

# Research on the Effect of Physical Training on the Quality of Basketball in Middle School

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**Abstract:** *In the context of the country's encouragement of the development of middle school students' sunshine sports, basketball, whether as a student's school sports or social professional basketball, is a sports event that is highly concerned by members of society in competitive sports. Campus competitive basketball plays an important positive role in promoting students' physical and mental health development, collectivism and cooperation. On the basis of promoting the healthy development of students, the training level of middle school campus basketball should be improved. This article analyzes the influence of physical training on the basketball-specific qualities of students in the first experimental middle school affiliated to Sichuan Normal University. The analysis is conducted using the literature material method, experimental method, and observation method. The aim is to improve students' basketball-specific qualities from multiple angles, including endurance quality, speed quality, and strength quality.*

**Keywords:** *Middle school, Basketball special quality, Physical fitness training*

## 1. The Question Raised

In order to improve the comprehensive quality of middle school students and not just the importance of cultural education. The upcoming double reduction policy is not difficult to see the weight of the arts outside the culture. This paper puts forward some suggestions and methods on how to improve the special physical quality of middle school students' basketball, hoping to help the problems existing in how to correctly train middle school students' basketball<sup>[1]</sup>. Based on the research on the current situation of the influence of physical training on the special quality of basketball in the first experimental middle school affiliated to Sichuan Normal University, this paper aims at how to use the correct and appropriate physical training methods to improve the students' physical quality and improve the students' special quality. Basketball, whether as a student's school physical education or social professional basketball, is a sports event that members of the society pay close attention to in competitive sports. Taking 30 middle school students in the First Affiliated Experimental Middle School of Sichuan Normal University as the research object, the school has a good sports spirit and pays attention to the all-round development of students' moral, intellectual, physical, aesthetic and labor, and has a good sports foundation to obtain better sports results in district-level municipal competitions. This paper reflects the growth and change of physical training on students' basketball special endurance quality, strength quality and speed quality through the comparison of students' physical training and basketball special training experiments.

## 2. The Theoretical Basis of Physical Fitness Training

Scientific and reasonable physical training body in order to obtain better biological adaptation phenomenon, any physical training should be based on the theoretical basis. Physical training is the basis of other activities, and many other technical and tactical training needs to have a healthy physical fitness, so as to become the basic guarantee of some special technical and tactical or excessive load movements and fierce competitions. Moreover, physical training is of great significance to athletes' physical skills, sports injuries and life extension<sup>[2]</sup>.

### ***2.1. The Analysis and Comparison of the Influence of Endurance Training on the Basketball Special Quality of Middle School Students in Physical Training***

Endurance quality refers to the ability of the body to maintain specific intensity load and movement

quality in a certain period of time. The endurance quality can be divided into aerobic endurance and anaerobic endurance. Good endurance quality is the prerequisite for students to complete a basketball match in basketball specific sports, and support the students in the basketball movement in a short period of time multiple turn-back offensive and defensive conversion<sup>[3]</sup>. Muscle endurance refers to the ability of the human body to work for a long time, that is, the ability to resist fatigue. An experimental comparison of the effects of the development of anaerobic endurance through eight-class endurance training and the use of developmental interval training training on the development of anaerobic endurance in the 400-meter run and the development of aerobic endurance in the 2000-meter run through continuous training on the development of specific basketball qualities is shown in Table 1.

*Table 1: Endurance training on the impact of special basketball students*

Special training program	(before training) Compliance (%)	Not Up to standard(%)	(after training) Compliance (%)	Not Up to standard(%)
Timed jump shots	7(23%)	23(77%)	21(70%)	9(30%)
Dribble and run at regular intervals	6(20%)	24(80%)	22(73%)	8(27%)

