Scientific Abstract:

**Background:** Breakfast skipping is a common dietary habit practiced among adolescents and is strongly associated with over-eating, weight gain, and obesity. **Purpose:** The study was designed to identify whether the daily consumption of a high protein breakfast leads to beneficial, long term changes in appetite and glucose control, satiety, daily food intake, and body weight management in overweight and obese ‘breakfast skipping’ adolescents. **Methods:** Fifty-seven overweight/obese ‘breakfast skipping’ adolescents were randomly assigned to a Normal-Protein (NP), cereal-based Breakfast (350 kcal; 15% Protein/65% Carbohydrates/20% Fat) group, a High Protein (HP), pork-based Breakfast (350 kcal; 40% Protein/40% Carbohydrates/20% Fat) group, or a Control (CON) (i.e., breakfast skipping) group. For 12 weeks, the NP and HP groups were provided with breakfast meals to consume each day, whereas the CON group continued to skip breakfast. Perceived appetite and satiety; daily, continuous glucose monitoring; daily food intake; body weight; and body composition were measured during pre and post-study. **Results:** Although no differences in total body weight were observed between groups, the CON tended to gain fat mass vs. HP and NP. Regarding energy intake regulation, the HP group voluntarily reduced daily intake and carbohydrate consumption vs. CON and NP groups. The HP group also reduced afternoon and evening snacking of high fat/high sugar foods vs. CON. No differences in snacking were observed between HP vs. NP. The HP breakfast group displayed reduced hunger, desire to eat, and prospective food consumption along with increased fullness vs. CON and greater reductions in hunger and desire to eat along with greater increases in fullness vs. NP. Lastly, the HP breakfast led to improved glucose control throughout the 12-week period. **Conclusions:** The daily addition of breakfast, particularly a protein-rich, pork-based breakfast, improved appetite control and satiety, food intake regulation, and body weight management in overweight/obese ‘breakfast skipping’ adolescents. Funding provided by The National Pork Board.