Research Linking Physical Education to Improved Thinking and Learning in School

Centre for Movement, Occupational and Rehabilitation Sciences (MOReS), Oxford Brookes University, UK:
Helen Dawes, Nick Beale (corresponding author nbeale@brookes.ac.uk) Emily Curtis, Emily Plester, Emma Eldridge, Andy Meaney, Jack Possee, Catherine Wheatley
Wellcome Centre for Integrative Neuroimaging, FMRIB, University of Oxford, UK:
Thomas Wassenaar, Piergiorgio Salvan, Heidi Johansen-Berg

BACKGROUND

We know that physical activity is good for our bodies, but is it also good for the adolescent brain? and might this lead to better academic results?

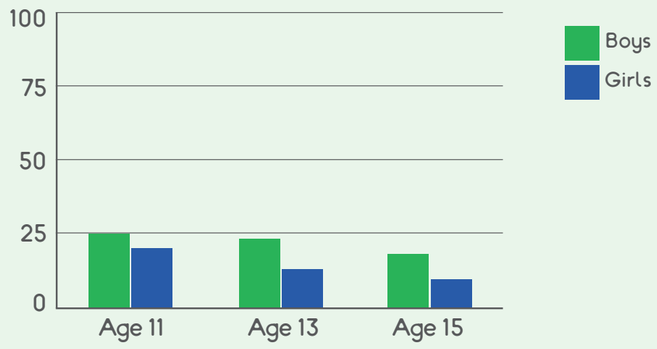
Growing evidence from neuroscience suggests that physical exercise can promote cell growth, and new connections, in the brain.

Some findings suggest that **physical activity (PA) can improve cognitive function** such as memory and attention, and perhaps boost academic attainment.

There is a dramatic decline in physical activity during adolescence, for many reasons, including social anxiety and new interests.

PE teachers are in a powerful position to address these issues, by promoting and delivering PA in school.

Percentage of adolescents meeting daily PA guidelines



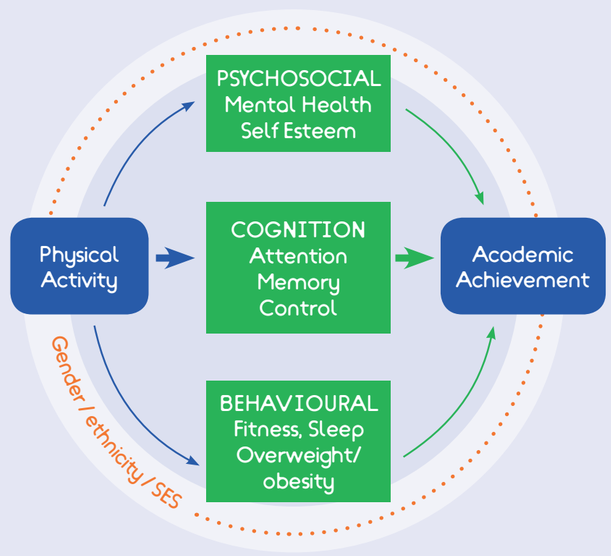
AIM

Fit to Study is a randomised controlled study, involving 100 state-funded secondary schools for a period of one academic year (September 2017 to July 2018).

It will rigorously test the impact on academic performance, fitness, wellbeing and cognitive function, of a teacher training intervention designed to optimise the content of PE for brain and cognitive function, during Year 8 PE lessons.

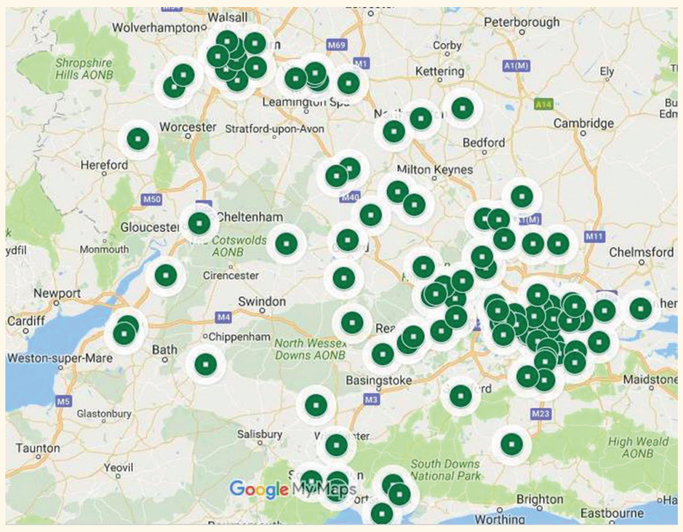
The ultimate aim is to provide robust evidence to policy makers on the relationship between PE and academic performance.

