ISRCTN11783541 https://doi.org/10.1186/ISRCTN11783541

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

Submission date
09/12/2023

Recruitment status
No longer recruiting

Registration date
14/12/2023

Overall study status
Completed

Last Edited
13/12/2023

Condition category
Not Specified

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

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

ORCID ID
https://orcid.org/0000-0002-5381-6017

Contact details
Postboks 400
Elverum
Norway
2418
+47 62430319
svein.barene@inn.no

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 x 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

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet			13/12/2023	No	Yes
Study website	Study website	11/11/2025	11/11/2025	No	Yes