

## **Critical swim speed and metabolic activities in trained male and female swimmers after 400 m free style swimming with their full effort**

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### **ABSTRACT**

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**Purpose:** This study was done to ascertain gender differences in trained swimmers between their Critical Swim Speed (CSS). Certain metabolic responses, immediately after 400 meters free style swimming (FSS), with maximum effort, were also studied.

**Methods:** The analysis was conducted in trained swimmers between 12- 18 years age. Height, weight, body fat quantity were estimated using standard techniques. CSS was measured for each swimmer. Blood samples were taken within two minutes of 400 meters FSS, with maximum efforts. The blood creatinine, lactic acid, serum calcium, serum urea and serum urea nitrogen were estimated using standard laboratory methods.

**Results:** With the maximal effort of 400 meters FSS,

values of hematological variables for both sexes were found to increase many folds than reference values. Significant ( $p<0.05$ ) gender differences were observed in CSS and blood creatinine. The positive significant ( $p<0.05$ ) correlation was found between CSS and height in the swimmers. For trained male swimmers significant positive correlations among CSS, blood urea and serum urea nitrogen were found.

**Conclusions:** This study reflects metabolic status of both trained male and female swimmers, after their full efforts. Besides blood creatinine no significant differences were observed in them. So it may conclude that effective physical training minimizes the metabolic demands during their full efforts and gender differences could be overcome.

**Key words:** Critical swim speed, creatinine, young swimmers

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