Commentary on “Child Temporal-Spatial Gait Characteristics and Variability During Uphill and Downhill Walking”

“How should I apply this information?”

Knowledge of gait maturation, measured by the ability of a child to navigate non-level surfaces, is important for pediatric therapists. This study compared gait during level, uphill, and downhill walking (15° ramp) of 30 children with typical development (aged 3.5-5.5 years) and 30 adults who were healthy. The GAITRite electronic walkway was used for children’s measures taken in a day care setting. The study provides new information on hill walking, as previous studies analyzing gait variability used treadmills or extended walkways. The authors concluded that children of these ages showed variation during all conditions, but significant variability in downhill walking when compared with adults. Furthermore, the authors suggest that children of these ages do not yet exhibit a mature gait pattern, as shown by their variability in task performance. They also suggest that downhill walking increases fall risk, although this conclusion in not expressly examined in this study. The researchers would like therapists to be more aware of the variations in speed, stride length, step width, and percent of time on the stance time when walking up- and downhill.

“What should I be mindful about in applying this information?”

This normative study is an initial examination of gait variability as a measure of gait maturation and balance in young children. Therapists should remember that samples for normative studies must be large, random, and representative of the population’s heterogeneity. A limitation of the study is that the children used the GAITRite electronic walkway and were compared with the adults, who were studied using a computerized motion capture analysis. The children were allowed (or not) to use shoes, depending on their preference and everyone was allowed to “self-select” walking speed, both of which could affect study results. It is assumed that all adults wore shoes. Finally, especially in dealing with the study conclusion related to increased risk of falls, it would be extremely informative to note the trunk inclination angle and the center of mass relative to the ankle joint as the child/adult walks up and down an inclined surface.

REFERENCES


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The authors declare no conflict of interest.

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