Positive improvements on body composition and muscle strength in older adults consuming the Dietary Approaches to Stop Hypertension diet containing beef

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Objective
To determine the effect of beef consumption as a part of the DASH diet on measures of anthropometric and muscle health in adults 65 and older.

Study Description
Twenty-eight healthy older men and women (65+yrs) showing signs of reduced muscular fitness were randomly assigned to consume either 3 oz. (n = 14) or 6 oz. (n = 14) of fresh, lean beef as a part of the DASH diet for 12-weeks. Anthropometric and muscle strength were assessed at weeks 0, 3, 6, 9, and 12 throughout the feeding phase of the study. The seven-day cyclical menu contained fresh lean beef as the primary protein source. Other red meats, poultry and seafood were not included. Breakfast, lunch and dinner was provided every day for 12-wk and all food items were purchased, prepared and weighed to the nearest gram by the research staff. The portions of beef (3 or 6 oz) were evenly distributed throughout each of the three meals provided every day.

Take home points
Changes in body composition and muscle strength were observed during the 12-week study regardless of beef intake. Significant time effects were detected for: body weight (P < 0.001); BMI (P < 0.001); waist circumference (P < 0.001); hip circumference (P < 0.001); %body fat (P < 0.001); absolute fat mass (P < 0.001); systolic blood pressure (P< .001); diastolic blood pressure (P < 0.001) such that a decrease was observed over the 12-wk intervention period. Time effects were detected for muscle function (sit-to-stand; P < 0.001) such that an increase was observed over the 12-wk intervention period. Body weight decreased (P = 0.001) by 6.7% from baseline (90kg) to study-end (84kg); BMI decreased (P < 0.001) from baseline (31.2) to study-end (29.4); waist circumference decreased (P < 0.001) from baseline (98.1cm) to study-end (94.4cm); hip circumference decreased (P < 0.001) from baseline (113.6cm) to study-end (110.3cm); %body fat decreased (P < 0.001) from baseline (36.1%) to study-end (34.2%); absolute fat mass decreased (P < 0.001) from baseline (33.1kg) to study-end (29.4kg); systolic blood pressure decreased (P < 0.001) from baseline (134mmHg) to study-end (118mmHg); and diastolic blood pressure decreased (P = 0.009) from baseline (76mmHg) to study-end (70mmHg). Handgrip strength and resting energy expenditure were well-maintained (P > 0.05)
despite the weight loss. Of the 18 participants that were obese (BMI >30) at baseline, 6 participants (33%) reduced enough body mass to be overweight (BMI 25-29.9) by study-end. From baseline to study-end, 2 of the 7 overweight participants (29%) decreased enough body mass to become normal weight (BMI 18.5-24.9).

The results of this highly-controlled dietary intervention study indicate that daily consumption of high-quality protein as a part of a healthy dietary pattern positively influences body composition and muscular strength in older adults. These results also suggest that beef can be included in healthy dietary patterns.

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