

Determinants of adolescent exercise behaviour: the psychological response to exercise.

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1. Test the hypothesis that individual differences in the psychological response to exercise are the major factors underlying heritability of adolescent exercise behavior. 1a. establish the heritability of the acute psychological responses during and...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON36422

Source

ToetsingOnline

Brief title

Psychological response to exercise

Condition

- Other condition

Synonym

regular exercise behavior

Health condition

gezondheidsgedrag

Research involving

Human

Sponsors and support

Primary sponsor: Vrije Universiteit

Source(s) of monetary or material Support: National Institute of Health;USA

Intervention

Keyword: Exercise, Fitness, Mood, Twins

Outcome measures

Primary outcome

Multiple measures of the acute mood/fatigue responses to exercise at various intensity levels.

Secondary outcome

1) three objective measures of exercise ability: aerobic fitness, explosive strength and the ventilatory threshold, 2) Quetelet index and general health, 3) Attitudes on exercise

Study description

Background summary

Rationale: Regular leisure-time exercise is a key contributor to health whereas a sedentary lifestyle is cited as one of the main causes of the observed rise in BMI and its related disorders. Despite its well-known benefits, regular leisure-time exercise behavior drops from childhood to adolescence and reaches unacceptable low proportions in adulthood, with the majority of people not engaging in regular exercise at the recommended level. Current intervention programs still largely adopt a *one-size fits all* strategy that assumes that the determinants of leisure-time exercise behavior are the same across all adolescents, and that they are mostly of social and environmental origin. This ignores the overwhelming recent evidence that genetic factors also play an important role in voluntary exercise behavior. We hypothesize that genetic effects on the acute mood

responses to exercise are key determinants of adolescent exercise behavior.

Study objective

1. Test the hypothesis that individual differences in the psychological response to exercise are the major factors underlying heritability of adolescent exercise behavior.

1a. establish the heritability of the acute psychological responses during and after a standardized exercise protocol.

1b Test the causality in the association between the acute psychological response to exercise and exercise behavior, and establish the contribution of genetic factors to this association.

Study design

This study will include assessment of their exercise ability (aerobic fitness and muscle strength) and the psychological response to various types of exercise. In the laboratory protocol all subjects will be tested between 10 pm and 16 pm. Briefly, the twins/siblings will perform 20 minutes of exercise on an electrically braked bicycle ergometer and 20 minutes of exercise on a treadmill ergometer at fixed loads that are typical below the intensity of the ventilatory threshold for most adolescents. To ensure this, heart rate will be monitored continuously and load will be adjusted when necessary to keep the intensity at or below 70% of the estimated maximal heart rate. We will assess psychological state every 5 minutes during exercise and in a 10 minute post-exercise period of quiet sitting. In between ergometer and treadmill testing subjects will perform a standardized test of explosive leg muscle strength. At the end of the session a maximal exercise test will be used to establish peak VO_2max , which will allow us to convert the absolute workloads to relative percentages of VO_2max for each subject. The all-out test will be conducted on cycle ergometer with direct measurements of oxygen uptake (VO_2) carbon dioxide (VCO_2) output and minute ventilation (VE) as through a face-mask.

Study burden and risks

There can be risks associated with laboratory exercise testing in adolescents with suboptimal health. These adolescents will be excluded through a detailed anamnesis of both the child and the parents (children without at least one parent or families who refuse anamnesis will not be included).

There are no benefits for individual participants whose participation is completely voluntary. Many subjects participate because they expect to improve scientific understanding of important research questions the answer to which may benefit society. In this study such benefits are the identification of the factors that may predispose,

explain, and protect against the development of low levels of regular exercise behavior and their negative consequences for BMI and health in general. In addition, the proposed research may provide guidance in preventing and intervening these problems. The benefits of the new scientific information that will be acquired outweigh the small risks involved in this project.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

healthy adolescent twins and siblings aged 16-20 will be included provided that at least two members of the same family are willing to participate. The target composition of the sample

is 150 monozygote pairs plus 100 of their siblings and 50 dizygote pairs.

Exclusion criteria

adolescents aged 16-20 that have a physical handicaps, acute disease with fever, or a history of disease that would prevent them from taking a maximal exercise test (American Heart Association guidelines, 2002).

Study design

Design

Study type: Observational non invasive

Masking: Open (masking not used)

Control: Uncontrolled

Primary purpose: Prevention

Recruitment

NL

Recruitment status: Recruitment stopped

Start date (anticipated): 01-05-2011

Enrollment: 500

Type: Actual

Ethics review

Approved WMO

Date: 18-02-2011

Application type: First submission

Review commission: METC Amsterdam UMC

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL35034.029.10