

Supplementary Content 2. Continued

	1-s epoch				5-s epoch				15-s epoch				30-s epoch				60-s epoch			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>	β (95% CI)	<i>p</i>
Femoral neck cross-sectional area (cm²)																				
Average-acceleration	0.15 (0.04 to 0.27)	0.008	0.12 (-0.01 to 0.25)	0.06	0.15 (0.04 to 0.27)	0.008	0.12 (-0.00 to 0.25)	0.06	0.15 (0.04 to 0.27)	0.008	0.12 (0.00 to 0.25)	0.05	0.15 (0.04 to 0.27)	0.008	0.12 (-0.01 to 0.24)	0.06	0.15 (0.04 to 0.27)	0.008	0.10 (-0.03 to 0.22)	0.13
Intensity-gradient	0.17 (0.04 to 0.29)	0.01	0.13 (-0.00 to 0.27)	0.06	0.15 (0.02 to 0.28)	0.02	0.11 (-0.03 to 0.25)	0.13	0.14 (0.02 to 0.27)	0.02	0.09 (-0.04 to 0.23)	0.17	0.16 (0.04 to 0.28)	0.01	0.11 (-0.02 to 0.24)	0.09	0.19 (0.07 to 0.31)	0.002	0.14 (0.01 to 0.28)	0.04
Femoral neck section modulus (cm³)																				
Average-acceleration	0.09 (0.01 to 0.16)	0.03	0.06 (-0.02 to 0.14)	0.11	0.09 (0.01 to 0.16)	0.03	0.07 (-0.01 to 0.14)	0.10	0.09 (0.01 to 0.16)	0.03	0.07 (-0.01 to 0.15)	0.09	0.09 (0.01 to 0.16)	0.03	0.07 (-0.01 to 0.14)	0.09	0.09 (0.01 to 0.16)	0.03	0.05 (-0.03 to 0.13)	0.21
Intensity-gradient	0.11 (0.03 to 0.19)	0.01	0.09 (0.01 to 0.17)	0.03	0.10 (0.01 to 0.18)	0.02	0.07 (-0.01 to 0.16)	0.09	0.08 (0.01 to 0.16)	0.03	0.06 (-0.02 to 0.13)	0.14	0.09 (0.01 to 0.16)	0.02	0.06 (-0.02 to 0.13)	0.12	0.11 (0.04 to 0.19)	0.004	0.09 (0.01 to 0.17)	0.03

Values are regression coefficients (β), their 95% confidence intervals (CI), and *p* values from linear regression models. Activity metrics were standardised before entry into analysis, so values represent the change in the outcome associated with a 1 standard deviation change in the activity metric.

^aAverage-acceleration (average of waves 6 to 9) is the mean acceleration across wear-time.

^bIntensity-gradient (average of waves 6 to 9) calculated, with imputing zeros for non-wear during the night, as the regression line from log-log plot of intensity (x) and time accumulated (y).

Model 1 includes the activity variable (average-acceleration or intensity-gradient) adjusted for age at wave 9, stature at wave 9, mass at wave 9, years from peak height velocity at wave 9, the proportion of the 24-hour cycle the accelerometer was worn, and the mean age for physical activity measures. Model 2 includes both activity variables in the same model (average-acceleration and intensity-gradient).

Bold emphasis indicates statistical significance at *p* < 0.05.

TBLH, total body less head; BMC, bone mineral content; aBMD, areal bone mineral density.