

CHARACTERISTICS OF THE GAIT INITIATION PHASE IN OLDER ADULTS WITH DIABETIC PERIPHERAL NEUROPATHY

Gu Eon Kang,¹ Hung Nguyen,¹ Mohsen Zahiri,¹ He Zhou,¹ Changhong Wang,¹ Rahul Goel,¹ and Bijan Najafi¹, 1. *Baylor College of Medicine, Houston, Texas, United States*

Impairment in steady-state gait in older adults with diabetic peripheral neuropathy (OADPN) is well-known, however little attention has been paid to the gait initiation phase in which postural transitions occur from upright standing to steady-state gait. Given the risk of falls in the gait initiation phase in older adults, knowing its characteristics may be as important as steady-state gait. The aim of this study was to investigate kinematic characteristics of the gait initiation phase in OADPN compared to healthy older adults (HOA). Thirteen OADPN (72.9±6.1 years; 33.0±4.8 kg/m²), and 11 HOA (71.8±2.7 years; 26.5±4.3 kg/m²; no cardiovascular, neurological or orthopedic condition, no history of falling) performed gait on level ground for minimum 10 meters at self-selected comfortable speed. We collected kinematic data using five wearable sensors (LEGSys™, BioSensics LLC, Watertown, MA) attached on the shanks, thighs and lower back. We used previously validated algorithm to analyze kinematic parameters for the gait initiation phase. Our statistical model showed that the number of steps, stride velocity, gait cycle time, double limb support and mediolateral center-of-mass sway during the gait initiation phase is significantly different between HOA (2.4±0.7 steps; 1.16±0.15 m/s; 1.12±0.10 seconds; 20.3±4.8%; 4.0±1.5°, respectively) and OADPN (4.0±2.1 steps; 0.92±0.29 m/s; 1.23±0.12 seconds; 29.2±10.3%; 7.0±2.9°, respectively) (all p<0.05). The results suggest that OADPN take more, slower and more unstable steps to reach steady-state gait from upright standing compared to HOA. The results also provide implications for needs to develop new interventions targeting the gait initiation phase in OADPN.

FRESH AND LEAN BEEF INTAKE IN RELATION TO FUNCTIONAL LIMITATIONS AMONG U.S. OLDER ADULTS, 2005-2016

Ruopeng An,¹ Sharon Nickols-Richardson,² Reginald Alston,² Sa Shen,² and Caitlin Clarke², 1. *University of Illinois at Urban-Champaign, Champaign, Illinois, United States*, 2. *University of Illinois at Urbana-Champaign, Champaign, United States*

Beef is a key component in the American diet. This study assessed fresh and fresh lean beef intake in relation to functional limitations among U.S. older adults 65 years and older. Logistic regressions were performed on individual-level 24-hour dietary recall and health indicator data (N=6,135) retrieved from 2005–2016 National Health and Nutrition Examination Survey. Approximately 51%, 14%, and 9% of older adults consumed beef, fresh beef, and fresh lean beef, respectively. Daily increase in fresh beef consumption by 1 ounce-equivalent was associated with a reduction in the odds of lower extremity mobility limitation (LEM) by 16% (95% confidence interval=4%–27%), general physical activities limitation by 13% (1%–24%), and any functional limitation by 14% (2%–24%). Daily increase in fresh lean beef consumption by 1 ounce-equivalent was associated with a reduction in the odds of LEM by

22% (7%–34%) and any functional limitation by 15% (1%–28%). No association with activities of daily living, instrumental activities of daily living, or leisure and social activities limitations was identified. In conclusion, preliminary evidence links fresh and fresh lean beef consumption to reduced functional limitation risk. Older beef consumers are encouraged to modestly increase their intakes of fresh and lean beef, rather than total beef, to maximize attributes of functional health associated with beef consumption while concurrently avoiding additional saturated fat and sodium intake. Limitations of this study include measurement errors and cross-sectional study design. Future studies with longitudinal/experimental design are warranted to examine the influence of fresh/lean beef consumption on functional limitations among older adults.

ACADEMIC PARTNERING IN A COMMUNITY-BASED FALL PREVENTION PROGRAM

Dennis W. Klima¹, Emily Wehlandl,² Aspen Holmes,² Jessica Weimert,² Nicholas Rhoten,² Jistine Wolfe,² Katherine Avila,² and Nate Austin², 1. *UMES, Princess Anne, Maryland, United States*, 2. *UMES, Princess Anne, Maryland, United States*

Falls are a major cause of disability nationally and linked to both fractures and fear of falling. The purpose of this study was to assess the effectiveness of a rural community-based fall prevention program using an academic partnership model with seven physical therapy students rotating through six senior centers. One hundred and fifty-four older adults (Mean age: 76.1±8.5) completed Stepping On at six locations. A mixed-methods design was utilized. Physical therapy students partnered with older adult participants to teach exercises, strategize floor recovery techniques, and identify community safety barriers. A descriptive survey tool assessed demographic profiles, falls efficacy, and program effectiveness among participants. Students participated in a follow-up focus group to discuss perspectives on their role in the fall prevention program. Most participants were female (86.4%), lived alone (50.0%) and taking four or more medications (74%). Thirty-eight participants (24.7%) had fallen over the past year. Eighty-eight (57.1%) subjects noted they had less fear of falling following the community-based intervention; moreover, most subjects (74.7%) reported having an improved plan for floor rise after a fall. Major focus group themes underscored students' enhanced ability to teach exercise and mobility activities with an increased awareness of interdisciplinary fall prevention. Following a collaborative community-based fall prevention program, seniors have a better understanding of fall causes and plan to seek floor recovery assistance. In turn, student teaching and communication skills are reinforced. Student partnering with seniors promotes fall prevention strategies and affords benefits to both students and participants.

RISING FROM THE FLOOR IN PERSONS WITH PARKINSON'S DISEASE

Dennis W. Klima,¹ Jeremy Stewart,¹ Frank Freijomil,¹ and Mary DiBartolo², 1. *UMES, Princess Anne, Maryland, United States*, 2. *Salisbury University, Salisbury University, United States*