EFFECTS OF ACUTE SALBUTAMOL INTAKE DURING SUPRAMAXIMAL EXERCISE IN WOMEN
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b2-adrenoceptor agonist drugs taken prior to physical activity, especially salbutamol, are commonly used to prevent exercise-induced asthma. Due to fear of possible anabolic doping effects with chronic abuse, the Medical Commission of the IOC presently list salbutamol as a legal medication, permitted in the aerosol form only when prescribed by a physician. There is, however, only little literature on the effects of acute systemic beta-2 agonist administration during high intensity exercise. As a matter of fact, Van Baak et al. (2000) reported a significantly increased isokinetic strength of the knee flexors and extensors in nonasthmatic men after an acute therapeutic oral salbutamol intake. Similarly, we found in a precedent study (Collomp et al., 2005) that the same acute administration of oral salbutamol intake (4 mg) significantly improved peak power and mean power whilst significantly shortening the time to peak power compared to placebo in men during a Wingate test. However, to our knowledge, no study of systemic use has focused on women and a specific gender response to beta-2 agonist can be questioned.

The purpose of this study was therefore to investigate the influence of acute beta-2 agonist intake at therapeutic doses, i.e., 4 mg salbutamol, on physical performance and blood hormonal and metabolite levels during supramaximal exercise in women.

Twelve female volunteers completed twice a Wingate test cycling trials, after either placebo (Pla) or salbutamol (Sal, 4 mg) treatment, according to a double-blind randomized protocol. Blood samples were collected at rest, at the end of exercise and during passive recovery (r5 min- r10 min- r15 min) for ACTH, GH, insulin, lactate and blood glucose measurements.

Peak and mean power significantly increased whereas time to peak power was significantly shorter with Sal compared to Pla (p<0.05). No change was observed in the fatigue index.

ACTH was not significantly modified but r15 GH significantly decreased (p<0.05) after Sal intake. Both blood insulin and glucose were significantly increased by Sal during all the experiment (p<0.01). Blood lactate was significantly increased by Sal vs Pla (p<0.05) after 10 and 15 min of passive recovery.

From these data, acute therapeutic oral intake of salbutamol appears to induce, irrespective of the subjects’ gender, an improvement in performance during a supramaximal exercise, i.e., increase in peak power and mean power. Further studies are necessary to clarify whether the mechanisms involved in the response to salbutamol are linked to central and/or peripheral pathways.

REFERENCES


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