Online Supplemental Material

Development of a bedside viable ultrasound protocol to quantify appendicular lean tissue mass

Michael T. Paris[1], Benoit Lafleur[1], Joel A. Dubin[2,3], Marina Mourtzakis[1]

[1]Department of Kinesiology, University of Waterloo, Waterloo, ON, Canada

[2]School of Public Health and Health Systems, University of Waterloo, Waterloo, ON, Canada

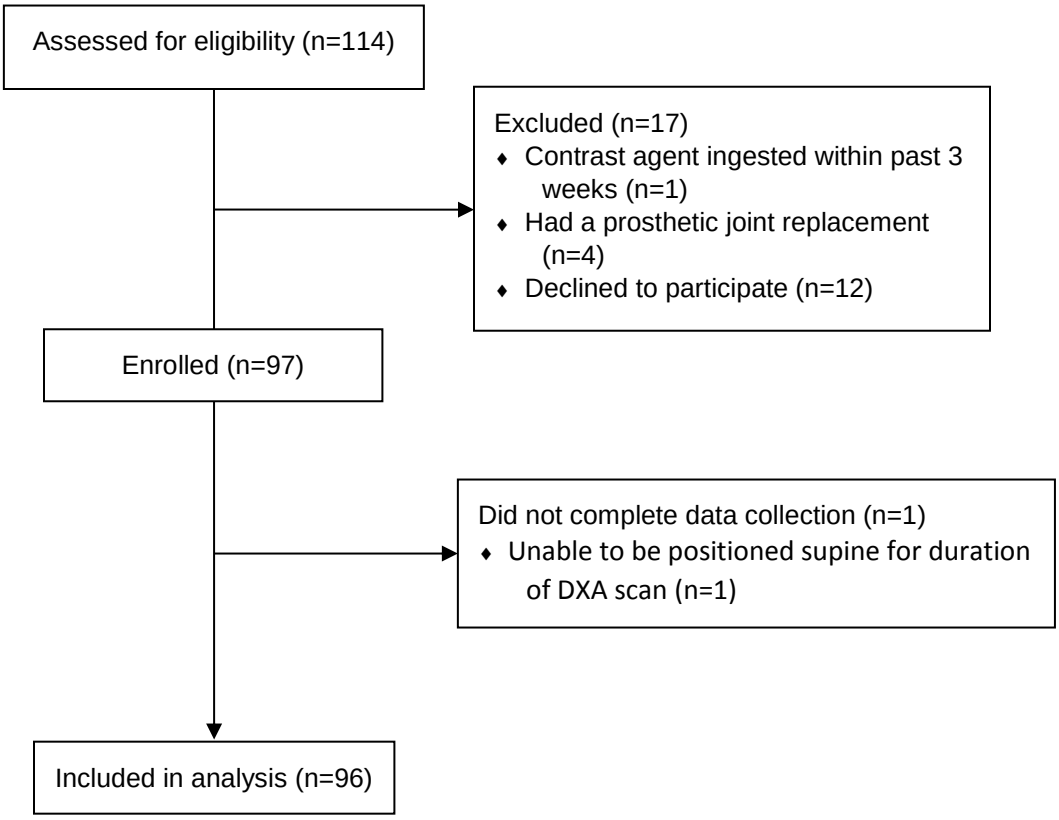
[3]Department of Statistics and Actuarial Science, University of Waterloo, Waterloo, ON, Canada

