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Reference

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Title:

Association between dietary calcium intake and nutritional status and waist circumference in urban Costa Rican population: results from the Latin American Study of Nutrition and Health (ELANS)

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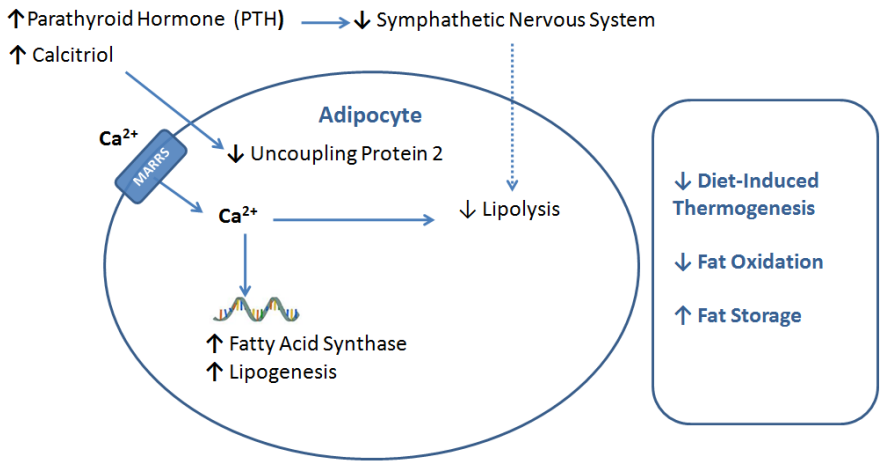
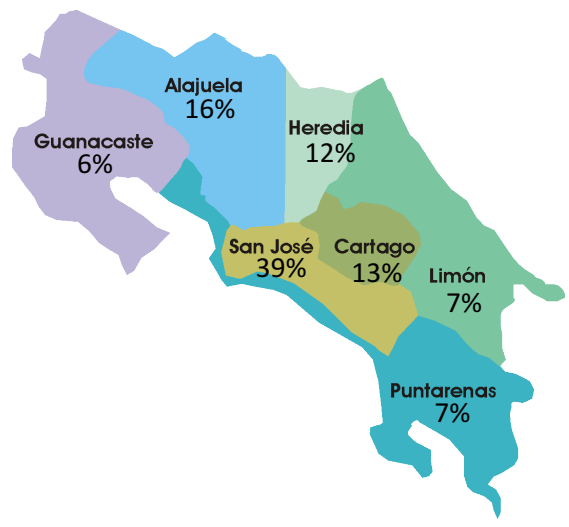
Background and Objectives:



Several cross-sectional studies have shown an inverse relationship between dietary calcium intake and both body mass index (BMI) and waist circumference. Possible mechanisms for such associations include increased fecal fat excretion, changes in adipocyte metabolism and increased thermogenesis. The aim of this study was to investigate the association between total dietary calcium, body mass index and waist circumference in Costa Rican population living in urban areas during the period between 2014-2015 as part of the Latin American Study of Nutrition and Heath (ELANS).

Methods:

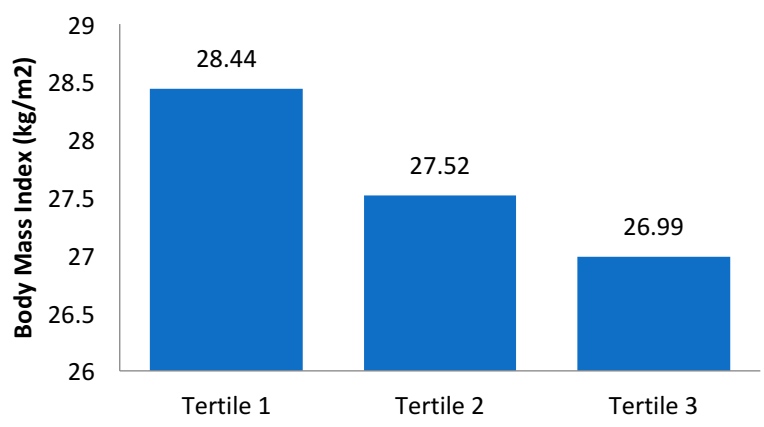
Data was obtained from 798 subjects from urban Costa Rican population, between the ages of 15 and 65 years participating in ELANS, a multicentric study developed in urban areas of Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Peru and Venezuela. Food intake assessment included two 24-hour recall (Multiple Pass Method), from non-consecutives days and processed by the software Nutritional Data System for Research (NDS-R). Calcium usual intake was estimated with the Multiple Source Method (MSM) statistic package (https://nugo.dife.de/msm). Anthropometric measurements were obtained and BMI and BMI-for-age percentiles were calculated. Population was divided into tertiles according to dietary calcium consumption, and association with nutritional status were analyzed. Logistic regression was used to calculate the probability of having excess weight or waist circumference above recommendation.



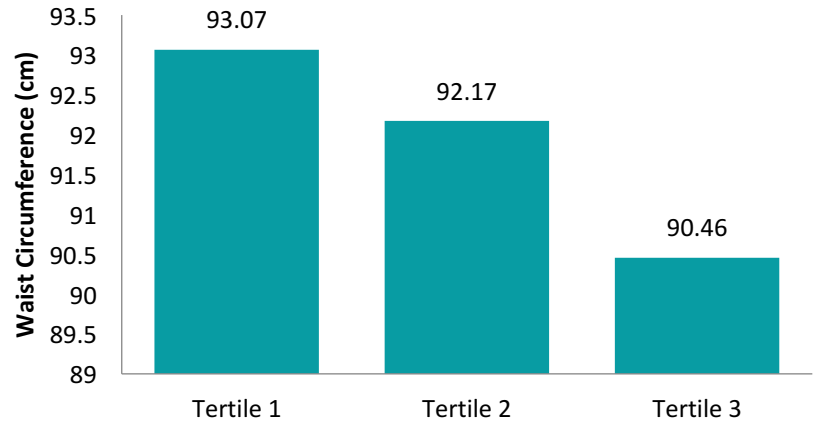
Results:

The probability of having excess weight (≥24.9 kg/m2) was 39% less for those in the second tertile of calcium intake, and 55% less for those in the highest tertile of calcium intake. The risk of having a waist circumference above the recommendation (men ≥102 cm; women ≥ 88 cm) was 34% less for the second tertile and 42% less for the higher tertile of calcium intake.

Body Mass Index by tertiles of calcium intake



Waist Circumference by tertiles of calcium intake



Conclusions:

Evidence suggests that a low dietary calcium intake increases the probability of having excess weight and waist circumference above recommendations in urban Costa Rican population.

Keywords:

Calcium Intake; Excess weight; Waist circumference

Further Collaborators:

On behalf of ELANS Study Group.

Conflict of Interest:

The ELANS is supported by a scientific grant from the Coca Cola Company and support from the Instituto Pensi / Hospital Infantil Sabara, International Life Science Institute of Argentina, Universidad de Costa Rica, Pontificia Universidad Católica de Chile,Pontificia Universidad Javeriana, Universidad Central de Venezuela (CENDES-UCV)/Fundación Bengoa, Universidad San Francisco de Quito, and Instituto de Investigación Nutricional de Peru. The funders had no role in study design, data collection and analysis, the decision to publish, or the preparation of this manuscript.