

A Summary of the Research Status of Special Strength Training for Boxers

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Abstract

Under the rule of 10-point system, fierce confrontation has once again become the essence of boxing stage. An effective fist with both strength and speed will directly have a great deterrent effect on the opponent's technical and tactical level, thus directly affecting the result of the match. And the quality of special strength is the basis of effective boxing and strong confrontation, which makes strengthening the research on special strength training become the key part of improving the competition level of Chinese boxers at present. In this paper, the methods of literature review and comparative analysis are adopted to carefully sort out and deeply analyze the relevant researches on special strength training in boxing. Based on the summary of domestic scientific research achievements and the reference of foreign excellent experience, the core status of special strength training in boxing is demonstrated and the scientific and effective methods of special strength training are discussed. Finally, it comes to the following conclusion: Scientific and effective special strength training can directly affect the punching power and speed of athletes, improve the utilization rate of effective boxing in the arena, and provide guarantee for victory with deterrence, which reflects its application value; At the same time for China's boxing athletes to improve their own level, break through the bottleneck, in theory and practice has an important guiding significance.

Keywords

Boxing; Strength Training; Special Forces.

1. The importance of special boxing force under the new rules

Boxing, as a fierce dueling event, requires both players to have physical strength, skill, fighting ability, intelligence and other aspects under the guidance of established rules and technical and tactical restrictions. This requires the boxing athletes want to have good physical quality, intelligent mind and strong willpower, etc., and in many indicators, the power quality is the key, under the new rules, "the fierce confrontation" once again become the essence of boxing stage, whether it is caused by effective strike or KO score, all athletes must has the power of absolute advantage. In a match of the same class, an effective fist with both strength and speed will directly have a great deterrent effect on the opponent's technical and tactical level, thus directly affecting the result of the match. The impact is the primary index to measure the effective fist, the impact is proportional to the impact, the impact of a strong impact depends on the impact of a strong force. Therefore, strength quality is the foundation of boxing players' ability to fight [1].

As the core part of boxing athletes' daily training, strength quality training is divided into basic strength training and special strength training. Basic strength training refers to the training that promotes the strength development of all parts of the body of athletes. It is the basis of special strength training. Special strength is the strength generated by muscle contraction during specific activities. Special strength training for boxers can improve strength reserve and guarantee the quality of boxing technical movements. Boxing's special strength training is divided into maximum strength training, speed strength training and strength endurance training. The striking effect of an effective fist comes from the striking force, so the maximum force is the foundation of the boxer's strength quality. Speed power has a direct impact on athletes' explosive power. In competitions, the dominant party in speed power tends to gain higher punching frequency and speed, thus inhibiting the opponents' technical and tactical level and taking the initiative[2]. Under the new rules, boxers are required to fight

multiple rounds of three minutes each, with a one-minute break in between. This requires not only strength and speed, but also strength and endurance for subsequent rounds. Otherwise, it will reduce the punching speed and power, and ultimately affect the performance of the game.

In recent years, though, Chinese boxers have made great achievements on the world stage. However, due to the gap in physical quality and training methods, there is still a gap between Chinese boxers and European and American boxers in terms of heavy boxing and strong fighting ability. And the special strength quality is the foundation of heavy boxing and strong confrontation, which makes the research on strengthening the special strength training become the key part to improve the competition level of Chinese boxers.

2. Research status of domestic boxing special strength

Xu Guowei divided the strength of boxing into basic strength, strike force, lasting force and bearing force. He thought that the strength needed in boxing attack and defense not only depends on the size of absolute force, but also needs to improve the ability to use force. From the point of view of general force and special force in modern power classification method, there is no doubt that basic force belongs to general force, while striking force, lasting force and bearing force belong to the category of special force. This classification method is too broadly defined to cover the full range of force requirements required for boxing and is not sufficient to support modern specialized training needs. Wei Jinping, Bao Shanjun divided the boxing special strength into three, that boxing special strength includes maximum strength, speed strength and strength endurance. However, this classification method is still macroscopic and has no substantial difference with the three basic qualities of human body: strength, speed and endurance. It is still the general expression of physical quality. To sum up, in the past, the classification of boxing special strength in China was mostly defined from the macro level and reflected the general characteristics of boxing force demand, but the precise demand on the micro level was seldom met. With the development of scientific training, more scientific and detailed classification standards are urgently needed in the field of boxing special strength.

