after the therapy was measured with a dynamometer. The results of Drężewska et al. showed that Kinesio Taping method increases muscle strength of quadrilateral muscle of the lumbar region, gluteus median, gluteus gluteus, large gluteus, pear-shaped, hip-lumbar, semi-twisted nucleus, bicep thigh, semimembranosus and adductor muscles. Kinesio Taping will not affect the strength of muscles: straight thigh, widest back and wide fascia tensioner¹.

Skwiot et al. in the paper "Ocena wpływu dynamicznego plastrowania na zmianę wybranych cech motorycznych u tancerek hipermobilnych" examined 46 jazz dancers whose age range ranged from 18 to 25 years. In which hypermobility according to the Sachsen scale occurred. In the study Skwiot et al. we used tests evaluating lower body disorders: Patrick Fabre test, abdominal compression test, Linder II test, SLR test. The study group consisted of 46 patients with Kinesio Taping method, which lasted 3 weeks with a change of the tape after 7 days of therapy. To measure the effects of the therapy, the authors used a dynamometer to measure muscle strength, an inclinometer to evaluate hip joint mobility and muscle elasticity tests. After completing the Skwiot et al. therapy, they noticed that Kinesio Taping improves

¹ Drężewska M, Frączek E. Ocena wpływu dynamicznego plastrowania na zmianę wybranych cech motorycznych u tancerek hipermobilnych. Fizjoterapia polska 2016; 1: 6-23.

muscle flexibility, increases muscle strength and increases the range of active movements of hip joints.²

Motylewski et al. in work "Analiza urazów układu mięśniowo-więzadłowo-szkieletowego występujących u piłkarek ręcznych i postępowanie fizjoterapeutyczne", investigate the type and frequency of injuries in handball players and the type and method of physiotherapy after injuries. The authors examined 19 women aged 18-31 years who had practiced handball for at least 5 years, using a diagnostic survey. The results of Motylwski et al. research clearly indicate that all female athletes suffered an injury at least once, most often to the lower extremities. The most common cause of injury was landing 33.9%, foul 21.4% and ball throws 19.6%. 12.5% of injuries ended with surgical treatment, while the rest were conservative. According to further research by Motylewski et al. 68.4% of the players, despite the end of treatment after the resumption of training, feel a certain discomfort caused by the earlier injury.³

Pańczyszak et al. in their work "Ocena funkcjonalna kompleksu barkowego u zawodników uprawiających siatkówkę w różnych kategoriach wiekowych" examine the range of movements in the joints of the shoulder girdle of the dominant and non-dominant hand and evaluate them from the functional point of view. The study involved 40 people who were divided into two groups (youngsters and seniors). The first stage of the study consisted in measuring with a goniometer the ranges of mobility in the shoulder joint recorded according to the SFTR methodology (flexion, extension, abduction, horizontal flexion, horizontal extension, external rotation, internal rotation, total rotation). The second stage of the study was the assessment of the shoulder girdle by means of three functional tests subacromial space irritation test, shoulder mobility assessment, active abduction with stabilised shoulder blade, which were measured using a goniometer and a tailor's measure. After analyzing the results of the research, Pańczyszak et al. received detailed information on the range of mobility in the examined joint in athletes and information on functional efficiency. Thanks to the research, the physiotherapist is able to determine the direction in which a given group of volleyball players should be dealt with.⁴

Michalak et al. in the work "Postawa ciała dzieci trenujących piłkę ręczną" examined a group of 40 children aged 12 years (15 girls and

² Skwiot M, Śliwiński Z. Ocena wpływu dynamicznego plastrowania na zmianę wybranych cech motorycznych u tancerek hypermobilnych. *Fizjoterapia polska* 2018; 1: 14-25.

³ Motylewski S, Trandasir W. Analiza urazów układu mięśniowo-więzadłowo-szkieletowego występujących u piłkarek ręcznych i postępowanie fizjoterapeutyczne. *Fizjoterapia polska* 2018; 2: 24-31.

⁴ Pańczyszak B, Bogacz K. Ocena funkcjonalna kompleksu barkowego u zawodników uprawiających siatkówkę w różnych kategoriach wiekowych. *Fizjoterapia polska* 2018; 1: 50-61.

