

Abstract Title:

Difference in quadriceps muscle layer thickness (QMLT) size and contributing risk factors in free-living and low-risk institutionalized older adults: A cross-sectional mixed method study

Cheikh N¹, Dufault A¹, Ferrara E¹, Sevong K¹, Jones P², Mellows L², Madill J¹

¹Brescia University College, London ON, ²Revera Living, London ON

Introduction: Low skeletal muscle mass is associated with increased morbidity and mortality in older adults, largely due to decreased physical activity and poor nutrition. Assessing risk factors affecting Quadriceps Muscle Layer Thickness (QMLT), a muscle mass measurement, and perceived protein intake is important in determining nutritional interventions.

Objectives: 1. To measure QMLT and identify potentially associated risk factors like handgrip-strength (HGS), protein intake, fat mass and nutritional status in free-living (FL) and low-risk institutionalized older adults (IL). 2. To understand how perceived food intake compares to actual food intake.

Methods: FL individuals were recruited using poster advertisement in the community. ILs were recruited at a Long-Term Care home. QMLT using ultrasound technology, subjective global assessment (SGA), HGS using dynamometer, 3-day food intake (using food records with FL and direct observation with IL), and fat mass using bio-impedance analysis (BIA) were measured. Three focus groups of 3-5 participants were conducted with FL and four individual interviews with IL to analyze their perceived understanding of protein. Sample size: 60-75 participants (using 10-15 participants/variable).

Results: Preliminary results: 30 participants (15 per group) indicated HGS FL females (49.8 ± 13.5 lbs) compared to IL females (29.4 ± 10.7); $p=0.001$. A positive correlation between QMLT average and fat mass in IL females ($r=0.643$, $n=11$, $p=0.033$) was identified. There were no difference in protein intake between the two groups. Inductive content analysis revealed budget and access to healthy food may play a role in protein intake. Conclusion: FL females appear to have higher HGS than IL females and fat mass may affect QMLT size in older adults. Further analysis is needed to identify roles of protein intake on QMLT.

Significance to dietetics: Assessing nutrition and lifestyle factors affecting QMLT in older adults may allow development of new guidelines for prevention and/or treatment of sarcopenia.