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Effects of balance training on balance performance in healthy children

Submission date
25/03/2021

Recruitment status
No longer recruiting

Registration date
12/04/2021

Overall study status
Completed

Last Edited
30/12/2021

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol
Background and study aims
Improvements in balance performance through balance training (BT) programs in children have been reported in several studies. However, the influence of BT modalities (e.g., training period, frequency, volume) on the training effectiveness has not yet been studied. To address this shortfall, the present study investigated the effects of balance training duration (i.e., 4 versus 6 weeks) on measures of static and dynamic balance performance in healthy children aged 10 years.

Who can participate?
Healthy children aged 10 years.

What does the study involve?
Balance training programs were conducted for four or six weeks with two sessions per week (30 minutes per session) at a school gym.

What are the possible benefits and risks of participating?
Possible benefits of participating were improved postural control; possible risks of participating were fatigue-related decrements in balance performance

Where is the study run from?
University of Duisburg-Essen (Germany)

When is the study starting and how long is it expected to run for?
November 2018 to September 2019

Who is funding the study?
Open Access Publication Fund of the University of Duisburg-Essen (Germany)

Who is the main contact?
Prof. Thomas Muehlbauer, thomas.muehlbauer@uni-due.de

Contact information

Type(s)
Scientific

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Additional identifiers

Study information

Scientific Title
Effects of balance training on static and dynamic balance performance in healthy children: role of training duration

Study objectives
1. Both training durations lead to improvements in balance performance
2. A longer exposure to the training stimuli would lead to greater improvements after six instead of four weeks of training

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 10/07/2017, Human Ethics Committee at the University of Duisburg-Essen, Faculty of Educational Sciences (Universitätsstraße 2, 45141 Essen; +49 2011837237; ethik-psychologie@uni-due.de), ref: none provided

Primary study design
Interventional

Study design
Interventional randomized controlled trial

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Prevention of fall-related injuries in primary school children

Interventions
Standardized balance training programs were conducted for four and six weeks with two sessions per week (30 minutes per session) at a school gym. This led to a total training volume of 240 minutes (BT-4wk) and 360 minutes (BT-6wk), respectively. The training was supervised by graduate students. A 5-10-minute warm-up and a 5-minute cool-down marked the start and end of each session. In between, 5-7 balance exercises (3 sets of 30-40 s per exercise) addressing static steady-state (i.e., standing exercises), dynamic steady-state (i.e., walking exercises), proactive (i.e., weight shifting while standing), and reactive (i.e., perturbed standing) balance were performed; Randomization process: using Research Randomizer (www.randomizer.org)

Intervention Type
Behavioural

Primary outcome(s)
At baseline and after the intervention:
1. Static balance was assessed using the one-legged stance
2. Dynamic balance performance was assessed using the Lower Quarter Y-Balance Test (YBT-LQ)

Key secondary outcome(s)
There are no secondary outcome measures

Completion date
30/09/2019

Eligibility

Key inclusion criteria
1. Age 9 - 11 years
2. Free of any known neurological or orthopedic diseases

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Child

Lower age limit
9 Years

Upper age limit
11 Years

Sex
All

Total final enrolment
29

Key exclusion criteria
Does not meet inclusion criteria

Date of first enrolment
01/12/2018

Date of final enrolment
31/12/2018

Locations

Countries of recruitment
Germany

Study participating centre
University of Duisburg-Essen
Gladbecker Str. 182
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Sponsor information

Organisation
University of Duisburg-Essen

ROR
https://ror.org/04mz5ra38

Funder(s)

Funder type
University/education

Funder Name
Universität Duisburg-Essen

Alternative Name(s)
University of Duisburg-Essen, Uni Duisburg-Essen, The University of Duisburg-Essen, University of Duisburg, University of Essen, Gerhard Mercator University of Duisburg, UDE

Funding Body Type
Government organisation

Funding Body Subtype
Universities (academic only)

Location
Germany

Results and Publications

Individual participant data (IPD) sharing plan
The current data sharing plans for this study are unknown and will be available at a later date.

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		23/12/2021	30/12/2021	Yes	No