

Study on the Influence of Sports on Physiological and Biochemical Indexes

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Abstract: the Purpose of Studying the Significance and Value of Physical Exercise for Physiological and Biochemical Indexes is to Let People More Specifically Understand the Changes of Physical and Biochemical Indexes Brought by Physical Exercise through Experimental Data. the Purpose of This Paper is to Improve the Level of School Physical Education, Realize the Guiding Concept of “Health First, Facing the People, All-Round Development, Lifelong Physical Education”, and Achieve the Goal of “Exercise and Enhance Physical Fitness”. Therefore, for the Purpose of Research, Students' Health Level Can Be Practically Improved. This Can Be Achieved by Literature Data Method, Experimental Method, Genetic Algorithm and Prediction Method. Do High-Intensity Aerobic Exercise (800 Meters, Sit Ups), Compare the Changes of Heart Rate, Blood Pressure and Blood Sugar Before and after Exercise. the Results Showed That the Blood Glucose and Heart Rate Increased Significantly, Hypotension Decreased, Hypertension Increased, Lung Volume Decreased, and the Decrease and Increase Were Closely Related to the Number of Daily Exercise. Tips: Students Who Exercise Regularly Will Have Better Physique. When They Face High-Intensity Tests, Their Physiological Indexes Will Change Less and Recover Faster. Therefore, Physical Exercise is Very Beneficial to Improve People's Health.

1. Introduction

In This Study, 22 Students Were Selected as the Subjects to Observe the Changes of Sports Physiology and Biochemistry Indexes, and to Investigate the Influence on the Physical Sports Physiology and Biochemistry Indexes, So as to Provide Experimental Basis for Scientific Sports Training.

Table 1 Basic Information Of Female College Students Before Sports (X^2)

Number Of Cases	Height (CM)	Body weight (kg)	BMI(kg/m ²)
132	159.65±6.84	55.07±10.68	21.56±3.57

2. Research Object and Method

2.1 Research Object

There are 22 young people (22 women, 0 men) who voluntarily take part in the physical test from 18 to 20 years old. See Table 1 for the basic physical condition of the subjects.

2.2 Research Method

Test method: physical fitness test method; research instrument[1]: 5 upper arm sphygmomanometer, model kf-65b, using oxy measurement method, a spiro measurement device (including 60), model yyf-0008.

Before the exercise, measure the body shape index including the height and weight of the tester. Height and weight were measured by body composition analyzer. The experimenter stood barefoot under the equipment. Then, get out of their feet, stand, stand in front of them. Height and weight are body mass index ($BMI = \text{weight} / \text{height} \times 2 = \text{kg} / \text{m} \times 2$).

The staff of the hospital used a blood glucose meter to check the blood glucose of the subjects before the implementation[2]. After recording the data, the subjects carried out a trial run of 800 meters. Glucose in blood was measured immediately after operation, and the experimental data was

recorded again.

Blood pressure and heart rate testers were used to measure the heart rate, low pressure and high pressure of the subjects one minute ago. After collecting the data, the subjects sat for one minute and recorded the amount of sitting. A heart rate and high pressure and low pressure measurement, record the data again, compare the data [3].

Table 2 Changes of Blood Pressure, Vital Capacity and Heart Rate of Female College Students Before and after One Minute Sit Up(x^2)

Number of cases	index	Before sit ups	
132	high pressure	111±9	122.64±15.41
132	low pressure	71.77±8.95	68.05±7.97
132	vital capacity	3378±780	3210±808
132	heart rate	84.73±6.93	99.18±15.45

Firstly, the 8-minute maximum power test is used to test the multi-level incremental load test, and the forces of 80%, 85%, 90% and 95% of each athlete are calculated, and the rated load intensity is 8 minutes based on the one eighth of the maximum output power. The intensity test time is 4 minutes and the interval is 10 minutes.

The blood lactate value, blood urea value and blood urea value were measured before exercise.

3. Research Findings

All test data are expressed as mean ± standard deviation (x^2)

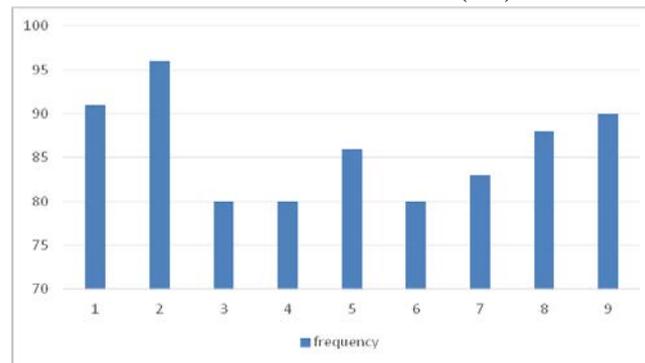


Fig.1 Heart Rate before and after Sit Up

4. Analysis and Discussion

4.1 Effect of 800 m Exercise on Blood Glucose Index

The normal range of blood glucose before meal was 3.9-6.1 mmol / L[4]. Experimental data showed that 22 young people in this study had normal blood sugar when they were fasting before running 800 meters. The unstable state of blood glucose value in a day includes the peak and peak changes of blood glucose value of students, and the significant changes of blood glucose value in a long time (day, month, month or week, week). The sources of exercise blood glucose include the destruction of glycogen in liver and the conversion of fat and protein. In terms of students' physical function, the change of blood glucose value is greater [5].

