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PA4WELL primary schools program: a study to increase students' cardiorespiratory fitness and improve their physical, social and mental health

Submission date
25/06/2026

Recruitment status
Recruiting

Registration date
25/06/2026

Overall study status
Ongoing

Last Edited
18/08/2026

Condition category
Other

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

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Study information

Scientific Title

PA4WELL primary schools program: a hybrid effectiveness -implementation trial to increase students' cardiorespiratory fitness and improve their physical, social and mental health

Acronym
PA4WELL

Study objectives
Current study objectives as of 17/08/2026:
Our specific research aims are:
1. To evaluate the effectiveness of a 6-month whole-of-school physical activity intervention on students' cardiorespiratory fitness (primary effectiveness outcome).
2. To assess the effectiveness of the intervention on students' physical activity, well-being, social and mental health, recovery during the school day and sleep, school engagement and burnout (secondary effectiveness outcomes).
3. To evaluate implementation effectiveness by studying;
3.1. Which proportion of schools are implementing any four of the six a whole-of-school PA components
3.2. Acceptability, adoption, appropriateness, cost, feasibility, fidelity, penetration and sustainability as implementation outcomes
3.3. Teachers' capability, opportunity, and motivation as determinants of the implementation
4. To assess the cost-effectiveness of a 6-month whole-of-school physical activity intervention.

Previous study objectives:
1. To evaluate the effectiveness of the PA4WELL whole-of-school physical activity intervention on cardiorespiratory fitness (primary outcome) among Grade 5 students compared to a control group.
2. To assess the effects of the intervention on secondary health outcomes, including physical activity levels, recovery during the school day and sleep (heart rate variability), and mental and social health.
3. To compare the effectiveness of two levels of implementation support (high vs. low) in improving student outcomes.
4. To examine implementation outcomes of the PA4WELL intervention across study arms, including the proportion of schools implementing at least four of the six intervention components.
5. To identify determinants of implementation (teachers' capability, opportunity, and motivation) and evaluate key implementation outcomes, including acceptability, adoption, appropriateness, feasibility, fidelity, cost, penetration, and sustainability.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 24/04/2026, Human Sciences Ethics Committee of the University of Jyväskylä (University of Jyväskylä PO Box 35, Jyväskylä, FI-40014, Finland; +358 (0)14 260 1211; tutkimusetiikka@jyu.fi), ref: 542/13.00.04.00/2026

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Active

Assignment
Parallel

Purpose
Prevention

Study type(s)

Health condition(s) or problem(s) studied
Cardiorespiratory fitness, physical activity and physical, mental, and social health and well-being among primary school children

Interventions
Current interventions as of 18/08/2026:

This study is a hybrid three-arm cluster randomized controlled trial conducted in 30 Finnish primary schools including approximately 1200 Grade 5 students (aged ~11 years), their teachers, school principals, and parents/guardians.
After recruitment, schools will be matched into sets based on baseline characteristics (previous fitness test results, school size, municipality type, and prior participation in the Finnish Schools on the Move programme). Randomisation will be conducted within matched sets (1:1:1 ratio) by an independent statistician using a computer-generated random number sequence, ensuring allocation concealment.

Schools will be randomized into three arms:
1. High implementation support
2. Low implementation support
3. Control (usual practice)

Intervention (arms 1 and 2):

All intervention schools will implement the PA4WELL whole-of-school physical activity intervention based on the WHO framework. The intervention includes six components:
(1) quality physical education,
(2) active travel to and from school,
(3) physical activity opportunities before and after school,
(4) physical activity during recess and lunch,
(5) physically active classrooms, and
(6) targeted physical activity support for students with additional needs.

The intervention engages multiple stakeholders within the school community. Teachers and principals are involved in planning and implementation processes, while parents/guardians are engaged through communication materials (e.g. parent meetings and newsletters) supporting children’s physical activity behaviours at home.

Implementation support:

1. High support arm: face-to-face and online support, including workshops for teachers, leadership support for principals, school visits, ongoing facilitation, and structured feedback.
2. Low support arm: online support only (digital materials, videos, and guidance via platform).
3. Control arm: no intervention or implementation support during the study period.

Duration and follow-up:
The intervention lasts 6 months and is implemented in two waves (2026-2027 & 2027-2028). Outcomes are assessed at baseline, post-intervention (7 months), and follow-up (19 months).

Where feasible, outcome assessors will be blinded to group allocation.

To minimize assessment bias, the research team will be organized so that members responsible for intervention coordination and implementation support will be separate from those conducting the post-intervention and follow-up assessments, who will remain blinded to group allocation.

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To minimize assessment bias, the research team will be organized so that members responsible for intervention coordination and implementation support will be separate from those conducting the post-intervention and follow-up assessments, who will remain blinded to group allocation.

