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## ***A 12-year Retrospective Analysis of VO<sub>2</sub>max Values in College-aged Students***

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### **OBJECTIVE**

To examine VO<sub>2</sub>max values in a cohort of exercise physiology students over a 12-year time period.

### **DESIGN and SETTING**

VO<sub>2</sub>max values were examined in an upper-level exercise physiology course over 12 years (2008-2019). As part of the course requirements, the students completed a VO<sub>2</sub>max test. Students performed an individualized progressively increasing exercise test to exhaustion lasting ~8-12 minutes on either a treadmill or bicycle ergometer. Student's VO<sub>2</sub>max values were analyzed for effects of gender (male and female) and athletic status (athlete and non-athlete). VO<sub>2</sub>max values were expressed in ml·kg<sup>-1</sup>·min<sup>-1</sup>.

### **PARTICIPANTS**

A total of 161 students enrolled in an upper-level exercise physiology course from 2008-2019 (males = 79; females = 82). Students were also classified by athletic status. Students were classified as an athlete if they competed in a university sponsored varsity athletic team for at least one season before enrolling in the course (N = 109). Students were classified as a non-athlete if they had not participated in a university sponsored varsity

athletic team for one season prior to course enrollment (N = 52).

### **MAIN OUTCOME MEASUREMENT**

Student's VO<sub>2</sub>max values were examined for the effects of gender (males vs. females) and athletic status (athlete vs. non-athlete). Significance was set at p<0.05 for all variables examined.

### **RESULTS**

Males had higher VO<sub>2</sub>max values for all variables when compared to females. Athletes had higher VO<sub>2</sub>max values when compared to non-athletes. Mean VO<sub>2</sub>max values for males were higher than females (49.8 ml·kg<sup>-1</sup>·min<sup>-1</sup> vs. 41.2 ml·kg<sup>-1</sup>·min<sup>-1</sup>). Mean VO<sub>2</sub>max values for athletes were higher than non-athletes (47.3 ml·kg<sup>-1</sup>·min<sup>-1</sup> vs. 40.9 ml·kg<sup>-1</sup>·min<sup>-1</sup>). Male athletes and non-athletes had higher VO<sub>2</sub>max values (50.9 ml·kg<sup>-1</sup>·min<sup>-1</sup> and 45.8 ml·kg<sup>-1</sup>·min<sup>-1</sup>) when compared to female athletes and non-athletes (42.9 ml·kg<sup>-1</sup>·min<sup>-1</sup> and 38.1 ml·kg<sup>-1</sup>·min<sup>-1</sup>).

### **CONCLUSIONS**

Males had higher VO<sub>2</sub>max values for all variables examined when compared to females. Athletes had higher VO<sub>2</sub>max values when compared to non-athletes.

**KEY WORDS:** *VO<sub>2</sub>max, Students, Gender, Athletes, Non-Athletes, Fitness, Aerobic Capacity, Exercise*