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## New Interpretation of Plate Structure Theory Optimization Design Training Program

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# New Interpretation of Plate Structure Theory Optimization Design Training Program

Wen Bo<sup>α</sup> & Wen Tian Yang<sup>σ</sup>

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## I. THIS PAPER

In the process of modern sports training, systematic control, biochemical detection and scientific and efficient sports training have become an effective way to train professional athletes' high-level competitive ability and optimal competitive state, and are a practical problem concerned by scientific research on sports training of competitive sports. Training scholar Ver. Esheshanskii) proposed a new theory of "periodic training", that is, the training mode known as "plate". From the "general training and specific training" and "training volume and training intensity" point of the process of interpreting training for different types of sports from the aspects of the quality and ability of concrete to training arrangement, based on the characteristics of high level athletes training "concentrated load effect" training method is proposed, which is a key factor for athletes special performance and relatively weak quality concentrated in the form of plates inserted into the training cycle, the total load exercise under the condition of relatively constant, increase the quality and ability of sports training load. Through its centralized training and priority development, the achievement of special sports can be

improved. The theoretical model of "plate" training is based on the adaptation theory of human biology, which interprets the process of sports training as an adaptation cycle. The training process is divided into three stages: the first stage is the special basic training stage. The main task of this stage is to develop the athletes' potential for special competitions. The second stage is a special training stage. The main task of this stage is to enable athletes to make full use of their improved sports potential and show it by gradually increasing the intensity of the competition. The third stage is the main competition stage, which is the end of an adaptive cycle. The main task of this stage is to maximize the performance of the athletes' improved sports potential in a typical competition.

Plate training focuses on selectively identifying a few qualities for intensive training within 3-4 weeks. To enable high-level athletes to receive a single or two relatively large training stimuli in a relatively concentrated time, and check the training effect through physical quality, competition performance and physiological, biochemical and medical indicators in each training section. In this way, the three or four sections constitute the training preparation period. In the annual training cycle, different sports training loads and objectives are converted. In the theory of plate mode training, the preparatory period should also be arranged to participate in the competition, and the basic training should also be arranged in the competition period. This basis is professional athlete is in high level athletic training, the stimulation of training already cannot achieve to athlete high intensity requirement and excitement point, must pass attend a competition to come true high intensity changes. "Plate" the essence of the theory of training is to make the cycle training theories in high level athletes training in a variety of quality under parallel development is not, as the key to minimize negative factors, through one by one "the organic combination of plate structure, centrally developed the athletes' special ability, solved in a" plate structure ", "plate" and "plate", different load characteristics and load size between the quality and ability of different organic ground recovery and cohesion. "Plate" training mode emphasizes the special training, so training "plate structure" theory for a long time to maintain a high level player continuous competition ability will become the important guiding

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role of competitive projects, buoyed by the strength of the body, to obtain the function of competitive state reserves, special means of training and exercise load can effectively improve the athletes' special performance, can make the athlete body in shape, structure and function to hold special direction, the run-up to professional athletes in the competition ability of competitive state. For the development of the competitive state of professional athletes or athletic ability, on the basis of biology to acquire the basis, solve the problem of improving special sport technology, the characteristics of the future training of scientific development, effective support to the formation of competitive stage and diversified characteristics, the regularity of formation of professional athletes competitive state, the training mode of sports training this is conditioned by many factors influence of track and field sports, to a high degree of coaches through training stage and different training phases, training means and different load exercise, can more easily control into the general law in sports training. As the athletics sports limit peak, the competition between the high level athletes differences often performance is only one percent "seconds" or "one centimeter", this special ability for professional athletes, must be accurate planning, design and training of monitoring in sports training, extensive training theory it is difficult to guide the high level athletes in training. The theory of plate training is that there are some gaps in these aspects;

The lack of necessary energy reserve training in the plate training plan is not due to the placement of certain required qualities, but the inability to form a large period wavy curve. What is concerned is not the excess recovery process of athletes, but the excessive focus on special achievements and big prize competitions. The monotonous disconnection curve formed by the quality of the training and development unit of the plate does not grow the overall medium - and long-term training plan content of the chain, and it is unable to link and develop another quality in detail. It repeatedly lacks the necessary link process. If the link is re-linked, the phenomenon of repeated docking will occur, which reduces the over-recovery process of further improvement.

Plate training without full preparation, if during the period of preparation training prepare adequately for the athletes, sustainability is not systematic, metabolism will make energy reserves are missing, really come to the race will generate power is insufficient, affect the athletic state, frequent games in a row, consume large amounts of energy to deal with the winter and summer games. Actually plate structure is not a small cycle for game plan, is clear for performance and local design, plate structure is not the overall layout, do not have long-term overall design, lack of development of the concept of comprehensive quality, design do not have

enough time for short, if is the elder, big intensity caused by injury, athletes sporting life will retire ahead of schedule because of the heavy injury.

