Title: RESISTANCE TRAINING FOR MEN LIVING WITH OBESITY

NCT Number: Not applicable

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Background

Physical activity is often recommended to reduce the complications associated with obesity, but people living with obesity exercise less than their lean counterparts. Men are more likely to develop obesity related diseases compared with women. Most resources for obesity management are targeting women. Emerging evidences suggest that alternative obesity management strategies need to address gender preferences to adopt healthier lifestyles such as resistance training.

Objective

Examine adherence to the physical activity guidelines for men living with obesity who were exposed to a novel circuit weight training program compared with standard care.

Design

Sixty men living with obesity will be recruited and randomly assigned to either a standard care group (N = 30) or an intervention group (N = 30). Eligible participants will be age 19 years or older, living with obesity (BF ≥ 28%), able to perform exercises, but not currently engaged in regular physical activities (150 min of moderate to vigorous aerobic activities + two sessions of RT per week). Participants will be asked to maintain their current dietary habits within the duration of the project.

Method

Participants will be asked to come in person to visit the CELLAB at UNB four times (i.e., baseline, 12 weeks, 24 weeks and 48 weeks after baseline; each time for about 90 minutes or do the testing virtually.

Testing done in the CELLAB. During each of the four visit, anthropometric measures (e.g., weight, height, and waist circumference), body composition (e.g., fat and muscle), physical fitness, blood lipids/glucose, and blood pressure will be assessed. Participants will be asked to arrive at the CELLAB at UNB in the morning of the first visit after fasting for a minimum of 12 hours. A small sample of blood will be collected via a finger prick to measure lipids and glucose levels. After recording body composition, a snack will be provided.

When participants leave the CELLAB, they will be asked to wear a Fitbit watch for seven consecutive days (24 hours per day) to quantify their physical activity level. Then, participants

can drop the device at UNB or send it by mail. Four questionnaires will be self-administered to collect information on:

1- The perception of the ability to perform exercise using the Self-Efficacy for Exercise (SEE) Scale (Resnick and Jenkins 2000)
2- The perceived barriers/benefits to exercise using the Exercise Benefits/Barriers Scale (EBBS) (Sechrist et al. 1987)
3- The technology ability using the Functional Assessment of Currently Employed Technology Scale (FACETS) (Lepkowsky and Arndt 2018)

If tests done virtually. If participants do not come to the CELLAB for testing, they will be asked to self-report their weight, height, and waist circumference. At all four time-points, the research team will mail or drop a Fitbit for them to wear for seven consecutive days (24 hours per day) to quantify physical activity level. When the seven days are completed, participants will be asked to drop the device in the nearest Canada Post mailbox using the prepaid envelope. The same questionnaires will be administered.

Intervention

RT+ program. Participants in RT+ group will be asked to exercise three times per week and perform four basic RT exercises in a circuit manner for 12 weeks while supervised via an online platform such as Skype or TEAM. Before starting the 12-week program, each participant will receive an educational session explaining and teaching RT+ exercises. During this session, the participant will go though the exercises to make sure he knows how to preform RT+ exercises correctly and modifications will be applied if needed based on participants conditions. The first week of sessions will be in person supervised. Participants will be eased into the program using a three-week progressive start, completing 120 minutes of exercise in week one, 150 minutes in week two, 180 minutes in week three and week four. Participants will be supervised 3X/week for the first four weeks, then 2X/week for the next four weeks and 1X/week for the remaining four weeks. This strategy has been successfully used previously to increase participant autonomy before they start the unsupervised phase. At each session, a participant will perform the four prescribed exercises (i.e., squats, tricep dips, lunges, and push-ups) for 45 seconds each, then switch immediately (15 seconds) to the next exercise followed by one-minute of rest at the end of each

circuit. The circuit will repeat until the session is complete. If a participant has restrictions that prevent him from performing an exercise, modifications will be made.

Standard care (control). Participants allocated to the control standard care group will receive free access to an exercise platform (V-Shred-Ripped-in-90-days) for the same period of time (12 weeks) to become more active. It will be recommended that they do a minimum of 150 minutes of moderate to vigorous aerobic activities and two resistance training sessions using the platform.

Statistical analysis

Sample size calculations was done based on the anticipated change in the proportion of obese men to achieve the PA guidelines (minimum of 150 minutes spent at MVPA in a week in addition to two sessions of RT). It is predicted that the proportion of men living with obesity who meet physical activity guidelines (both aerobic MVPA and RT) in the RT+ group will increase to 26.2% (similar to lean counterparts) at follow-up compared with 0% increased for the control group. The alpha level and power of analysis were set at 0.05 and 80% respectively, considering a drop-out rate of 30% in each group. A total of 23 people per group were required, so we will recruit 30 per group.

To evaluate the effect of the intervention on the main outcome (% of people reaching the PA guidelines 36 weeks after the intervention), a logistic regression model will be used. The independent variables will include age, PA level at baseline, the randomized group, and other potential confounding variables.