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Short-term effects of protein preload on gastroenteropancreatic appetite hormones and postprandial glycemia in Polycystic Ovarian Syndrome (PCOS)

Manisha Rao, K Shane Broughton and **Monique J LeMieux**
Texas Woman's University, USA

Statement of Purpose: Insulin resistance and the consequent disturbances in glucose metabolism play a central role in the pathophysiology of polycystic ovarian syndrome (PCOS). Suppressing fasting and postprandial glycemia by modifying gastrointestinal mechanisms may benefit women with PCOS. Whey protein consumed before meals induces satiety, reduces energy intake, slows gastric emptying and increases resting metabolism, thus improving glycemic control in normo- and hyperglycemic individuals. This study will be the first to evaluate the effects of this type of preload supplementation on resting energy expenditure (REE), glucose and peripheral appetite-regulating hormones in women with PCOS and healthy controls.

Methodology & Theoretical Orientation: All participants will undergo a 7-days intervention where they will consume a given amount of whey protein (preload) before a carbohydrate load. Three 75-gram oral glucose tolerance tests (OGTT) with appropriate preloads will be conducted for each subject (Refer to Figure). Blood samples will be drawn before preload and every 30 minutes for 2.5 hours after glucose drink on these days. Glucose, insulin, glucagon, glucose-dependent insulinotropic polypeptide (GIP), glucagon-like peptide-1 (GLP-1), ghrelin, and peptide YY (PYY) levels will be evaluated in these samples. REE will be estimated using indirect calorimetry before and after intervention. Mixed design factorial analysis of covariance (ANCOVA) and analysis of variance (ANOVA) will be used to determine the effects of draw time, day of intervention and PCOS on biochemical variables and REE respectively. Average daily protein intake before intervention will be used as a covariate. Significance level will be set at 0.05.

Biography

Manisha Rao is a Doctoral candidate in the Department of Kinesiology at Texas Woman's University (Denton, TX). She is passionate about clinical research aimed at improving lives of women with polycystic ovarian syndrome (PCOS). She is currently evaluating the effects of a dietary intervention on symptoms, metabolic and inflammatory parameters in PCOS. Her focus also includes disseminating information from existing and new literature to increase awareness about PCOS in community.

mrao@twu.edu

Notes:

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