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Original Research Article

Research Progress on Selection Methods of Volleyball Players

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Abstract

Modern volleyball is developing in the direction of fast speed, comprehensive technology, changeable tactics, and fierce confrontation, and the requirements for volleyball players are getting higher and higher. Doing a good job in scientific selection has become one of the prerequisites for climbing the peak of volleyball. In order to select those athletes who love volleyball, who are in good physical condition and have the prospect of training, to make my country's volleyball sport more scientific and standardized, it is necessary to establish a scientific selection index system to provide references for the scientific selection of volleyball players. At this stage, competitive volleyball is becoming increasingly fierce, and the training methods and methods of volleyball teams in various countries tend to be diversified. If they want to stand out in the World Volleyball Federation, the selection of athletes is particularly important, and the selection of athletes is an event in sports training. The first link. This article takes the selection criteria of volleyball players as the research object, trying to find the rules of volleyball players.

Keywords: Volleyball, Athlete Selection, Criteria for Selection.

PREFACE

In today's world, the level of competitive sports is developing rapidly, world records are frequently refreshed, and competition in competitive sports is becoming increasingly fierce. In addition to having extremely high athletic quality and athletic talent, athletes must undergo scientific and reasonable hard training before they can dominate the world sports arena [1]. The competition of the competitive level highlights the competition of talented athletes [2, 3]. The differences in training methods and training methods of various countries are shrinking day by day, and training conditions are becoming more and more consistent. The athletes' innate competitive ability conditions are more important. To catch up with the world's advanced level of sports, we must do a good job in the scientific selection of athletes [4].

Volleyball is the first big ball event China won in the Olympic Games. We need to resolve many conflicts in the cultivation of sports reserve talents. Obviously, this is also the key to the sustainable development of sports in our country. Strengthen research on the sustainable development of volleyball back talents, gradually strengthen the quality and quantity of talents, and establish and perfect Continuous volleyball reserve talent development project [5, 6]. Scientific selection refers to scientific theories and methods, methods used, some data and human evaluation indicators to predict future competitiveness. In a competitive arena, scientific selection of materials can be designed into many methods, very extensive, such as genetics. With the current scientific development of science, morphology, physiology, psychology, sports training and other discipline theories, each province and city also pays great attention to athletes started from childhood, and makes more reasonable use of scientific selection [7]. When selecting outstanding athletes, the level of a volleyball player's competitive ability is mainly determined by the athlete's form, function, quality, skills, psychology and intelligence, and the above factors are combined in a quantitative and qualitative manner. It constitutes a certain level and type of athlete model [8-10]. Therefore, when selecting talents, attention should be paid to selecting those with good physical ability and good intelligence, but it is not easy to choose talents who have the best of both worlds. When there is a contradiction between the two, we should focus on selecting talented players [11]. Because the physical stamina can be improved through training, it is generally more difficult for players with poor intelligence to change through training.

Volleyball has developed rapidly since it was introduced to China in 1905. In 1981, the Chinese

women's volleyball team won the first championship at the 3rd Tokyo Women's Volleyball World Cup. After that, they won the world women's volleyball championship for five consecutive times, creating a "five consecutive championships". The Chinese men's volleyball team won the 1977 World Cup. In a series of competitions in 1978 and 1981, he won the recognition of the world with excellent results. The international ranking rose from 9th to 5th. The achievement of these excellent results is the result of the joint efforts of several generations of volleyball players in our country. It not only created a new era of volleyball and realized Chinese volleyball's desire to "out of Asia and go to the world", but it is also a strong support for the huge reserve force behind my country's volleyball. The result of [12]. Young volleyball players are the cornerstone of the development of volleyball. If Chinese volleyball is to be prosperous, the most important thing is to see whether its reserves are strong [13]. This requires that we must do a good job in the training of reserve forces, and the key factor in the cultivation of reserve talents is the selection of talents, and the scientific selection of athletes is equal to half of the success [14]. With the development of modern science and technology, international advanced training theories and methods have successfully realized world-wide resource sharing along with the construction of a global information resource network. Therefore, when the global various training theories, methods, conditions, and even the level of development are basically the same, the level of competition among athletes from various countries is transformed into the competition of athletes' talents. Therefore, the selection of volleyball players is very important.

