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The short-term effects of watching consecutive episodes of a television show during treadmill walking on inactive students' exercise experience and plans

Submission date
14/02/2017

Recruitment status
No longer recruiting

Registration date
15/02/2017

Overall study status
Completed

Last Edited
16/02/2017

Condition category
Mental and Behavioural Disorders

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[_] Record updated in last year

Plain English summary of protocol

Background and study aims
Affective (emotional) responses to physical activity when near to the ventilatory threshold (the point breathing begins to increase at a faster rate than oxygen consumption) vary but can be improved by directing attention towards pleasant external stimuli (e.g., television). It is important to promote positive affective responses because they have shown to predict physical activity 6 and 12 months later, and low physical activity is associated with poor health. This study aims to recruit 38 physically inactive university or college students (engage in less than 150 minutes of moderate-to-vigorous physical activity per week) who intend to and are able to exercise, in order to find out whether watching consecutive episodes of a television show during treadmill walking can improve affective responses to physical activity near to the ventilatory threshold, and intention to pair television with exercise.

Who can participate?
Healthy but physically inactive university or college students, aged 18-35

What does the study involve?
The participants complete exercise and television-watching habit questionnaires, and their birthdate, weight, height and blood pressure are recorded. Participants perform an exercise stress test, which involves walking on a treadmill. Their heart rate is assessed before and during the exercise stress test using an electrocardiogram and their breathing is monitored using a gas mask. Participants perform a "mock" exercise test at a brisk pace after the exercise test, which involves walking on a treadmill. Participants' heart rate is assessed before and throughout using a chest heart rate monitor. Participants are divided according to their gender and BMI, and random samples are drawn and allocated to one of two groups: the experimental group and the control group. All participants perform two exercise tests on two days that are at least two days apart. Exercise tests involve walking on a treadmill with no incline at a slow pace for 5 minutes; with an incline at a brisk pace for 30 minutes; with no incline at a slow pace for 5 minutes; and sitting in a chair for 10 minutes. The heart rate is monitored using a chest heart rate monitor and

participants' feelings, attentional focus and enjoyment are assessed with the same scales as used in the "mock" exercise test, before, during and after the exercise test. Participants in both groups do the first exercise test without television. Participants in the experimental group do the second exercise test while watching television, while those in the control group do the test without television. All participants complete a questionnaire assessing their intention to watch consecutive episodes of the television show, while walking on a treadmill in the lab, within the next 2 weeks.

What are the possible benefits and risks of participating?
The exercise tests may increase participants' engagement in physical activity, which can improve health, physical capabilities and cognitive (mental) performance. All participants are at risk of muscle fatigue and soreness, falling, injury and cardiovascular (heart) events because the exercise tests involve moderate-to-vigorous physical activity, but warming up before hand, cooling down afterwards, gradually increasing exercise intensity and continuously monitoring heart rate will minimize these risks. Participants in the experimental group are at increased risk of falling during the second exercise test because they are watching television, but the provision of safety handles and handrails minimizes these risks.

Where is the study run from?
University of Western Ontario (Canada)

When is the study starting and how long is it expected to run for?
October 2016 to August 2017

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
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Contact information

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Protocol serial number
1

Study information

Scientific Title
The acute effects of a temptation bundle: watching consecutive episodes of a television during continuous aerobic exercise, on inactive students' affect and intention

Study objectives
Primary Hypotheses:
1. Watching consecutive episodes of a television show while walking on a treadmill at an intensity proximal to the ventilatory threshold will increase affective valence, perceived activation and enjoyment
2. Watching consecutive episodes of a television show while walking on a treadmill at an intensity proximal to the ventilatory threshold will direct attention towards the external focus (dissociation)

Secondary Hypothesis:
Participants in the experimental group will have a greater intention to watch consecutive episodes of a television show, while walking on a treadmill in the lab, within the next two weeks than control counterparts.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Not provided at time of registration

Study design
Single-centre randomised controlled trial

Primary study design
Interventional

Study type(s)
Other

Health condition(s) or problem(s) studied
Physical inactivity

Interventions
After completing the PAR-Q+ and signing the Information Letter and Consent form, participants will complete a Sociodemographic form, the Godin-Shepard Leisure-Time Physical Activity Questionnaire, and exercise and television-watching habit questionnaires. Participants' birth date, weight, height and blood pressure will be established to calibrate equipment and assure to their readiness to exercise. Participants will perform the exercise stress test to determine their ventilatory threshold, the point at which ventilation begins to increase at a faster rate than oxygen consumption, afterward. The exercise stress test will involve walking on a treadmill with no incline at 3.2km/h for 3 minutes; with no incline at 4.8 km/h for 3 minutes; with an increasing incline at 5.6km/h until the participants' respiratory exchange ratio attains or exceeds 1.1, reaches or exceeds their maximal heart rate, or reaches a plateau or peak oxygen consumption; and with no incline at a self-selected pace. During the exercise portion of this test, treadmill incline will be increased 2.5% after 6 minutes, and every 3 minutes thereafter. Participants will be familiarized with Borg's Rate of Perceived Exertion before the exercise stress test and use it to report their rate of perceived exertion 15 seconds before incline is changed. Heart rate will be assessed before and during the exercise stress test using an electrocardiogram, and oxygen inhalation and carbon dioxide exhalation will be monitored during the exercise stress test using a gas mask and metabolic cart. Once participants' maximal oxygen uptake has been confirmed, resulting values will be time averaged by 30 seconds to identify the ventilatory threshold. Participants will perform a "mock" exercise test at a brisk pace after the exercise test to establish the treadmill incline needed to elicit 90% of the oxygen volume associated with their ventilatory threshold, and to familiarize participants with assessment tools for primary and secondary outcomes. The "mock" exercise stress test will involve walking on a treadmill with no incline at a slow pace for 5 minutes; with an incline at a brisk pace for 6 minutes; with no incline at a slow pace for 5 minutes; and sitting in a chair for a short period of time. Participants will be familiarized with Feeling, Felt Arousal and Attention Scales, and the Physical Activity Enjoyment Questionnaire before the “mock” exercise test; these will be used to assess affective valence, perceived activation, attentional focus and enjoyment. Affective valence and perceived activation will be assessed before the “mock” exercise test, 15 seconds before the end of warm-up, 15 seconds before the 6th minute of exercise and 15 seconds before the end of cool-down. Attention will assessed 15 seconds before the end of warm-up, 15 seconds before the 6th minute of exercise, and 15 seconds before the end of cool-down. Enjoyment will be assessed immediately after exercise. Participants’ heart rate will be assessed before and throughout using a chest heart rate monitor.

