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Comparison of the effect of the TRX Suspension Trainer and the Physioball devices on developing trunk muscles

Submission date 28/11/2023	**Recruitment status** No longer recruiting	[_] Prospectively registered [_] Protocol
Registration date 04/06/2024	**Overall study status** Completed	[_] Statistical analysis plan [_] Results
Last Edited 09/04/2024	**Condition category** Other	[_] Individual participant data [_] Record updated in last year

Plain English summary of protocol

Background and study aims
The aim of our work was to compare the effectiveness of the TRX Suspension Trainer and Physioball in a 6-week core training program for primary school children.

Who can participate?
40 primary school students were involved in the study (14 years old). Exclusion criteria for the research were acute sports injuries, older sports injuries that could prevent participation in the exercise program, severe congenital or acquired locomotor disorders (e.g. limb absence, limb length difference), pathologies affecting posture (congenital or genetic spinal disease), as well as lack of motivation, cooperation.

What does the study involve?
20 people worked with the TRX device throughout the 6 week exercise program, and 20 people worked with the Physioball throughout. Measurements were taken before and after the program.

What are the possible benefits and risks of participating?
If our program will be effective on the core muscles and on the dynamic balance we can also use it as a prevention program. By comparing the effectiveness of the two tools we can get an idea which one is more effective in these areas. There is no possible risk of participating.

Where is the study run from?
Doctoral School of Health Sciences, Faculty of Health Sciences, University of Pécs, Hungary.

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

Who is funding the study?
TKP-2021-EGA-10 has been implemented with the support provided by the National Research. Development and Innovation Fund of Hungary, financed under the TKP-2021-EGA funding scheme.

Who is the main contact?
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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
Nil known

Study information

Scientific Title
Comparison of the effect of the TRX Suspension Trainer and the Physioball devices on developing trunk muscles in a 6-week core training program for primary school children - a quasi-experimental study.

Study objectives
The aim of our work was to measure and compare the effectiveness of the TRX Suspension Trainer and the Physioball therapy ball on trunk stability and balance using a training program in six weeks.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 12/07/2023, The Scientific and Research Ethics Commission of the Medical Research Council (Alkotmány Street 25, Budapest, 1054, Hungary; +36 1 795 1192; attilane.gombos@bm.gov.hu), ref: BM/14023-3/2023

Study design
Multicenter interventional quasi-experimental study

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Fitness/sport facility, School

Study type(s)
Prevention

Participant information sheet
Not available in web format, please use contact details to request a participant information sheet

Health condition(s) or problem(s) studied
Prevention program for core muscles with TRX Suspension Trainer and Physioball devices with primary school students.

Interventions
The type of our research was a quasi-experimental study. The research location was the Primary School Number One of University of Pécs in Hungary. The study was conducted between February and May 2019. Non-randomized sample selection was used. The sessions were conducted in a 6-week period within the framework of physical education classes. A total of 40 fourteen-year-old students (n=40) participated in our survey. Of these, 20 people worked with the TRX device throughout the exercise program, and 20 people worked with the Physioball throughout. Regarding the gender ratio, in both groups, 10 (50%) boys and 10 (50%) girls participated in the program.

Intervention Type
Behavioural

Primary outcome measure
1. Examination of the endurance of trunk muscles with Modified Plank's test before and after the intervention.
2. Lower extremity dynamic balance with Star Excursion Balance test (SEBT) , in (anterior (A), antero-lateral (AL), lateral (L), postero-lateral (PL), posterior (P), postero-medial (PM), medial (M), antero-medial (AM) directions before and after the intervention. Performed on both the right and left side, 3-3 experiments in each direction, of which the best value was taken into account.
3. Upper extremity dynamic balance with Y-Balance test (YBT) with distance in cm in 3 different directions (medial, infero-lateral, supero-lateral) before and after the intervention. Performed on both the right and left side, 3-3 experiments in each direction, of which the best value was taken into account.

Secondary outcome measures
Measured before and after the intervention:
1. Trunk stability measured with Modified Plank test
2. Dynamic balance of the lower extremity measured with Star Excursion Balance Test
3. Dynamic balance of the upper extremity measured with the Y-Balance Test

Overall study start date
01/09/2018

Completion date
30/05/2019

Eligibility

Key inclusion criteria
1. Eighth grade students from the Primary School Number One of University of Pécs

Participant type(s)
Learner/student

Age group
Child

Lower age limit

14 Years

Upper age limit
14 Years

Sex
Both

Target number of participants
40

Total final enrolment
40

Key exclusion criteria
1. Acute sports injuries
2. Older sports injuries that could prevent participation in the exercise program
3. Severe congenital or acquired locomotor disorders (e.g. limb absence, limb length difference)
4. Pathologies affecting posture (congenital or genetic spinal disease)
5. Lack of motivation, cooperation.

Date of first enrolment
01/02/2019

Date of final enrolment
02/04/2019

Locations

Countries of recruitment
Hungary

Study participating centre
Primary School Number One of University of Pécs
Alkotmány Street 38
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Sponsor information

Organisation
University of Pecs

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University/education

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ROR
https://ror.org/037b5pv06

Funder(s)

Funder type
Government

Funder Name
Nemzeti Kutatási Fejlesztési és Innovációs Hivatal

Alternative Name(s)
National Research, Development and Innovation Office of Hungary, NRDI Office of Hungary, National Research, Development and Innovation Office, National Research Development and Innovation Office, NRDI Office, Nemzeti Kutatási, Fejlesztési és Innovációs Hivatal, NKFI Hivatal, NKFIH, NKFI

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Hungary

Results and Publications

Publication and dissemination plan
The future plan is to publish the research in BMC Sports Science and Medicine and Rehabilitation

Intention to publish date

15/01/2024

Individual participant data (IPD) sharing plan

Data are available from the correspounding author (Dr Balint Molics PhD, molics.balint@etk.pte.hu) on reasonable request.

IPD sharing plan summary

Available on request