From Table 1, it can be seen that before training, only 7 jumpers reached the standard, accounting for 23 %, 23 failed to reach the standard, accounting for 77 % of the total. After training, 21 jumpers reached the standard, accounting for 70 %, 9 failed to reach the standard, accounting for 30 %. Before training, 6 people reached the standard, accounting for 20 %, 24 people failed to reach the standard, accounting for 80 %. After training, 22 people reached the standard, accounting for 73 %, and 8 people failed to reach the standard, accounting for 27 %. Through the 400-meter and 2000-meter running training of general endurance quality, the intermittent time between 400-meter groups is strictly controlled to develop students ' anaerobic endurance quality, and 2000-meter develops students ' aerobic endurance quality. And the experimental comparison in the special dribbling timing run has been improved. The common development of students ' aerobic endurance and anaerobic endurance can improve students ' ability to maintain high-intensity exercise for a long time and the improvement of basketball special quality. Develop students ' muscle endurance in special timing jump training.

## ***2.2. The Analysis and Comparison of the Influence of Strength Training on the Basketball Special Quality of Middle School Students in Physical Training***

Strength quality refers to the ability of a certain part of the human body to overcome internal and external resistance when it works. The basketball movement belongs to the same field antagonism movement and the student maintains the progress running and jumping and so on, regardless of is the entire field attack or the defense all needs the good strength quality to support the student to carry on the basketball movement. Basketball training is usually used in the basketball teaching process at the same time, usually using the cycle of training or repeated training so that a larger load of training time is also longer, for students muscle load stimulation time is also longer<sup>[4]</sup>. Through the 10-hour general strength training method, the use of extreme strength method hard pull barbells and interval training exercise ball push-ups and plank support. The experimental comparison of the effects of strength training on basketball special quality is shown in Table 2.

*Table 2: Strength training on the impact of special basketball students*

Special training program	(before training) Compliance (%)	Not Up to standard(%)	(after training) Compliance (%)	Not Up to standard(%)
Confrontational upper column	8(27%)	22(73%)	23(77%)	7(23%)
Confrontational dribbling	7(23%)	23(77%)	19(63%)	11(37%)
Catch the ball against the shot	4(13%)	26(87%)	20(67%)	10(33%)

From Table 2, it can be learned that before training, only 8 opponents reached the standard, accounting for 27 %, 22 failed to reach the standard, accounting for 73 %, after training, 23 reached the standard, accounting for 77 %, 7 failed to reach the standard, accounting for 23 %. Before the training, there were 7 people who reached the standard, accounting for 23 %. There were 23 people who failed to reach the standard, accounting for 77 %. After the training, there were 19 people who reached the standard, accounting for 63 %. There were 11 people who failed to reach the standard, accounting for 37 %. Before the training, 4 people reached the standard, accounting for 13 %, 26 people failed to reach the standard, accounting for 87 %. After the training, 20 people reached the standard, accounting for 67 %, 10 people failed to reach the standard, accounting for 33 %. Through flat support and fitness ball push-ups and other strength exercises to develop students ' core strength to achieve the improvement of

students' strength quality. At the same time, by increasing the antagonistic special exercises, students can maintain stable technical movements in high-intensity competitions to improve the stability of dribbling and shooting.

### ***2.3. Analysis and Comparison of the Effect of Speed Training on the Basketball Quality of Middle School Students in Physical Training***

The speed quality is divided into displacement speed reaction speed and action speed. Displacement speed refers to the ability of the human body or a certain part of the human body to move quickly. Whether it is a fast attack or offensive and defensive transfer in basketball games, there is a high requirement for displacement speed. In the special training, the displacement speed of the students is usually trained by the return run of the pitch, and the intermittent training method is adopted. The shuttle run not only conforms to the movement track of basketball, but also can achieve the improvement of students' displacement speed and enhance students' anaerobic exercise ability by strictly controlling the interval time of shuttle run<sup>[5]</sup>. Through 8 hours of general speed quality training, the short-term repeated training method was used to train the shuttle run and the cyclic repeated training method was used to train the 50 m sprint. The experimental comparison of the influence of speed quality training on basketball special quality is shown in table 3.

