

HUMAN NUTRITION

Title: Protein consumption from meat vs. dairy as complementary foods on infant growth, body composition and gut microbiome: a controlled feeding study - **NPB#15-108**

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Abstract:

Background: High protein intake from infant formula has been associated with rapid weight gain and increased adiposity, but the effect of type of protein from complementary foods has not been prospectively evaluated. Previous research suggest that protein source might play an important role in weight and adiposity regulation.

Objective: To test the hypothesis that a meat-based complementary diet does not induce rapid weight gain as a dairy-based complementary diet does.

Design: Healthy, term formula-fed (breastfed \leq 1 month) infants were recruited from metro Denver area and randomized to a meat-based complementary diet group (MEAT), or a dairy-based complementary diet group (DAIRY) from 6 to 12 months of age. Total protein intake (formula + meat or formula + dairy) during the intervention is \sim 3 g/kg/d, with protein intake from meat or dairy being adjusted monthly based on body weight and formula consumption. Intakes of formula, infant cereal, fruits and vegetables were ad libitum. Three-day diet records were completed at 5, 10, and 12 months of age. Anthropometric measurements were conducted on monthly basis. Blood samples were collected at baseline and end of intervention.

Results: 64 infants completed the study (32 MEAT, 32 DAIRY). There was an increase of WAZ over time without difference between groups. However, LAZ increased in MEAT and decreased in DAIRY, lead to a significant group-by-time interaction of WLZ. Circulating IGF-1 concentrations increased in both MEAT and DAIRY.

Conclusion: Meat promotes linear growth but does not have the same weight accelerating effect as dairy protein does when included in infants' complementary diet.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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