

Effect of physical active math and language lessons on the academic achievement of 7-10 year old (socially disadvantaged) children

Submission date 26/08/2015	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered
Registration date 27/08/2015	Overall study status Completed	<input type="checkbox"/> Protocol
Last Edited 25/02/2016	Condition category Nutritional, Metabolic, Endocrine	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

There are many benefits of taking part in physical activity for the body, but there is a good deal of evidence that it is also beneficial for the brain. Studies have shown that children who are physically active tend to perform better in the classroom at academic tasks, such as math and spelling. There have been a number of studies which have shown that physical activity can have a positive effect on academic performance in lessons afterwards. The combination of physical activity and academic learning in the classroom, however, may be an innovative way of improving academic results. The aim of this study is to investigate the effects of a physically active academic intervention on academic achievement, academic engagement (how well they are engaging with what they are learning), executive functioning (the ability to analyse, plan, organise, adjust and complete tasks) and the physical fitness of children.

Who can participate?

Children from second and third grades of mainstream elementary schools in the Northern Netherlands.

What does the study involve?

At each school a second and third grade class are randomly assigned to the intervention or the control group. Children in the intervention group participate in physically active academic lessons in the class room 3 times per week, 22 weeks per year, for a period of two years. The control group participates in regular classroom lessons only for the duration of the study. The children's academic achievement, executive functioning and physical fitness is measured before the intervention starts, after the first and second intervention year and 7-9 months after the intervention ends. Children's time-on-task (time focusing on a specific task) is measured during the first intervention year.

What are the possible benefits and risks of participating?

Participants could potentially benefit from an improvement of academic achievement, physical

fitness, executive functioning and academic engagement by participation in the physical active academic lessons. There are no significant risks of participating, although there is a possibility of muscle pain in relation to the physical activity.

Where is the study run from?

1. Public Education Group Groningen (Netherlands)
2. Christian Education Association Groningen (Netherlands)
3. Catholic Education Central (Netherlands)
4. Association of Christian education East (Netherlands)
5. Municipality Hoogezand (Netherlands)

When is the study starting and how long is it expected to run for?
January 2011 to July 2015

Who is funding the study?
Ministry of Education, Culture and Science (Netherlands)

Who is the main contact?
Mrs Marijke Mullender-Wijnsma

Contact information

Type(s)

Public

Contact name

Mrs Marijke Mullender-Wijnsma

Contact details

Antonius Deusinglaan 1
Groningen
Netherlands
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Additional identifiers

Protocol serial number

ODB10015

Study information

Scientific Title

Effect of physical active math and language lessons (Fit & Vaardig op school) on the academic achievement of 7-10 year old (socially disadvantaged) children

Acronym

F&V

Study objectives

Primary:

The F&V intervention improves the academic achievement of (socially disadvantaged) children

Secondary:

1. The F&V intervention improves the academic engagement of elementary school children
2. The F&V intervention improves the executive functioning of elementary school children
3. The F&V intervention improves the physical fitness of elementary school children

Ethics approval required

Old ethics approval format

Ethics approval(s)

Ethical Committee of the Center for Human Movement Sciences of the University Medical Center Groningen/University of Groningen, 30/05/2012, ECB/15052012/4

Study design

Multi-centre cluster randomized controlled trial.

Primary study design

Interventional

Study type(s)

Quality of life

Health condition(s) or problem(s) studied

Academic achievement gap, physical inactivity and obesity

Interventions

Intervention group:

Physical active academic lessons in the classroom. The intervention lessons were taught in the classroom during two school years, 22 weeks per year, three times a week for 20-30 minutes. In each lesson, 10-15 minutes are spent on math activities and 10-15 minutes on language activities. Each lesson is supported by a presentation on the interactive whiteboard. The physical exercises are aimed at moderate to vigorous intensity. For example, the children jump on the spot eight times to solve the multiplication sum "2x4".

Control group:

Regular sedentary classroom lessons.

Intervention Type

Behavioural

Primary outcome(s)

Academic achievement is measured by the Speed-Test-Arithmetic, the One-Minute-Test (reading), and the spelling and math tests from a child academic monitoring system (CAMS) before the start of the intervention (T0), after the first intervention year (eight months to one year after T0; T1) after the second intervention year (one year after T1; T2), and 7-9 months after the intervention (T3).

Key secondary outcome(s)

1. Physical fitness is measured using the EUROFIT physical fitness test battery before the start of the intervention (T0), after the first intervention year (eight months to one year after T0; T1) after the second intervention year (one year after T1; T2), and 7-9 months after the intervention (T3).
2. Executive functioning is measured using the Stroop test, Digit and Visual memory span (part of Wechsler Memory Scale Revised), and M-WCST before the start of the intervention (T0), after the first intervention year (eight months to one year after T0; T1) after the second intervention year (one year after T1; T2), and 7-9 months after the intervention (T3).
3. Academic engagement is measured by time-on-task observations in the classroom, during the first intervention year.

Completion date

01/07/2015

Eligibility

Key inclusion criteria

1. Children from second and third grades of mainstream elementary schools
2. Informed consent from the school principals

Participant type(s)

Other

Healthy volunteers allowed

No

Age group

Child

Sex

All

Key exclusion criteria

Special schools (schools catering for children who have special educational needs due to learning difficulties, physical disabilities or behavioural problems).

Date of first enrolment

01/01/2011

Date of final enrolment

01/07/2012

Locations

Countries of recruitment

Netherlands

Study participating centre

Public Education Group Groningen (Openbaar Onderwijs Groep Groningen)

Leonard Springerlaan 39

Groningen

Netherlands

9727 KB

Study participating centre

Christian Education Association Groningen (Vereniging Christelijk Onderwijs Groningen)

Eenrumermaar 4

Groningen

Netherlands

9735 AD

Study participating centre

Catholic Education Central (Katholieke Onderwijs Centrale)

Groningen

Netherlands

9701 BL

Study participating centre

Association of Christian education East-Groningen (Vereniging christelijk onderwijs Oost-Groningen)

Scholtenswijk 10

Groningen

Netherlands

9665 KN

Study participating centre

Municipality Hoogezand (Gemeente Hoogezand)

Gerecht-Oost 157

Hoogezand

Netherlands

9600 AB

Sponsor information

Organisation

University of Groningen, University Medical Center Groningen, Center for Human Movement Sciences (Netherlands)

Organisation

University of Groningen, Groningen Institute for Educational Research (Netherlands)

Organisation

University Medical Center Groningen

ROR

<https://ror.org/03cv38k47>

Funder(s)

Funder type

Government

Funder Name

Ministry of Education, Culture and Science (Ministerie van Onderwijs, Cultuur en Wetenschap)

Alternative Name(s)

Ministry of Education, Culture and Science, Netherlands, OCW

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

Netherlands

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/10/2014		Yes	No
Results article	results	19/04/2015		Yes	No
Results article	results	01/02/2016		Yes	No