*Table 3: Speed training on the impact of special basketball students*

Special training program	(before training) Compliance (%)	Not Up to standard(%)	(after training) Compliance (%)	Not Up to standard(%)
Return Dribble	6(30%)	24(70%)	21(70%)	9(30%)
Fast break layup	5(17%)	25(83%)	23(77%)	7(23%)
A layup on a pass	10(33%)	20(67%)	22(73%)	8(27%)

From table 3, it can be learned that there are 6 people who return to dribbling before training, accounting for 30 %, 24 people who fail to reach the standard, accounting for 70 %, 21 people who reach the standard after training, accounting for 70 %, 9 people reach the standard, accounting for 30 %. Before the fast break layup training, 5 people reached the standard, accounting for 17 %, 25 people failed to reach the standard, accounting for 83 %. After the training, 23 people reached the standard, accounting for 77 %, and only 7 people failed to reach the standard, accounting for 23 %. Before training, there were 10 people who reached the goal of passing the ball on the basket, accounting for 33 %, 20 people did not reach the goal, accounting for 67 %, after training, there were 22 people who reached the goal, accounting for 73 %, 8 people did not reach the goal, accounting for 27 %. dribble through turn-back ; fast-break layup to develop students' displacement speed, and train students to maintain dribbling and layup ability in fast moving. By developing students' movement speed through passing and layups, while also developing their reaction speed, we aim to achieve the fastest response and correct action in the ever-changing game. Through the intermittent training method to do the above exercises, not only the students' ATP-CP functional system energy supply has been improved, but also the ability of glycolysis has been greatly improved. The displacement speed is the foundation of the development of basketball special speed, which needs to complete the movement in the shortest time under certain conditions. The training of displacement speed should be combined with the special technology to carry out targeted training from the actual combat, so as to form the basketball special speed.

### **3. Conclusion**

(1) It can be seen from the data that the training methods of general endurance quality have greatly improved the students' special endurance quality. Through the combination of the ball running practice to exercise the development of students' aerobic endurance and anaerobic endurance, through repeated shots or continuous dribbling to develop students' muscle endurance.

(2) Basketball special strength quality training develops students' strength quality through borrowing equipment connection and improving confrontation between students. The practice of strength quality is not only to improve students' absolute strength, but also to improve students' relative strength and stability through confrontation practice. Through the flat support and fitness ball push-ups to develop students' core strength, in order to achieve a more stable maintenance of shooting and other special technical movements to complete the quality.

(3) Basketball special speed quality training focuses on the unity of students' displacement speed and technical movements, and maintains a stable quality of technical movements and technical movements while moving rapidly. By utilizing basketball courts and incorporating exercises that

simulate special mechanical characteristics, students' dribbling speed and ability can be developed. Additionally, engaging in two-person movements can train students to react and make judgments quickly during rapid movements.

#### 4. Suggestion

(1) To develop students' endurance quality, more means should be adopted rather than limited to running and jumping exercises, such as using Fatlake running or team variable speed running to increase students' motivation and interest in endurance quality training. Through the continuous transformation of training methods and training environment to maintain the students in the endurance quality of the excitement, and should be deliberately and pay attention to teaching students to learn the way of breathing and exercise respiratory muscles rather than just stay in the monotonous run<sup>[6]</sup>.

(2) Through a reasonable and scientific training plan, students can use strength training equipment or equipment to carry out small weight exercises, pay attention to the corresponding development of different muscle groups of students in the strength quality training must be in line with the strength of different students according to the development of different requirements. At most once a week to carry out the development of absolute strength should develop the relative strength of students to resist small resistance to increase the resistance of students to exercise-based. The strength quality training must be done step by step to avoid the occurrence of accidental injury, and the recovery training should be paid attention to after the strength quality training<sup>[7]</sup>.

(3) The training of speed quality needs to be closely combined with specific projects, rather than blindly sprinting and sprinting. Training on speed and fitness should be conducted on the basketball court in conjunction with basketball specific events, and various sprint and turn back runs should also be conducted on the basketball court. The training time for speed literacy should not be too long, and speed literacy training should be conducted when students are highly excited. Avoid fatigue by practicing speed to avoid injury. At the same time as developing speed and quality, subconsciously cultivate and train students' reaction speed, and cultivate and cultivate students' reaction speed through instruction and slogan practice<sup>[8]</sup>.

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