Actical

P < 0.001

MPE (and 95% CIs)

Speed, km/h
(mph)

ActiGraph GT3X+ (Waist)

P < 0.001

MPE (and 95% CIs)

Speed, km/h
(mph)

ActiGraph GT3X+ (Wrist)

P < 0.001

MPE (and 95% CIs)

Speed, km/h
(mph)

ActivPAL

P < 0.001

MPE (and 95% CIs)

Speed, km/h
(mph)

NL–1000

P < 0.001

MPE (and 95% CIs)

Speed, km/h
(mph)

SenseWear

P < 0.001

MPE (and 95% CIs)

Speed, km/h
(mph)

StepWatch

P < 0.001

MPE (and 95% CIs)

Speed, km/h
(mph)

SW–200

P < 0.001

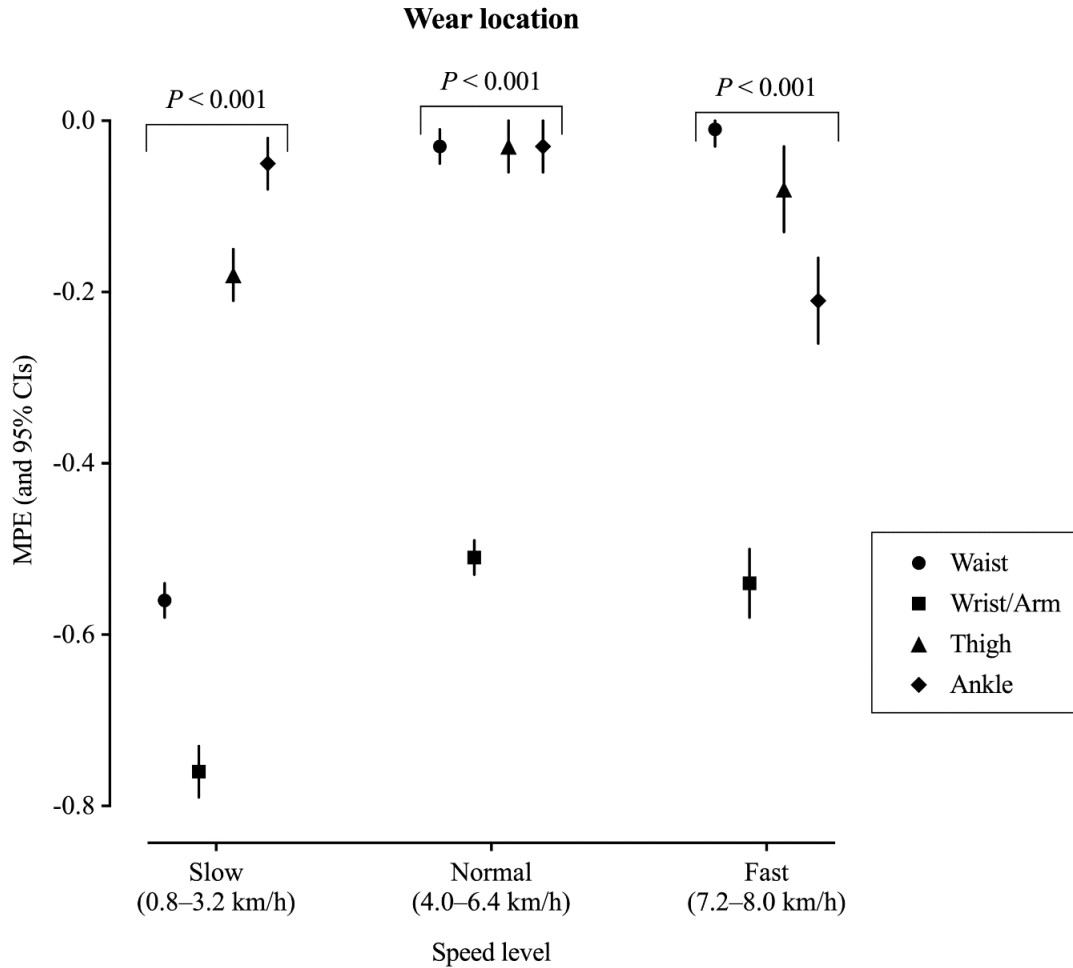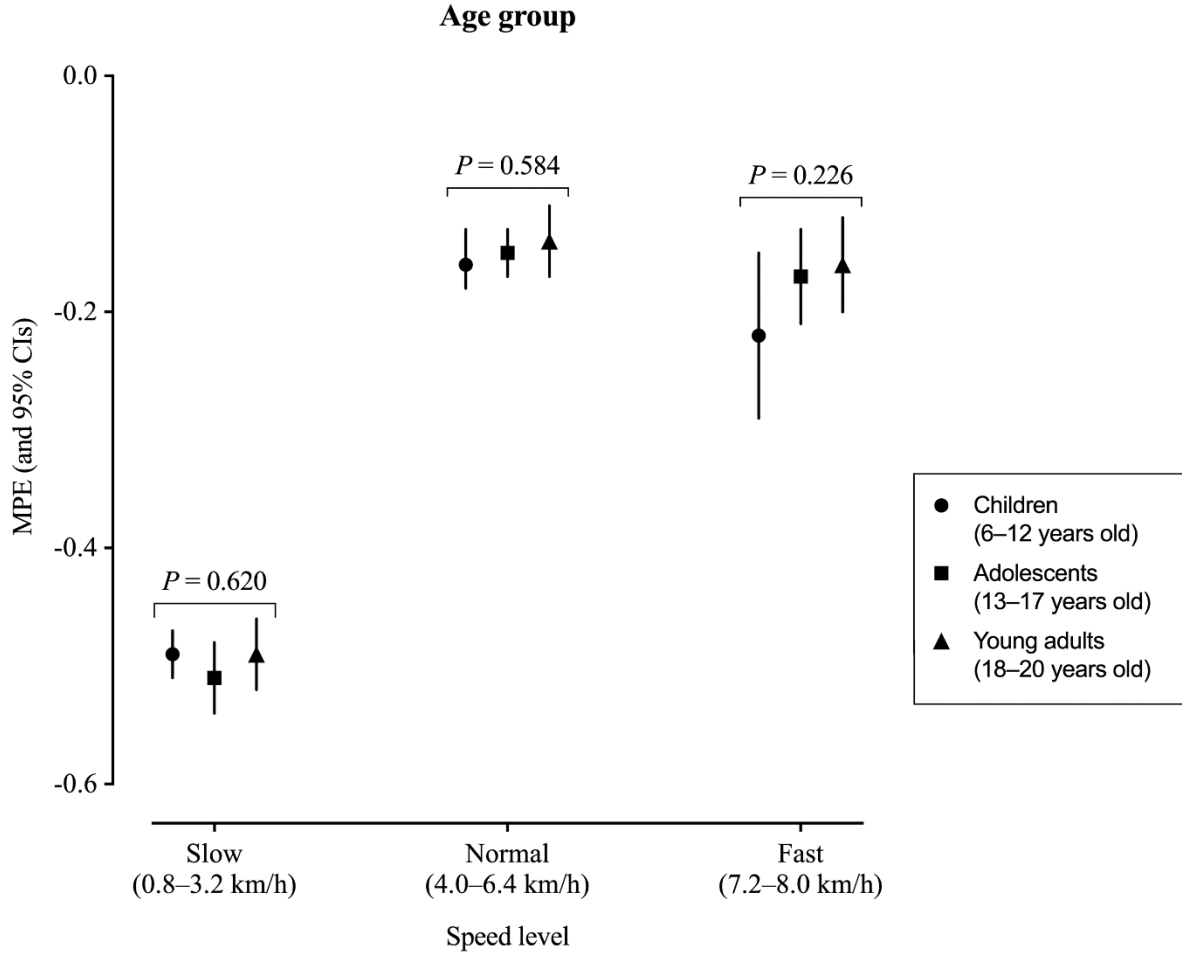MPE (and 95% CIs)