Table of Contents

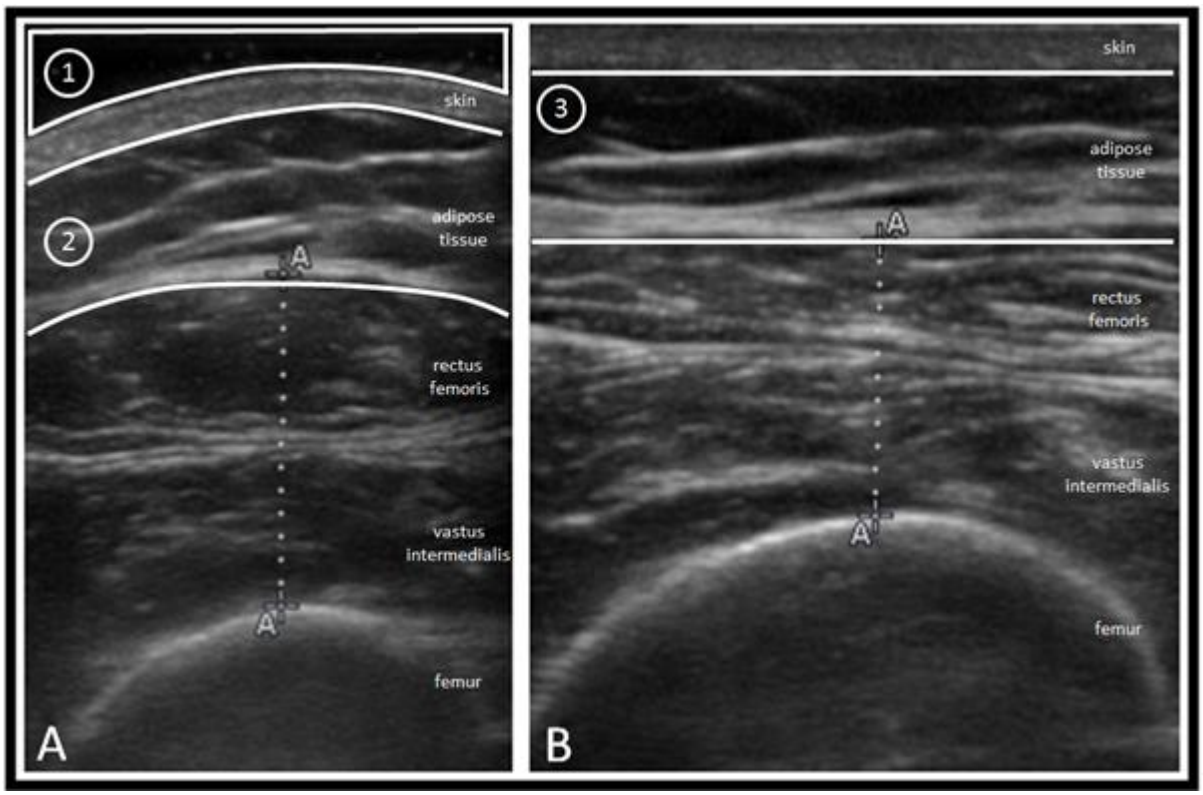
Supplemental Table 1. Linear regression analysis to predict appendicular lean tissue using the 9-site protocol

Model development	Appendicular lean tissue prediction (kg)	Validation fold	Adjusted R^2	SEE (kg)	p-value model
Folds 1+2	$-4.320+(0.563X_5)$	3	0.92	1.53	<0.001
Folds 1+3	$-4.671+(0.569X_5)$	2	0.90	1.76	<0.001
Folds 2+3	$-5.155+(0.581X_5)$	1	0.89	1.89	<0.001
Average	$-4.715+(0.571X_5)$	-	0.90	1.73	-

