# 'The MOVE'-study: Short physical activity breaks during ordinary lectures in upper secondary school; A 25-week randomised controlled trial.

Submission date	Recruitment status No longer recruiting	<ul><li>Prospectively registered</li></ul>			
09/12/2023		Protocol			
Registration date 14/12/2023	Overall study status Completed	Statistical analysis plan			
		Results			
Last Edited	<b>Condition category</b> Not Specified	Individual participant data			
13/12/2023		<ul><li>Record updated in last year</li></ul>			

#### Plain English summary of protocol

Background and study aims

The overall aim of this 25-week randomised interventional study is to evaluate the feasibility and adherence of short pupil-led physical activity breaks in upper secondary school. Furthermore, we want to assess whether the measure contributes to increasing the pupils' general level of physical activity, which can potentially have positive effects on both physical fitness, ability to concentrate, well-being, learning behavior and class climate.

Briefly, 'MOVE'-breaks are short physical activity sessions of 6-7 minutes duration implemented as 'breaks' in regular 90-minute lectures. The 'MOVE'-breaks concept is thought to be linked to the interdisciplinary competence goal Public Health and Life Management, as well as to specific competence goals in physical education.

#### Who can participate?

The main target group for the project is 1st year pupils (VG1).

#### What does the study involve?

At baseline and at 25-week follow-up, both the intervention- and control groups will carry out physical fitness tests (aerobic fitness, muscle strength, postural balance and flexibility), an electronic questionnaire, as well as objective measurements of physical activity level. During the intervention period, heart rate measurements as well as an attention test will be carried out in the intervention groups linked to a specific 'MOVE'-break.

#### What are the possible benefits and risks of participating?

The measure can potentially contribute to increasing the pupils' level of physical activity, as well as having beneficial effects on physical fitness and attention/concentration, well-being, learning behavior and the classroom climate. Participating in the study in question involves no greater risk of injury than would apply to participation in an ordinary physical education class.

Where is the study run from? Inland Norway University of Applied Sciences (Norway)

When is the study starting and how long is it expected to run for? September 2022 to May 2024

Who is funding the study? Savings Bank Foundation DNB (Norway)

Who is the main contact?
Associate Professor Svein Barene, svein.barene@inn.no

#### Contact information

#### Type(s)

Public, Scientific, Principal investigator

#### Contact name

Prof Svein Barene

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## Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

Nil known

## Study information

#### Scientific Title

'The MOVE'-study: An evaluation of the implementation of short physical activity breaks led by pupils during ordinary lectures in upper secondary school; A 25-week randomised controlled trial.

#### Acronym

MOVE25

#### Study objectives

The overall aim of the current intervention study is to assess the feasibility and adherence of short pupil-led physical activity breaks in upper secondary school after adjustments to design and content based on experiences from a 12-week pilot. Furthermore, we want to evaluate whether the measure can contribute to increasing the pupils' level of physical activity, as well as whether it can affect physical fitness, attention/concentration, well-being, learning behavior and the classroom climate.

#### Ethics approval required

Ethics approval required

#### Ethics approval(s)

approved 23/12/2022, Research Ethics Commitee at Inland Norway University of Applied Sciences (PO Box 400, Elverum, 2418, Norway; +47 61288277; anne.lofthus@inn.no), ref: 21/01894

#### Study design

Interventional randomized controlled study

#### Primary study design

Interventional

#### Study type(s)

Prevention, Quality of life

#### Health condition(s) or problem(s) studied

Short physical activity breaks led by pupils during ordinary lectures in upper secondary school

#### **Interventions**

The randomisation was made by lot by blinded staff, i.e. classes were assigned to either an intervention group or a control group (3:1-ratio). At each of the three schools consisting of classes (n=25-30) with specialization in general studies, the school management initially made a selection of four classes/groups with the most homogeneous characteristics possible. The selection was conducted by drawing from two boxes: i) the two different groups (the intervention group or the control group) and ii) the four classes/groups (1, 2, 3 or 4). The process was initiated by drawing one group from box 1, followed by drawing one class/group from box 2. The next draw from box 2 was consequently allocated to the remaining group in box 1. This process was repeated until all the classes had been assigned to either an intervention group or the control group. At the two schools that consist of vocational study programs with smaller class sizes (n=12-17), stratification was carried out in collaboration with the school management to ensure as homogeneous classes/groups as possible matched on gender, number and subject area, respectively, which were then distributed in four separate boxes (box A, B, C or D). The selection was initiated by drawing a group from box 1 (intervention group (IG) 1, IG2, IG3 or the control group), followed by drawing a class/group from one of the A-D-boxes. This process was repeated until all classes had been distributed equally to each of the 3 intervention groups and the control group.

At baseline and at follow-up, both the intervention- and the control groups will carry out physical fitness tests (aerobic fitness, muscle strength, postural balance and flexibility), an electronic questionnaire, as well as objective measurements of physical activity level. In the

intervention groups, concentration-/attention tests and heart rate measurements will be carried out during 'MOVE'-breaks. Finally, a sample of pupils from the intervention groups will be invited to participate in focus group interviews in the follow-up.

