Supplementary Material S1: Protocols for Training Observers

Site A

Trained observers independently annotated the videos using the Noldus Observer XT 14 (Noldus Information Technology, Wageningen, The Netherlands). Observers were extensively trained using previously developed protocols (Kozey-Keadle et al., 2011; Lyden et al., 2016; Lyden, Petruski, et al., 2014) that were adapted for the use of video-recording. All participants read a written manual, completed a didactic test and then completed at least 12 hours of practice annotating. Observers then coded two practice videos that included a range of activity types, postures/whole-body movements and intensities using the full annotation scheme and were required to obtain an ICC >0.9 prior to working with study data.

Site B

Observer training was based on an integration of procedures developed in previous (Kozey-Keadle et al., 2011; Lyden, Keadle, et al., 2014; Sasaki et al., 2016) and ongoing work involving video and real-time annotation of study participants. The training process included: (i) testing annotator knowledge on the behavioral descriptors and label characterization through a written exam; (ii) viewing and labelling second-person videos using Datavyu to allow an understanding of software features, behavior types in the annotation scheme, their attributes (i.e., behavior descriptors), and behavior transitions; (iii) subsequently increasing labeling proficiency using selected training videos; (iv) testing annotator competence using an independent set of testing videos; (v) computation of agreement among annotators followed by a discussion and resolution on disagreements.
Site C

Each observer completed ~30 hours of formal training with the principal investigator, an expert observer, and other lab personnel. Training included review and discussion of literature relevant to the DO of physical activity in children and adults, familiarization to the software, and coding of six training videos. Training videos were randomly selected 5-minute clips from a pilot study. To become certified in each of the four free-living environments (home, school/work, community and exercise), research assistants coded the three, 10-minute video clips (certification videos) obtained during each of the four settings (12 total video clips). Research assistants had to obtain a percent agreement of 80% or higher when compared to the expert coder for all direct observation variables. Failure to obtain a percent agreement of at least 80% resulted in further training based on identification of coding errors within the certification videos and then subsequent attempts at certification.

Site D

Training observers under the Site D coding platform consisted of 40 hours in a 2-3 week timespan to become familiar with the annotation procedures and practice on several training videos that highlight different aspects of the annotation procedure.