

## Analysis of Athletes' Physiological Arousal Stimulation Strategies in Sports Competition Based on Cooperative Learning Theory

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**Abstract:** If Athletes Want to Maintain the Best Competitive State and Good Sports Results in Sports Competitions, They Not Only Need Excellent Special Skills and Physical Fitness, But Also Have the Best Physiologic Arousal Ability in Competitions. the Level of Physiologic Arousal Ability Affects the Athletes' Performance in Competitions. the Level of Physiological Arousal Can Play a Positive or Negative Role in Competitive Sports. in Daily Training, All Efforts Should Be Made to Stimulate the Physiological Calling Level of Sports, So That Athletes' Physiological Arousal Can Be More Adapted to Their Own Physical Conditions. While Creating Life Value and Satisfying Noble Psychological Needs, How to Awaken and Stimulate the Physiological Level during Competition and Training is the Focus of This Article. Based on the Theory of Cooperative Learning, This Paper Sums Up the Basic Concept of Cooperative Learning in Physical Education Teaching Practice, and Analyzes the Performance of Physiological Arousal and the Arousal and Stimulation Strategies of Athletes.

### 1. Introduction

Physiologically, Sports Can Not Only Improve the Human Brain, Promote Blood Circulation, Improve the Function of the Heart, Promote the Growth of Bones and Muscles, But Also Keep People Happy and Prolong Their Lives [1]. If Athletes Want to Maintain the Best Competitive State and Good Sports Results in Sports Competitions, They Not Only Need Excellent Special Skills and Physical Fitness, But Also Have the Best Physiologic Arousal Ability in Competitions. the Level of Physiologic Arousal Ability Affects the Athletes' Performance in Competitions [2]. Competition and Cooperation Are Common Phenomena and Basic Forms of the Existence and Development of Human Society. They Are Interdependent Unity of Opposites [3]. Changing Students' Learning Methods and Improving the Ability of Cooperation and Communication between Teachers and Students, Students and Students Are the Top Priorities of Physical Education Reform. the Level of Physiological Arousal Can Play a Positive Role in Competitive Sports and May Also Play a Negative Role [4]. in the Process of Sports Competition, Only with Excellent Professional Theoretical Knowledge, Special Skills and Physical Quality Can Athletes Maintain Their Enthusiasm and Confidence in Sports and Play the Best Level [5].

We Can Adopt Different Training Methods to Fully Stimulate Athletes' Physiological Arousal Level in Competition. in Some Competitive Competitions That Require Fast Speed and Difficult Movements, It is Easier to Achieve Excellent Results When the Physiological Calling Level is Very High [6]. Organisms Strive to Achieve a Very Ideal Level of Arousal, I.e. a Moderate Level of Arousal. Too Low a Level of Arousal and Too High a Level of Arousal Can Both Inhibit Behavioral Performance, While Moderate Level of Arousal Can Promote Behavioral Performance [7]. in Daily Training, We Should Try Our Best to Stimulate the Physiological Calling Level of Sports So That Athletes' Physiological Arousal Can Be More Adapted to Their Own Physical Conditions [8]. When People Encounter Fear, Some Things That Can't Be Done At Ordinary Times Are Done Unconsciously, Especially in Competitions with High Requirements for Strength and Speed, the Level of Arousal Will Sometimes Appear under Very High Conditions. in the International Educational Reform Measures, More and More Attention is Being Paid to the Spirit and Ability of Cooperation [9]. in the Reality of School Education in Our Country, Educational Cooperation is an Important Spirit and Ability That Really Needs to Be Vigorously Promoted and

Cultivated. Based on the Theory of Cooperative Learning, This Paper Sums Up the Basic Concept of Cooperative Learning in Physical Education Teaching Practice, and Analyzes the Performance of Physiological Arousal and the Arousal and Stimulation Strategies of Athletes.

