

# ***Research on Training Methods for Improving Basketball Players' Performance***

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**Abstract:** Basketball is a popular sport, with a large number of people participating in it. There are more than hundreds and thousands of professional basketball players. This paper mainly focuses on how to improve their sporting performance by training, particularly sensitivity, explosive power and endurance. The main research method is reading articles. According to the reading sources, this article summarizes that different aspects of purpose have different training methods. For sensitivity, players can do rope ladder training, including high knees and leapfrog. Regarding explosive power, players can do some resistance exercises and rope jumping. Regarding endurance, players can do some long-lasting training. There are many things that should be noticed. Stretching before and after training helps avoid muscle adhesion; obtaining enough water and nutrients to recover from energy loss; and resting well in order to avoid muscle fatigue.

**Keywords:** basketball players, basketball training, athletic performance, training methods, sportive performance

## **1. Introduction**

There are more than 10,000 professional basketball players and more than 10 million basketball lovers and fans in the world. However, the training methods usually have little effect on the athlete's performance. This study mainly focuses on how to train and increase athletic performance, which concentrates on sensitivity, explosive power, and endurance. The main method is reading online resources, such as articles and professional papers. Sensitivity, explosive power and endurance are crucial for basketball players. This can help them stay aggressive on the court for longer. Sensitivity and explosive power enable players to be faster while moving, defending, and doing quick attacks. Endurance helps players maintain high level sports performance for a longer time. As a result, having a correct and efficient strategy to train is crucial. This paper is going to discuss the following three aspects: sensitivity, explosive power, and endurance.

## **2. Sensitivity**

### **2.1. Rope Ladder Training Method**

The rope ladder training method is a handy training method that players can do whenever they want, indoors or outdoors. It requires people to move from place to place. It is a convenient and easy training method with great and quick gains.

Because this article only focuses on certain sports' sportive performance, the training method should also be concentrated. This systematic training should be long-lasting and targeted [1].

## **3. Long-lasting**

In order to have better effects, the players should treat this training as a long-term goal. Every workout should last more than 20 minutes with interval rest. Because of the energy lost during training, the player should also replenish enough water and electrolytes.

In addition, players should also practice the training around 2-5 times every day, depending on the sport's intensity and muscle fatigue.

### **3.1. Targeted**

Depending on the differences among distinct players, the training plan should be customized individually.

The training should mainly focus on the player's weaknesses (lateral movement, reaction speed). By customizing suitable plans for each individual, players should take this seriously [1].

### **3.2. Training Content**

#### **3.2.1. Warm up**

In this process, players should exercise their muscle groups sufficiently by running slowly for around 15 minutes.

During this time, they can listen to music. This can help the active body unconsciously [2].

After, players should stretch for a period of time, in order to avoid injuries.

#### **3.2.2. High Knee**

Doing the high knee at the beginning of training is important. In the basketball game, players should remain balanced while making movements. While doing a high knee, players should do it quickly without moving in another direction. As the feet touch the ground, players should bounce back as fast as possible; this is the mock for the real competition.

Side shuffle step:

While defending against opponents, basketball players should move horizontally as fast as possible, in order to follow the opponent's step. While doing the side shuffle step, players should remain focused and lower their center of gravity.

#### **3.2.3. Leapfrog**

While playing on the court, players should jump continuously to protect the rebound.

The ball may rebound everywhere, and players should jump constantly and maintain low gravity. In leapfrog, players should jump forward constantly with only one foot every time.

### 3.3. Precautions

Players should increase training intensity gradually, from low intensity to high intensity. Players should take care of their ankles and feet. The training should be split into several parts with interval rests. Players should obtain water and avoid dehydration. Once they get uncomfortable, lower the intensity or stop the training immediately.

## 4. Explosive Power

Explosive power is a form of fast power, which means doing the maximum work in a relatively short amount of time. It requires velocity and power [3].

Explosive power is crucial in basketball; it can help players accelerate within a short period of time and increase physical antagonism.

### 4.1. Resistance Training

There are three types of resistance training. There is low-, middle-, and high-intensity training. In order to maximize effects, the training should be heavy (more than 80% of the highest power), and the frequency should decrease as resistance increases [4]. According to the research, if the players can finish a set of training within a short period of time, they could consume 100–200 fewer calories than those who just finished a set of training at normal speed [5].

