

On the Training of Functional Movement from the Perspective of Human Motion Chain

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ABSTRACT. *from the perspective of the movement chain of human body, this paper analyzes the training of human functional movement, and emphasizes the unity of consciousness and muscle in the process of movement training. Hopefully through the analysis, the paper can be useful, it can be helpful for athletes and sports enthusiasts in functional movement training.*

KEYWORDS: *Human movement chain, Functional action, Training*

1. Introduction

Foreword: functional training was only used in rehabilitation training after disease, injury or operation, but with the continuous development of functional training, people also applied this training method to the training of athletes. Through reasonable functional training, it can effectively reduce the probability of injury and improve the performance of athletes. With the development of sports chain research, people pay more and more attention to the functional movement training from the perspective of sports chain.

2. Description of Functional Movement Training

2.1 Various Angle Exercises in the Plane of Kinematic Chain

In the human body, most of the muscle groups are in the form of longitudinal arrangement, But only the external oblique abdominal muscle and the quadratus psoas muscle are in the form of oblique arrangement, which can provide power for the flexion, extension, lateral flexion and torsion of the human body trunk. Through the combination of functional actions, the human body can complete various complex actions, such as some competitive actions. These actions can be performed in the Two or more planes. Therefore, in the training of functional movements, it is necessary to focus on coordinating exercises from multiple angles in the plane of the sports chain. [1]

2.2 Core Strength Training

In the process of functional movement training, an important content is the stability of the core part. According to the relevant physical principles, when the lower limbs produce a forward rotating moment, other parts will also produce a rotating moment, which is just opposite to the moment produced by the lower limbs, only in this way can we achieve a state of balance. In this process, the core part can stabilize the body's center of gravity, relieve the body's force, and at the same time, it can also play a conductive role in the force, thus driving the coordination and cooperation between the upper and lower limbs of the human body, which will play a connecting role in the integration of the whole body force [2]. The core muscle group can control every movement state of human limbs. Through this huge core force, human trunk can keep stable, and the stress of limbs can be controlled reasonably. Therefore, in the process of functional movement training, one of the main contents is to exercise the core strength.

2.3 Dynamic Balance under the Control of Action Integration

The human body can be divided into several different links, and each link can be connected to form a movement chain. When it acts on the movement chain effectively, each link will also have a relatively changing trend. Different joints and muscles will be integrated to comply with a mechanical law consistent with the

movement chain, which is in today's operation Mobilization training process can be said to be an ideal state. According to the relevant research and practice, it is found that reasonable functional strength training can make the trunk and limbs of athletes form an elastic body under the control of their consciousness, and then make all sports run through from the inside out, from the near to the far. Through the step-by-step acceleration of the sports chain, the terminal link can get the maximum acceleration [3].

3. The Significance of Functional Movement Training from the Perspective of Human Motion Chain

3.1 Improvement of Training Efficiency

As far as the mechanism of sports biology is concerned, the effect of training can only be transferred to the real competition through the training of neuromuscular recruitment similar to the competition. As far as the current physical training is concerned, some physical training items not only have relatively simple technical characteristics, but also have periodic characteristics, such as track and field training, swimming training and rowing training. Compared with some foreign high-level training, what these physical training items lack is not only the amount of exercise, but also whether they have the ability in the training process Special pertinence. The traditional periodic physical training theory still has a great influence on the current physical training in China. In China, many athletes, even the first-line athletes, only pay attention to the amount of exercise in the process of physical training, and consider that as long as the amount of exercise is guaranteed, good training results can be achieved [4]. However, this kind of non-special training method will cause great harm to some athletes who majors in fast-and-short distance sports, especially those who are mainly in anaerobic sports.

Such training can not make the physiological load of athletes meet the special requirements, nor can it break through the existing limits of athletes. For example, the neuromuscular system is very sensitive to the adaptability of training intensity. If it is maintained under training stimulation with insufficient intensity for a long time, it can only benefit the good development of slow muscle fiber. Some intermediate fibers will gradually change into slow muscle fiber, and even some typical fast muscle fiber organizations and functions will develop in the direction of slow muscle fiber, such as The increase of oxygen capacity and the number of mitochondria. This situation will further reduce the efficiency of training, so that the training of athletes can never achieve the expected results.

One of the major advantages of functional movement training is that it can constantly refresh the understanding of the nature and characteristics of the project, so that the athletes can grasp the characteristics of the training project, and achieve continuous innovation in the continuous training. Through functional movement training, not only can athletes' physical strength and technology meet their own competition needs, it can also make it constantly adapt to technical actions in different environments. Therefore, functional movement training can not only improve the speed, coordination, flexibility and balance ability of athletes, but also directly help athletes to achieve the overall improvement of their own special ability.

It can be seen that functional movement training can play a direct role in the development of athletes' special physical ability and technology. Through functional movement training, the potential of athletes can be further explored, the maturity of their technology can be further shortened, and then the training efficiency can be further improved.

3.2 Strengthening of Core Muscle Strength

When the human body completes a technical action, the body participating in the action will be connected into a "chain", and every part of the athlete's body participating in the completion of the action belongs to a link in the "chain", and the completion of the technical action is also realized by the momentum transfer of each link. The area from the diaphragm down to the pelvic floor belongs to the core area, which can play a connecting role in momentum transmission and also a hub in the movement chain [5].

In the process of movement, the center of gravity of the human body will be in a state of ups and downs. With the continuous change of posture, the trunk can always be kept in a state of balance and stability, imbalance and instability, and balance and stability. In this process, the core strength is the key to adjust the posture of the human body and maintain the balance of the trunk. It is the training of other forces The basis of practice.

For example, in the service training of tennis players, with the help of a pulley device which has resistance, including shoulder, chest, upper arm and trunk to imitate the swing of the racket, the core muscle will play a key role in the stability of the forehand and backhand strength, while the badminton players wear sand clothes for

training It can also directly strengthen its own core strength.

3.3 Effective Prevention of Sports Injury

In terms of the anatomical orientation of the human body, there are three mutually perpendicular basic planes and basic axes. When the human body is doing multi-joint movements in a three-dimensional space, such as flexion, extension, lateral flexion and rotation, if only the traditional training methods are used to do single dimensional exercise training, the trunk lateral flexion and torsion muscles will not be strengthened correspondingly. In this case, the primary motivation and antagonistic muscles in the core muscle group will become more developed, and the strength between the fixed muscle and the neutralizing muscle will also become unbalanced, which will easily lead to the decrease of trunk stability, or the occurrence of joint position deviation, and further cause sports injury. In this case, the training of athletes will aggravate their pain, further reduce their muscle strength, and fall into a vicious circle [6].

From the point of view of anatomy and sports chain, functional movement training introduces the compound training of oblique, rotation, flexion and extension in sports practice, and designs various training forms carefully according to the characteristics of specific projects, so as to ensure that every muscle of athletes participates in the training and promote the balance of muscle group development. In this way, we can effectively avoid the occurrence of sports injuries.

4. Concluding Remarks:

To sum up, training of many athletes today still adheres to the exercise-amount-focusing principle, which can not achieve, such training not only can not achieve satisfactory results, and even counterproductive. Therefore, this paper analyzes the functional movement training from the perspective of human body movement chain. Hopefully through through the analysis of this paper, athletes, coaches and sports fans can understand the significance of functional movement training more comprehensively, and then play a certain role in improving the training effect.

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