

Paper Category:	Diagnosis and Aetiology
Paper Title: (Arial Font; 14 Pt Size)	Muscle quality assessment in sarcopenia: Preliminary analysis of the role of ultrasound elastography determined shear-wave velocity (SWV) in sarcopenia diagnosis
Abstract Body: (Arial Font; 12Pt Size)	<ul style="list-style-type: none"> • Background • Objectives • Method • Results • Discussions and Conclusions
<p>(Maximum word limit - 300 words)</p> <p>Background Decline in muscle quality is associated with decreased muscle function which may precede muscle mass loss. Current diagnostic criteria for sarcopenia are muscle quantity-centred without consideration of muscle quality. Ultrasound B-mode parameters for muscle quantity and quality have shown inconsistent results for sarcopenia diagnosis. The novel use of shear-wave elastography to measure muscle stiffness for muscle quality assessment has shown potential but its additional role for sarcopenia diagnosis remains unclear.</p> <p>Objectives To compare between shear-wave velocity (SWV) and B-mode muscle ultrasound parameters for: 1) Association with outcomes of muscle strength, physical performance and physical activity level, and 2) Diagnostic performance for sarcopenia.</p> <p>Methods We studied 41 independent community-dwelling older adults (mean age:67.0±5.9 years). Using the rectus femoris muscle, we assessed SWV and five B-mode ultrasound measures [muscle thickness(MT); cross-sectional area(CSA), pennation angle(PA); fascicle length(FL); and echointensity(EI)]. Outcome measures include skeletal muscle index(SMI); handgrip strength; gait speed; and Frenchay Activity Index(FAI). We performed partial correlation with outcomes measures adjusted for age and gender, and compared area under receiver operating characteristic curves (AUC) against sarcopenia diagnosis (AWGS'19 criteria) and low FAI.</p> <p>Results Prevalence of sarcopenia was 39%. SWV was significantly correlated with SMI ($r=.358$, $p=.025$) and CSA with handgrip strength ($r=.371$, $p=.021$), with a trend for CSA and MT with gait speed ($r=-.313$, $p=.053$) and FAI ($r=.310$, $p=.055$), respectively. PA, FL and EI did not show significant correlation with any outcome. Combining SWV with B-mode quantity parameters showed moderate diagnostic performance for sarcopenia (SMV/MT: AUC=.563, SMV/CSA: AUC=.643, $P>0.05$) and moderate to good diagnostic performance for low FAI (SMV/MT: AUC=.745, SMV/CSA: AUC=.539, $P>0.05$).</p>	

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Discussions and Conclusions

Our results support the complementary role of ultrasound elastography-determined SWV with B-mode muscle quantity parameters for case-finding of at-risk older persons with sarcopenia and low activity level.

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