The specific training content should be based on the skills and stimulate as many muscle groups as possible. For example, if the player wants to enhance their ability to jump vertically, a deep squat is an efficient way to do that. The deep squat is a systematic exercise that requires the full body to participate. This will stimulate many muscle groups. The frequency should be less than 5 times per week, 2-3 times per week is the best. However, depending on different people, the plan should be carefully designed for individuals.

### 4.2. Rope Skipping

Rope skipping is one of the most effective ways for people to lose weight. If athletes can maintain the same amount of power while losing as much muscle as possible, it will help with sports performance. In addition, rope jumping is extremely accessible; it only requires a rope and an empty space.

#### 4.2.1. Lower Level

At this level, the training contains three minutes of constant warm-up. After that, depending on each individual, the training consists of 2-4 big groups of exercises, and each big group contains three smaller exercises. The smaller exercises should reduce the workload gradually. It is recommended to jump 200–400 times in each smaller group, with 50 differences from time to time [6]. During the process of each smaller individual group, players should have a rest and obtain water.

#### 4.2.2. High Level

For players who have practiced at a low level for more than a couple of days and feel stress-free, they can take high level training. High level training begins with several minutes of low-intensity warm-up. In order to activate muscle groups and ankles. After that, the intensity should increase, such as 90 seconds of fast-speed jumping with a minute of rest. As this paper mentioned above, high-intensity training can burn more calories compared to normal speed training. It is highly recommended to

exercise for more than 25 minutes per practice. During the process, players should obtain enough water in order to recover from the sweat.

#### **4.2.3. Things to Pay Attention to**

Every single time, stretch before and after the practice in order to avoid muscle adhesion and fatigue. This will also lower the risk of getting injured. [6] In addition, the length of the rope should adjust correctly into a good range. Otherwise, athletes may feel uncomfortable or even get injured. Last but not least, avoid doing high-intensity work right after recovering from an illness. This will increase the burden on the respiratory system.

### **5. Endurance**

Endurance is the ability that athletes have to maintain a certain level of activity within a given period of time [7].

#### **5.1. Core Training**

As a basketball player, it is necessary to keep a great core while exercising, especially for a high-level player. Throughout the whole game, it is hard to find a movement that does not need a stable core.

The basic strategy involves the use of a medicine ball. Players can kneel down and try their best to keep their balance. Another way that is also very useful is the sit-up. Players should control their bodies and stimulate whole muscle groups. No matter what strategy the player wants to use, it is very important to control the frequency and intensity. from less frequent to more frequent and from low-intensity to high-intensity.

#### **5.2. Relatively Lower Intensity and Long-lasting Exercise**

In order to increase endurance, it is important to do some long-lasting exercise to improve cardiopulmonary and aerobic metabolism. However, it is hard to find an exercise that fulfills everyone's requirement. Because individuals are distinct, some may have strong muscle endurance, some may not; some may train a lot, some might not. As a result, the training should be targeted [7].

##### **5.2.1. Things to Notice**

It is important to obtain enough nutrients and rest well. For one thing, it can help players with better performance and concentration. Another thing is that it can help with muscle fatigue and recovery. After long-lasting training, the body inevitably loses many nutrients and energy. The body needs to obtain enough carbohydrates and protein.

### **6. Conclusion**

This paper investigates methods for enhancing basketball players' athletic performance in terms of sensitivity, explosive power, and endurance. With sensitivity, athletes can do rope ladder training, with high knees and leap frogs. Regarding explosive power, players can do some resistance training and rope jumping. Regarding endurance, players can do some long-lasting running exercises, such as running. Although there are some differences in the exercise contents, there is something in common. Firstly, players should stretch before and after training. Secondly, all tasks should be targeted according to individuals. Thirdly, obtain enough nutrients and water. Lastly, rest well. The main limitation is that this paper lacks a real experiment. It mainly focuses on theoretic ideas by watching some online sources, setting up an experiment, and testifying to the effects of the training. The

experiment should be carefully designed, with only one variety each time. Take the resistance exercise as an example. Groups of people need to be divided into smaller groups of more than 5 people each in order to avoid accidents and eliminate external affection. A group of people have high-intensity workloads. On the other hand, other groups of people have low-intensity workloads. Record differences in muscle and sportive performance over several periods of time, such as a week, a month, or even a year later. Compare the data to check out the efficiency of different methods.

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