Windland firefighters were, over a two-day period in a random order, were given supplemental carbohydrate feeding (160 Kcal / hour) on one day and a placebo drink on the other day. Three crews participated (n=31) at different fires. Firefighters were allowed a self-selected breakfast and dinner, and ate the provided lunch at approximately 6 hours into the 12-hour work shifts. Additionally, firefighters under the CHO trail received a large post-shift CHO drink containing 400 Kcal CHO. Saliva samples were collected each morning and evening per and post shift and again the following morning approximately 12 hours post shift.

Other data from our lab have shown that there is no difference in sIgA decline following 2 hours of work in the heat chamber between CHO and placebo. Additionally, blood glucose data collected during the workshifts with these wildland firefighters showed no difference in blood glucose early in the shift, but consistently showed greater declines in blood glucose with placebo vs. carbohydrate late in the day corresponding to greater declines in work output during the final 4 hours of the work shift under placebo conditions.

These current data suggest sIgA, a marker for immune function related to upper respiratory tract infection, is suppressed following long periods of arduous work without supplemental carbohydrates ingested on a regular basis. This suppression of the immune system is associated with declining blood glucose and a reduction in work capacity. The failure for sIgA to recover by the following morning under placebo conditions may be related to both the placebo the previous day and the lack of CHO feeding at the end of the day.