Plate structure priority to the development of training which training content plate, should be fully on the basis of biochemical data, not with coaches feeling experience or training plan, and scientific training plan, based on the scientific technology and methods, such as a muscle cell fission, that fine muscle cell fission to what degree, scientific training, selection of plate structure after training, the training of the plates now meticulous and complete enough, can't reflect fine accuracy, diversified, three-dimensional multifaceted structure characteristics of thinking. For example, aerobic training is used to strengthen the ability of anaerobic projects, plateau hypoxia training is used to enhance the endurance of aerobic projects, and biochemical indicators used as the theoretical basis for plate training will be more objective and persuasive. The principle of the objective reality of the real, there are a lot of movement to be meticulous research, such as complex formation law of sandstrom, high level technology development speed, improve the power law, accumulation change quality, the low level to high level factors, quality training structure, many training law phenomenon are outside the cycle training principles.

In the face of training practice, it should be refined to refer to the biochemical data of athletes, physiological functions and the reference data of various bodily functions, such as blood lactic acid volume, oxygen debt capacity, muscle hemoglobin quantity and muscle cell mitochondria. If there are high levels of energy reserves plate training plan, now coaches to use good biological monitoring measures, and ensure athletes to achieve a high level of long-term exercise load capacity, monitoring and control, the implementation of good sports load, improve the level of professional core capacity, a variety of strength quality is different, is different solutions to improve.

Plate can't wave curve bridge for medium and long-term plan, training structure is divided into strength cycle, density and strength cycle, plate structure provides training coaches often change program content, and free transform the chances of training goals, links are not considerate not closely, lack of considering the excess resume link plate structure, strengthen to the defects of continuous intensive training.

Lack of physiological and biochemical experimental data that can reflect the various functions of athletes' bodies. During the period of cell fission, muscle tissue protein declines, cell growth cycle is accelerated, and cell growth cycle is destroyed. Incomplete physical quality simply pursues competitive status, which weakens the link of a certain quality and leads to premature injury. When the mitochondrial

membrane function was fatigue, the generation of oxygen free radicals increased, the peroxidation level of membrane lipid increased, and the phospholipid content and membrane fluidity decreased. The destruction of mitochondrial membrane structure and function is an important reason for the decrease of energy generation and sports fatigue. In the state of exhaustion, the normal structure and function of mitochondria are seriously damaged, which can cause many factors to induce apoptosis. Mitochondria are the control center of cell apoptosis, and there is a very close relationship between the changes of their structure and function and apoptosis. The intensity of sports training will have different effects on human mitochondria.

## II. OPTIMIZE THE STRUCTURE OF TRAINING PLAN

To further examine the practical effect of plate structure training, coaches should accurately design and grasp the maximum training efficiency. For the purpose of plate structure training, we should not rush for the purpose of competitive performance. There are many health factors in the training. If we fail to fully understand it, we will have to follow the plate structure training mode in all sports and at all levels, at the expense of the athletes' sports life. After the end of a plate training period, there is a lack of necessary continuity, and there is a new plate training plan. Next, if there is a lack of scientific and reasonable basis for the selection of plate training, it is relatively imprecise and specific. Attention should be paid to the following;

Plate training is mainly designed for high-level athletes. Priority should be given to the training plates that have an impact on and play a key role in improving athletes' special performance, and then to the training plates that are relatively weak in athletes' quality. Training plan plates, change a plate, plate to connect the next training should be built-in main continuous nature, especially athletes mainly ability quality, not stagnation, should consider the development of special ability of training means, sports load properties, physiological load of exercise load change basically consistent, stable running from training the mainstream of the fault situation, focus on comprehensive physical quality foundation.

The total load and amount of exercise during the training shall not fluctuate abruptly due to the change of training plate, unless the athletes suffer from injuries or heavy and large competitions. The intensive training cycle of the training plate for athletes should not exceed 4 weeks. The training recovery plate should be relatively independent and should not be mixed in the training plate for improving the quality of athletes. Coaches are ready for the competition. Before the competition in 2-3 weeks, there should be a technical

training content section to solve the technical problems of athletes, close to the intensity of the competition, check the technical problems of athletes, the process of the technical training section has the characteristics of integration, adjustment and recovery, and then improve the competitive state.

In the training plan for athletes of long jump, triple jump, high jump and pole vault, there are two parts to formulate the content of plate structure: focus on improving the special quality and compatible auxiliary quality. For example, to develop the maximum strength of athletes, it is necessary to combine the fast jumping training to improve the quality of muscle speed and strength. For example, to develop athletes' special jumping skills, it is necessary to complete technical movements in a fast rhythm, combined with fast strength training. In order to improve the running speed training of athletes, it is necessary to combine sprinting speed training to improve the lactate free ability level. For example, to improve athletes' muscle explosive power, it is necessary to combine special strength quality and aerobic rehabilitation training. In order to improve the strength and endurance of athletes, glycolysis level should be combined to improve the non-oxidative endurance.

