The latest, cutting-edge advances in diabetes research, prevention, and care.

84TH SCIENTIFIC SESSIONS | ORLANDO, FL | HYBRID | JUNE 21-24, 2024

American Diabetes Association.

Print this Page for Your Records   Close Window

Sucralose consumption decreases insulin sensitivity and modifies the gut microbiota in healthy individuals

Author Block: ALONSO ROMO-ROMO, MONICA SANCHEZ-TAPIA, NIMBE TORRES, CARLOS A. AGUILAR-SALINAS, ALEXANDRO J. MARTAGON, MARÍA GUADALUPE LÓPEZ-CARRASCO, LUZ E. GUILLÉN-PINEDA, PAOLA GOMEZ-AVILES, GRISELDA X. BRITO, FRANCISCO J. GÓMEZ-PEREZ, **PALOMA ALMEDA-VALDES**, *CDMX, Mexico, Ciudad de Mexico, Mexico, Mexico City, Mexico, Mexico, Mexico*

Abstract:
Introduction: Sucralose is a non-nutritive sweetener that has shown to decrease insulin sensitivity through mechanisms including changes in intestinal microbiota.
Objective: To determine the impact of sucralose on insulin sensitivity and gut microbiota in healthy individuals.
Methods: Parallel triple-blind randomized clinical trial including 24 healthy individuals, not habitual users of nonnutritive sweeteners. Individuals were instructed to maintain dietary and physical activity habits and randomized to consume capsules with 30% of the acceptable daily intake of sucralose or placebo for 30 days. Hyperinsulinemic euglycemic clamp was performed before and after the intervention, M/I value change was calculated and compared. Stool samples were taken at baseline and the final visit, DNA extraction was carried out with a QIAamp DNA stool Mini Kit.
Results: The M/I value adjusted for free fat mass decreased in the sucralose group vs placebo (p<0.01). Reduction in the alpha diversity of gut microbiota (p<0.0002) was observed in sucralose consuming group vs placebo (p=0.2369) and an increase in the Gram (-) bacteria Bacteroides fragilis associated to a significant increase in serum LPS were documented.
Conclusion: Sucralose consumption causes a significant decrease in insulin sensitivity associated to changes in gut microbiota composition and endotoxemia in healthy individuals.

Figure 1. A) Changes in the concentration of lipopolysaccharide after consumption of placebo or sucralose capsules for 30 days B) percentage change for M/I value adjusted by fat free mass

Category (Complete): 10 Nutrition—Clinical
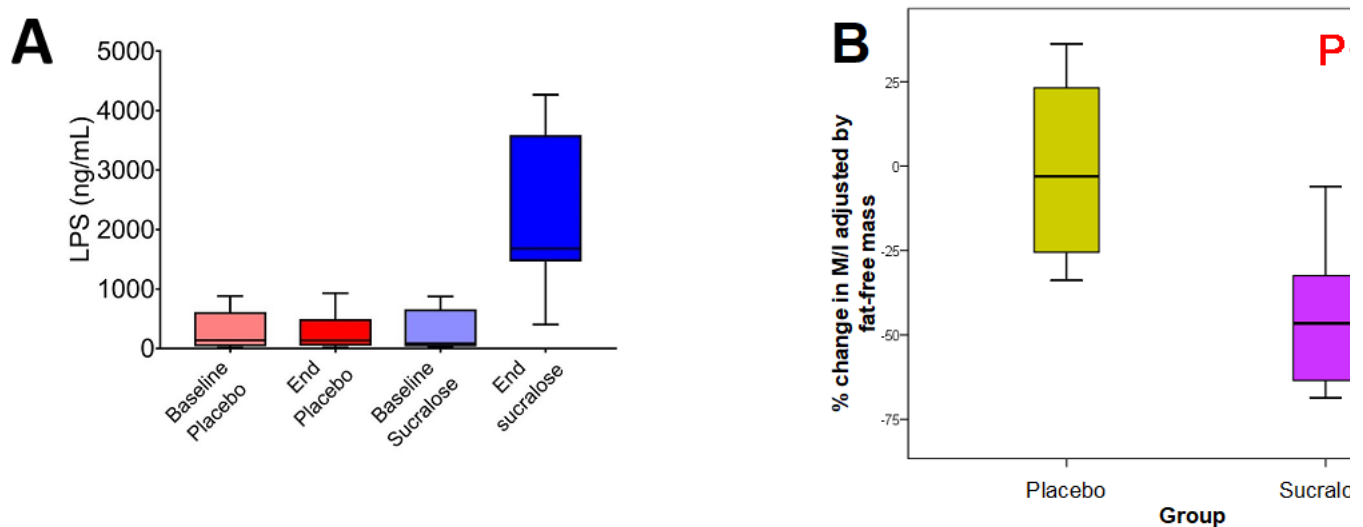
Presentation Preference (Complete): Oral Preferred
Financial Support (Complete):
   * ADA Support: No
   Supported by: : CONAHCYT Ciencia de Frontera 2019/316514

Payment (Complete): Your credit card order has been processed on Saturday 6 January 2024 at 7:42 PM.
Status: Complete

♀ Feedback