Complex system of adapted exercises with the use of aids for physical training of para-powerlifters

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Abstract

Purpose: Our activity in the Paralympic movement concerns weightlifting, para-powerlifting, in our opinion it is one of the most spectacular sports.

Methods: Having found out the level of movement sequence, we came to the conclusion that it is advisable to choose the method of intensive training in the time limit. To train the Paralympian's muscles according to the principle of "less is better" by S. Macrobert. The point of intensive training in the time limit is to prevent lactation of the muscles involved in the process of exercise, which is largely small bundles and in normal, everyday life has isotonic type of load and the constant pressure of these muscles leads to the accumulation of "lactate" lactic acid. This in turn leads to the production of cortisol, the stress hormone. Often we see that before the start of a training session, powerlifters smear various warming ointments on the body to prevent injuries and reduce the warm-up part of training, the help of these ointments with a warming effect is illusory, and it only blocks the running process of overtraining. Unreasonable approach can also be observed in the absence of a basic training plan, which should be drawn up directly with the participation of the athlete and coach.

Results: An important detail of a pre-determined training plan is that the athlete is physically and psychologically tuned to the training, this will help him provide quality motivation. Conclusion, improvisation in training is not allowed. It is also necessary to determine in advance the limit of training time, the main peak of training. An important role is the dynamics of training, starting with the warm-up and its final part, the warm-up.

Variety of the warm-up part of the training will give the opportunity for optimal mood for the main part of the training, where directly goes the basic exercise of the bench press. Meaning by the word variety, we are talking about the exercises that are performed by the athlete, with the help of specific and non-specific auxiliary exercises of M.A. Godik, as well as auxiliary means and block simulators.

Conlcusion: As a result, this set of adapted training process techniques for physical training, with the inclusion of specific and non-specific exercises and special devices integrated into the training process, which were included in the preparatory cycle in the experimental group, who are members of the Paralympic powerlifting team. Optimization of training time (intensive training in time limit).

Keywords: para-powerlifting, improvement, loads, "smith machine", functional dynamics, experiment.

Introduction

Nowadays, adaptive physical culture (AFC) is one of the main, in some cases the only means for comprehensive adaptation and socialization for persons with disabilities, through sports activities. It helps self-expression in all areas and self-actualization in social life and to be a full member of the society where he/she exists. Comprehensive support of the pedagogical system of AFC and the Paralympic movement is the focus of attention of the state policy of the leadership of Uzbekistan. Decree on additional measures for the development of the Paralympic movement in Uzbekistan. The exercise "bench press" is performed from a lying position on a horizontal bench. A Paralympian athlete performs the bench press without the feet resting on the bench. In this case, the lifter performs the bench press from the supine position with his legs tied above the knee with a flat strap on the bench. This technique multiplies the difficulty of the exercise. It is known that a stable support position during the exercise ensures competent and safe performance of the bench press.

Results and discussion

For this purpose we decided to take into the arsenal of training exercises that are performed with the help of rubber harnesses of different density of stretching and devices for training from the field of armwrestling. As we know that lifting the barbell is performed from the lying position, the lifter after removing the barbell from the rack in static concentrates all the force on the grip and holding the barbell before the start. The cumulative effect of the tension is directed to the lowering of the bar to the chest, from the beginning to the end of the bar lowering in an eccentric position. After the pause, the lifter, without losing or reducing control, and without reducing the maximum tension, starts (restart) lifting the bar in a centric movement, and this is already a reverse cumulative force tension. Imagine, for all the time of static in the starting position and eccentric lowering and fixation in the lower point of the chest and centric restart of the lift, the spinal

Fig. Research process with athlete's





column of the lifter experiences the maximum pressure, and it experiences the maximum pressure of the mass of the bar. The fact is that the lifter performs a diagonal trajectory of amplitude when releasing and especially when lifting the bar; he lifts the bar not vertically, but at an angle from head to chest when lowering and from chest to head when lifting. This trajectory of movement is dictated by the law of biomechanics, we found this out when studying the biomechanics of the movement of the bench press exercise in the scientific laboratory of 3D biomechanics at UzSUPES under the guidance of *S.S. Tadjibaev*.

In the laboratory, we were able to fully study the trajectory of the biomechanics of the bench press exercise performed by a powerlifter in the experimental group. This helped us to adjust and create a set of adapted training methods, including the entire cycle of the training process, specific and non-specific exercises, as well as specialized block simulators. Implementing a variety of training methods and techniques in an integrated combination will help to obtain a positive-stress load on the muscle, which will improve its responsiveness to loads.

This is not an insignificant fact of biomechanics in the bench press exercise, which we managed to find out. That is why we paid attention to the pronator and supinator muscles, as well as to the work of stabilizer muscles. We decided to focus our attention on exercises to develop the forearm muscles, deltoid muscles and of course the back muscles that are directly connected to the vertebral column (OCA). Our goal is to develop these muscles without involving them in the main bench press exercise, as they consist mainly of small bundle muscles. Overloading them can lead to trivial overtraining, but the most dangerous is the development of pathological diseases like osteoporosis and impeachment syndrome. It is also necessary to determine in advance the limit of training time depending on the load of training. An important role is played by the dynamics of the training, starting with the warm-up and its final part, the warm-down.

In our case, when it comes to an individual with a disability, it is a matter of ethics. Diversity in training these muscles in terms of their level of loading for muscles that are far removed from the biomechanics of the bench press will not help avoid excessive cortisol lactation. As you have noticed we pay attention of lifters to the warm-up process. We suggest the following set of exercises. Naturally, the beginning of training includes light gymnastics to develop shoulders, hands, neck, rubbing facial muscles. We start training with the help of rubber harnesses of different density, stretching them, use them as an espander.

The convenience of these means is that they can be carried even by a wheelchair athlete, and the versatility and simplicity of rubber harnesses, and their use can be limited only by the imagination of the athlete himself. The next

exercises are block trainers. The amplitude of their movements is limited, but does not interfere with the muscles of the arms, back, warms up without much effort, in addition, some block trainers as “Gravitron” and “Crossover” without much difficulty can warm up any athlete regardless of his weight, qualification and pathology. A special role in the warm-up part of the training, we saw an exercise from the arm-wrestling arsenal, as we have already mentioned, the muscles of the forearm. We would like to point out that all the exercises we offer are subject to adjustment and individualization for each athlete.

Conclusion

We were able to reduce fatigue and oxidation of muscle activity to a minimum. By diversifying the warm-up and warm-down parts of training, we managed to prevent overloading of the muscle structure and fatigue (CNS). The innovative “Round Support” simulator we built was very warmly received by the athletes and we developed exercises for this simulator, which were also included in the training process. The discomfort and cramps that were bothering the athletes before the experiment were reduced to a minimum, as evidenced by the overall positive attitude of the athletes that we observed at the beginning of the experiment.

The next exercise machine we present to you is called “Round Support”, which we have designed as a multifunctional bar for the development of the forearm, biceps and triceps muscles, which is capable of performing exercises in three dimensions. Not only can you perform flexion and extension, but you can also load both pronator and supinator muscles in the same movement. We have increased its useful movement coefficient so much that it is possible to set aside a separate training cycle only with the “Round Support” bar, it will be like a separate training with a set of exercises that includes the whole range of muscles of the torso frame.

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