25 boys) who practise handball. The aim of the authors' work was to assess body posture and analyse the related asymmetries that may result from practising handball. Body posture was assessed according to the Kasperczyk Point Method. Michalak et al., after analyzing the results of the study, came to the conclusion that practising handball has a positive influence on correct body posture and does not cause postural asymmetry.⁵

Kałuża-Pawłowska et al. in their paper "Charakterystyka urazów i kontuzji u zawodników piłki wodnej" investigate the most frequent injuries among water football players. The authors used a questionnaire to carry out the research. The study group consisted of 52 people aged 15-30 years. According to the research of Kałuża-Pawłowska et al., all the respondents suffered an injury in their careers. The most frequent injury occurred in the shoulder joint, palm fingers, wrist and elbow. In 75% of injuries occurred in water, unfortunately 42% of injuries were not treated physiotherapeutically.⁶

Książek-Czekaj et al. in the paper "Analiza wybranych parametrów postawy ciała u zawodniczek uprawiających piłkę siatkową" were examined by 44 women in total. Including 22 middle-aged 23-year-olds training volleyball professionally and 22 middle-aged women about 26-year-olds not training volleyball. The authors used the DIERS Formetric 4D device for the study. Książek-Czekaj et al. analyzing the results noted that the angle of lumbar lordosis in the lumbar section in women playing volleyball professionally in comparison with women not practicing this sport has lower values. However, the angle of torso inclination in relation to the vertical in women from the control group reached higher values.⁷

Kruk et al. in the paper "Comparison of physical fitness in children aged 10-12 years swimming and non-swimming" examined 60 children. The aim of the study was to compare children swimming with children who did not have any physical activity that is their physical fitness. The study group consisted of 13 girls and 17 boys. Kruk et al. used a survey, Ruffier's test and a 6-minute march test. The authors analyzing the study noticed that children who practiced swimming had better fitness than children who did not take physical activity.⁸

⁵ Michalak K, Dobrowolska N. Postawa ciała dzieci trenujących piłkę ręczną. *Fizjoterapia polska* 2018; 3: 30-35.

⁶ Kałuża-Pawłowska J, Serwin I. Charakterystyka urazów i kontuzji u zawodników piłki wodnej. *Fizjoterapia polska* 2018; 4: 94-101.

⁷ Książek-Czekaj A, Śliwiński G. Analiza wybranych parametrów postawy ciała u zawodniczek uprawiających piłkę siatkową. *Fizjoterapia polska* 2017; 3: 6-15.

⁸ Kruk A, Kiljański M. Porównanie wydolności fizycznej u dzieci w wieku 10-12 lat pływających i niepływających. *Fizjoterapia polska* 2018; 3: 36-45.

SUMMARY

Selected possibilities of contemporary physiotherapy in sport presented in the paper show physiotherapist, athlete and patient how widely physiotherapy is applied in various sports disciplines. Using appropriate motor training with elements of physiotherapy is able to prepare both amateur and professional athletes to take on the burden of high intensity and long duration of exercise. Moreover, it is possible to check the predispositions of a given athlete to practice a given sport and its influence on the body. What is more, it is worth noting that a wide range of physiotherapy options is used after the workout, for example, in order to accelerate the athlete's readiness to take up new challenges, i.e. to improve post-workout regeneration. Sports physiotherapy is a very important element for professional athletes, where every thing counts in the fight for victory.

CONCLUSIONS

1. Kinesio Taping is used in the therapy of hypermobile dancers helping to increase muscle strength of individual muscles.
2. Research on functional efficiency, mobility of individual joints and injuries in individual sports contributes significantly to the efficiency of physiotherapy for athletes.
3. Physiotherapy in sport has a very wide range of use.
4. Research on the possibilities of physiotherapy in given sports disciplines and their impact on the human body should be conducted at all times.

REFERENCES

1. Drężewska M, Frączek E. Ocena wpływu dynamicznego plastrowania na zmianę wybranych cech motorycznych u tancerek hipermobilnych. *Fizjoterapia polska* 2016; 1: 6-23.
2. Kałuża-Pawłowska J, Serwin I. Charakterystyka urazów i kontuzji u zawodników piłki wodnej. *Fizjoterapia polska* 2018; 4: 94-101.
3. Kruk A, Kiljański M. Porównanie wydolności fizycznej u dzieci w wieku 10-12 lat pływających i niepływających. *Fizjoterapia polska* 2018; 3: 36-45.
4. Książek-Czekaj A, Śliwiński G. Analiza wybranych parametrów postawy ciała u zawodniczek uprawiających piłkę siatkową. *Fizjoterapia polska* 2017; 3: 6-15.
5. Michalak K, Dobrowolska N. Postawa ciała dzieci trenujących piłkę ręczną. *Fizjoterapia polska* 2018; 3: 30-35.
6. Motylewski S, Trandafir W. Analiza urazów układu mięśniowo-więzadłowo-szkieletowego występujących u piłkarek ręcznych i postępowanie fizjoterapeutyczne. *Fizjoterapia polska* 2018; 2: 24-31.
7. Pańczyszak B, Bogacz K. Ocena funkcjonalna kompleksu barkowego u zawodników uprawiających siatkówkę w różnych kategoriach wiekowych. *Fizjoterapia polska* 2018; 1: 50-61.
8. Skwiot M, Śliwiński Z. Ocena wpływu dynamicznego plastrowania na zmianę wybranych cech motorycznych u tancerek hypermobilnych. *Fizjoterapia polska* 2018; 1: 14-25.