## 2. Details of Physiological Arousal

The Influence of Physiological Calling Level in Competitive Sports is Twofold. It Has Both Positive and Negative Effects. Determining an Appropriate Time Can Excite and Awaken Athletes, But Unfortunately These Strategies Are Used At Inappropriate Times in Most Cases. Cooperative Learning is a Special Form of Cooperation. It is the Concrete Embodiment and Application of Cooperative Cognition, Cooperative Emotion, Cooperative Skills and Cooperative Behavior in the Teaching Process. Physiological Arousal is Controlled by the Central Nervous System, Peripheral Nervous System and Autonomic Nervous System through Nerve Activity. Repeat Goal Setting and Immediate Goal Setting in Training and Competition to Make It Work. Setting Goals Even under Very Stressful Situations is Very Stimulating and Should Be Used Frequently. Organisms Strive to Achieve a Perfect Medium Level of Physiologic Arousal, Which is the Behavior Performance That Can Promote Physiologic Arousal. Attention Concentration Will Cause the Level of Physiological Arousal to Rise, So Strategies Designed to Increase or Decrease Attention Will Also Increase Vitality or Energy. Target Setting Must Pay Attention to Short-Term and Long-Term Goals, Difficult and Easy Goals, Clear and Fuzzy Goals, Realistic and Unrealistic Goals.

How to combine the characteristics of sports events and the physiological functions of athletes to achieve excellent results in sports competitions. Not every project requires a high level of activation, and different projects and characteristics require different levels of activation. When we exclude irrelevant clues that may distract our attention, we will focus our attention. In order to be successful in sports competitions, one needs to make maximum efforts and awaken to the greatest extent. In the practice of physical education, the basic idea of cooperative learning lies in guiding the sports practice of physical education workers. Athletes should learn to automatically adjust and control their heart rate in normal sports training because the difficulty and intensity of sports events are different. Only in this way can they provide sufficient nutrients for the body and avoid the occurrence of hypoxia. The principle of sports training is exactly the bridge connecting the theory of sports training with the practice of sports training. Diagnosis of athletes' physical functions can help coaches understand the training effect of implementing sports load and the athletes' physical skills. Accurately assess the scientificity and effectiveness of exercise load and training methods. The application of telemetry heart rate technology solves the problem of monitoring athletes' dynamic heart rate, which is of great biological value for monitoring and guiding training. Meanwhile, it can relatively accurately evaluate athletes' functional state in cooperation with athletes' training completion. Figure 1 shows the rhythm characteristics of biological cells.

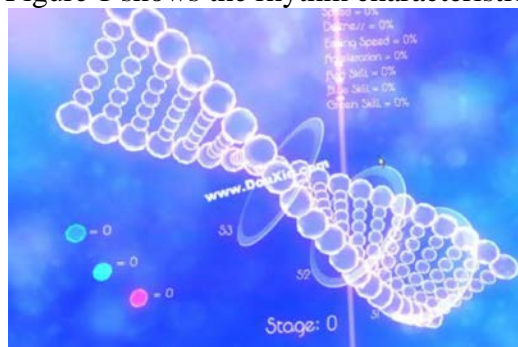


Fig.1 Biological Cell Rhythm Characteristics

## 3. Analysis of Athletes' Physiological Arousal Stimulation Strategy

### 3.1 The Process of Biological Adaptation Affects Physiological Arousal

The characteristics of modern competitions tell us that modern competitions are characterized by

integrity, high efficiency, rapid transformation and strong confrontation. This makes every player bear huge sports load during the competition, which puts forward higher requirements for the physical condition of athletes. The quality of sports depends on the athlete's body shape and structure, the functional status of each organ system, the reserve of energy characteristics, and the physical health status. In an ideal training state, the training load is sufficient to significantly improve the physical function. The ability to exercise can be reflected in psychological, physiological, technical and material preparation [10]. Cooperative learning focuses more on the expansion of the relationship between students and the center of teaching interaction. Starting from the cognitive characteristics of students, cooperative learning skillfully uses the interaction between teachers and students, leaving a lot of classroom time for students. Make students respect each other, communicate with each other and support each other, forming a harmonious and tacit classroom atmosphere.