In 2005, Wei divided special strength training into maximum strength training, speed strength training and endurance strength training. In the training process, it is required to adopt the cycle training method and increase the physiological cross section of muscles through small and medium weights of barbells and dumbbells. Although the early training method fails to show the obvious difference with the general strength training, it promotes the status of strength training in boxing training and lays a foundation for the later research. In 2008, Bao Shanjun made an experimental analysis of special strength training in boxing training with 20 boxers as research objects. Bao Shanjun, based on the generality of special strength training, analyzed the particularity of special strength training in boxing, and believed that the development of maximum strength mainly paid attention to the guarantee of strength. It strives to find out the reasonable quantity and intensity of strength endurance, speed strength and maximum strength through testing, so as to seek out the scientific training methods and means. Although some specific training ideas have been obtained, it still belongs to the summary of practical experience around the general training content, which has important guiding significance for the future research on boxing special strength. In 2012, Su Yanju started from a new perspective and focused his research on the effects of lower limbs and torso on boxing striking power. The boxer is regarded as an organic whole, and the boxing strength training is a systematic project. The key to the boxing strength training is to determine the characteristics of the boxing special strength and improve the starting strength of the special boxing. In the course of the research, the author found and pointed out the mistake of boxing strength training, and emphasized the core position of strength training in boxing training. As for the special strength training method, While summarizing and absorbing the beneficial experience of predecessors, Su Yanju compared and analyzed the research theories of many scholars, found contradictory research conclusions and pointed out the shortcomings. For example, Ren Qiang believes that compared with the strength training with medium load intensity, the strength training with small load is conducive to improving the athletes' movement speed, which is more suitable for boxing. Xiang Jianhua believes that 60 to 80 percent of moderate intensity load

should be used for fast strength training. The contradictory viewpoints of the two scholars reflect the erroneous zone of boxing strength training from one side.

After that, from 2013 to 2015, the development of special strength training as a key part of daily training has become a major development trend of the current world boxing strength training, the special strength training system is also more detailed. Su Yanju kept exploring in the field of special strength training for lower limbs, conducted interviews with coaches and athletes who participated in the 2011 National Boxing Championship, and conducted research and design of auxiliary training equipment to reflect the relative lack of special strength training equipment and other problems. Using the experimental method, data collection and statistical calculation processing were conducted on 16 male boxers in Shanghai through two THREE-DIMENSIONAL force measurement stations (Kistler, Switzerland) and high-speed infrared camera system (Vicon, UK). It proves the practicability of the special strength training and monitoring system of boxing. And in 2015, more precise requirements were put forward for boxers' lower extremity special strength training. It was believed that the former fist and the latter fist were treated differently in terms of load intensity. It is suggested that the load intensity arrangement of the special strength training of the lower limbs of the back fist should meet the requirements of the explosive force training, and the load intensity should be higher than that of the straight fist before, with the load intensity being 50% ~ 60% of the maximum strength. In 2016, Song Zhaoming through studying international QuanLian 2013 new rules for the effects of the boxing athletes punch technology and the rules change before and after the two world series final world championships (2013 and 2012 London Olympic Games) and the rules change after the domestic and foreign competition final (2015 national championship and 2015 world championships) athletes punches contrastive analysis of the technology application situation, proposed: international QuanLian 2013 rules change the core is to enhance the competition of antagonism, encourage the two sides take the initiative to attack, and combination to use the number of times the requirements about the quality of the punch is higher. Compared with foreign athletes, Chinese athletes have weaker control over the competition, which is embodied in the lower effectiveness of punches and the lower quality of punches. But the strength quality is the foundation of punching quality, the strength quality level is relatively weak limits our country boxers to play in the confrontation process, is hinders our country boxers to further improve the competitive strength of the bottleneck. Therefore, in order to improve the punching quality, strengthen the ability of confrontation and field control, it is necessary to work hard on the special strength training method. Song Zhaoming from microcosmic view, through the experimental method, this paper puts forward and proved in the field of special strength training of big importance of core strength training, believe the body core strength enhancement, is advantageous to the punches to maintain correct body posture and center of gravity change, thus improve the maximum punch speed, thus improve the quality of punches, core strength training should become the boxing project is an urgent need to introduce a method of training.

