



Article Navigation

A Novel Tool for Quantifying and Promoting Physical Activity in Youths With Typical Development and Youths Who Are Ambulatory and Have Motor Disability

Kristel Lankhorst ✉, Rita J van den Berg-Emons, Johannes B J Bussmann, Herwin L D Horemans, Janke F de Groot

Physical Therapy, Volume 99, Issue 3, March 2019, Pages 354–363, <https://doi.org/10.1093/ptj/pzy152>**Published:** 16 January 2019 **Article history** ▼“ Cite  Permissions  Share ▼

Abstract

Background

Several device-based instruments have been validated in the pediatric population, but none of these are clinically applicable and provide real-time feedback on actual physical activity in terms of postures and movements. A new device (Activ8) is promising for that purpose.

Objective

The objective was to investigate the criterion validity of the Activ8 for measuring static (sitting, standing) and dynamic (walking, bicycling, running) activities, and for separating postures and movements within basic and complex activities in children and adolescents (youths) with typical development (TD) and peers with motor disability (not typical development [NTD]).

Design

This was a criterion validation study.

Methods

Ten participants with TD (mean age [standard deviation] = 14 [2.5] years) and 10 participants with NTD (mean age = 12.9 [2.1] years) performed a standardized series of basic and daily life (complex) activities. The Activ8 measured postures and movements, while camera recording served as a reference. The outcome measures were the mean time differences between the Activ8 output and video data for the merged categories “static” and “dynamic” and for the separate postures and movements.

Results

For the merged categories static and dynamic, the criterion validity was found to be excellent both in participants with TD and participants with NTD within basic activities, and was found to be good to excellent in participants with TD and moderate to good in participants with NTD within complex activities. The detection of separate postures and movements was found to be poor to excellent in both groups within complex activities.

Limitations

The sample of youths with NTD was small and limited to youths who could be considered to be at least ambulatory within a household.

Conclusions

Activ8 is a valid tool when the merged categories static and dynamic are used to interpret physical activity in daily life in both youths with TD and youths with NTD and mild motor impairment. To optimize the quantification of separate postures and movements, adjustment of the existing algorithm is required.

Issue Section: ORIGINAL RESEARCH

© 2019 American Physical Therapy Association

This article is published and distributed under the terms of the Oxford University Press, Standard Journals Publication Model (https://academic.oup.com/journals/pages/open_access/funder_policies/chorus/standard_publication_model)

You do not currently have access to this article.

Comments

[Skip to Main Content](#)

0 Comments

“ Cite  Permissions  Share ▼

[Add comment](#)

Sign in

Don't already have an Oxford Academic account? [Register](#)

Oxford Academic account

Email address / Username [?]

Password

Sign In

[Forgot password?](#)

[Don't have an account?](#)

American Physical Therapy Association members



American Physical Therapy Association...

[Sign in via society site](#)

Sign in via your Institution

[Sign in](#)

Purchase

[Subscription prices and ordering](#)

Short-term Access

To purchase short term access, please sign in to your Oxford Academic account above.

Don't already have an Oxford Academic account? [Register](#)

A Novel Tool for Quantifying and Promoting Physical Activity in Youths With Typical Development and Youths Who Are Ambulatory and Have Motor Disability - 24 Hours access

EUR €36.00

GBP £28.00

USD \$45.00

Rental

This article is also available for rental through DeepDyve.



[View Metrics](#)

Email alerts

[New issue alert](#)

[Advance article alerts](#)

[Article activity alert](#)

[Subject alert](#)

[Receive exclusive offers and updates
from Oxford Academic](#)

[Skip to Main Content](#)

[Related articles in](#)

[Site](#) [Permissions](#)

[Share](#) ▼

Google Scholar

Citing articles via

Google Scholar

Crossref

Latest | **Most Read** | **Most Cited**

Value-Based Care for Musculoskeletal Pain: Are Physical Therapists Ready to Deliver?

The Next Generation of Clinical Trials

Creative Yoga Intervention Improves Motor and Imitation Skills of Children With Autism Spectrum Disorder

News From the Foundation for Physical Therapy Research, November 2019

Evaluating the Uptake and Acceptability of Standardized Postoperative Rehabilitation Guidelines Using an Online Knowledge Translation Approach

About Physical Therapy

Editorial Board

Author Guidelines

Facebook

Twitter

Purchase

Recommend to your Library

Advertising and Corporate Services

Journals Career Network

Physical Therapy

Online ISSN 1538-6724

Print ISSN 0031-9023

Copyright © 2019 American Physical Therapy Association

About Us

Contact Us

Careers

Help

Access & Purchase

Rights & Permissions

Open Access

Connect

Join Our Mailing List

OUPblog

Twitter

Facebook

YouTube

Tumblr

Resources

Authors

Librarians

Societies

Sponsors & Advertisers

Press & Media

Agents

Explore

Shop OUP Academic

Oxford Dictionaries

Oxford Index

Epigeum

OUP Worldwide

University of Oxford

Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide



Copyright © 2019 Oxford University Press

Cookie Policy

Privacy Policy

Legal Notice

Site Map

Accessibility

Get Adobe Reader