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Title: Short-term ingestion of salbutamol increases isometric muscle power in endurance athletes

Mr. Anders 9905 Kalsen anderskalsen@gmail.com ^{1,2}, Mr. Morten 9906 Hostrup mortenhostrup@gmail.com ^{1,2}, Prof. Dr Jens 9907 Bangsbo jbangsbo@ifi.ku.dk ² and Prof. Dr Vibeke 9908 Backer backer@dadlnet.dk MD ¹. ¹ Respiratory Research Unit, Bispebjerg University Hospital, Copenhagen, Denmark and ² Department of Exercise and Sport Sciences, University of Copenhagen, Denmark .

Body: Rationale: Salbutamol is on WADA's prohibited but is allowed by athletes in therapeutic doses. Positive effects of oral salbutamol have been shown in active males and females. Yet, studies are needed examining the effects in athletes. Furthermore, no studies have examined whether oral salbutamol improves isometric muscle power and endurance. We examined whether acute and short-term intake of oral salbutamol improved isometric muscle power and endurance, and submaximal exercise performance in endurance athletes. Method: Twenty non-asthmatic endurance athletes (M), aged 25.8 ± 4.4 yrs, $\text{watt}_{\text{max}} 440.9 \pm 29.3$ W, were enrolled in a randomized double-blinded parallel study, into either oral salbutamol 8 mg (SAL) or placebo (PLA). The protocol consisted of three tests. Isometric muscle power of m. quadriceps was measured by maximal voluntary contraction, followed by an isometric endurance test of m. deltoideus to exhaustion and a submaximal cycling test to exhaustion at 90% of $\text{VO}_{2\text{max}}$ (TTE@90%). The protocol was performed at baseline, after acute ingestion, and after 14 days of daily ingestion. Results: Short-term intake of salbutamol significantly increased isometric muscle power, 709 ± 115 N versus 662 ± 100 N at baseline ($p < 0.05$). Furthermore, there was a significant linear trend of increased isometric muscle power with SAL throughout the intervention ($p < 0.05$). No differences were found in the PLA-group. Neither SAL nor PLA had any impact on isometric endurance or TTE@90%. Conclusions: Short-term intake of salbutamol might augment training response and increase isometric muscle power in endurance athletes. Salbutamol had no effect on submaximal exercise at 90% of $\text{VO}_{2\text{max}}$ or on isometric endurance.