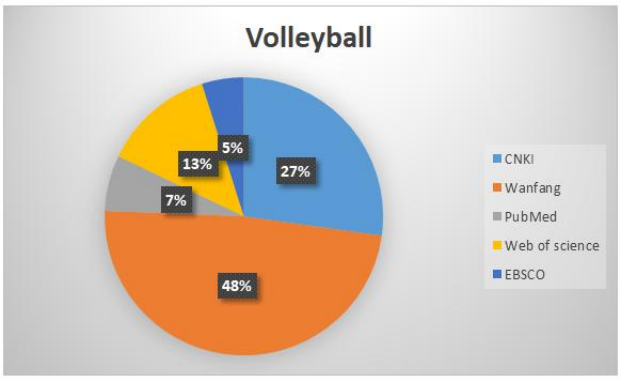
1. LITERATURE REVIEW

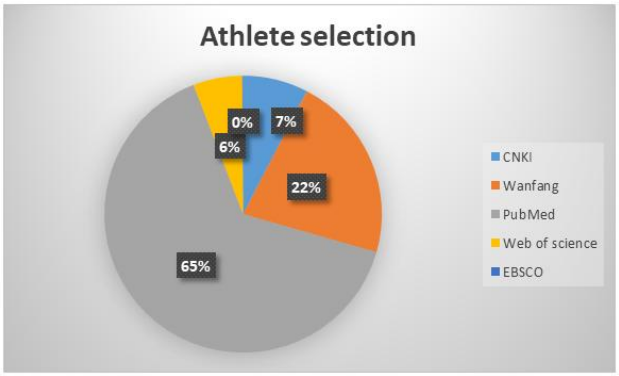
Chinese uses "Volleyball", "Athlete Selection", "Criteria for Selection" as the subject terms. 29,778 documents are searched on "CNKI", and 28,657 documents are found in Wanfang database based on search terms; English uses "Volleyball", "Athlete selection" and "Selection criteria" are search terms, and literature searches are performed on PubMed, Web of science, and EMBSO data sets. The specific search conditions are shown in Table 1.

Table 1: The distribution of keywords in different databases

Category / Database	Volleyball	Athlete selection	Selection criteria	Total
CNKI	8909	2768	18101	29778
Wanfang	15846	7904	4907	28657
PubMed	2115	23480	183185	208780
Web of science	4258	2079	122602	128939
EBSCO	1603	36	9315	10954

According to Table 1, there are a lot of literature studies on volleyball at home and abroad, but the research on the selection of volleyball players is not systematic enough. At the same time, there are relatively few reviews in this area. According to CNKI, Wanfang, PubMed It can be seen from the papers searched by data difficulties such as, Web of science and EMBSO that each database has its own focus on volleyball literature. From Table 1, it can be seen that Wanfang database contains more volleyball-related literature, followed by CNKI. When searching for "Athlete Selection", it was found that PubMed included the most. When searching for "Criteria for Selection", it was found that PubMed included the most literature, followed by Web of science. When comparing Figure 2, it is found that there are the most researches on the selection of volleyball players abroad.





