**TACSM Abstract**

**Potato Ingestion as an Effective Race Fuel Alternative to Improve Cycling Performance in Trained Cyclists**


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**ABSTRACT**

Carbohydrate (CHO) ingestion is an established strategy to improve endurance performance. Race fuels should not only sustain performance, but also be readily digested and absorbed and replenish electrolytes. Potatoes are a cost-effective option that fulfills these criteria; however, their impact on endurance performance remains unexamined. **PURPOSE:** Compare the effects of potato purée (POT) ingestion during endurance cycling on subsequent performance versus commercial CHO gel (GEL) or a control (water, CTL). **METHODS:** Twelve trained cyclists (31±9y; 71±8kg; VO2max: 61±9mL/kg/min) consumed a standardized breakfast then performed a 2h cycling challenge (60-85%VO2max) followed by a time trial (6kJ/kg body mass) while consuming POT, GEL, or CTL in a randomized-crossover design. POT, GEL and CTL were administered with U-[13C6]glucose for an indirect estimate of gastric emptying rate. Repeated blood samples were collected. **RESULTS:** Time trial performance significantly improved (P=0.03) with POT (33.0±4.5min) and GEL (33.0±4.2min) versus CTL condition (39.5±7.9min); while POT and GEL conditions (P=1.00) had no difference. Post-challenge, blood glucose concentrations were lower (P<0.001) with CTL (75.5±3.7mg/dL) versus POT (92.2±3.8mg/dL) and GEL conditions (95.0±3.8mg/dL). Similar results (P<0.001) were observed post time trial for blood glucose concentrations (CTL, 65.6±3.7mg/dL; GEL, 96.7±3.7mg/dL; POT, 91.9±3.7mg/dL). No difference (P=0.79) in blood glucose concentrations were observed between GEL or POT conditions at both times. Post-challenge, no differences were found in blood lactate concentrations (P=0.33) between GEL (4.68±0.43mmol/L) and POT (3.98±0.43mmol/L). Plasma U-[13C6]glucose enrichments were not different between GEL or POT throughout the trial (P>0.05). **CONCLUSION:** Potatoes served as a viable alternative to commercial gels by sustaining performance and blood glucose concentrations during endurance cycling events in trained cyclists.