

Effect of small doses of alcohol on the endurance performance of trained cyclists

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The effect of alcohol (OH) may be detrimental to performance because of its metabolic effects. On the other hand, some effects of OH could be judged as beneficial to performance, mainly through psychobiological mechanisms. The aim of this study was to investigate the effect of an acute small alcohol dose ($0.5 \text{ ml OH} \cdot \text{kg}^{-1}$ fat-free mass, combined with carbohydrate) in a drink on the endurance performance and metabolic response of cyclists. Thirteen well-trained male cyclists took part in this study. A 60-minute time-trial (TT) was performed in a calorimetric chamber after drinking an OH or a non-OH control (C) drink. Overall, OH induced a significant decrease in average cycling power (OH: $233 \pm 23 \text{ W}$ vs. C: $243 \pm 24 \text{ W}$, $p < 0.01$). Time course of mechanical power showed an early decrease during the OH trial as compared to C ($p < 0.01$). Due to the lower power output, oxygen consumption, carbon dioxide production and energy expenditure were significantly lower ($p < 0.05$) as compared to C. In contrast, OH did not influence gross work efficiency, heart rate response, ratings of perceived exertion (RPE), glycemia and blood lactate concentration. When normalized to power output, however, RPE and HR were significantly higher with OH ($p < 0.05$). These results show that an acute low dose of OH has a negative effect on a 60-minutes cycling time-trial performance. The mechanisms responsible for the decrease of performance are not clear, but may include cardiovascular and psychobiological effects. A placebo effect may also account for the decreased performance. As previously stated, due to its deleterious effects on endurance performance, OH, even at low dose, should not be consumed before exercise.