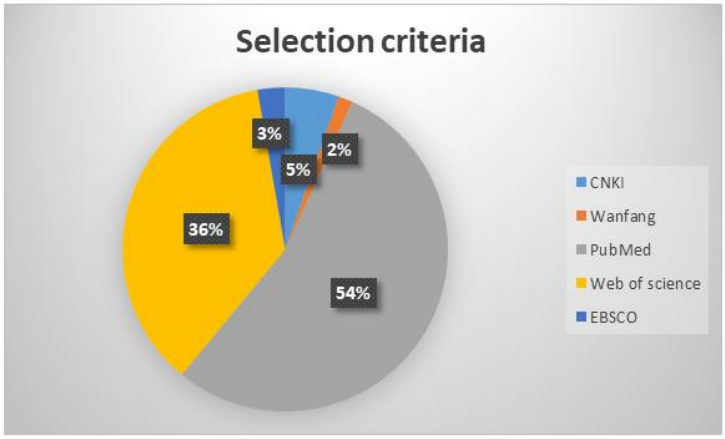


Figure 1: The situation of different keywords in different databases

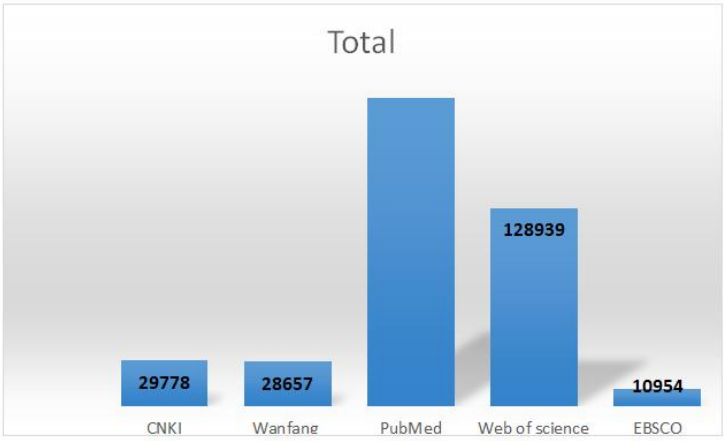


Figure 2: The overall distribution of documents in different databases

After rechecking and screening the retrieved literature, then screening the title of the literature, and then reading the abstract, finally there are 735 literatures related to the selection of volleyball players. The data analysis of the keywords of these literatures is shown in Figure 3. It can be seen from the figure that the literature searched for "volleyball player selection" found that the keywords of these literatures are generally based on keywords such as "Volleyball" and "selection".

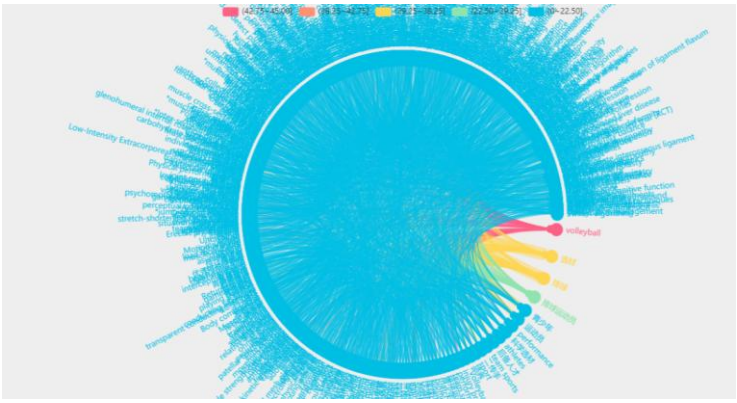


Figure 3: Keyword measurement analysis co-occurrence relationship diagram

2. Definition of related concepts

2.1 Definition of athlete selection abroad

The selection of athletes is a unique term in our country, which is called "ability to confirm" in foreign countries, which refers to the selection of people with certain sports talent or potential from young children, and then carry out sports training for these people. In fact, this is a process from discovery to training, according to children's competition performance and genetic factors as judgment indicators,

combined with the standards of adult athletes to predict them. Because some characteristics of children will continue to exist even in adulthood, according to this principle, the selection of athletes can be carried out in their childhood [4].

2.2 Domestic definition of athlete selection

Material selection has two meanings, one is for people, only to select talents who are suitable for them among many people, and the other is the choice of raw materials and materials. At present, people from all walks of life have not yet reached a unified understanding of the selection of athletes, but the choices of different versions are centered on scientific methods and means, index testing and result analysis, so as to screen out those athletes with sports potential.

