

PHYSICAL REHABILITATION OF DISABLED ATHLETES BY THE METHOD OF CORRECTIVE MASSAGE

ФІЗИЧНА РЕАБІЛІТАЦІЯ ІНВАЛІДІВ СПОРТСМЕНІВ МЕТОДОМ КОРЕКТИВНОГО МАСАЖУ

Romanna Rudenko¹, Anatoliy Mahlovanyu¹, Olha Kunynets¹, Igor Grygus²

¹*Danylo Halytsky Lviv National Medical University, UKRAINE*

²*National University of Water and Environmental Engineering, Rivne, UKRAINE*

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Summary

The article presents the analysis and generalization of information of scientific, methodical and professional literature, educational observations, application of the method of corrective massage and its physiological impact on athletes with disabilities during training sessions. The author's method of corrective massage as a means of physical rehabilitation of athletes with disabilities before, during and after training is presented. The use of corrective massage during training sessions with low, medium and high intensity training and different levels of physical activity is scientifically substantiated.

Key words: disabled athletes, physical rehabilitation, massage, physical load.

Узагальнено дані наукової, які дозволили з'ясувати, що провідні науковці у галузі фізичної терапії та фізичної реабілітації наголошують на позитивному значенні рухової активності, особливо занять спортом, для здорового способу життя та фізичної реабілітації осіб з інвалідністю. Відзначено, зокрема, що фізична реабілітація покращує рівень загальний фізичної підготовки та специфічні фізичні показники пацієнтів. Встановлено, що особи з інвалідністю, з ураженням опорно-рухового апарату, повинні активно залучатися до занять спортом. Науковцями встановлено позитивний вплив заходів фізичної реабілітації на фізіологічний стан та функціональні можливості спортсменів - лучників з інвалідністю, особливо на показники м'язової сили та чутливості, а також відчуття часу до та після контрольних змагань. Також доведено необхідність специфічних фізичних навантажень при підготовці спортсменів з інвалідністю до тренувань та змагань.

Медико-педагогічні спостереження та дослідження щодо вивчення впливу на фізіологічний стан та функціональні можливості спортсменів - лучників з інвалідністю заходів авторської методики коригуючого масажу, як засобу фізичної реабілітації до, під час та після тренувальних занять із малою, середньою та високою інтенсивністю і різним рівнем фізичних навантажень проводились у приміщенні тиру ЛНМУ ім. Д. Галицького. До медико-педагогічного спостереження та дослідження, що тривало 6 місяців, залучено двадцять кваліфікованих спортсменів (майстри спорту міжнародного класу, майстри спорту) кандидати до збірної Паралімпійської команди України зі стрільби з лука. Участь взяли спортсмени 32–45 років із травмами опорно-рухового апарату, 6 з яких – жінки та 14 – чоловіки. Їх досвід навчальної діяльності сягав від 8 до 12 років.

Доведено достовірний позитивний вплив застосування заходів авторської методики коригуючого масажу як засобу фізичної реабілітації спортсменів - лучників з інвалідністю до, під час та після тренувальних занять із малою, середньою та високою інтенсивністю тренувань і різним рівнем фізичних навантажень.

Ключові слова: спортсмени з інвалідністю, фізична реабілітація, масаж, фізичне навантаження.

В статті представлено аналіз і обобщення інформації наукової, методической и профессиональной литературы педагогические наблюдения, применение метода *коррекционного массажа* и его физиологическое воздействие на спортсменов-инвалидов во время учебно-тренировочных занятий. Представлена авторская методика *коррекционного массажа* как средства физической реабилитации спортсменов с ограниченными возможностями до, во время и после тренировочных занятий. Научно обосновано использование *коррекционного массажа* во время учебно-тренировок занятий с малой, средней и высокой интенсивностью тренировок и различным уровнем физических нагрузок.

Ключевые слова: спортсмены инвалиды, физическая реабилитация, массаж, физические нагрузки.

