

# Application of Functional Physical Fitness Training in Exercise Training

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**Abstract:** Functional physical training, as a training method to comprehensively improve athletes' physical quality, is playing an increasingly important role in modern sports training. Studies show that functional physical training can effectively improve athletes' strength, speed, sensitivity, coordination and other physical fitness, Significant effect on improving sports performance and preventing sports injuries. Therefore, it is of great significance to apply the scientific and reasonable functional physical training in sports training to promote the comprehensive development of athletes and improve the competitive level.

**Keywords:** Functional Physical Training; Sports Training; Physical Quality; Sports Performance; Sports Injury Prevention

## 1. Introduction

With the rapid development of modern competitive sports, the requirement of athletes physical quality is higher and higher, the traditional sports training method is difficult to meet the current training needs, so need to introduce new training ideas and methods, functional physical training as a kind of pay attention to body integrity, coordination and movement specificity training gradually widespread attention in the field of sports training, the following will explore the functional physical training in sports training, provide new ideas and reference for optimize sports training.

## 2. Concept and Characteristics of Functional Physical Training

Functional physical training is a kind of training to improve the human movement function as the goal, the core concept is through simulating the actual movement and demand, targeted to improve the body physical quality, so as to improve sports performance, unlike the traditional single physical training, functional

physical training pay more attention to the integrity of the body, coordination and movement specificity. The characteristics of functional physical fitness training include the following aspects, first, Emphasize the synergistic movement of multi-joint and multi-muscle groups, Training movements are more complex and integrated, second, Emphasis the stability and control of the core areas of the body, Provide solid support for the movement of the limbs, third, Focus on the transfer effect of movement, Improve the pertinence and effectiveness of the training by simulating the movement patterns of specific movements, fourth, Considering the balanced development of all aspects of the body, Avoid muscle imbalances and sports injuries due to a single training session, In short, functional physical training is a training method to comprehensively improve the body exercise function, Its scientific nature, effectiveness and safety have been widely recognized.

## 3. Methods and Means of Functional Physical Fitness Training

### 3.1 Functional Strength Training

Functional strength training is an important part of functional physical training, its purpose is to simulate the strength of exercise demand improve the body level of strength and strength performance, functional strength training compared with the traditional instrument strength training more emphasis on the comprehensive and practical action, often use free weight, elastic belt, suspension training equipment for joint, multi-plane composite action practice. Such as squats, hard, push basic movements such as well as one leg squats, parabolic ball, pull with walking functional movements are commonly used means of functional strength training, through these training can not only improve the muscle strength level of the body can also improve the stability, balance and coordination, make the

athletes can better play strength advantage in the game.

### 3.2 Functional and Sensitive Training

Functional sensitive training is for rapid response, direction change and body control ability and design training method, its purpose is to improve the agility, flexibility and coordination, make it to make quick and accurate response, functional sensitive training usually use a variety of training equipment and methods, such as agile ladder, cone barrel, mark plate for various change to run, lateral movement, jumping, etc. Will also combine the design with the characteristics of the special sports and similar scenes and movements, such as tennis movement training, basketball breakthrough and defensive practice, etc., through repeated practice and stimulate the athletes' neuromuscular response ability and body control ability has improved significantly, thus show better sensitive performance in the game.

### 3.3 Functional Coordination Training

Functional coordination training refers to the ability to improve the coordination between various parts of the body by practicing complex and multi-articular movement patterns. This training method can not only improve the completion quality of motor skills but also prevent sports injuries caused by muscle imbalance. Common functional coordination training including hands and feet of lateral movement, collaborative movement, unstable on the balance training, such as push-ups, sit-ups practice can improve the balance and the core stability of the body, throw, rope skipping practice can improve the coordination and rhythm of hands and feet, through long-term functional coordination training, athletes body control ability, body coordination ability and movement fluency and accuracy can be improved.

### 3.4 Functional Flexibility Training

Functional flexibility training is a training method that combines flexibility and strength. It aims to improve muscle strength and control while improving the joint range of motion. Functional flexibility training focuses more on dynamic stretching and active stretching, emphasizing the active participation and control of muscles during stretching. Common

functional flexibility training including PNF stretching, elastic stretching, dynamic stretching, etc., these methods can effectively improve muscle flexibility and strength, but also can improve the body coordination and flexibility, other functional flexibility training also put special emphasis on the core area of flexibility such as hip, lower back, because these parts of the flexibility to maintain the body posture and transfer strength has an important role.

