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The Physiology of Seven Consecutive Days of Competitive Cross Country Mountain Biking: 799: May 29 1:15 PM - 1:30 PM

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Many lab based studies investigating methodologies to enhance recovery from competition or training use test-strategy/placebo-re-test designs. However, in the field competitive events (e.g. Track Cycling) and training programmes often feature many repetitions of the desired activity: yet little is known about the physiological effects of multiple days of competition.

PURPOSE: To determine the effect of seven consecutive days of cross-country mountain bike racing on selected physiological variables.

METHODS: Forty four participants in the TransScotland 7 day mountain bike stage race were recruited. Prior to competition (day 0) $\dot{V}O_{2peak}$ was predicted (submaximal cycle ergometry) and basic anthropological measurements were made. Fasted measurements of blood glucose concentration, urine osmolality, rating of muscle soreness and body mass were made before each stage and again in the post-prandial state after each stage.

RESULTS: Fasted blood glucose concentration was lower than pre-competition (day 1: 4.63 ± 0.91 mmol·L⁻¹) on days 2 to 6 (all $p < 0.01$) but returned to baseline levels on the 7th day of competition (day 7: 4.76 ± 0.78 mmol·L⁻¹) ($p = 0.32$). Post exercise rating of muscle soreness increased from day 1 (3.81 ± 1.5) to day 7 (4.71 ± 1.64) of competition ($p < 0.01$). Pre- and post-exercise urine osmolality increased from day 1 (pre: 550.7 ± 180.6 post: 435.5 ± 245.8 mOsmol·kg⁻¹) to day 7 (pre: 631.2 ± 184.1 post: 600.0 ± 247 mOsmol·kg⁻¹) of competition (pre: $p = 0.03$ post: $p < 0.01$). There was a significant reduction in body mass from pre-competition on day 1 (81.2 ± 8.41 kg) to pre- (78.3 ± 8.14 kg) ($p < 0.01$) and post-competition on day 7 (78.8 ± 7.74 kg) ($p < 0.01$). The reduction in body mass was accompanied by a reduction in the sum of four site skin-fold thickness from pre-competition on day 0 (36.6 ± 10.7 mm) to postcompetition on day 7 (35.3 ± 9.9 mm) ($p = 0.01$). Subjects consumed an average of 570 ± 92 ml·hr⁻¹ of CHO-electrolyte drink during competition.

CONCLUSIONS: Seven consecutive days of cross-country mountain bike racing has a substantial, additive, deleterious impact on the measured physiological variables. This should be taken into account when designing investigations aimed at improving recovery in real-world situations.

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