During the intervention period, the intervention groups will be encouraged to carry out a minimum of  $2 \times 6-7$  minute daily 'MOVE'-breaks during ordinary classroom sessions.

Based on focus group interviews with pupils following the pilot study, as well as observations made by the researchers during the pilot study, it became clear that the original ambition that 'MOVE' breaks should be included as a mandatory part of the competence goals in physical education through alternating pupil-led sessions, did not work as intended.

Despite 3 x 1-hour introduction/training periods before the intervention period led by a PE teacher, the pupils generally experienced a low degree of ownership and confidence in their role as activity leaders. This often resulted in delayed start-up, as well as poor quality execution of the 'MOVE' breaks.

The pilot study also revealed that weekly registrations/reports of completed 'MOVE' breaks, and the content of these, were not carried out as intended, which makes it challenging to interpret any findings afterwards.

Based on the above mentioned, we will make the following adjustments to the study design in the current intervention:

- recruitment of 2-3 dedicated pupil ambassadors in each intervention group/class, who will undergo an introductory course and who will be followed up during the entire intervention period
- development of intuitive wall posters with varied exercises/activities made available in the intervention groups' classrooms, as well as introduction of a specific selection of digital resources
- to ensure better standardization of the intervention content, as well as to be able to better assess the pupils' preferences related to exercises/activities, the intervention design will be changed from a 1:1 to a 3:1-ratio. The 3 intervention groups/classes will be assigned one of the following physical activity concepts: i) strength training, ii) endurance training or iii) combination of strength and endurance
- a more clear and targeted involvement process with involved teachers and principals ahead of the intervention period to establish ownership and anchor the project.
- development of an intuitive and user-friendly digital portal where responsible teachers continuously register completed 'MOVE'-breaks and its contents.

#### Intervention Type

Mixed

#### Primary outcome(s)

Feasibility and sustainability of the measure assessed through the pupils' adherence and subjective experiences of both pupils and teachers at 25-week follow-up.

#### Key secondary outcome(s))

- 1. Attention/concentration measured using Eriksen Flanker test and Stroop test at baseline and 25-week follow-up.
- 2. Heart rate measurements during 'MOVE'-breaks using Polar Team Pro System
- 3. Physical activity level measured using ActiGraph wGT3X-BT at baseline and 25-week follow-up.
- 4. Aerobic fitness measured using YMCA 3-minute step test at baseline and 25-week follow-up.
- 5. Muscle strength measured by i) standing long jump and ii) handgrip (dynamometer) at

baseline and 25-week follow-up.

- 6. Postural balance measured by i) two-legs standing, eyes closed (30 s) and ii) one-leg standing, eyes open (30 s) at baseline and 25-week follow-up.
- 7. Flexbility measured by sit-and-reach test at baseline and 25-week follow-up.
- 8. Sleep measured by the four single-items derived from a modified version of the Karolinska Sleep Questionnaire at baseline and 25-week follow-up.
- 9. Wellbeing measured by the Warwick Edinburgh Mental Wellbeing 7-item scale at baseline and 25-week follow-up.
- 9. Self-efficacy measured by a factor developed and constructed for Norwegian use by Sørlie and Nordahl (1998) from Bandura (2006) at baseline and 25-week follow-up.
- 11. Learning environment and social well-being in class measured by 13 items developed by Moos and Trickett (1974) and processed and translated to Norwegian by Sørlie and Nordahl (1998) and Ogden (1995) at baseline and 25-week follow-up.
- 12. Social isolation measured by 21 items constructed by Gresham and Elliott (1990) "Social skills rating system" which was later processed and translated to Norwegian by Sørlie and Nordahl (1998) at baseline and 25-week follow-up.

#### Completion date

30/05/2024

## **Eligibility**

#### Key inclusion criteria

1st year pupils in upper secondary school, i.e. aged 16 - 17 years

#### Participant type(s)

Learner/student

#### Healthy volunteers allowed

No

#### Age group

Child

#### Lower age limit

16 years

#### Upper age limit

21 years

#### Sex

All

#### Total final enrolment

510

#### Key exclusion criteria

- 1. Specific disabilities that make participation impossible
- 2. Specific illnesses that can cause health hazards

#### Date of first enrolment

15/08/2023

#### Date of final enrolment

14/09/2023

#### Locations

#### Countries of recruitment

Norway

## Study participating centre Viken County Municipality

PO Box 220 Sarpsborg Norway 1702

## Sponsor information

#### Organisation

Inland Norway University of Applied Sciences

#### **ROR**

https://ror.org/02dx4dc92

## Funder(s)

#### Funder type

Charity

#### **Funder Name**

Sparebankstiftelsen DNB

### **Results and Publications**

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

The datasets generated during and/or analysed during the current study will be available upon request from Svein Barene, svein.barene@inn.no.

## **IPD sharing plan summary** Available on request

## Study outputs

Study outputs						
	Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
	$\underline{\textbf{Participant information sheet}}$			13/12/2023	No	Yes
	Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes
	Study website	Study website	11/11/2025	11/11/2025	No	Yes