Introduction. Wheelchair sports as well as sport activities for the disabled athletes in general have gained its popularity of late. Quite a number of competitions in various kinds of sport are held,

European and world championships, Paralympic Games among them [1, 2, 3]. Advance of sport activities for the disabled athletes possesses a humanistic nature, which implies favourable conditions for gradual transitions of impaired people to social activities involvement, providing psychological adaptation and integration of athletes with vision or hearing impairments, muscular skeletal system dysfunctions, mental or physical abnormalities. Disabled athletes' training system possesses scientifically substantiated theoretical basis. Involvement of handicapped persons into physical culture and sports activities is considered to be the most expedient and effective means of physical rehabilitation [2, 3]. Engaging in exercises implies administration of means and methods of physical education aimed at the development and improvement of vitality and professionally significant motor skills and abilities required for gaining everyday self-sufficiency, psychological freedom and professional efficacy [2, 4]. In the majority of cases an underlying disease is accompanied with the whole range of associated illnesses, which necessitate in taking into account various indications and contraindications concerning certain types of physical and psychoemotional loads. Special attention is paid to nonmedicamental therapy, massage modalities being among them [5, 10]. Disabled persons' rehabilitation could be regarded as a set of therapeutic, pedagogical and social measures aimed at restoration (or compensation) of the body functional abnormalities [2, 6, 10]. Currently the studies and experimental data on the effectiveness of massage application in compliance with disabled athletes' traumas and training process characteristics are very scarce and definitely insufficient.

Analysis of current research and publications. The works of Polish scientists Zadarko E., Barabasz Z. (2009) emphasize the significance of locomotor activities for healthy lifestyle [5]. Sir Ludwig Guttmann from the hospital in Stock-Mandeville (England) introduced radical changes into the theory and practice of disabled individuals' rehabilitation, shifting the accent on practicing sports [6, 8]. He described in particular that physical therapy improves general fitness as well as specific physical rates of the patients. Disabled individuals with musculoskeletal impairments get to be actively involved in practicing sports. Analysis of the energy expenditure

indices during walking after prosthetics alongside with practicing mountaineering were Charles Universit (2009), Prague, Czech Republic (2009) by Dr. Paed, Dr. Jan Kalal, CSc, MU Dr. Natalija Vinakurau, Dr. Pavel Kolář [2, 5, 7, 11].

R.Y. Rudenko (2010 – 2016) has carried out a number of research on the effect of physical therapy measures upon physiological condition of athletes with disabilities [5, 7, 9]. Functional capacities of archers with disabilities according to the indicators of muscle strength and sensitivity as well as sense of time before and after control competitions were analyzed by A. Mahlovanyy (2002 - 2019). The author substantiated the necessity of specific physical activities in preparing the athletes with disabilities for training and competitions [2, 4, 6].

The issues of massage effect upon human physiological systems during work-out sessions, planning and enhancement of rehabilitation measures, quality of life improvement, and moulding of mental and emotional endurance of disabled athletes are studied insufficiently and fragmentarily. Researchers emphasize that those problems are waiting their solutions.

Organization of the research. Educational observations were held at the premises of the shooting range of Lviv National Medical University named after Danylo Halytskiy. Twenty qualified athletes (Masters of Sport International Class, Masters of Sport, 1-st category) candidates for the Paralympic national team of Ukraine in archery were involved in the research. Athletes 32-45 years of age with traumas of musculoskeletal system took part, 6 of which were females and 14 males. Their experience of training activity reached from 6 to 10 years. The research lasted 6 months (according to the decision of Ethics Committee of the Lviv National Medical University named after Danylo Halytski, minutes No 2 of February 16, 2015).

Methods of research. Analysis and synthesis of information of scientific, methodical and professional literature; educational observations.

