**Background**

- Sarcopenia is a risk factor for falls and fractures.\(^1\)
- Sarcopenia is diagnosed using muscle function tests and dual-energy X-Ray absorptiometry (DXA) measured appendicular lean mass (ALM) adjusted for height (ALM/h\(^2\)) or body mass index (ALM/BMI).\(^2,3\)
- Muscle quality may better correlate with muscle function tests compared to muscle mass which can vary with aging and fluid shifts.\(^4\)
- The method of combining DXA and bioimpedance spectroscopy (BIS) proxies muscle quality.

**Methods**

- MIDUS Refresher participants completed DXA and BIS\(^5\)
- DXA:
  - Appendicular Lean Mass - ALM, ALM/h\(^2\), ALM/BMI
- BIS:
  - Extracellular and Intracellular Fluid - ECF and ICF
  - ECF to ICF ratio - E/I
- Muscle Function:
  - Hand-grip strength
  - Jump power
- Created our new variable - ALM/(E/I)
- Spearman’s rank correlation for bivariate correlations

**Results**

**Table 1.** Ranked correlations of sarcopenia diagnoses with muscle function among age categories. *p<0.05; **p<0.001; \(^1\)one participant did not complete BIS.

<table>
<thead>
<tr>
<th>ALM/(E/I)</th>
<th>Under 40 (n=68)</th>
<th>40 to under 50 (n=62)</th>
<th>50 to under 60 (n=70)</th>
<th>60 and older (n=67)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALM/E/I</td>
<td>0.25** (0.06)</td>
<td>0.58** (0.34)</td>
<td>0.58** (0.33)</td>
<td>0.65** (0.42)</td>
</tr>
<tr>
<td>ALM/BMI</td>
<td>0.51** (0.26)</td>
<td>0.81** (0.66)</td>
<td>0.70** (0.49)</td>
<td>0.82** (0.66)</td>
</tr>
<tr>
<td>ALM/h(^2)</td>
<td>-0.15 (0.02)</td>
<td>0.46** (0.32)</td>
<td>0.56** (0.30)</td>
<td>0.34** (0.11)</td>
</tr>
</tbody>
</table>

**Conclusions**

- ALM/(E/I) consistently accounts for the highest variation in jump power among all age categories.
- ALM/(E/I) is strongly and consistently associated with jump power among all age categories.
- ALM/BMI varies from moderately to strongly associated with jump power among all age categories.
- ALM/h\(^2\) varies from weakly to moderately associated with jump power among all age categories.
- Hand-Grip Strength is associated with ALM/(E/I) and ALM/BMI more frequently than ALM/h\(^2\).

**Future Directions**

- Examine the sarcopenia diagnoses and age categories by race/ethnicity and body mass index.
- Compare the abilities of the sarcopenia diagnoses to predict falls and fractures.
- Compare the abilities of the sarcopenia diagnoses to predict other health outcomes.

**References**