3. Present situation of research on talent selection of domestic athletes

After consulting the literature on CNKI, Luo Zhiyong and Mo Shaoqiang (2002) [17] "Analysis of the Status Quo of the Selection of Female Sprinters with the Bone Age of 12-13 Years in Guangxi" analyzed the athletes' form, function, quality and sports skills and found that 12- The 13-year-old skeletal athletes have little correlation with the special sports quality and sports performance. Physical fitness is closely related to athletic ability. Zhang Lingzhi (2019) [18] analyzed the various indicators of rock climbers in the "Analysis of the Current Status of Rock Climbers in Hubei Province" and pointed out the current status of the selection of athletes before, the lack of talent selection, low publicity and unscientific selection methods. Shen Chunmei (2012) [19] analyzed the selection of competitive volleyball players in "The Basis and Standards of Young Volleyball Players" and pointed out that in dealing with the problem of athlete selection and acquired training, it is recommended that coaches must follow the combination of innate and acquired. The combination of conditions and training, the principle of combining subjective and objective, rather than the opposition and rejection of the two. Wang Yunfeng (2019) [20] "Survey and Analysis of the Status Quo of Selection of Young Volleyball Players in Sanya City" analyzed the status of selection, the importance of selection, coaches' awareness of selection and the indicators of selection testing, and pointed out that the importance of the development of athletes Carry out a comprehensive evaluation to improve the coach's comprehensive understanding of the selection of talents. Increase the importance of coaches on athletes' psychology, and pay attention to the use of scientific evaluation methods to evaluate athletes' psychology and IQ indicators. Liu Weimin and Wang Jian (2015) [21] "Reflection and Reconstruction in the Process of Athlete Selection" summarized the current difficulties in selection; 1) the difficulty of using immature genetic variables to predict, 2) using one The limitations of predicting by multi-dimensional genetic factor variables, 3) the validity of using discrete performance variables to predict, 4) the limitations of predicting the athlete's career development filter period, and 5) the lack of attention to the athlete's development ability to predict Success rate problem.

Foreign research on sports selection is relatively early, and a lot of work has been done in the establishment of the selection system, scientific research institutions, facilities, and personnel enrichment, and great results have been achieved. From the perspective of the selection system, there are mainly a centralized system and a decentralized system. Today's world's sports powers all attach great importance to the selection of athletes, and they have not coincidentally listed the selection of athletes as an important aspect of sports scientific research.

Before the 1950s, although countries around the world began to gradually realize the importance of athlete selection, because the research results of many disciplines have not fully penetrated into the field of sports, the selection of athletes at that time lacked the necessary equipment and science and technology. , The more commonly used equipment is still simple measuring tools such as rulers or stopwatches, mainly relying on the experience and intuition of the coaches, this period belongs to the typical experience selection period. After the last century, with the advancement of science and technology and people's attention to sports, sports training methods developed rapidly, and a large number of advanced science and technology and equipment began to enter the field of sports. The former Soviet Union and the former Democratic Germany are particularly prominent, making the selection of athletes increasingly precise and scientific [22]. ``They have done a lot of work in the establishment of the selection system, staffing and equipment allocation, etc. and achieved remarkable results. From the perspective of the establishment of relevant scientific research institutions and the selection of talents, the Soviet Union and Eastern European countries are under the leadership of the national sports authorities, adopting a layered selection method, forming a one-stop system that connects from top to bottom. The state provides support from many aspects such as human and material resources and formulates unified plans for guidance. However, the selection system of the United States and Western European countries is different from that of Eastern Europe or the former Soviet Union. Basically, there is no unified selection system, and to a large extent, the elimination system is adopted.

The former Soviet Union established the All-Soviet Sports Automation Management Research Institute in 1980. It has a huge database containing data on athletes' files, training, and competitions. Among them, the initial level of athletic quality and athletic performance and the speed of improvement are the two

most important data, which carry important information about the future development of young athletes, and are connected to the franchise republics and border regions to achieve resource sharing. In the late 1980s, the former Soviet Union Sports Science Research Institute was the world's largest, highest-level, and strongest competitive sports research organization at the time. The Sports Selection Department was the research organization responsible for the selection of athletes. The Sports Selection Department will divide the selection of athletes into four stages: primary selection, re-election, orientation and run-off, and conduct long-term follow-up research on a large number of young athletes.