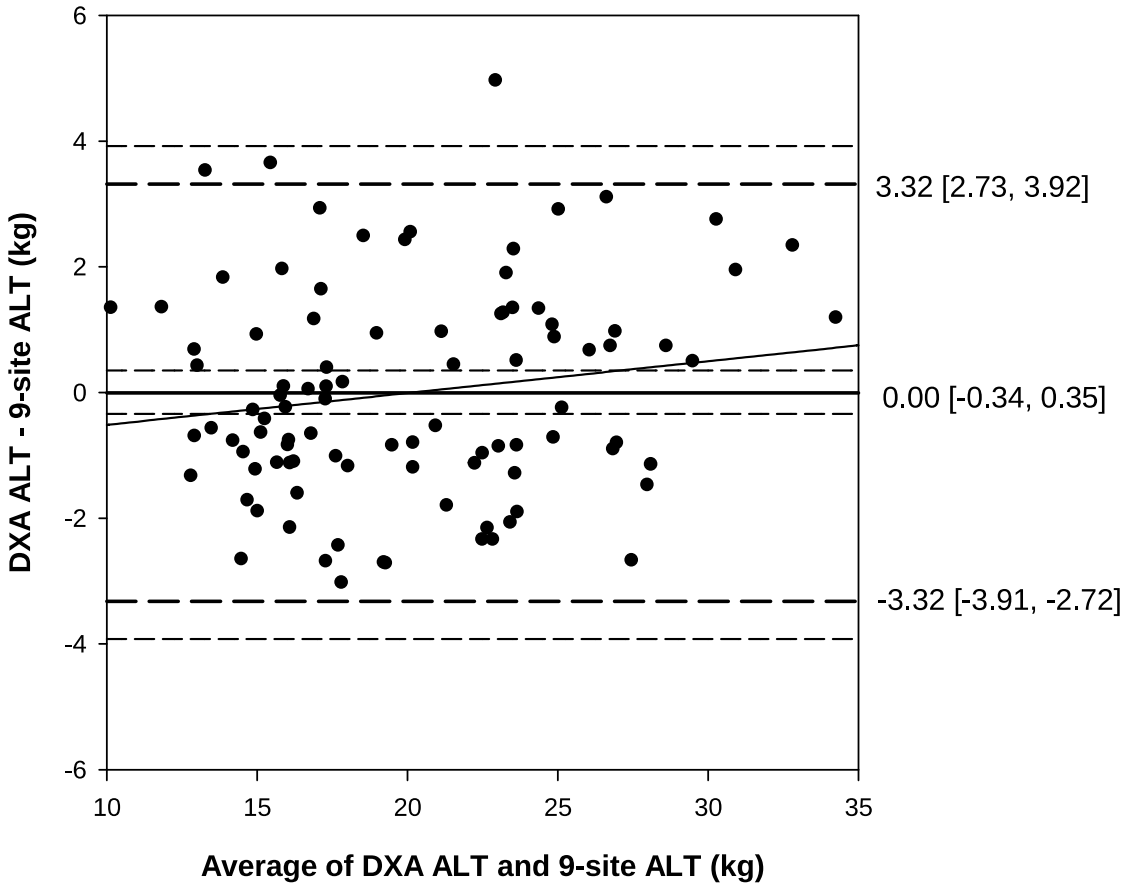
X_5 = 9 site muscle thickness (sum of 9 sites) x height (cm x m). SEE, standard error of the estimate.



