

INVOLUNTARY EVOKED SKELETAL MUSCLE CONTRACTION DOES NOT ENHANCE BLOOD GLUCOSE UPTAKE IN HEALTHY SUBJECTS

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Introduction and objectives. Voluntary skeletal muscle contractions enhance blood glucose uptake. In opposite, effects of involuntary muscle contractions upon humans' blood glucose are not known. The purpose of this work was to determine the effects of involuntary muscle contractions in human's glycaemia. 12 healthy subjects, after a two hours fasting, were submitted to three trials. Subjects drank 300 mL of glucose solution (0,25g/mL), and remained resting as the control trial (CO), in the second they were submitted to an electrical stimulation protocol (EE), In the third trial, it was added voluntary muscle contractions by knee extension (EEex). EE was conducted using surface electrodes, strength of 20–25 mA, at 80 Hz. 250 ms impulse trains were given to the quadriceps every 10s for a period of 20 min. Blood Glucose was measured in 25 μ L samples, using Accutrend GCT (Roche), immediately before EE starts, that was 30 minutes after subjects have drunk glucose solution, and immediately after EE. **Results and conclusions.** Blood glucose raised to values above normal, reaching in average 126,6 mg/dL in CO, EE and EEex, but there was no statistical difference in blood glucose concentration after EE and EEex compared to CO. EE protocol was not efficient to enhance blood glucose decrease in healthy subjects.

Keywords: Electrical stimulation, Exercise, Glucose tolerance.