In the long jump, triple jump, high jump, pole vault athletes competitive state in the process of the formation, not because the athlete special features affect the competitive state, but due to the short, limiting the athletes special features of the play, very important is to strengthen the training of the ability quality, short, plate special content and compatibility in training quality to improve the level of competitive ability has very big effect. In-depth understanding of the details of the training law, the internal relationship between the quality, sports characteristics, the role of each plate structure in the development of athletes' ability, the role of improving performance, the weight of the sports load on the role of the body, these are related to the improvement of athletes' physical quality level. Different special sports loads interact with each other and have different effects on the body. The results generated between the effects are also regular and can be followed. Jumping events of track and field plate structure training mission, focus on the development of special quality, to be compatible with other qualities, have different special characteristics, such as the development of maximum strength, must be combined with explosive force training, special technical training, have no ability to lactic acid, such as development to combine fast strength training and aerobic training, such as the development of technical ability training to combine rapid run ability training. For example, after the development of the maximum strength training section lasts for 3 weeks, there should be a small recovery cycle, a gap micro cycle, and some aerobic exercises to

buffer the transition to the next training. The next step is to choose fast strength training to enhance the obvious effect of specific ability. According to the laws of the human body muscle cell fission, the growth of muscle cells, mature degradation period, medium weight training for athletes body recovery time need at least 24 hours, the maximum load training of athletes body recovery time needs at least 48 hours, the limit load of athletes training the body recovery time need at least 72 hours, whether it's ability to stay in motion, or improve the development of sports ability is need enough time to recover, but, at present professional athletes didn't make full use of recovery time, most of the training is in the condition of fatigue, often under the three times a day for training, The means to restore the process are increasingly necessary.

Pursue multidimensional structure characteristics of the plate structure of training, provide the basis of plate training plan, the largest value scientific rationalization, comprehensive participation training plan using a variety of disciplines, such as intensive training top curve (including the results of the competition), end of wave crest and wave difference do not issue a visa more than 4 weeks, not less than 7 days, big density training day interval should be in 3 days to recover completely, this respect, the regularities of exercise training can reduce the blindness of training guidance. Adhere to the principle of training means diversification, although in each task and content includes development training plate 1-2 special quality and compatible with auxiliary quality, this does not mean that the training methods of the rationality of simplified single, make use of training means diversification in the training session, it is advantageous to the comprehensive development of athletes special physical quality, to improve special performance. Zhu jianhua, the former high jump world record holder, has a successful training practice example.

Professional athletes in training load a fatigue, restore to improve the process and the time is different, if do not have enough time to give each quality and capability adaptability to improve and maintain, some quality and ability is lost or fall, especially for jumping special ability has the ability to support this is disadvantage to improve the ability of athletes. This requires more scientific training arrangements for coaches. Due to the complexity of the interaction of various abilities, it is difficult to apply the study of human sports biology to improve the accuracy and subtlety of adaptability of each training unit and training week for different events, athletes' qualities and abilities. Training cycle and "plate structure theory, is based on outstanding development of core competence, the training content is in accordance with the special ability to play a central role adaptability to schedule, quality and ability needed by each class session key stimuli

and continuous stimulation depth, in order to realize the professional athletes beyond the original adaptive fitness levels, to expect to achieve higher level to adapt to the physical stamina training. At the same time in improving the quality and ability of the practice interlaced with some compatibility can play a regulatory and auxiliary role. In terms of professional athletes the principle of adaptation, the quality and ability of a single of the flexibility of the time, compared to the cycle training preparation more emphasis on the quality and ability of parallel development is relatively easy to control, at the same time jump special core competence on the body caused by fatigue is effective, less effect on the overall training fatigue.

During the preparation period, the development speed training mainly focuses on 150-200 meters distance running, with the maximum development speed of moderate intensity running and the proportion of high-intensity running less than 100 meters distance. Develop leg leg strength in preparation period, undertake core strength training first, because athlete jumps motive force to come from lumbar back abdominal muscle.

### III. CONCLUSION

To improve athletes' performance in competition, it is necessary to update and improve the theoretical thinking of training, and to study the core essence of sports training, so as to conform to the new trend of the development of competitive sports in the modern world. The training theory has become an important guiding role for the long-term maintenance of the continuous competition ability of high-level athletes in competitive events. Analysis and study movement systems have different effects on training, to applicable range, control theory, high quality of the training phase, the training content to make buoyed by the strength of the body, to obtain the function of competitive state reserves, special training means and exercise load can effectively improve the athletes' sport achievement, therefore, should weaken run-up professional athletes in the competition ability of competitive state, beneficial to the development or professional athletes competitive state competitive ability training, for enrichment, out on the basis of solve the problem of improve the level of sport technology, in line with the training of scientific development, development need the support of physiology theory in biology, To form diversified characteristics of competitive state, explore the law of the formation of competitive state of professional athletes, enrich and develop the training theory needs the innovation of training thoughts.