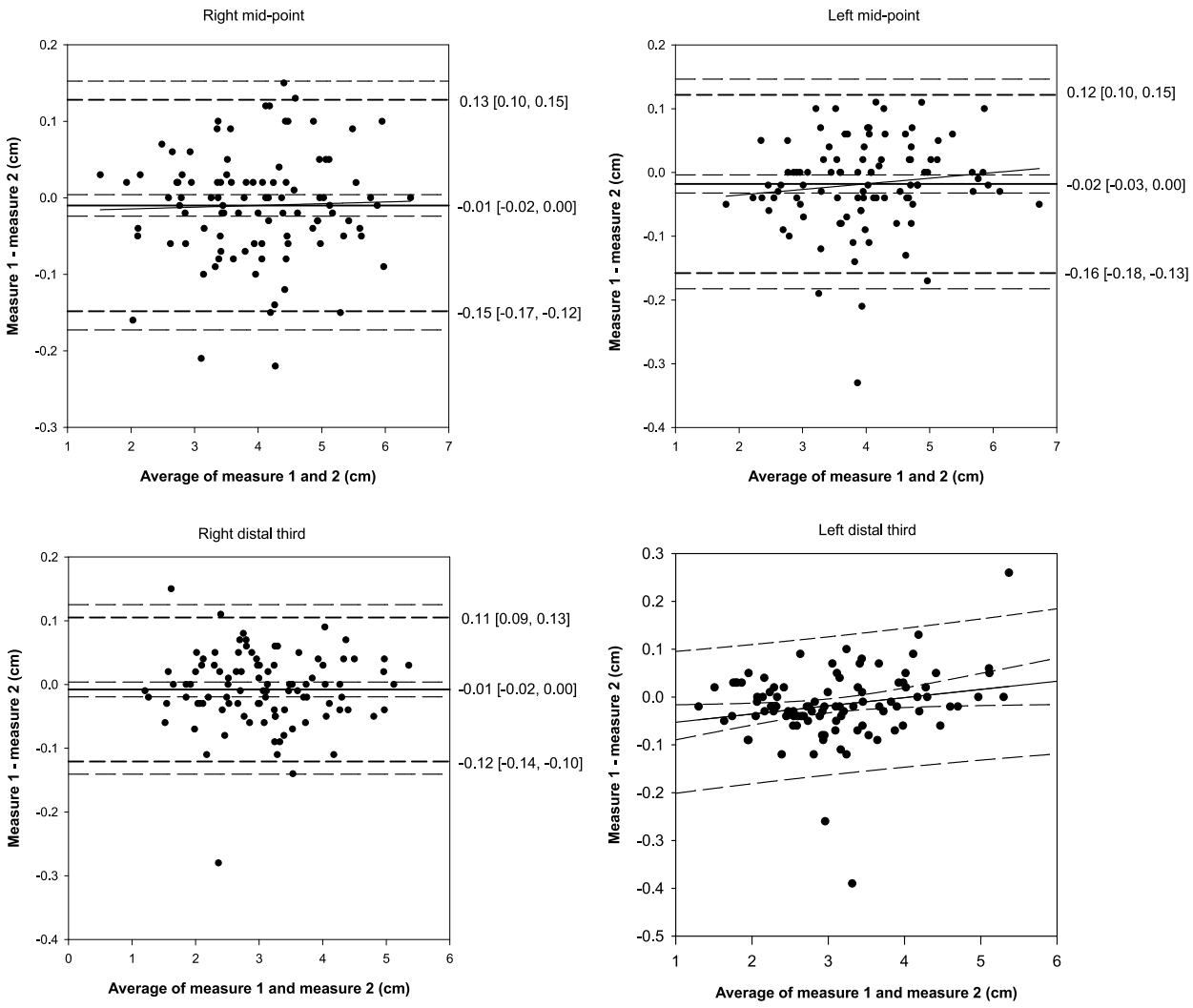
Supplemental Figure 1. Participant flow chart.