## 4.Application of Functional Physical Fitness Training in Exercise Training

### 4.1 Application of Functional Physical Fitness Training in Different Sports Events

Functional physical training due to its comprehensive and targeted characteristics in various sports have been widely used, functional physical training in basketball can improve the athletes jumping, sensitivity, and through simulation dribbling, passing, shooting and improve the technical level of athletes and performance, functional physical training in football to pay more attention to the improvement of lower limb strength, endurance and agility, through a variety of running, jumping and direction change practice to make athletes show better speed and explosive force. In swimming, functional physical fitness training focuses on improving the core stability of athletes, upper limb strength and body coordination, through the land simulated swimming movements and water special practice way of improving athletes swimming ability, in addition, functional physical training in track and field, gymnastics, tennis and other sports has been widely used, according to the characteristics of different projects and demand design a targeted training plan and methods, to maximize its role in sports training.

### 4.2 The Combination of Functional Physical Fitness Training and Sports Technical Training

Functional physical training to really play its value in sports training must be closely combined with sports technical training, on the one hand, the completion of sports technology quality largely depends on the physical quality and function level, only have the good strength, speed, sensitivity, coordination quality to better complete all kinds of complex technical action, so in the sports technology training must pay

attention to functional physical training, for technical learning and perfect a good body foundation. On the other hand, functional physical training should also be coordinated with sports technical training, Should according to the characteristics and technical requirements of the sports project targeted physical training, Make physical fitness improvement and technical improvement mutually promote and complement each other, For example, while the shooting technique training can be targeted for the upper limb strength and core stability training, In the high jump technology training can be targeted to improve the lower limb strength and jumping force, Only by combining functional physical training with exercise technology training can we truly exert the great potential of functional physical training in exercise training, Help athletes to achieve better results on the competitive stage.

## **5. Effect of Functional Physical Fitness Training on Exercise Performance**

### **5.1 Effect of Functional Physical Training on Strength and Speed**

Functional physical training to improve the strength and speed of athletes performance has significant effect, through targeted strength training such as squats, hard, push more joint composite action, athletes' lower limb strength, core strength and upper limb strength can improve, the strength not only in the pure muscle contraction strength more reflected in the movement of power application ability, such as starting explosive force, jump height, to breakthrough, etc. Functional physical training also pay special attention to the cultivation of speed quality, through a variety of short sprint, change to run, agile training method effectively improve the speed of the athletes performance, it is worth mentioning that the functional physical training emphasizes strength and speed, the pursuit of speed of "strength" and "speed", make the athletes to give full play to the strength, at the same time, speed and sensitivity, a large number of research shows that through the system of functional physical training, athletes' strength and speed index can be significantly improved, for performance breakthrough laid a solid foundation.

### **5.2 The Impact of Functional Physical Training on Sensitivity and Coordination**

Functional physical training also has unique advantages in improving athletes' sensitivity and coordination, Sensitivity is the ability of the body to rapidly change the direction and position of movement, Coordination refers to the ability of all parts of the body to coordinate orderly and complete complex movements, Both abilities play a key role in many sports, Such as breakthrough and defense in basketball, dribbling and passing in football, Functional physical training, through designing a variety of complex and changeable movements and environments such as unstable surface training, multi-directional movement training, response training and agility training, Effectively promote the sensitivity and coordination of the athletes, In these exercises, athletes need to constantly adjust body posture, control body balance, respond quickly, Thus, the neuromuscular control ability and adaptability are comprehensively improved. The study found that after functional physical training, the athletes' performance improved significantly in sensitivity tests such as lateral movement, return running and jumping, and the quality of complex movements such as dribbling, passing, shooting and shooting, which proved the positive impact of this training method on sensitivity and coordination ability.

### **5.3 The Role of Functional Physical Fitness Training on Sports Injury Prevention**

Functional physical training can not only improve the athletes of competitive ability also has an important role in prevent sports injury, the occurrence of sports injury often with muscle imbalance, joint stability, weak body control factors, and functional physical training is adopted effective preventive measures, first functional physical training pay special attention to the core area of the body, including abdomen, back, hip, improve the strength and stability of the muscles, to provide a solid support for the limbs movement, reduce the risk of injury. Secondly, functional physical training emphasizes the quality and control of movements, Ask the athletes to maintain the correct body posture and movement trajectory during the training, Avoid the damage caused by the movement imbalance and excessive exertion, Functional physical training also focuses on muscle and joint flexibility, Effectively improved muscle flexibility and joint range of motion through a variety of dynamic stretching

and active stretching exercises, Reduces the risk of muscle and ligament strain, Overall, functional physical training improves the body's

strength, stability, flexibility and control, Minimizes the risk of developing a sports injury, To protect the career of the athletes.

