

David A. D'Alessio, MD

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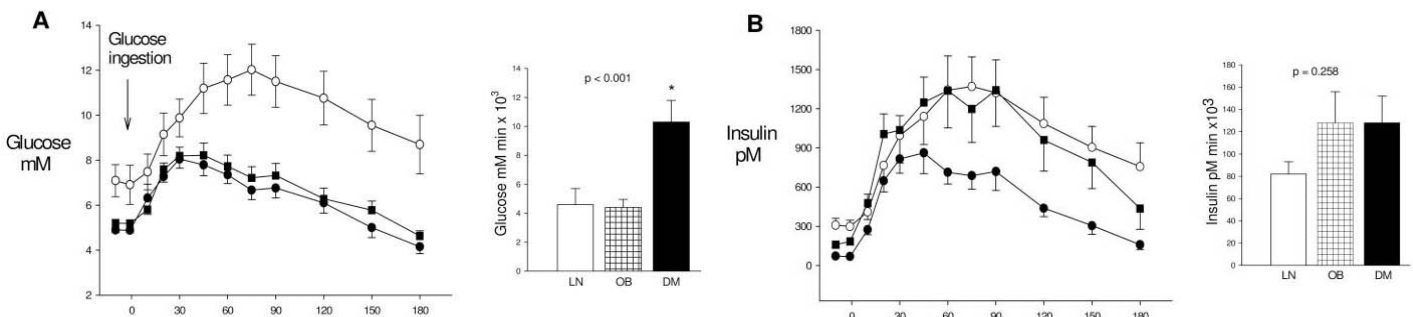
Description of Research:

The regulation of insulin secretion following nutrient ingestion is complex and critical to the maintenance of normal glucose homeostasis. Signals from the gastrointestinal tract play a key role in postprandial insulin secretion and considerable effort has been focused on intestinal hormones to mediate these effects. Glucagon-like peptide 1 (GLP-1) is released from specialized intestinal mucosal endocrine cells following meal ingestion. GLP-1 binds to specific receptors on pancreatic β -cells and augments glucose-stimulated insulin secretion. However, Dr. D'Alessio's work and that of other groups suggests that GLP-1 may have a broader role on glucose tolerance by regulating other processes such as gastric function, food intake and hepatic glucose production. Dr. D'Alessio also participates in the Univ. of Cincinnati Obesity Center studying the effects of dietary fat on body weight regulation, metabolism and islet cell function using a rat model of diet induced obesity. He has completed two clinical trials comparing low-fat versus low-carbohydrate diets on body weight and cardiovascular risk factors in humans. He is now midway through a trial comparing low-fat and high monounsaturated fat diets on glycemic control, lipids and body weight in persons with type 2 diabetes.

Collaborations:

Dr. D'Alessio has collaborative studies with Drs. Sakai, Seeley, Tso and Woods studying GLP-1 signaling and gut-brain crosstalk in the regulation of dietary obesity. Additionally, he works with Dr. Kirk on low carbohydrate diets for managing pediatric obesity. As a new member, Dr. D'Alessio has not yet used DHC cores.

Representative Figure:



Plasma concentrations of glucose (panel A) and insulin (panel B) in type 2 diabetes mellitus (T2DM) ○, obese (OB) ■, and lean (LN) ●. Incremental areas above fasting for glucose and insulin are shown next to each line figure. Data are presented as \pm SEM; P values are for comparisons of glucose area under the curve among groups. *, Significantly greater than OB and LN. Fig. 1 from J Clin Endocrinol Metab. 2006; 91:185-191.