

Testing the Effect of Sodium Bicarbonate Base on Blood Lactate Levels after a Strenuous Exercise

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ABSTRACT

INTRODUCTION: The lactate is an intermediate metabolic, its production in the skeletal muscle increase during the exercise, principally in anaerobic condition that include oxygen deficiency in the skeletal muscle during the exercise. The lactate is released to systemic blood, where it participate in the Cori cycle, although in the blood, the metabolite can modify the blood's pH. For the last condition, the human has some mechanism to attenuate the lactate effects on the pH in blood **PURPOSE:** The purpose of this study was evaluate the effect of the sodium bicarbonate ingestion on the lactate blood levels before and after an acute strenuous exercise in undergraduate students. **METHODS:** Five male (21.2 ± 21.5 years; 78 ± 9.73 kg) were recruited. Two strenuous exercise test of 4 minutes were performed. An interval of 24 hours was present between exercise sessions. The test consisted in intervals of 30 seconds to maximum intensity and with periods of submaximal intensity for 30 seconds. The lower intensity consisted of continuous aerobic activity to $\approx 60\%$ of HRmax. The first test was performed without NaHCO₃ ingestion. Contrary, the second exercise session was performed with NaHCO₃ ingestion (300mg/kg body weight). The NaHCO₃ ingestion was performed 2 hours previous to exercise. **RESULTS:** Without sodium bicarbonate ingestion, the lactate before physical effort was 1,74mmol, *SD* 2,15mmol, the lactate after to physical effort was 7,94mmol, *SD* 9,73, the oxygen in blood before to physical effort was 99% *SD* 0%, the oxygen after to physical effort was 96,6% *SD* 1,74%, the systolic blood pressure before physical effort was 122mmHg, *SD* 11,66mmHg, the diastolic blood pressure was 91,2 mmHg, *SD* 10mmHg, after physical effort the systolic blood pressure was 131,2mmHg. *SD* 11,90mmHg, the diastolic blood pressure was 76mmHg, *SD* 12,58mmHg. With sodium bicarbonate ingest, the lactate before physical effort was 0.4mmol, *SD* 0.56mmol, lactate after physical effort was 6.73, *SD* 7,31mmol, the oxygen in blood before physical effort was 99% *SD* 0%, after to physical effort was 96.66%, *SD* 0.47%. **CONCLUSION:** The present study shows that the bicarbonate ingestion does not change significantly the blood lactate concentrations after a strenuous exercise. Our current data could be consequence by the low sample size. Therefore, we suggest perform a new study with a bigger sample than the current work.