

Adolescent School-based Health Intervention Curriculum Project

———Brief Description of Intervention Effectiveness

Study: *Study on the Effectiveness of a School-Based Fat*

Reduction Program for Adolescents



Aiyoudong Children and Youth Sports Health Research Institute

Gaoxin District, Weifang City, Shandong Province, China

1th August 2022

Study Protocol

A total of 100 secondary school students aged 13-15 years were randomly divided into an intervention group and a control group.

The intervention group received 12 weeks of exercise and calorie restriction intervention, while the control group did not receive any intervention.

Measurements of body weight, BMI, body fat percentage, exercise quality, self-esteem, exercise self-efficacy, physical activity and salivary testosterone were taken before, 12 weeks after the intervention and 12 weeks after the cessation of the intervention.

During the implementation of the intervention, the privacy and rights of the subjects will be strictly protected and informed consent will be obtained from the subjects and their parents.

Test methods:

1. Physiological indicators.

Body composition analysis: Body fat percentage, body fat mass and lean body mass will be measured by Inbody 3.0.

2. Psychological parameters: Questionnaire measurement

Questionnaire: Measurement of psychological indicators by means of a questionnaire.

3. Physical Fitness Tests

Spirometry: Measurement of lung capacity using a spirometer to calculate spirometry/body mass index to assess lung health.

Physical Fitness Test: Vertical Jump

Vertical jump: Reflects explosive power and co-ordination, 3 jumps are performed to obtain the maximum value.

4 x 10 metres round trip: reflects speed and agility, complete 2 round trips.

50 metre run: reflects explosive power.

1000m run (men) and 800m run (women): reflects muscular endurance and cardiorespiratory endurance.

Kneeling Push-ups: assesses upper body strength and records the number of reps completed.

Kneeling Plank Support: Assesses core stability and muscular endurance.

Prone Back Raise: To assess the quality of the back and to record the rising time.

4. Biological indicators.

Saliva collection and testing.

Saliva was collected 2 h after a meal using a special saliva collection tube.

Before collection, the subject rinses his/her mouth with 20mL of saline and holds the saliva naturally for a few minutes, then the operator places the sterilised saliva collection tube on the subject's lower lip to allow the saliva to flow in naturally, and collects a 3ml sample of non-irritating saliva.

Dry ice was used to maintain the temperature for transport to the testing facility for testing.

5. Physical Activity

The Actigraph GT3X+ was used and the default sampling frequency of the device was set at 30Hz; subjects wore the Actigraph device and it was secured to the left wrist and subjects were asked to wear the accelerometer throughout the day for at least four days of recording.

Statistical Analysis Plan

Independent samples t-test or Mann-Whitney test was used to compare the data between different groups and before and after the intervention to determine the significance of the differences.

Informed Consent Form

Parent Information Page

Dear Parents,

The school's recent physical fitness test revealed high rates of overweight and obesity among students across all grades. Recognizing the impact of overweight and obesity on the physical and mental development of children and adolescents, the school is offering a free 12-week weight management training program. All intervention instructions were supervised by the China Institute of Sport Science.

This program requires three health checks: before the training, after the training, and three months after the training. The health checks will include body composition analysis, physical fitness tests, physical activity and saliva collection.

Risk Information

- a) Risks of Physical Examination: While physical examinations are generally safe, there may be minor side effects such as fluctuations in blood pressure, dizziness, or slight pain.
- b) Risks of Saliva Collection: Saliva collection is usually painless, but there may be slight discomfort or irritation in the mouth.
- c) Data Security Risks: We will take reasonable measures to protect the privacy of participants, including the use of anonymized data, data encryption, and strict data access controls.

Response Measures

- a) We will ensure that all healthcare professionals involved in the physical examinations are qualified professionals.
- b) Participants can ask questions or express concerns to researchers at any time.
- c) If any adverse reactions occur, we will immediately take necessary measures to deal with them.
- d) We will strictly comply with relevant laws and regulations on data protection to protect the privacy of participants.

Data Confidentiality

- a) We will anonymize all participant data and use only aggregated data for analysis. We will not disclose any personal information.
- b) We will store all data on secure servers and implement strict access control measures to ensure data security.

Right to Withdraw

- a) You have the right to withdraw from the study at any stage without any negative consequences.
- b) If you choose to withdraw from the study, we will stop collecting your data and will not use the data you previously provided.
- c) You can express your intention to withdraw by contacting the researchers.

If you consent to your child's participation, please sign below.

Signature Page

I have read and understood the content of this informed consent form. I understand the significance of the tests and my rights and obligations. I and my child voluntarily agree to participate in this research study. The results of this study may be used for scientific research purposes.

Research Registration Number: Basic 2334

Researchers: Xiang Pan, et al.

This statement confirms that I have read the above informed consent form and understand the nature of this research. I and my child voluntarily agree to participate in this scientific research.

Guardian Signature: Relationship to Child: ☐ Father ☐ Mother

Student Signature:

Gender:

Guardian Contact Number: Email Address:

Date: