

Intense exercise during school day can sharpen pupil minds, study shows

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Pupils undertook sprints before being challenged to cognitive function tests

Sprint-based exercises during the school day can improve pupil performance in the classroom, new research suggests.

A study led by sport scientists at Nottingham Trent University found that [response times](#) among adolescent [pupils](#) became significantly faster – but remained just as accurate – post-exercise.

The work, published in the journal *Preventive Medicine Reports*, saw 12-year-old pupils undertake 10 x 10 second sprints, interspersed by 50 seconds of walking, before requiring them to undertake classroom-based cognitive function tests.

Pupils also performed the tests without exercise as part of a 'resting trial'.

The researchers found that pupils' response times improved by about five percent when performing the 'Stroop test' following exercise. The test measures attention by challenging participants to respond with the colour a word is written in, rather than the word itself – for instance if the word green is written in blue font, then blue is the correct response.

The effect was evident immediately after exercise – despite pupils reporting physical tiredness on a mood questionnaire – and remained 45 minutes after exercise.

The study – led by scientists in the university's School of Science and Technology – was the first to examine the effects of sprint-based exercise on cognitive function among adolescents.

Researchers argue the findings could provide a springboard for schools and [school](#) policymakers to incorporate more opportunities for physical activity – such as active break times and physical education classes – during the school day, as a way of optimising learning.

"This study is the first to demonstrate enhanced cognitive function following sprint-based exercise in young people," said lead researcher Dr Simon Cooper, a senior lecturer in sport science at Nottingham Trent University.

He said: "This is of particular interest, given that bursts of high intensity exercise, interspersed with rest, is an activity pattern which is common among adolescents.

"Our findings are of great importance to schools, demonstrating the importance of PE in the curriculum, and support the inclusion of high-

intensity sprint-based exercise for adolescent pupils during the school day.

"We know the physical, social and emotional benefits that [exercise](#) can bring – and this study suggests that high-intensity physical activity could also enhance academic achievement among adolescents by improving cognitive function."

The study also involved Loughborough University's School of Sport, Exercise and Health Sciences.

More information: Simon B. Cooper et al, Sprint-based exercise and cognitive function in adolescents, *Preventive Medicine Reports* (2016).
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Provided by Nottingham Trent University

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