AREA OF INTEREST



We will test how effects of PA on academic attainment are mediated.

STUDY AREA

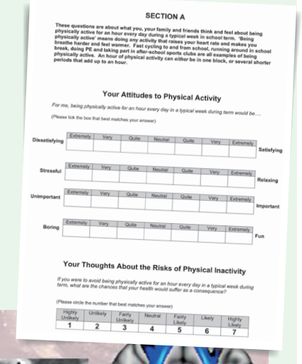


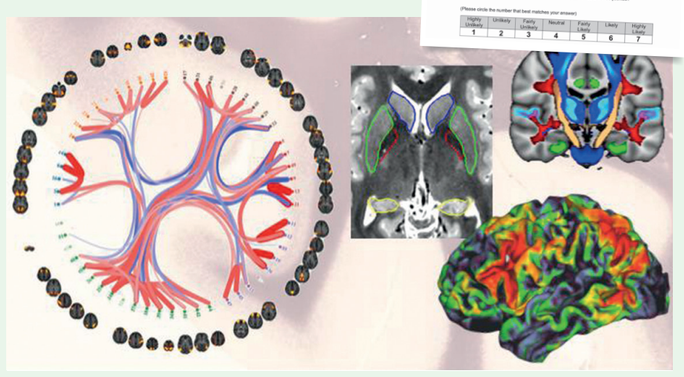
We have recruited 100 schools from South/Mid-England.

TEACHER TRAINING

PE teachers in 50 schools will be trained to deliver modified PE lessons.

Teachers in 50 Control Schools will deliver PE as usual.





MECHANISMS & METHODS

2017: MAY JUN JUL AUG SEP OCT NOV DEC
2018: JAN FEB MAR APR MAY JUN JUL

BASELINE ASSESSMENTS
Pupils complete cognitive tests and wellbeing questionnaires, Researchers monitor physical activity, PE teachers administer fitness assessments.

RANDOMISATION

TEACHER TRAINING
PE teachers from Intervention schools attend a 2-hour training session.

FIT TO STUDY RUNS — **Intervention Schools** deliver modified PE lessons and teachers complete simple lesson logs, while **Control Schools** deliver PE as usual. Researchers visit to support and assess.

FIT TO STUDY ASSESSMENTS

AUTUMN TERM: PE teachers administer fitness assessments. Researchers monitor physical activity. Height, weight and movement assessment.

SPRING TERM: Researchers monitor physical activity.

SUMMER TERM: Post-study assessments. Height, weight and movement assessment.

NATCEN INDEPENDENT EVALUATION RUNS — Two short surveys. Researchers observe PE lessons. Teachers interviewed about the programme. Maths attainment test (at the end of the year).

POST-STUDY ASSESSMENTS
Pupils complete cognitive tests and wellbeing questionnaires, Researchers monitor physical activity, PE teachers administer fitness assessments.

Computer tests of memory and attention to explore the impact of PA on cognition.

Questionnaire to examine associations between PA and **wellbeing**, **mental health**, **sleepiness** in school.

Multi-stage fitness test to measure fitness.

Physical activity monitoring during PE using AX3 accelerometers.

Height, **weight** and **movement** assessment.

Academic attainment in maths – as measured by the Level 13 Progress in Maths test, provided by GL assessment at the end of the school year.

Up to 20,000 pupils measured before and after the intervention.

A smaller number of pupils from a subset of schools will participate in a **brain imaging sub-study**. This will involve a brain scan, as well as additional fitness and computer-based challenges.

RESULTS IN 2018!

01865 482752 @Fit_to_Study
fittostudy@brookes.ac.uk
www.fit-to-study.org

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