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Does a 10-week school flag football programme improve fitness in 9–11-year-old children in Shanghai, China?

Submission date
28/01/2026

Recruitment status
No longer recruiting

Registration date
04/02/2026

Overall study status
Completed

Last Edited
19/06/2026

Condition category
Other

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Flag football is a non-contact form of American football that focuses on running, passing and teamwork. This study looked at whether taking part in a school-based flag football programme could improve physical fitness in children aged 9 to 11 years. The study aimed to see whether this type of school-based physical activity programme could help improve children's fitness and support healthy development.

Who can participate?
Children aged 9 to 11 years from a public primary school in Shanghai, China.

What does the study involve?
Participants were randomly assigned to either take part in a 10-week flag football programme during their regular physical education classes or to continue with their usual physical education lessons. The flag football programme took place twice a week and was taught by trained physical education teachers.
Physical fitness, including speed, strength, flexibility and coordination were measured before the programme started and again after it finished.

What are the possible benefits and risks of participating?
Benefits and risks not provided at time of registration

Where is the study run from?
Shanghai University of Sport, China.

When is the study starting and how long is it expected to run for?
September 2017 to June 2018.

Who is funding the study?
1. Science and Technology Commission of Shanghai Municipality, China.
2. Shanghai Oriental Talent Program, China.
3. Shanghai University of Sport Graduate Student Research Fund, China.

Who is the main contact?
Prof Jie Zhuang, zhuangjiesh@163.com

Contact information

Type(s)
Public, Scientific, Principal investigator

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Study information

Scientific Title
Impact of a school based flag football intervention on fitness outcomes in chinese children aged 9 to 11 years: a randomized controlled trial

Acronym
FLAG-FIT (China)

Study objectives
To examine the effects of a 10-week school-based flag football intervention on physical fitness outcomes in Chinese children aged 9 to 11 years, compared with usual physical education classes.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 01/11/2016, Shanghai University of Sport Scientific Research Ethics Committee (650 Qingyuanhuan Rd, Yangpu District, Shanghai, 200438, China; +86 21 65507393; lunli@sus.edu.cn), ref: 2016223

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Open (masking not used)

Control
Active

Assignment
Parallel

Purpose
Prevention

Study type(s)

Health condition(s) or problem(s) studied
Physical fitness and prevention of physical inactivity in school-aged children

Interventions
Participants were randomly allocated in a 1:1 ratio to either the school-based flag football intervention or the control condition. The allocation sequence was generated by an independent researcher using a computer-generated random number list, and allocation was concealed using sequentially numbered, opaque, sealed envelopes opened only after baseline assessments were completed. Randomisation was conducted within classes to minimise disruption to teaching. Blinding of participants and instructors was not possible because of the nature of the intervention; however, outcome assessments were conducted by trained postgraduate students who were independent of intervention delivery and were not informed of allocation whenever feasible. The intervention comprised a structured 10-week flag football programme delivered during regular physical education classes, with two sessions per week. Sessions followed a standardised lesson plan including warm-up activities, skill development drills and small-sided games, delivered by trained physical education teachers using a standard curriculum. The control group continued usual physical education classes delivered by the school, with no additional structured flag football activities provided by the research team.

Intervention Type
Behavioural

Primary outcome(s)
1. Physical fitness measured using standardized field-based fitness tests, including 50-m sprint (speed), standing long jump (lower limb power), sit-and-reach test (flexibility), and timed rope skipping (coordination and endurance) at baseline (week 0) and post-intervention (week 10)

2. Body mass index (BMI), calculated as weight in kilograms divided by height in meters squared (kg/m^2), measured using standard methods at baseline (week 0) and post-intervention (week 10)

Key secondary outcome(s)

Completion date
30/06/2018

Eligibility

Key inclusion criteria
1. Children enrolled in grades 3 to 5 in a public primary school
2. Aged 9 to 11 years at baseline
3. Able to participate in moderate-to-vigorous physical activity
4. Written informed consent obtained from parents or legal guardians
5. Assent provided by the child

Healthy volunteers allowed
Yes

Age group
Child

Lower age limit
9 Years

Upper age limit
11 Years

Sex
All

Total final enrolment
147

Key exclusion criteria
1. Physician-diagnosed chronic disease
2. Musculoskeletal or neurological disorders limiting participation in running or jumping activities
3. Any other medical condition judged by the school physician or research team to make participation unsafe

Date of first enrolment
01/09/2017

Date of final enrolment
30/09/2017

Locations

Countries of recruitment
China

Study participating centre
Public primary school in Shanghai
-
Shanghai
China
200438

Sponsor information

Organisation
Shanghai University of Sport

ROR
https://ror.org/0056pyw12

Funder(s)

Funder type

Funder Name
Science and Technology Commission of Shanghai Municipality

Alternative Name(s)
Shanghai Municipal Science and Technology Commission, Shanghai Science and Technology Committee, Shanghai Science and Technology Commission, , STCSM

Funding Body Type
Government organisation

Funding Body Subtype
Local government

Location
China

Funder Name
Shanghai Oriental Talent Program

Funder Name
Shanghai University of Sport Graduate Student Research Fund

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		18/06/2026	19/06/2026	Yes	No