

Maximum Oxygen Intake Of The Female College Student Athlete

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Introduction

Students who are major in physical education have been continuing the same sports for a long time. The aim of study was to clarify a characteristic of the maximum oxygen intake for some kind of sports. The subjects were college female students' athletes who were participated in their sports as regular basis.

Methods

Twelve rhythmic gymnasts, nine swimmers, and seven distance runners participated in this study and all subjects were female. They have enrolled at female college in physical education course. All participants were measured their body composition and maximum oxygen intake ($\dot{V}O_{2max}$). Body composition was measured by InBody. The subjects were finished their meal two hours before the measurement of the maximum oxygen intake and they could not intake any meal and fluid until their measurement was completed. They were performed the exercise on a treadmill by incremental exercise test. And the examiners collected the subjects' expiration every 15 seconds with an expiration gas metabolism monitor. During the measurement, the subjects were monitoring by heart rate meter and Rating of Perceived Exertion (RPE) for their safety. And the examiners also paid attention to how much achieve their maximum heart rate ($220 - \text{age}$), plateau oxygen intake, and their condition of health after the experiment. The first two minutes of exercise was the same speed and after every one minute the level of load was increased in incremental steps.

Results

The results showed that no significant difference between in their height ($159.6 \pm 4.5\text{cm}$) and the percentage of body fat ($21.7 \pm 3.3\%$) in three groups. However; the weights of the distance runners ($45.1 \pm 4.9\text{g}$) showed significantly lower value than rhythmic gymnasts ($52.0 \pm 3.8\text{g}$) and swimmers ($54.0 \pm 5.1\text{g}$).

Conclusions

$\dot{V}O_{2max}$ intake of rhythmic gymnasts ($46.8 \pm 5.7\text{ml/kg}$) showed lower than swimmers ($56.0 \pm 7.0\text{ml/kg}$). As a result, each sport has own practice time and intensity, and the maximum oxygen intake value was also different between the sports in the college female students' athletes.

Keywords

rhythmic gymnasts, swimmers, distance runners, maximum oxygen intake, college female students' athletes