

Paper Category:	Diagnosis and Aetiology
Paper Title: (Arial Font; 14 Pt Size)	Evaluating quadriceps femoris muscle mass using novel wide-range diagnostic ultrasound imaging device
Abstract Body: (Arial Font; 12Pt Size)	<ul style="list-style-type: none"> • Background The present collaborative study aimed to develop a diagnostic ultrasound device that can obtain full cross-sectional images of the quadriceps femoris muscle. • Objectives We examined its usefulness by comparing appendicular muscle mass (AMM) measurements taken on this device versus computed tomography (CT) images. • Method Of the 188 patients who visited the Integrated Healthy Aging clinic, image cross-sectional areas (CSA) were blindly calculated for 103 (41 men, 62 women; mean age, 78.2 years). The data of the remaining 82 patients were used for initial learning. The difference ratios between CSA images of the quadriceps on ultrasound at the supine position and those on CT were stratified as follows: A, <5%; B, 5–10%; C, 10–15%; D, >15%. We also investigated the correlation between the CSA on ultrasound versus CT as well as the AMM measured by dual-energy X-ray absorptiometry and the skeletal muscle index (SMI). The correlation between ultrasound and CT imaging findings according to the 2019 Asian Working Group for Sarcopenia functional classification (normal, sarcopenia, and severe sarcopenia) was examined. A decreased function group was also included in the study . • Results The difference ratios for CSA images of the participants in this study were as follows: A, 45.6%; B, 23.3%; C, 19.4%; and D, 11.7%. The correlations between the ultrasound and CT images were 0.94, 0.95, 0.93, and 0.94 (all $p < 0.001$) for the normal, decreased function, sarcopenia, and severe sarcopenia groups, while the correlations with AMM and SMI were 0.77 and 0.72, respectively ($p < 0.001$). • Discussions and Conclusions The inter-imaging difference in the CSA ratio was within 10% in approximately 70% of cases. Furthermore, the ultrasound and CT image

	measurements were very closely correlated. Ultrasound findings were closely correlated with the AMM and SMI values, suggesting the future usefulness of this device for diagnosing sarcopenia.
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