

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

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|----------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Submission date</b><br>28/11/2023   | <b>Recruitment status</b><br>No longer recruiting | <input type="checkbox"/> Prospectively registered<br><input type="checkbox"/> Protocol                       |
| <b>Registration date</b><br>04/06/2024 | <b>Overall study status</b><br>Completed          | <input type="checkbox"/> Statistical analysis plan<br><input type="checkbox"/> Results                       |
| <b>Last Edited</b><br>09/04/2024       | <b>Condition category</b><br>Other                | <input type="checkbox"/> Individual participant data<br><input type="checkbox"/> 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?

Dr Bálint Molics, molics.balint@etk.pte.hu

## Contact information

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## Additional identifiers

## 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

### **Primary study design**

Interventional

### **Study design**

Multicenter interventional quasi-experimental study

### **Study type(s)**

Prevention

### **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(s)**

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.

### **Key secondary outcome(s)**

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

### **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

### **Healthy volunteers allowed**

No

### **Age group**

Child

### **Lower age limit**

14 Years

### **Upper age limit**

14 Years

### **Sex**

All

### **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

**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, NRD Office of Hungary, National Research, Development and Innovation Office, National Research Development and Innovation Office, NRD 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**

**Individual participant data (IPD) sharing plan**

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

**IPD sharing plan summary**

Available on request