**Table 1. Effect of Functional Physical Fitness Training on Physical Fitness Indicators**

Physical fitness	Pre-training values	Post-training values	Increase the range of (%)
Lower limb strength (N)	300	350	16.67
Core Stability (s)	30	40	33.33
sensitivity (s)	15	12	20.0
flexibility (cm)	20	25	25.0

**Table 2. Effect of Functional Physical Training on Exercise Performance**

project	Pre-training performance	Post-training performance	Increase the range of (%)
Basketball jump height (cm)	50	60	20.0
Football Sprint Speed (s)	10	9	10.0
Swimming for 100m time (s)	60	55	8.33
Tennis hitting power (N)	200	230	15.0

**Table 3. Function of Functional Physical Fitness Training on Sports Injury Prevention**

Damage type	Pretraining incidence rate of (%)	Post-training incidence rate of (%)	Reduction in magnitude (%)
pulled muscle	20	10	50.0
joint sprain	15	8	46.67
sports fatigue	25	15	40.0
Chronic injury	10	5	50.0

## 6. Implementation Strategy of Functional Physical Fitness Training in Exercise Training

### 6.1 Formulate a Scientific and Functional Physical Fitness Training Plan

In order to give full play to the role of functional physical training, it is first necessary to develop a scientific and reasonable training plan, which should be designed according to the personal characteristics of the athletes, the needs of the project and the training cycle and other factors, so as to teach students in accordance with their aptitude and step by step. Specifically in the training plan to fully evaluate the athletes' physical condition and physical level, targeted to determine the training objectives and direction, at the same time to arrange the training content and intensity, follow the principle of progressive, from easy to difficult, from simple to numerous, avoid excessive training and injury risk, also pay attention to the flexibility and adjustable of the training plan, according to the athletes and training effect timely adjustment and optimization, only to develop a scientific system of training plan to maximize the effect of functional physical training, help athletes constantly breakthrough self, improve the level of competition.

### 6.2 Reasonable Selection of Functional Physical Fitness Training Equipment

Functional physical training need to use all kinds

of equipment to complete, reasonable selection and use of these equipment is of great significance for the improvement of training effect, commonly used functional physical training equipment including suspension training belt, yoga ball, balance board, elastic belt, etc., these equipment can provide unstable training environment, activate more muscle group to improve the balance and control of the body. When choosing equipment according to the athletes' training level and goals, for beginners can choose relatively simple and stable equipment such as yoga mat, dumbbell, for high level athletes can choose more complex and challenging equipment such as suspension training belt, wave speed ball, at the same time to pay special attention to the normative and safety, avoid damage caused by improper use of equipment, through reasonable choice and use of functional physical training equipment can make training more efficient, interesting, provide powerful guarantee for the all-round development of athletes.

### 6.3 Strengthen the Monitoring and Evaluation of the Functional Physical Fitness Training Effect

How the effect of functional physical training need through continuous monitoring and evaluation, only timely understanding of the athletes training status and progress to the necessary adjustment and optimization of training plan, in the process of monitoring, coaches should pay close attention to athletes

'physical condition, including muscle soreness, fatigue recovery, etc., when necessary, can use heart rate monitoring, blood lactacid test comprehensive assessment of athletes' physiological load and adaptation level. Also regularly to athletes physical test and special technical test, through comparative analysis of training data changes before and after the training effect and shortcomings, in addition to the objective indicators of evaluation athletes subjective feeling feedback, through communication to understand their training acceptance and satisfaction and difficulties and problems encountered in the training, only establish a perfect monitoring and evaluation mechanism and adjust according to the feedback training strategy, to continuously optimize the implementation of functional fitness training plan, to ensure the maximization of the training effect.

## 7. Conclusion

Functional physical training as a kind of improve athletes physical quality training method in modern sports training show great application potential, through scientific and reasonable functional physical training into

sports training can effectively improve the strength, speed, sensitivity, coordination of physical quality, to improve sports performance and reduce the risk of sports injury, the future functional physical training will be more widely used in the field of sports training, to promote important contributions to the development of competitive sports.

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