Germany also has a special institution-the Department of Natural Science and Medicine of the Institute of Sports Science, which is responsible for organizing and coordinating the selection of reserve athletes [23]. They have also established a huge network of Olympic bases to ensure the system, funding, organization, and personnel facilities, so that the selection and training of athletes can be scientifically implemented. At the Montreal Olympics in 2016, the GDR defeated the United States and stood out. The world was shocked. This small country is only one-fifteenth the size of the United States. Its ability to achieve such impressive results also benefits from its advanced athlete selection system. sex. Some experts believe that "the scientific and systematic selection of athletes for many years is the main reason for the outstanding achievements of the GDR." Unlike European countries, the United States represents another different selection system [11]. They do not organize large-scale censuses and layered selection. In the selection of young athletes, they mainly rely on the experience of coaches and some test indicators. They adopt the natural elimination method in the selection of talents, but there are strict regulations on the selection system. It is to use the game as a lever and rely on the results to speak [23]. In terms of material selection theory, since the 20th century, sports science research has begun to shift to more fields related to human movement, using multi-disciplinary and multi-field experts and scholars to study together, avoiding the problem of a single subject and a single measurement index that cannot fully explain sports performance [24]. At present, the research on athlete selection in the United States has reached the most advanced level in the world, involving sports physiology, sports psychology, sports medicine, statistics, sports genetics and many other disciplines [4, 6, 25]. For example, in the United States, Dr. Pochard proposed a sports performance prediction model, which includes psychological, biological, and morphological variables [11, 26]. Professor De Chas et al. used regression analysis to find that the multi-dimensional material selection model is much better than the single-dimensional model.

Although the selection systems of Western countries are not the same, and each has its own advantages and disadvantages, they have all found methods for selecting volleyball players that suit their own national conditions. Therefore, focusing on the integration of multiple disciplines, actively drawing on the scientific research results of other disciplines, and comprehensively guiding and scientifically selecting materials based on the national conditions and characteristics of the profession, a set of suitable materials selection methods will inevitably be formed.

4. Classification of selection methods for athletes

The selection of materials in my country is generally divided into selection of genetic factors, selection of competitive ability, selection of physiological and biochemical indicators, selection of specific genes, selection of blood types, selection of regions and selection of psychology [12, 27]. Among them, the selection of heritage factors includes the understanding and observation of the health status of the family's immediate family members, the inheritance of morphology, and the inheritance of quality skills; it also includes the study of genetic factors exposed on the body surface, such as dermatoglyph, foot length, finger length to discuss prediction ability. The selection of competitive ability includes seven factors that make up competitive ability: form, skill, quality, technology, tactics, mental ability and intelligence [3]. Physiological and biochemical indicators such as lactate threshold are often used. A specific gene is generally a discussion of genes capable of expressing aerobic and anaerobic capacity. Psychology selection involves the selection of cognitive psychology. However, most articles now focus on the seven elements of composing ability, and most of them are narrative articles. In recent years, empirical studies have mostly focused on dermatology and bone age evaluation [2, 28].

Moreover, according to the athlete training system in my country, the selection of talents is divided into four levels: basic selection, primary selection, intermediate selection, and advanced selection. According to different material selection levels, material selection objects and my country’s "tower-style" training organization form, the main tasks of each selection stage are further determined as shown in Figure 4. As the selection of athletes can be divided into several different levels, and each level has different goals and tasks, the content, methods and means of evaluation are also different. Generally speaking, the higher the level of exercise, the higher the training level, the more comprehensive the evaluation content, the higher the test index standards, and the more thorough and detailed evaluations.

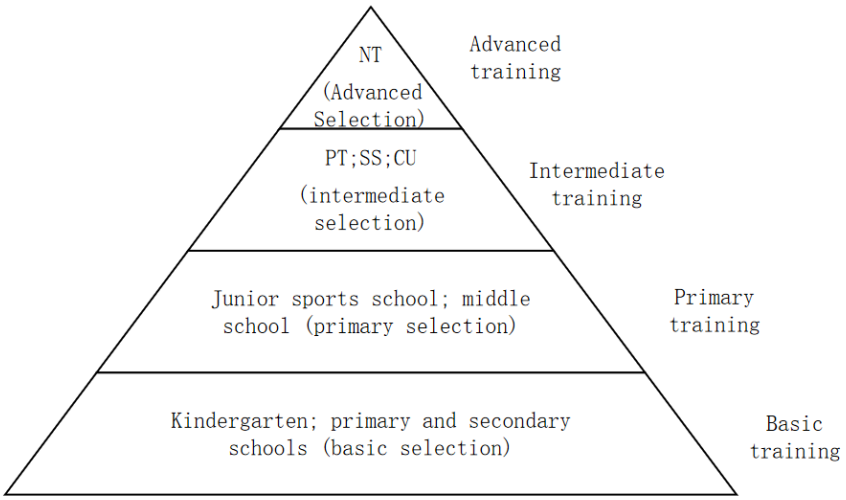


Figure 4: Schematic diagram of the selection system for excellent domestic volleyball players
Note: NT: National Team; PT: Provincial Team; SS: Sports School; CU: Colleges and Universities