Speed, km/h
(mph)

Supplementary Figure 1, Additional File 9. Effect of speed on bias (mean percentage error, MPE) of wearable technology's step counting ability. MPE (%) and corresponding 95% confidence intervals (CIs) respective to each technology are plotted across speeds. Each point represents grouped averages of MPE values, with 95% CIs estimated using mixed effect models and extending above and below that point estimate. MPE values closer to 0% are indicative of improved bias and negative values mean undercounting. 95% CIs that do not overlap indicate significant differences, while those that do overlap indicate no significant differences. Overall likelihood ratio test P value is reported for the effect of all speeds on MPE.

Supplementary Figure 2, Additional File 9. Effect of wear location on bias (mean percentage error, MPE) of wearable technologies' step counting ability. MPE (%) and corresponding 95% confidence intervals (CIs; estimated using mixed effect models) of each wear location are presented at slow, normal, and fast walking speeds. MPE values were averaged across devices respective to each wear location for slow, normal, and fast walking speeds. MPE values closer to 0% are indicative of improved bias and negative values mean undercounting. 95% CIs that do not overlap indicate significant differences, while those that do overlap indicate no significant differences. *P* value is reported for the effect of wear location on MPE for each specific speed level.

Supplementary Figure 3, Additional File 9. Effect of age on bias (mean percentage error, MPE) of wearable technologies' step counting ability. MPE and corresponding 95% confidence intervals (CIs; estimated using mixed effect models) of each age group are presented at slow, normal, and fast walking speeds. MPE values were averaged across devices respective to each age group for slow, normal, and fast walking speeds. MPE values closer to 0% indicate improved bias and negative values mean undercounting. Further, where 95% CIs do not overlap, there are significant differences between locations. Likelihood ratio test *P* value is reported for the effect of age on MPE for each specific speed level.