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TEST AND CORRELATION STUDY ON AEROBIC CAPACITY OF COLLEGE STUDENTS IN RECREATIONAL DIVING

ABSTRACT. The study examines the impact of recreational diving movements on aerobic capacity in students of sports specialties.

KEYWORDS: recreational diving; aerobic capacity; maximum oxygen uptake; muscular oxygen saturation.

Purposes. Through special undergraduate aerobic capacity indicators and testing the leisure diving and swimming, ball games, track and field and power project comparison, the leisure diving movement's influence on aerobic capacity are understood. At the same time, testing muscle oxygen saturation, blood oxygen saturation index to explore the possible mechanism and its correlation so that theoretical basis for the rapid development of recreational scuba diving is provided.

Methods. 208 college students from Lingnan Normal University were selected, including 168 male students and 40 female students. The male students were divided into six groups: control group (C, n = 35), diving group (D, n = 42), swimming group (S, n = 19), basketball group (BA, n = 28), track and field group (T, n = 20), and fitness group (BB, n = 24). The female students were divided into five groups: control group (C, n=8), diving group (D, n=8), swimming group (S, n=8), basketball group (BA, n=8), track and field group (T, n = 8). $VO_2\max$, O_2 -Pulse, muscle Deff, SpO_2 , etc were tested. Single factor analysis of variance, independent sample T test and Pearson correlation analysis were used to analyze multiple index data with spss23.0 software.

Results:

1. There are differences in aerobic capacity between different sports. Maximum oxygen uptake($VO_2\max$): in boys group, $D > T > BA > S > BB > C$; in female group, $D > T > BA > S > C$. Hemoglobin (Hb) content was higher in group D than in group B and group C ($P < 0.05$). Girls in group D were higher than those in group C ($P < 0.05$). Oxygen pulse (O_2 -Pulse): the D group of boys was higher than the S group, BA group, BB group and C group ($P < 0.05$). There was no significant difference between the female D group and the other exercise groups ($P > 0.05$). HRmax (HRmax): the difference between group D and other exercise groups was not statistically significant ($P > 0.05$). Relative value of the effective decrease (Deff) of muscle oxygen was higher in group D than in group S, group T, group BB and group C ($P < 0.05$). Girls in group D were higher than those in group C ($P < 0.05$).

2. There was a significant positive correlation between $VO_2\max$ and Hb in each group of male students. There was a significant positive correlation between group D and group T. The $VO_2\max$ and O_2 -Pulse of all the male sports groups were positively correlated. $VO_2\max$ and O_2 -Pulse were significantly positively correlated in each exercise group of female students ($P < 0.05$), there was no significant correlation in group C ($P > 0.05$). The $VO_2\max$ and Deff in each sports group of male students were significantly positively correlated, the

correlation was not significant in group C ($P > 0.05$). The $VO_2\text{max}$ in group D and group T of female students showed significant positive correlation with $Deff$, while the other groups showed no significant correlation. The Saturation of pulse oximetry (SpO_2) of each group showed a downward trend in the process of increasing the load on the platform during the normoxic exercise, and the decrease of SpO_2 of the male and female group D was smaller than that of the other groups, but the linear correlation between $VO_2\text{max}$ and SpO_2 of each group was not significant.

Research conclusions:

1. The aerobic capacity of boys and girls recreational diver was higher than that of other sports, and the aerobic metabolism capacity of leisure diving was the strongest in all sports events.

2. The aerobic capacity of leisure diving was the strongest, and the mechanism was related to the improvement of muscle $Deff$ and higher SpO_2 in blood.

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**THE ESSENCE OF WUSHU TRADITIONS AND THEIR INFLUENCE
ON THE DEVELOPMENT OF MODERN WUSHU**

ABSTRACT. Wushu traditions include group psychology and behavioral habits followed by a wide range of martial artists during the long development of wushu. Traditional Wushu is the relationship between a thing and Tao (the way), a thing has Tao, a thing is inseparable from Tao. Some of the chaos in the modern wushu world is associated with a deviation from tradition. In the development of modern wushu, it is necessary to adhere to the central position of martial arts, maintain a multi-polar value orientation, promote a valiant spirit that leads to self-discipline and benefit others, and develop a spirit of struggle on the path to self-improvement.

KEYWORDS: wushu traditions; martial arts; nobility; self-improvement.