According to Professor Tian Maijiu's event group theory table [29], volleyball is a net-based antagonistic sport that integrates antagonism and collectiveity (Table 2). It has the characteristics of fierce competition for space and more emphasis on technical and tactical literacy. "High, fast, complete and changeable" is the development trend of today's volleyball. With the development of volleyball, the level of skills and tactics is constantly improving, and the winning factors are constantly changing. Therefore, the selection of athletes must also be changed according to the development of volleyball.

Table 2: Determinants of volleyball players' competitive ability

	Stamina-oriented				Skill-led			
	Speed	Strength	Endurance	DBP	AP	NA	SFA	FA
form	**	***	**	***	**	**	**	***
function	***	***	***	**	**	**	**	**
Quality	***	***	***	**	**	***	***	***
coordination	**	**	*	***	**	***	***	***
Technology	**	**	***	***	***	***	***	***
Tactics	**	*	***	*	*	***	***	***
psychology	**	**	**	**	***	***	***	***
Knowledge	*	*	*	*	**	**	**	**

Note: ***Decisive role; **Important role; *Basic role; DBP: Difficulty and beauty of performance; AP: Accuracy of performance; NA: Net antagonism; SFA: Same field antagonism; FA: Fighting antagonism

5. Selection criteria for Volleyball players

5.1 Sports ability

The genetic law of athletic ability is the level of a player's athletic ability, which is directly related to the speed at which he masters athletic skills and the highest possible level of competition. Through expert consultation and consulting related literature, it is proved that exercise capacity is determined by genetic factors and other factors such as training. The inheritance of athletic ability is universal, but there are also variations. The inheritance of athletic ability also clearly shows its continuity, relevance and stage characteristics. For this, we must pay full attention to the selection of volleyball players [30]. Tall people have longer feet, hands, sitting height, and bust circumference; people with slow heart development have lower levels of internal organs, slow reactions and slow movements. Although some inheritances are born, they are not manifested at birth. They often only manifest themselves at a certain stage, that is, during the "sensitive development period" or "optimum development period", genetics play a significant role, and in the relatively slow period, The role of genetic factors is less obvious [31]. This shows that heredity is staged. After we know the law of inheritance, it has played a very good basis for the selection of volleyball players. At present, the selection of volleyball players in my country focuses on the athlete's competitive ability as the main selection method.

5.2 Competitive ability

The sports training theory of athletes' competitive ability tells us that a volleyball player needs 8 to 10 years of systematic training from a beginner to

becoming an excellent athlete. Whether an athlete succeeds or not, in addition to attaching importance to scientific selection and proper scientific and systematic training, it also depends on his adult performance in domestic and foreign competitions. The selection of competitive volleyball players is basically divided into three stages, namely the primary stage, the professional stage and the tip stage [32]. The primary stage is the early stage of cultivating outstanding athletes. The ability to select good seedlings is a very important link related to the ability to train high-level athletes. Special attention should be paid [33].

5.2.1 Physical Fitness

Volleyball in the world has become "large-scale" and competition on the Internet has become increasingly fierce. Therefore, tall stature and long finger distance have become the main morphological characteristics of volleyball players (mainly including height, weight, long finger length, lower limb length, and calf length). Wait). The palms are wide, the five fingers are long and can be separated, the Achilles tendons are clear, the arches are high, the toes are long, the limbs are slender, the toes are long, the muscle lines are clear, the waist is thin and the hips are high and thin, and the ankle joints are small. Such athletes have Great potential [33-35]. Height is an important morphological index for the selection of volleyball players. Finger distance is an indicator that indirectly reflects the length of the upper limbs. A longer finger distance can increase the spike point and the blocking point, which is a favorable condition for fighting for air superiority in the match and in the game. Therefore, when selecting talents, one should not simply look at height. It is more reasonable to combine the analysis with the finger distance, so as not to exclude athletes with shorter stature but long finger distance [36]. The height depends to a greater extent on the length of the lower limbs (when children and adolescents are on the eve or at the beginning of their puberty period, they have long legs and then long waists). During the climax of youth development, the hips gradually widen, and the hips are obviously enlarged, which is not conducive to exercise. Therefore, in the selection of female athletes, special attention should be paid to make them more demanding from men. In addition, volleyball requires high jumping ability. Generally speaking, a short abdomen of the tendon longus muscle is conducive to the speed of contraction and good explosive power. Practice has proved that athletes with high arches and thin ankles are generally fast and explosive [37, 38].

