TACSM Abstract

ACUTE MALTODEXTRIN SUPPLEMENTATION DURING RESISTANCE EXERCISE

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ABSTRACT

PURPOSE: Most of the research investigating the ergogenic enhancing mechanisms of carbohydrate have been conducted using aerobic based exercise. Therefore, the purpose of this study was to investigate the effects of pre-exercise maltodextrin ingestion on resistance exercise performance, serum insulin, epinephrine, glucose, and muscle glycogen concentrations. **METHODS:** In a double blind, cross over, repeated measures design, participants completed four sets to failure at 70% of 1-RM with 45s rest on the angled leg press with or without pre-exercise maltodextrin (2g/kg) after a 3hr fast. Serum glucose, epinephrine, and insulin were assessed at baseline, 30 min post-ingestion, immediately after, and 1hr post-exercise with or without carbohydrate supplementation. Muscle glycogen was assessed from biopsy specimens sampled from the vastus lateralis before supplementation, immediately after exercise, and 1hr post exercise under both conditions. **RESULTS:** There was no main effect of supplement on resistance exercise performance ($p=.18$). Muscle glycogen concentration decreased across time for both groups ($p<.001$). There was an interaction in serum glucose decreasing more during exercise in the carbohydrate condition ($p=.026$). An interaction occurred showing insulin decreased during exercise in the carbohydrate condition ($p=.003$). Also, there was a main effect of insulin being elevated with carbohydrate consumption ($p=.027$). Epinephrine was decreased across all time points after carbohydrate ingestion ($p=.023$). **CONCLUSION:** Carbohydrate supplementation before resistance exercise did not improve leg press performance to fatigue despite increased metabolic substrate availability. These results indicate that pre-exercise dietary carbohydrate will be utilized preferentially during exercise due to decreased epinephrine, decreased serum glucose, and increased insulin concentrations. However, the increases in glycolytic substrate availability will not increase exercise performance or glycogen content following 1hr of recovery.