

ABSTRACT

This study was aimed (1) to determine the combining of three carbohydrate diets, i.e., glucose, fructose, and fructose-glucose and intake timing, that affects the decrease of blood glucose and the increase maximum work capacity which previously conditioned with aerobic physical exercise, (2) disclose correlation between blood glucose mechanism and maximum work capacity. This experimental study used factorial design. Samples were 20 - 24 year-old students of Makassar State University, School of Sport Science, who participated as athletes from South Sulawesi in National Games (PON) XV 2000, and physically healthy as indicated by normal range of ECG (electrocardiogram) and VO_2 max. of 50 - 60 mL/kg body weight. Treatment variables were three intake timing (before, during, and before-during physical exercise) and carbohydrate drink containing glucose, fructose, and fructose-glucose, so that there were totally nine treatment groups. Other treatment variable was conditioned treadmill-aerobic physical exercise before the measurement of maximum work capacity. The measured variables consisted of (1) changes of glucose response, i.e., blood glucose difference before conditioned aerobic physical exercise, and that after maximum work capacity, (2) changes of maximum work capacity (mwc), i.e, maximum work capacity difference before (mwc-pre) and after (mwc-post) intake carbohydrate diets and conditioned aerobic physical exercise. Results showed that: (1) the combining of the glucose and intake timing of the before-during decrease of blood glucose and higher increase of maximum work capacity which previously conditioned with aerobic physical exercise, (2) disclose correlation between blood glucose and maximum work capacity. The conclusion is carbohydrate diet showed no lower decrease normal blood glucose which previously conditioned with aerobic physical exercise, but increase of maximum work capacity.

Keywords : intake timing, glucose, fructose, aerobic-exercise, maximum work capacity