5.2.2 Psychological quality

Research has shown that many aspects of athletes' psychological qualities show hereditary traits. Athletes' temperament, reaction, and personality are largely affected by congenital factors, and even if they can be improved in the future, they are rarely improved. Therefore, the psychological quality of volleyball players should be paid attention to in the primary election. It includes factors such as nerve type, proprioception, interest, quality of will, motivation, reaction time, concentration and distribution of attention, space perception, time perception, memory ability and other factors [39]. Nerve types can be divided into four types, namely excited type, lively type, quiet type, and depressive type. According to the characteristics of the project and investigation and consultation, volleyball players are generally suitable for exciting, lively and other types of comprehensive [37, 40]. Personality characteristics are as follows: in personality characteristics, they are generally strong, stubborn, active, dominant and proactive, taking risks and less scrupulous, and personality characteristics are relaxed and excited, self-confident, and emotionally stable. And mature and so on [41, 42]. With the development of world volleyball ball, the confrontation has become increasingly fierce, the demands on the players have become higher and higher, and the psychological test in the game has also accounted for an increasing proportion of the volleyball game.

5.2.3 Proprioception

In volleyball, the ability to quickly determine the direction and position of the ball must be related to the athlete's perceptual ability. In particular, the perception of muscle movement, space and time, as well as the perception of movement are closely related. Players perceive the direction of the ball. Quickly find the ball's landing point, quickly move to the right below the ball, the same is true when the main attacker smashes the ball, find the location of the ball, quickly start the smash [43]; use muscle perception to judge the force when smashing the ball The size and direction of force. When passing the second pass, it is necessary to sense the position of the main attack and the auxiliary attack, distribute the ball in time, pass the ball to the best position of the main attack and auxiliary attack, and organize an attack against friends [44-46].

5.2.4 Interest

Interests in personality and psychological characteristics can be divided into interest in physical movement and interest in non-physical movement. Only those who have a strong interest in physical exercise can better mobilize and play the role of people's physical quality in training and competitions, so as to make a difference in sports [47]. For people who have a wide range of interests and whose central interest is concentrated on the project, they have a greater psychological advantage [48]. The central interest must be persistent in order to maintain a high degree of strong interest in long-term training and competitions, and to have confidence in overcoming the temporary difficulties and setbacks encountered.

5.2.5 Qualities of Will

Strong will is the basic quality that a volleyball player should possess. Should be bStrong willedness is the basic quality a volleyball player should possess. Should be bold, competitive, strong in self-control, courageous and decisive, have the courage and perseverance to overcome difficulties, be able to withstand setbacks, have strong anti-interference ability, and have a strong teamwork ability. Only in this difficult and complex conditions can they carry out a tenacious struggle with a strong team. In order to win the game, in the training process of volleyball, volleyball players become competitive players for a longer period of time, which requires athletes to have a strong will [49].

6. CONCLUSION

To sum up, the papers on talent selection mainly discuss athletes' body shape, physiological function indicators, psychology, genetics, sports skills, etc., mostly from a theoretical perspective, and pass specific practical methods such as testing the selection indicators under specific conditions. Research on the scientific selection of athletes. Most of the literature research on the current situation of grass-roots material selection is only from the general trend of scientific material selection. The number of documents is relatively small, and the research is not in-depth. Research on factors affecting the selection of volleyball players and field investigations are even rarer. It is suggested that in the future selection process of athletes based on the characteristics of the project, attention should be paid to the athletic ability of the athletes and the ability to develop the athletes should also be considered. It should not only refer to the current achievements of the athletes, but should extend the selection time of the athletes and pay attention to the athletes. During the critical period of motor function, refer to the various abilities of athletes and select an excellent athlete who meets the specific sports.

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