Findings of investigation and their debating. The main purpose of the involvement of disabled individuals into regular exercises is to restore the lost contacts with the surrounding world, to create necessary conditions for social integration, for job satisfaction and health improvement. Besides, engaging in sports assists in

maintaining mental health of this category of the country population, enabling thus their social adaptation and physical rehabilitation [2, 4, 10]. Some nations popularize sports among the halt and the lame for leisure, recreation and communication, for keeping good physical form and general fitness. People with physical impairments usually have problems with independent ambulation, which causes cardiovascular and pulmonary system disorders [10, 11]. World Programme of Actions in support of the disabled individuals reads: "Sports for people with physical impairments meet its recognition of late. The state administrative boards of all the countries should support all kinds of the disabled people's engagement in sports activities through appropriate financial insurance and proper organization of these activities". Provision of equal rights and conditions for the disabled pertaining to their engagement in physical culture and sports activities is considered to be the major attainment of the developed countries [10, 12]. It is commonly acknowledged that the nation's concern and care of its disabled compatriots has become a criterion of the country's cultural and social maturity.

Engagement in vigorous exercises, participation in sports competitions are indispensable forms of communication. Sports contests help to restore psychological balance, remove the feeling of isolation, return self-confidence and self-respect and enable the return to active way of life [2, 10, 13]. Involvement of as many disabled people as possible into sports activities turns to be an effective means of their adaptation and

integration into the society because taking up sports implies the creation of psychic attitude necessary for successful socially useful work. Physical culture and sports activities is an effective and, in some cases, the only way of physical rehabilitation and social adaptation of the disabled people.

Massage and its methodology cause lively interest of late. Traditionally massage is applied for various purposes: for health improvement, conditioning to the cold, as a supplement to medicinal treatment and exercises that produces a positive effect upon functional capacities of the body [9, 14]. Physical education, athletic training, physical rehabilitation, health related activities – these are the integral components of social and pedagogical process implying the leading role of educators, physical therapists and coaches. Hence the effectiveness of the recovery process depends on rehabilitative methods and means which correspond to the level of health, major and accompanying diseases, functional capacities, physical preparedness and individual characteristics of each person. Natural means of health recovery, massage among them, should play a significant role in general health improvement and increase of capacity for work [12, 14]. Correctional massage implements the application of various massage modalities, such as preliminary massage, training and recovery one, massage of paravertebral zones, selective and segmental-responsive massage. The offered methodology applied classical forms and modes of massage (Table 1).

Table 1

Components of the correctional massage subject to physical loads intensity

	Loads of minor intensity	Loads of medium intensity	Loads of big intensity
Massage types	Local massage of separate body areas, selective massage after each work-out session.	Partial massage, selective massage after each work-out session. Segmental-reflective massage. General massage	Brief massage after each work-out session. Selective massage, segmental-reflective

Massage for the disabled athletes should alleviate the course of basic and concomitant diseases, restore work efficiency in order to increase sports results. In particular, after the extremities' amputation a period of locomotory adjustments take place. These changes are connected with the body adaptation to new conditions. Massage application might contribute to positive adaptation

of the organism. Correctional massage for the disabled athletes of all classifications, who underwent amputation is aimed at muscles' atrophy and contractures prevention, elimination of scars and indurations, as well as swellings and pain syndrome. Correctional massage modalities improve metabolic processes, enhance blood supply to the atrophied muscles of the amputated limbs

and facilitate the workout of flexor contractions. For example, a chronic overuse of the healthy extremity is observed, foot and ankle muscles in particular. Massage modalities in this case are aimed at muscle relaxation. Spinal cord traumatic lesions are accompanied with certain locomotion dysfunctions. In case of spine cord compressions or tears flaccid paralysis of lower limbs might occur, alongside with other complications, such as loss of sensitivity (below the level of lesion) or pelvic girdle organs dysfunction. Correctional massage improves blood and lymph circulation, expedites metabolism, alleviates pain, prevents muscles' atrophy, assists in contractures workout of joints in the impaired athletes who suffer from certain injury outcomes, spinal cord diseases or polio aftereffects. Postural distortions, impairments of locomotor analyzer, hyperexcitability,

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