Participants will be divided into four strata (normal male, overweight male, normal female and overweight female), and random samples will be draw from each stratum and allocated to experimental or control groups:
1. Participants in the control group will perform the first and second exercise test without the intervention (watching consecutive episodes of a television show)
2. Participants in the experimental group will perform the first exercise test without television and the second exercise test with television. More specifically, participants in the experimental group will watch 40 minutes of the second episode during warm-up (5 min), exercise (30 min) and cool-down (5 min) portions of the second exercise test on Netflix, an online television streaming service using the investigator's tablet. Participants in experimental group will not

watch the remainder of the second episode until after post-exercise test assessments have been completed. Exercise tests will take place at the same time on two separate days, at least 2 days apart. A Netflix account has been created so that participants can watch the first episode outside of the lab on an electronic device, with internet capabilities, in a Wi-Fi zone and consecutive episodes on the investigator's tablet in the lab.

All participants will perform two exercise tests proximal to the ventilatory threshold, on two days that are at least two days apart. Exercise tests will involve walking on a treadmill with no incline at a slow pace for 5 minutes; with an incline at a brisk pace for 30 minutes; with no incline at a slow pace for 5 minutes; and sitting in a chair for 10 minutes. The same tools will be used to assess affective valence, perceived activation, attentional focus and enjoyment, and monitor heart rate as in the “mock” exercise test. Affective valence and perceived activation will be assessed before the exercise test, 15 seconds before the end of warm-up, 15 seconds before the 6th, 12th, 18th, 24th and 30th minute of exercise, 15 seconds before the end of cool-down, and 10 minutes after exercise. Attentional focus will be assessed 15 seconds before the end of warm-up, 15 seconds before the 6th, 12th, 18th, 24th and 30th minute of exercise, and 15 seconds before the end of cool-down. Enjoyment will be assessed immediately after and 10 minutes after the exercise test. Participants’ heart rate will be assessed before and during exercise tests using a chest heart rate monitor. All participants will complete a questionnaire assessing their intention to watch consecutive episodes of the television show, while walking on a treadmill in the lab, within the next two weeks.

Intervention Type
Behavioural

Primary outcome(s)
1. Affective valence and perceived activation will be assessed using the Feeling Scale and Felt Arousal Scale before exercise tests, during the last 15 seconds of warm up, 15 seconds before the 6th, 12th, 18th, 24th and 30th minute of exercise, during the last 15 seconds of cool down, and 10 minutes after exercise tests
2. Enjoyment will be assessed using the Physical Activity Enjoyment Questionnaire immediately and 10 minutes after exercise
3. Attentional focus will be assessed using the Attention Scale during the last 15 seconds of warm-up, 15 seconds before the 6th, 12th, 18th, 24th and 30th minute of exercise, and during the last 15 seconds of cool down

Key secondary outcome(s))
Individuals' intention to watch consecutive episodes of a television show, while walking on a treadmill in the lab, within the next two week will be assessed using a questionnaire designed for the purpose of this study which prompts individuals to rate 6 items on bipolar Likert scales after the second exercise test.

Completion date
31/08/2017

Eligibility

Key inclusion criteria
1. English-speaking
2. Student at a post-secondary institution in London, Ontario
3. 18-35 years of age

4. Physically inactive (engage in less than 150 minutes of moderate-to-vigorous physical activity per week)
5. Engages in exercise less than 2 times per week
6. Intends to begin exercising regularly in the near future

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
35 years

Sex
All

Key exclusion criteria
1. Self-reported cardiovascular, respiratory, musculoskeletal, metabolic or mental health condition (e.g. depression, anxiety)
2. Another ailment or injury restricting physical activity
3. Pregnant
4. Obese (body mass index equal to or greater than 30 kg/m^2)
5. Taking medication
6. Moderate to severe vision, hearing or cognitive impairment
7. Answers "yes" to one or more questions in the follow-up section of the Physical Activity Readiness Questionnaire (PAR-Q+)

Date of first enrolment
01/03/2017

Date of final enrolment
31/07/2017

Locations

Countries of recruitment
Canada

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Sponsor information

Organisation
The University of Western Ontario

ROR
https://ror.org/02grkyz14

Funder(s)

Funder type
Other

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan
The current data sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary
Data sharing statement to be made available at a later date