4.2 Effects of Sit Ups on Heart Rate, Vital Capacity and High and Low Pressure

Heart rate is an important index to evaluate the intensity of training load. This is the frequency of periodic mechanical activity of the heart, the heart rate per unit time. There is a direct relationship between the heart rate and the intensity of exercise, as well as the length of time[6]. Under the same exercise load, the athlete's heart rate slows down, and his physical function will be better improved. From the heart rate curve before and after the seat, it can be seen that the heart rate index increases significantly, the heart rate increases significantly, the students' physical condition is good, and the heart rate decreases. Important ability refers to the maximum amount of air that can be inhaled and

spit out in an unlimited period of time. It is often used as one of the indexes of body function, sometimes as the index of training level of physical evaluation. In this study, after sitting, the ability of living slightly decreased. Survey data show that after seating, the low pressure generally decreases and the high pressure increases.

It can be seen from table 2 that the value of lactate in blood increased significantly after exercise, and the value of lactate in blood was higher than that of the next morning. The blood lactate value reached the highest value (average value was 12.6) at the 7th minute after statistics. Compared with the lactate value in other periods, the static stability value and 1 value in the 7th minute were significantly higher than the static stability value. The blood lactate value ($P < 0.01$) after 3 points and 9 points is slightly higher than that after 5 points, but the difference is 0.9[7]. The peak time of blood lactate is shown in Table 5 above, which is about 5-7 minutes after exercise. The blood lactate value of athletes 1, 3 and 6 appeared in the fifth minute after exercise, and the peak value of blood lactate appeared in the seventh minute after exercise.

The above results showed that the peak time of lactate in blood after exercise was 5-7 minutes. Athletes with high training level have strong anti lactate ability. Under the same load, the peak value of lactate appeared relatively late, while in other cases, the peak value of lactate appeared earlier. Strong aerobic metabolism of athletes, blood lactate peak. C. due to different exercise and age, it will affect the appearance of blood lactate peak sooner or later.

Table 3 shows that most of the peak values of urea in blood appear about 30 minutes after exercise, which is significantly slower than the peak value of lactate in blood, and the value of urea in blood increases significantly after exercise[8]. Blood urea is closely related to exercise load and intensity, but there are also individual differences. The concentration of urea in the blood of athletes with good performance will rise slowly and recover early the next day.

According to the above analysis, the peak value of urea in the blood shows that the lactate in the blood is significantly reduced, and the decrease of pH value in the blood is conducive to the alienation of protein and amino acid. It is then added to the energy supply process to compensate for sugar. Due to the increase of acid in blood, renal excretion is affected to a certain extent, resulting in the increase of urea in blood, the final product of metabolism, so there is a significant correlation between urea and lactate in blood.

5. Conclusion

In today's scientific training, in addition to the scientific arrangement of training methods, methods and training plans, the change of lactate level in training is becoming more and more important for coaches. Lactic acid is one of the final products of anaerobic metabolism of sugar. The increase of lactate concentration in blood is the result of muscle movement and will spread to the blood. The concentration of lactate is different with different exercise intensity[9]. Therefore, it is very important to choose the right time to capture the peak blood lactate after exercise. In this way, we can better reflect the actual situation of muscle metabolism, in order to better grasp the interval time after exercise, we can carry out scientific training. Improve the training level of exercise load.

With different load intensity and load, the urea concentration and lactate value in the blood of middle and long distance runners increased significantly, which showed a high sensitivity to exercise load and intensity.

The peak value of blood urea appeared about 30 minutes after exercise, and the peak value of blood lactate appeared 5 to 7 minutes after exercise, which was obviously the best time to collect blood before urea. The interval is 7-10 minutes.

During training, lactate and urea in the blood are used as monitoring indicators to correct the training plan. At this time, the use of blood urea is particularly important, which can effectively prevent excessive fatigue and functional decline, and prevent the training load from affecting the training effect.

At the same time of blood lactate and blood urea index, the exercise load and intensity of middle and long distance runners can be evaluated more accurately by their body function state, and the

fitness of athletes' body development can be evaluated by the maximum blood urea production and blood lactate level for body stimulation.

According to the physiological index data of about 800 m, the blood glucose value increased significantly after exercise, the heart rate increased generally, the vital capacity decreased, the low pressure decreased, and the high pressure increased. That reflects the physical performance of the players. These indexes are simple and practical. Setting the upper and lower limit of recovery value (i.e. after one day off and the next day's test value) can detect the physical state changes of players in time and provide the basis for target adjustment and formulaic training plan. According to the changes of physiological indexes to adjust the weight loss and exercise volume, can effectively improve the physical health of athletes.

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