# Chromium Propionate Improves Glucose Utilization in Holstein Heifers

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In order to show the bio-availability and safety of chromium propionate supplementation in growing dairy heifers, we conducted a study to determine the effects of three doses (5 mg, 10 mg, and 15 mg/day) on glucose metabolism, NEFA, and insulin in non-pregnant Holstein heifers. Twenty dairy heifers of approximately 11-14 months of age were randomly assigned to one of four treatments in which they received 0 mg, 5 mg, 10 mg, or 15 mg/day of chromium propionate. The experimental design was a replicated Latin Square with four treatments applied randomly to four periods adjusted to equalize potential carryover effects. There were four two-week treatment periods, with a two-week pretreatment period and a two-week 'flushing period' between the first three periods. At the conclusion of each two-week feeding period glucose tolerance tests were conducted. Blood samples were collected to establish basal levels, then glucose was infused into the vena cava followed by incremental samples taken until 150 minutes post infusion. Serum was assayed for glucose, NEFA and insulin. There was no effect of treatment on BCS or BW. Supplemented heifers had faster glucose clearance and greater irreversible loss (area under the curve post infusion) of glucose from blood into tissues. Supplementation decreased average NEFA concentration, consistent with increased glucose use, but did not affect NEFA response to glucose tolerance test. Improved glucose utilization with chromium propionate has implications for improved growth in heifers as well as increasing intake and milk yield in lactating cows.