To sum up, before 2012, most of the research theories on boxing special strength training in China came from practice summary and perceptual knowledge. More from a macro perspective, the characteristics of boxing special strength were analyzed, and the determination of load lacked theoretical support. However, the research of many scholars involves a large number of training methods, which are too broad and mostly belong to the general strength training category, unable to meet the current situation of the rapid development of Chinese boxing and the need to participate in the fierce competition in the international boxing arena. There are few specific studies on special strength training, which can not meet the needs of special strength training for high-level athletes.

In recent years, as China has been on the road to becoming a sports power, The level of Boxing in China has also improved. In order to continuously improve the scientific degree of boxing strength training, the theoretical research Angle of boxing workers has also changed from the macro to the micro field, and the research focus has also shifted from the general force to the special force. The continuous narrowing of the research scope can be seen from the continuous progress of boxing research theory in China, which is inseparable from the efforts of boxing workers.

3. Research experience of foreign excellent boxing special strength

In terms of the definition of the concept of special power, foreign scholars Such as Tundo Pompa and Wayne Geimber think that special power is the power to participate in the completion of special sports muscle groups, and it has a high specificity both in mechanism and speed. Because it mimics the movement of the joints involved in motor skills. [3]Relative to the special strength training method, the perspective of strength training research abroad more focused on the physiological basis of strength training research, such as the United States, Australia, the UK is the high-yield country strength training, study abroad, WJKreamer, CarlM. Aresh as leader of strength training research such as scholars, its research has important guiding significance for the related research in our country. In the early foreign studies, it has been proposed and demonstrated that relevant strength training is very necessary to improve the performance of boxers, whose role is not only to improve the muscular endurance level, but also to help athletes control their weight before the season. In addition, studies have shown that weight gain through strength training does not affect an athlete's physical coordination or flexibility. With the more subtle division of strength quality, Buhler, a famous German strength expert, put forward the concept of "starting strength" and divided it into the category of fast strength, taking the strength generated within 30ms (maximum strength) as the criterion to evaluate the strength of athletes [4]. Buhler made a comparative study on the strength and power generation time of three world-class competitive athletes and drew a graph. Finally, he concluded that boxing needed to complete the hitting action in the shortest time. In order to reduce the time for maximum strength, the starting power played a decisive role. That is, when punching, the acceleration is large to achieve the rapid play of force, so it can be inferred from theory that the growth of boxing strength and speed is synchronous, strength training is an important link to improve the performance of athletes in training. This view is basically consistent with the mainstream view that special strength training is divided into three parts: maximum strength, speed strength and strength endurance. Similarly, Baker's research on the relationship between maximum force and explosive force holds that the development of maximum force can guarantee the improvement of explosive force to the greatest extent, especially the explosive force of upper limbs[5].

In recent years, foreign researchers began to HIT the training, striving to special boxing training combined with high intensity interval training, because of the high boxing itself in accordance with characteristics of intermittent movement, athletes on the field need to various parts of the body with a strong maneuverability and close coordination, and the demand in conformity with the high intermittent training effect. In 2016, Alan, a British physiologist, based on the health status of professional boxers, introduced relevant studies on physiology, strength and conditioning, made a detailed review of boxing training methods, and demonstrated the feasibility and effectiveness of HIT training in boxing special training.

4. Conclusions and suggestions

To sum up, boxing training should be systematic and targeted, and special strength training should be the core of boxing athletes' daily training. In the course of training, athletes should choose the content of special strength training correctly on the basis of comprehensive understanding of the significance of special strength training. In view of their own weaknesses, scientific training is carried out around the maximum strength, speed strength, strength endurance, etc., to improve the quality of special strength, so as to ensure the strike quality and improve the performance on the field. Therefore, it can be concluded that scientific and effective special strength training can directly affect the punching power and punching speed of athletes, improve the utilization rate of effective boxing in the arena, and provide guarantee for victory with deterrence, which reflects its application value. At the same time for China's boxing athletes to improve their own level, break through the bottleneck, in theory and practice has an important guiding significance.

To boxing in future research level, special power breaks down should also continue to work, should jump out of the limitations of the general power from the micro level of the human body structure,

clear in the different parts in the boxing movement is the most important role, through the special strength training to maximize the parts of the special athletic ability, combining HIT integrity training at the same time, let the body function of every part of mutual cooperation, to achieve the best condition, the maximum ability to play.

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