

Supplemental Table 2. Calculation of MET-hours per week per participant.

Step	Description	Equation	Example
1	Calculate stride length in cm	Height(cm) * 0.414 ^a	173.5 * 0.414= 71.829 cm
2	Convert stride length to inches	Stride length (cm) * 1 in/2.5 cm	71.298/ 2.5= 28.73 in
3	Convert stride length to feet	Stride length (in) * 1 ft/ 12 inc	27.73/12= 2.39 ft
4	Calculate steps per mile	5,280 feet / stride length	5,280/ 2.39= 2205 steps
5	Convert to miles per step	1 / (steps/mile)	1/ 2205= 0.0004535 miles/step
6	Calculate steps per min of activity ^b	Steps/ duration of activity (min)	108 steps/ 2 min= 54 steps/min
7	Convert steps per minute to steps per hour	Steps per min * 60 min/hour	54 * 60= 3,240 steps/hour
8	Calculate miles per hour (speed)	Steps per hour * miles / step	3,240 * 0.0004535 = 1.5 mph
9	Convert to METs based on activity type ^c and speed (mph) from step 8	<p>MET Values²:</p> <p>Walking:</p> <p><2.0 mph: 2 METs 2.0 to <2.5 mph: 2.8 METs 2.5 to <2.8 mph: 3.0 METs 2.8 to <3.2 mph: 3.5 METs 3.2 to <3.5 mph: 4.3 METs 3.5 to <4.0 mph: 5.0 METs 4.0 to <4.5 mph: 7.0 METs 4.5 to <5.0 mph: 8.3 METs</p> <p>Running:</p> <p><4.0 mph: 6.0 METs 4.0 to <5.0 mph: 8.3 METs 5.0 to <5.2 mph: 9.0 METs 5.2 to <6.0 mph: 9.8 METs 6.0 to <6.7 mph: 10.5 METs 6.7 to <7.0 mph: 11.0 METs 7.0 to 8.0 mph: 11.8 METs 8.0 to <8.6 mph: 12.3 METs 8.6 to <9.0 mph: 12.8 METs 9.0 to <10.0 mph: 14.5 METs 10.0 to <11.0 mph: 16.0 METs</p> <p>Cycling: 5.8 METs (average cycling speed)</p>	Activity Type= Walking 1.5 mph = 2 METs per conversion table
10	Calculate Met*min	MET (step 9) * activity duration (min)	2 METs * 2 min= 4 MET*min
11	Convert to Met*hr	MET*min * 1 hour/60 min	4 /60= 0.067 met/hr
12	Sum Met*hrs of all activity		

	segments per week per participant		
<p>^a Average stride length for females is height X 0.413 and for males is height x 0.415 For simplicity, the average conversion (0.414) was used for all participants to estimate stride length¹</p> <p>^b Steps and activity segment duration captured on smartphone using built in pedometer/accelerometer from smartphone</p> <p>^c Activity type categorized as walking, running, or cycling and determined by sponsor based on pedometer/accelerometer data from smartphone</p>			

Supplemental Table References:

1. Grieve DW, Gear RJ. The relationships between length of stride, step frequency, time of swing, and speed of walking for children and adults. *Ergonomics*. 1966 Sep;9(5):379-99.
2. MET values derived from the published online values from the updated 2011 Adult Compendium of Physical Activities, supported by Arizona State University and the National Cancer Institute.
<https://sites.google.com/site/compendiumofphysicalactivities/home>. Accessed December 8, 2017.