ISRCTN10244024 https://doi.org/10.1186/ISRCTN10244024

Can a school-based lunchtime physical activity program improve mental health among autistic adolescents and their peers with ADHD in Hong Kong?

Submission date
25/08/2026

Recruitment status
No longer recruiting

Registration date
27/08/2026

Overall study status
Completed

Last Edited
27/08/2026

Condition category
Mental and Behavioural Disorders

[ ] 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

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Principal investigator, Scientific, Public

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Additional identifiers

Research Grants Council project number
14619720

Study information

Scientific Title
A cluster randomised controlled trial of a 12-week school-based lunch break physical activity intervention versus usual school practice for improving mental health and reducing risk behaviours in autistic adolescents and their peers with attention-deficit/hyperactivity (ADHD) in Hong Kong

Study objectives
1. Examine the immediate, short- and longer-term effects of a school-based physical activity intervention on mental health (psychological ill-being: stress, anxiety, depression; psychological well-being: resilience, self-concept) and risk behaviours (aggression, suicidal ideation) in autistic adolescents and their peers with ADHD.
2. Assess the potential influence of moderating variables (gender, neurodevelopmental disorder [NDD] types) on the intervention effects.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 15/01/2021, Joint Chinese University of Hong Kong New Territories East Cluster Clinical Research Ethics Committee (8/F, Lui Che Woo Clinical Sciences Building Prince of Wales Hospital Shatin, Hong Kong, 000000, Hong Kong; +852 (0)35053935; crec@cuhk.edu.hk), ref: 2020.451

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
Autism; attention-deficit/hyperactivity disorder (ADHD); adolescent mental health, including stress, anxiety, depression, resilience and self-concept; aggression and suicidal ideation

Interventions
The 12 participating secondary schools will be randomly allocated within geographic territory, using cluster randomisation at the school level, to either the school-based physical activity programme or a usual-practice control condition. Participants will enter the group allocated to their school and will not be individually randomised.

Participants in intervention schools will attend group-based physical activity sessions in a school hall or gymnasium during lunch breaks. Each session will last 15 minutes and will be delivered three times per week for 12 weeks, providing 36 sessions and 540 minutes of physical activity in total. A certified fitness instructor, assisted by a trained research assistant, will deliver the sessions at an approximate staff-to-participant ratio of 1:10. Sessions will include moderate-intensity aerobic activities such as jumping, skipping and jogging. Participants will exercise at approximately 50% to 60% of their estimated maximum heart rate, calculated as 220 minus age, and their exercise intensity will be monitored using a Polar heart-rate monitor.

Participants in control schools will receive no additional physical activity programme during the 12-week period and will continue their regular school routines and usual practices.

All participants will complete assessments at baseline, immediately after the 12-week intervention, 3 months after the intervention and 12 months after the intervention. Outcome assessors will be blinded to school allocation and participants' diagnostic group. Participants will be involved in the study for approximately 15 months.

Teachers in intervention schools will also receive two 3-hour training workshops, a training manual and access to educational materials and instructional videos to support future programme delivery.

Intervention Type
Behavioural

Primary outcome(s)
1. Psychological ill-being (stress, anxiety, depression) measured using the Chinese Depression Anxiety Stress Scale-21 (DASS-21) at baseline (T0), immediately after the 12-week intervention (T1), 3 months after the intervention (T2) and 12 months after the intervention (T3)

2. Stress biomarker (salivary cortisol levels) measured using cortisol ELISA kit at baseline (T0), immediately after the 12-week intervention (T1), 3 months after the intervention (T2) and 12 months after the intervention (T3)

3. Psychological well-being (self-concept) measured using the Physical Self-Description Questionnaire (PSDQ) at baseline (T0), immediately after the 12-week intervention (T1), 3 months after the intervention (T2) and 12 months after the intervention (T3)

Key secondary outcome(s)
1. Aggression measured using the Chinese 12-item Aggression Questionnaire (AQ) at baseline (T0), immediately after the 12-week intervention (T1), 3 months after the intervention (T2) and 12 months after the intervention (T3)

2. Suicidal ideation measured using the Chinese version of the Reynolds Suicidal Ideation Questionnaire (SIQ) at baseline (T0), immediately after the 12-week intervention (T1), 3 months after the intervention (T2) and 12 months after the intervention (T3)

Completion date
31/12/2023

Eligibility

Key inclusion criteria
1. Aged 12 to 18 years at enrolment and attending Forms 1 to 6.
2. Attending one of the participating co-educational mainstream secondary schools in Hong Kong.
3. Has a clinical diagnosis of autism or ADHD, including a possible co-occurring diagnosis, according to DSM-5 criteria. Confirm the acceptable diagnostic documentation and who verifies eligibility.
4. Provides participant assent and consent and has written parent or guardian consent in accordance with the approved ethics documents.

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
12 Years

Upper age limit
18 Years

Sex
All

Total final enrolment
170

Key exclusion criteria
1. Neurological impairment that prevents or materially limits safe participation in the intervention or assessments.
2. Intellectual impairment that prevents participation under the protocol.
3. Any other medical condition that limits participation in the physical activity programme.

Date of first enrolment
15/05/2021

Date of final enrolment
31/12/2022

Locations

Countries of recruitment
Hong Kong

Study participating centre
Department of Sports Science and Physical Education, The Chinese University of Hong Kong
Shatin, New Territories, Hong Kong SAR, China.
Hong Kong
Hong Kong
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Sponsor information

Organisation
Chinese University of Hong Kong

ROR
https://ror.org/00t33hh48

Funder(s)

Funder type

Funder Name
Research Grants Council, University Grants Committee

Alternative Name(s)
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Funding Body Type
Private sector organisation

Funding Body Subtype
Universities (academic only)

Location
Hong Kong

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available