At the sports training site, the instantaneous changes of athletes' relevant indexes can be accurately captured, and whether the athletes' training process achieves the expected training effect can be quickly evaluated. By changing parameters such as initial excitation, the decline process of muscle strength can be simulated. When the initial excitation falls to zero, the muscle strength reaches the minimum value. The comparative curves of quadriceps femoris muscle strength before and after recession are shown in Figure 2, and Figure 3 shows the distribution of muscle strength in each axis after recession.

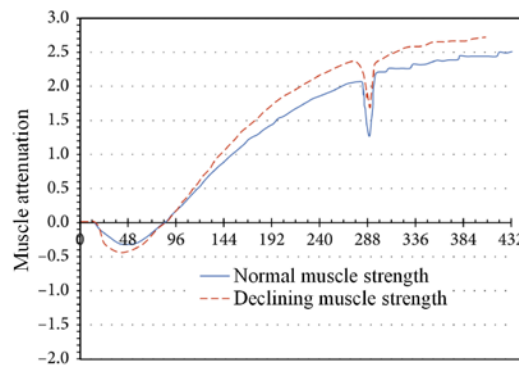


Fig.2 Comparison of Muscle Group 2 Before and after Attenuation

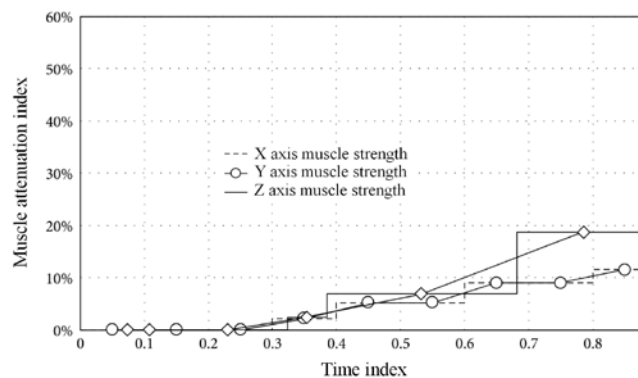


Fig.3 Distribution of Muscle Strength after Decay in Each Axis

### 3.2 The Relation between the Recovery of Physical Fitness and Physiological Arousal

We can reasonably solve the problems of fatigue, trauma and the like of athletes in competition and reasonably arrange the load of sports according to the physical structure characteristics of athletes. If the training load is too small and the body cannot get enough stimulation, it will not be able to effectively improve the exercise ability. The adjustment of arousal level is a complicated task, which requires athletes not only to learn self-regulation, but also to cooperate closely with coaches and researchers. Whether athletes can adapt to the sports load they bear is the key to scientific training. An important part of athletes' physical function evaluation is that athletes may encounter unfair treatment, audience interference or self-doubt in competitions, which will also

affect the performance of athletes' competitive level. On the premise of respecting the concept of general training principles, we should fully combine the laws of sports training with the training laws of various elements of athletes' competitive ability. In training, physiological arousal should be combined with physiological principles to keep athletes in the best competitive state.

#### **4. Conclusions**

Reasonable and effective control and utilization of biological cyclical changes, physical and functional levels, injury mechanisms and other physiological factors have to varying degrees restricted the competitive level of competitive athletes. Each athlete's level of arousal at the beginning is different, and the impact of rising arousal on different athletes is also different. Through cooperative learning methods, physical education teachers should cultivate students' cooperative skills, help students understand and master cooperative learning methods, and play the role of small teams. Then, the competition mechanism in sports learning is used to give full play to students' personality and form their own characteristics. Reasonable arrangement of peacetime and pre-competition training according to biological rhythm has obvious benefits for improving athletes' competitive ability and state, maximizing their competitive potential and preventing injuries. When athletes use higher cognitive state anxiety, even a slight increase in physiological arousal may lead to a decrease in behavior mutation. In the process of sports, athletes can be stimulated with physiological arousal by appropriate methods, so that they can always maintain their best competitive level and achieve excellent results.

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