

# The Significance of Different Home Physical Exercises for College Students in Reducing Injuries and Preventing Diseases: Taking College Students from Physical Education Colleges in Jiangsu and Zhejiang as Examples

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**Abstract:** Different exercise intensities have completely different training effects on the human body. If the exercise intensity is too large or too small, the ideal exercise effect cannot be achieved, and it may even cause harm to the body. Therefore, how to determine the intensity, duration, and method of exercise is very important to college students of physical education. This article uses questionnaires to investigate the physical indicators of students during exercise, aiming to explore what kind of exercise intensity, exercise frequency and exercise. The effect of duration on physical function is more scientific and reasonable, so as to provide reference and guidance for the future physical training methods and training methods of college students.

**Keywords:** Intensity; Exercise prescription; Physical fitness

## 1. Introduction

Scientific researches show that exercise is beneficial to human, and the benefit of exercise is far greater than its risk<sup>[1]</sup>. For most adults, regular exercises, including cardio lung, endurance, flexibility and neuromotor training, are beneficial, in addition to daily activities are beneficial for most people<sup>[2]</sup>. However, different exercise intensity has different training effects on human body. If the intensity is too large or too small, it cannot achieve the ideal exercise effect, and even bring harm to the body. Therefore, how to determine the intensity of individual exercise is worthy of our study and in-depth discussion. Although many studies have shown that there is a positive correlation between exercise and health, it is necessary to conduct a thorough physical assessment of the people who participate in the exercise before the intensive exercise training program. The intensity, mode, duration and frequency of exercise have a strong impact on the results<sup>[3]</sup>.

## 2. Research Objects and Methods

### 2.1 Research Objects

This study took the college students of physical education in Jiangsu and Zhejiang province as the research objects to investigate the home physical exercise situation of college students during the epidemic period.

### 2.2 Research Methods

(1)Literature. Relevant literature was consulted through CNKI, library resource system of Zhejiang Normal University and PubMed website to provide theoretical basis for this study, and the latest trends of home physical exercise during the relevant epidemic period. (2)Questionnaire Investigation. Based on the COVID-19 situation and the purpose of this study, a questionnaire was designed and conducted. (3)Mathematical Statistics. Using such software as SPSS, Excel to collect the questionnaire data, pick out the valueless invalid questionnaire data, and conduct statistical analysis and calculation of the effective data, to provide real and effective experimental data for this study.

## 3. Questionnaire Result

### 3.1 The significance of different physical exercise frequency and Intensities to prevent disease and reduce injury

ACSM(American College of Sports Medicine)suggests that moderate physical exercise should be maintained during the quarantine period, because it helps to improve the immunity to the COVID-19. WHO recommends that asymptomatic and healthy people exercise at least 150 minutes per week for adults and 300 minutes for children and adolescents. These times can be distributed in a few days of the week and according to one's daily life<sup>[4]</sup>.

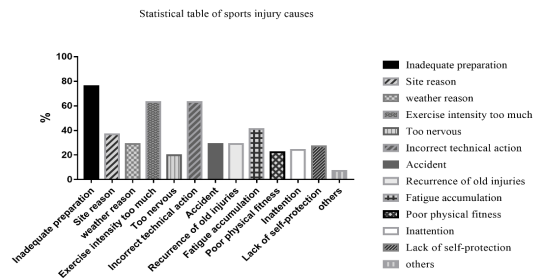
The study found that the body within a certain physiological range, through the excessive recovery mechanism, can promote the improvement of human function and health level, but because of the "Open Window", if in the high-intensity or long-term exercise, it will lead to the decline of the body's immunity in a certain period of time<sup>[5]</sup>, therefore, it is not recommended to do high-intensity or

long-term exercise when students are in the epidemic situation<sup>[6-8]</sup>.

### 3.2 The Significance of Different Types of Physical Exercise in Preventing Disease and Reducing Injury

Studies have shown that the regulation on immune response from aerobic exercise and strength training depends on the pattern,intensity,duration and other factors<sup>[6,9]</sup>.At the same time,"Open Window"will increase the risk of infection in a few hours and days after exercise<sup>[7]</sup>.According to the International Society of Exercise and Immunology,long period of physical exercise,that is,90 minutes of moderate and high-intensity physical activity,lead to a decline in the immune function.

### 3.3 Causes of Athletic Injuries



The investigation found that sports injuries were found in both upper and lower limbs,especially in ankle,knee and shoulder. In terms of its types,most of them are muscle ligament strain,abrasion and joint injury. (1)Unreasonable training intensity. Scientific and reasonable exercise load can not only effectively stimulate the response of the body,but even form excessive recovery in the training of heavy load and improve sports performance.However,excessive exercise intensity will lead to deterioration of body function,swelling and pain of muscles and joints,and eventually form athletics injury. (2)Technical Factors. Incorrect technical action.In the technical movement teaching,the unclear technical skills and movement range against the objective law will cause technical movement mistakes,especially when it comes to sports requiring explosive power,the wrong power is more likely to lead to injury. (3)Physiological Factors. Accumulated fatigue and old wounds.Due to the lack of self-protection ability,and the incomplete recovery,under the pressure of high-intensity training,the injured parts cannot bear the high-intensity pressure,which is easy to cause the recurrence of old injuries,and even more serious.

### 3.4 Guidance on physical exercise at home

(1)The choice of physical exercise type at home. The venues and facilities of college students'home physical exercise have limitations.It is suggested that aerobic exercise,strength exercise and flexibility exercise should be the main exercises. (2)The intensity of home physical exercise. Usually,we use heart rate to judge exercise intensity.The maximum heart rate of a person can be calculated by formula:maximum heart rate=220-age.ACSM has also issued guidelines for moderate intensity exercise that can be carried out during the pandemic<sup>[11]</sup>. Therefore,it is suggested that college students choose moderate intensity exercise for fitness. (3)Duration of physical exercise at home. The intensity and duration of physical exercise is the key to achieve good fitness effect.In order to achieve better fitness effect, it is suggested that the time of each home physical exercise should be about 60 minutes(about 10 minutes for warm-up activities, about 40 minutes for main physical exercises and about 10 minutes for relaxation activities).

## 4. Discussion

Through investigation and scientific studies have shown that moderate physical exercise can improve their immunity and the ability to prevent damage,regular exercise and adequate strength exercise on respiratory tract infections(e.g.,COVID-19),Recent studies have found that physical exercise can treat and prevent pain and allergy caused by inflammation.Although this result has not been clinically confirmed,it also suggests that physical exercise may be a method to treat and prevent complications caused by inflammation.

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