Intervention Type
Behavioural

Primary outcome(s)
1. Cardiorespiratory fitness (students) measured using 20-metre shuttle run test (number of laps completed) at baseline, 7 months (post-intervention), and 19 months (follow-up)

Key secondary outcome(s)
Current key secondary outcome(s) as of 18/08/2026:

1. Physical activity (students) measured using Actigraph wGT3X-BT accelometer (7 days) at baseline, 7 months (post-intervention), and 19 months (follow-up)
2. Recovery during the day and sleep (students) measured using Firstbeat Bodyguard 3 heart rate variability measurement (5 days) at baseline, 7 months (post-intervention), and 19 months (follow-up)
3. Well-being (students) measured using WHO-5 Well-Being Index at baseline, 7 months (post-intervention), and 19 months (follow-up)
4. Mental and social health (students) measured using Strengths and Difficulties Questionnaire (SDQ) at baseline, 7 months (post-intervention), and 19 months (follow-up)
5. School engagements (students) measured using Study Engagement Scale at baseline, 7 months (post-intervention), and 19 months (follow-up)
6. Study burnout (students) measured using Study Burnout Inventory at baseline, 7 months (post-intervention), and 19 months (follow-up)
7. Self-reported physical activity (students) measured using Two-item physical activity questionnaire at baseline, 7 months (post-intervention), and 19 months (follow-up)
8. Perceived physical competence (students) measured using Sport competence subscale of the Physical Self-Perception Profile at baseline, 7 months (post-intervention), and 19 months (follow-up)
9. Body mass index (students) measured using weight and height at baseline, 7 months (post-intervention), and 19 months (follow-up)
10. Parental support for children’s physical activity (guardians) measured using Family Physical Activity Environment questionnaire at baseline, 7 months (post-intervention), and 19 months

(follow-up)
11. Implementation of whole-of-school physical activity components (teacher) measured using number of whole-of-school physical activity components implemented during previous month at the 6-month intervention period (assessed at months 2, 3, 4, 5, 6 and 7, reflecting implementation during the preceding month)
12. Teachers' capability, opportunity, and motivation to implement the intervention measured using COM-PASS scale at baseline, 7 months (post-intervention), and 19 months (follow-up)
13. intervention cost-effectiveness measured using cost per student and cost per additional lap completed in the 20 m shuttle run test at 7 months (post-intervention)
14. implementation outcome: acceptability, measured using questionnaire (teachers) and thematic interview (principals) at 4 months (in the middle of the intervention) and 7 months (post-intervention) from teachers, 7 months (post-intervention) from principals
15. implementation outcome: adoption, measured using questionnaire (teachers) and thematic interview (principals) at 4 months (in the middle of the intervention) and 7 months (post-intervention) from teachers, 7 months (post-intervention) from principals
16. implementation outcome: appropriateness, measured using questionnaire (teachers) and thematic interview (principals) at 7 months (post-intervention) from teachers and principals
17. implementation outcome: implementation cost, measured using questionnaire (teachers) and thematic interview (principals) at 7 months (post-intervention) from teachers and principals
18. implementation outcome: feasibility, measured using questionnaire (teachers) and thematic interview (principals) at 4 months (in the middle of the intervention) and 7 months (post-intervention) from teachers, 7 months (post-intervention) from principals
19. implementation outcome: fidelity, measured using diary (teachers) at every month during the intervention
20. implementation outcome: penetration, measured using questionnaire (teachers and principals) at 19 months (follow-up)
21. implementation outcome: sustainability, measured using number of whole-of-school physical activity components implemented (questionnaire for teachers and principals) at 19 months (follow-up)

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Previous key secondary outcome(s):

1. Physical activity (students) measured using Actigraph wGT3X-BT accelometer (7 days) at baseline, 7 months (post-intervention), and 19 months (follow-up)
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11. Implementation of whole-of-school physical activity components measured using number of components implemented in previous month at 7 months (post-intervention), and 19 months (follow-up)
12. Teachers' capability, opportunity, and motivation to implement the intervention measured using COM-PASS scale at baseline, 7 months (post-intervention), and 19 months (follow-up)

Completion date
31/05/2029

Eligibility

Key inclusion criteria
1. Grade 5 students (typically aged 11-12 years) enrolled in participating primary schools in Central Finland
2. Primary schools in Central Finland with Grade 5 classes
3. Principals of participating primary schools in Central Finland
4. Grade 5 teachers and, where applicable, physical education (PE) teachers responsible for teaching PE to Grade 5 students in participating schools
5. Legal guardians of participating students

Healthy volunteers allowed
Yes

Age group
Child

Lower age limit
10 Years

Upper age limit
14 Years

Sex
All

Total final enrolment
960

Key exclusion criteria
1. Schools with combined classes (e.g. 5-6)
2. Special schools and teacher training schools
3. Schools with a specific focus on sports
4. Individuals unable to participate in study procedures or provide informed consent (for example, due to insufficient language proficiency)

Date of first enrolment
17/08/2026

Date of final enrolment
30/10/2027

Locations

Countries of recruitment
Finland

Study participating centre
Schools in Central Finland
-
Jyväskylä
Finland
40600

Sponsor information

Organisation
University of Jyväskylä

ROR
https://ror.org/05n3dz165

Funder(s)

Funder type

Funder Name
Jane ja Aatos Erkon Säätiö

Alternative Name(s)
Jane and Aatos Erkko Foundation, Jane och Aatos Erkkos stiftelse, J&AE

Funding Body Type
Private sector organisation

Funding Body Subtype
Trusts, charities, foundations (both public and private)

Location
Finland

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available