Contribution of Plant-based and Animal-based Sources to Protein Foods Intakes among US Adults by Sex and Age

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Abstract
Recent focus of dietary recommendations has greater emphasis of reliance on plant-based proteins. Before applying broad recommendations, it is important to assess current consumption patterns of plant-based and animal-based protein sources among the US population. This study aimed to identify the proportion of US adults who consumed protein types, and their contributions to overall protein source intakes among US adults by sex and age. This cross-sectional analysis used data from 35,309 participants from 2005-2018 National Health and Nutrition Examination Survey (NHANES). Participants were stratified by sex and age category (20-35, 36-50, 51-70, 71+ years). Dietary data from the day of intake were used to estimate intakes from protein sources using the Food Patterns Equivalents Database (FPED). Mean intakes of ounce equivalents were generated for the FPED protein food categories, aggregated to identify the proportions of protein food sources. Data were weighted to produce nationally representative means and 95% confidence intervals. On the day of intake, 93% of all participants consumed meat, poultry, or seafood. More adults in the older age groups consumed eggs, nuts/seeds, and seafood high in n-3 fatty acids; whereas, fewer adults in the older age groups consumed meat, poultry, legumes, and soy. On the day of intake, 93% of all participants consumed meat, poultry, legumes, and soy. On the day of intake, males consumed greater quantities of all protein food categories than all strata. At least 70% of the day’s protein foods were consumed from meat, poultry, or seafood for all groups. While the proportion of eggs were consistent across all groups, meat, poultry, and seafood ratios decreased across age categories whereas plant protein ratios increased. Current protein food consumption patterns among US adults were highest from meat, poultry, and seafood rather than plant proteins. While animal-based intakes were slightly lower in older age groups, intakes of plant-based protein sources remain low. Promoting plant-based protein foods may be challenging for many adults with low or absent intakes.

Methods

- This cross-sectional analysis used data from 35,309 adults from 2005-2018 National Health and Nutrition Examination Survey (NHANES).
- Stratified by sex and age category (20-35, 36-50, 51-70, 71+ years).
- In-person 24-hour recall data were used to estimate intakes using the Food Patterns Equivalents Database.
- Mean intakes of ounce equivalents were used to identify the proportions of protein food sources.
- Nationally representative means and 95% confidence intervals (significance not denoted on poster).

Results

On the day of intake…
- 93% of participants consumed meat, poultry, or seafood.
- More adults in the older age groups consumed eggs, nuts/seeds, and seafood high in n-3 fatty acids; and fewer adults in the older age groups consumed meat, poultry, legumes, and soy.
- At least 70% of protein food intakes were consumed from meat, poultry, or seafood for all groups.
- Meat, poultry, and seafood ratios decreased across age categories and plant protein ratios increased.

Background

- Dietary recommendations are shifting focus onto plant-based proteins.
- Current dietary patterns related to protein foods must be assessed.
- This study aimed to identify the proportion of US adults who consumed protein types, and their contributions to overall protein source intakes among US adults by sex and age.

Conclusion

- Current consumption of meat, poultry, and seafood is higher than plant proteins.
- Promoting plant-based protein foods may be challenging for many adults with low or absent intakes.

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