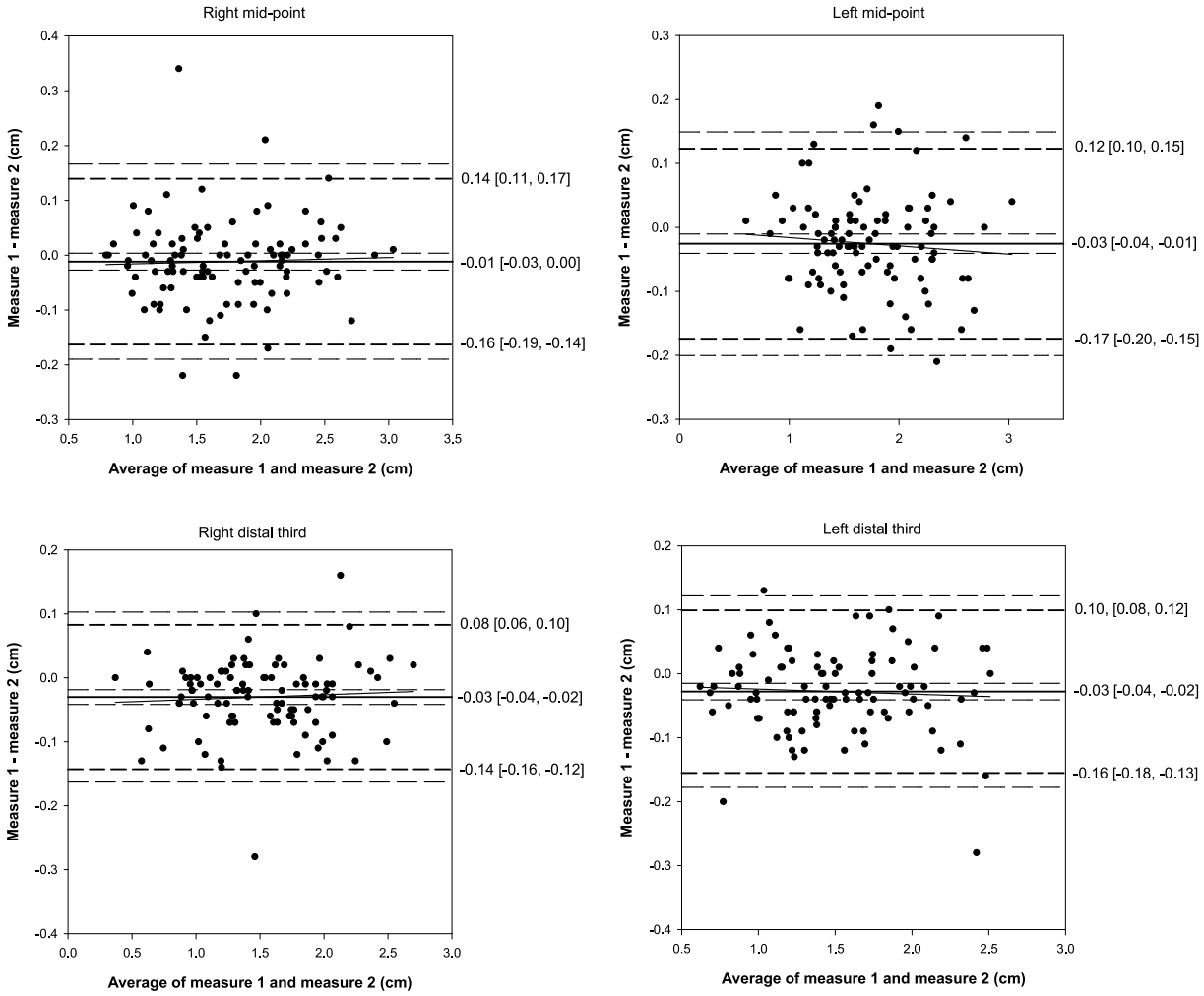
Supplemental Figure 2. Comparison between minimal (A) and maximal compression (B) protocols within a single participant. 1 – Region highlighting ample acoustic coupling gel to ensure no contact occurs between skin and ultrasound probe. 2 – Highlighting convex nature of the skin and muscle belly, required for minimal compression. 3 – Skin and muscle belly loose convex shape during maximal compression.



Supplemental Figure 3. Bland-Altman plot comparing DXA derived and the 9-site protocol predicted appendicular lean tissue mass, utilizing all participants from all folds. No fixed (0.00 [-0.34, 0.35]) or proportional bias was present (solid black line, 95% CI – inner short dashed line), with limits of agreement (1.96 SD) of -3.32 and 3.32 (middle long dashed lines) and tolerance limits of -3.91 and 3.92 (outer short dashed lines). ALT, appendicular lean tissue mass; CI, confidence interval; DXA, dual-energy x-ray absorptiometry; SD, standard deviation



Supplemental Figure 4. Bland-Altman plots for intra-rater reliability using the 4-site protocol for minimal compression. Minimal compression average bias [95% CI] for all intra-rater plots (except plot with proportional bias) was -0.04 [-0.03, 0.01] with average limits of agreement and tolerance limits were -0.14 and 0.12 and -0.16 and 0.14. CI, confidence interval



Supplemental Figure 5. Bland-Altman plots for intra-rater reliability using the 4-site protocol for maximal compression. Maximal compression presented a significant fixed bias [95% CI] of -0.02 [-0.04, -0.01] with average limits of agreement and tolerance limits were -0.14 and 0.12 and -0.16 and 0.14 and for maximal compression, -0.16 and 0.11 and -0.18 and 0.14. CI, confidence interval