Nutrient Content of Lunches Brought From Home Differ by Gender for Higher Income Elementary Students

Objectives

The current investigation compares the nutritional content of lunches brought from home (LBFH) by gender and income level in students attending HealthierUS School Challenge (HUSSC) award winning elementary schools.

Method

Digital photographs were taken of 404 home lunches from four schools, before and after the meals were consumed. A custom computer program was used to link the amount food items to nutrient data for the items sourced from the product manufacturer, and the USDA Child Nutrition Database.



Nutrient content of meals was estimated from the digital photographs, with lunches selected and lunches consumed considered separately. Lower income students were identified based on eligibility for free or reduced price

Figure 1. Digital Camera connected to Custom Nutritional Database Management Tool

school lunches, whereas higher income students were not eligible for free or reduced price lunches.



Figure 2. User Interfaces for the *Custom Nutritional Database* Management Tool



Nutrient Content of Lunches **Brought From Home Differ for** Higher Income 15 P

Girls vs Boys

53.5% Higher income girls ring lunch from home

9.5% 5% Lower income girls Lower income boys bring lunch from home bring lunch from home

Higher income g bring lunches lower in

Carbohydrate 84g vs 93g Protein 20g vs 23g Sodium 769mg vs 932mg

Saturated Fat 6g vs 8g Calories 578 vs 656 Total Fat 20g vs 24g

Lunches from lower income children do not differ by gender for nutrients brought or consumed

Students



Higher income boys bring lunch from home





Higher income girls consume less

Carbohydrate 66g vs 79g Protein 16g vs 19g Sodium 619mg vs 794mg Iron 1.5mg vs 2.0mg

Saturated Fat 5g vs 6g Calories 456 vs 556 Total Fat 16g vs 20g 5g vs 6g Calcium

169mg vs 226mg

Results

Higher income male students bring lunches from home that are significantly higher (*t*-test, p < 0.05) in calories, total fat, saturated fat, carbohydrates, protein and sodium than brought by female students. Similarly, *t*-tests indicate higher income male students consume significantly more (p < 0.05) calories, total fat, saturated fat, carbohydrates, protein sodium, iron, fiber and calcium than female students. For lower income students, no gender differences in nutrient content or nutrient consumption of lunches brought from home were found.

Application to Child Nutrition Professionals

- educational material to the student's gender.



Tracee Watkins, MBA, CHE Ethan A. Bergman, PhD, RD, CD, FADA Tim Englund, PhD **Catherine Saade, RD Emily Shaw, BS** Katie Weigt Taylor, BA Linda Cashman, MS, RD, CD **Central Washington University**

Keith Rushing, PhD, RD **Food Service Management Institute Applied Research Division** The University of Southern Mississippi

• Child Nutrition Professionals (CNP) may use the information to tailor

• CNPs could encourage male children bringing lunches from home to select lower fat, lower saturated fat, and lower sodium choices. • CNPs could encourage female students bringing lunches from home to select and consume more calcium and iron rich foods.