Addictive Behaviors 39 (2014) 703–708

Contents lists available at ScienceDirect

Addictive Behaviors

Short Communication

The effects of acute exercise on tobacco cravings and withdrawal symptoms in temporary abstinent pregnant smokers ☆

Harry Prapavessis [a,*], Stefanie De Jesus [a], Therese Harper [a], Anita Cramp [a], Lyndsay Fitzgeorge [a], Michelle F. Mottola [a], Michael Ussher [b], Guy Faulkner [c], Peter Selby [c]

[a] University of Western Ontario, 1151 Richmond Street, London, ON N6A 5B9, Canada
[b] University College London, Cranmer Terrace, London SW17 ORE, UK
[c] University of Toronto, 55 Harbord Street, Toronto, ON M5S 2W6 Canada

HIGHLIGHTS

- Exercise reduces cravings in temporary abstinent pregnant smokers.
- A similar reduction pattern exists for tobacco withdrawal symptoms.
- Exercise is recommended during initial smoking cessation attempts during pregnancy.

ARTICLE INFO

Keywords:
Smoking cessation
Pregnancy
Withdrawal symptoms
Cravings

ABSTRACT

Introduction: Smoking during pregnancy is common, and quitting at any point during pregnancy can yield benefits to both the fetus and mother. Smoking cessation is typically followed by withdrawal symptoms and a strong desire to smoke, both of which are likely to contribute to relapse. Research has shown that a bout of exercise minimizes cravings and tobacco withdrawal symptoms (TWS) after temporary abstinence in smokers, but these findings have not been replicated in pregnant smokers. This study examined the effect of 20 min of exercise on cravings (primary outcome) and TWS (secondary outcomes) among temporary abstinent, inactive pregnant smokers.
Methods: Thirty female smokers (Mean(M) age = 25.7 years, Standard Deviation(SD) = 5.5; M weeks pregnant = 18.2, SD = 5.3; Fagerstrom Test for Cigarette Dependence = 3.3, SD = 2.2; M 9.3 cigarettes/day, SD = 4.7; M hours abstained = 17.2, SD = 2.8) were randomized to 20 min of mild-to-moderate intensity exercise (EC; $n = 14$) or passive (PC; $n = 16$) condition. Cravings and TWS were assessed immediately before, during (at 10 min), immediately post, and at 10, 20, and 30 min post-condition.
Results: A 2 (condition) × 6 (time) repeated measures ANOVA revealed that the EC significantly ($p < 0.05$) reduced cravings ($\acute{\eta}^2 = 0.46$) compared with the PC, across time. Non-significant, but nevertheless, large effects were evident favouring the EC over time for TWS restlessness ($\acute{\eta}^2 = 0.34$), stress ($\acute{\eta}^2 = 0.24$), irritability ($\acute{\eta}^2 = 0.21$), tension ($\acute{\eta}^2 = 0.15$), and depression ($\acute{\eta}^2 = 0.14$).
Conclusions: Consistent with previous research, this study reveals that in pregnant smokers, a bout of exercise is associated with a reduction in cravings and similar patterns exist for TWS. Therefore, exercise may have the potential to assist in the initial stages of smoking cessation attempts during pregnancy.
Crown Copyright © 2013 Published by Elsevier Ltd. All rights reserved.

1. Introduction

According to recent statistics, 19% of young Canadian women of child-bearing age (20–24 years) reported smoking during their most recent pregnancy (CTUMS, 2011). There is compelling evidence that prenatal tobacco exposure results in lower birth weight, prenatal death, and behavioural problems among offspring (Castles, Adams, Melvin, Kelsch, & Boulton, 1999; Fergusson, 2002; Fried, 2002). Although abstinence early in pregnancy will produce the greatest benefits to the fetus and expectant mother, quitting at any point during pregnancy can yield benefits (McBride, 2003; McCowan et al., 2009). In the general population, smoking cessation is typically followed by withdrawal symptoms and a strong desire to smoke, both of which contribute to relapse (Piasecki et al., 2000; West, Hajek, & Belcher, 1989). These symptoms are also apparent in pregnant smokers (Heil, Higgins, Mongeon, Badger, & Bernstein, 2006; Ussher, Etter, Giatras, & Coleman,

☆ Editorial board for Addictive Behaviors.

* Corresponding author at: University of Western Ontario, Faculty of Health Sciences, School of Kinesiology, Thames Hall/3M Centre, London, Ontario, Canada, N6A 3K7. Tel.: +1 519 661 2111x80173.
E-mail address: hprapave@uwo.ca (H. Prapavessis).

0306-4603/$ – see front matter. Crown Copyright © 2013 Published by Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.addbeh.2013.10.034

2012), who also frequently report tobacco withdrawal as a barrier to quitting (Grangé et al., 2006; Ripley-Moffitt et al., 2008; Tong, England, Dietz, & Asare, 2008). Two recently published meta-analyses provide consistent support for the tenet that a single bout of mild-to-moderate intensity exercise reduces tobacco withdrawal symptoms and cravings during a temporary period of abstinence (Hassova et al., 2012; Roberts, Maddison, Simpson, Bullen, & Prapavessis, 2012). These findings, however, are not generalized beyond middle-aged men and women. There is a need, therefore, to replicate these findings with other populations, such as pregnant smokers.

Previous evidence for the robust effect of an acute bout of exercise on cravings and tobacco withdrawal symptoms cannot be generalized to pregnant women due to intensified tobacco withdrawal symptoms. Altered mood state (i.e. depression) is common (Gaynes et al., 2005) and cravings intensify, as a result of increased nicotine and cotinine metabolism, during pregnancy (Dempsey, Jacob, & Benowitz, 2002). Ussher, Aveyard, et al. (2012), Ussher, Etter, et al. (2012), however, reported that pregnant women are likely to report less severe tobacco withdrawal than non-pregnant women. They attribute these findings to several limitations including that only half of participants complied with the 24-h abstinence period, biasing the sample towards participants who found abstinence to be less challenging.

This population is often reluctant to use nicotine replacement therapy (Ussher & West, 2003) and for which there is no evidence of benefit (Coleman, Chamberlain, Davey, Cooper, & Leonardi-Bee, 2012), but has expressed high levels of interest in using exercise to aid smoking cessation (Ussher, West, & Hibbs, 2004). Pregnancy is often considered an ideal opportunity for behavioural change because women are more likely to stop smoking during pregnancy than at any other time in their lives (McBride, 2003). In practice, performing short, intermittent and daily bouts of mild-to-moderate intensity exercise is achievable for most pregnant women (Davies, Wolfe, Mottola, & MacKinnon, 2003). An exercise intervention has been shown to reduce the desire to smoke among pregnant smokers on the first day of an attempt to quit (Ussher et al., 2008); however, the dose of exercise was not standardised and a control group was not included.

The purpose of the present study was to examine the effect of 20 min of mild-to-moderate intensity exercise on the strength of desire to smoke (primary outcome) and withdrawal symptoms (secondary outcomes) among inactive pregnant smokers, undergoing a temporary period of abstinence. It was hypothesized that participants in the mild-to-moderate intensity exercise group would report less desire to smoke and withdrawal symptoms compared with their passive control counterparts.

2. Methods

2.1. Participants

Participants consisted of 30 pregnant women who were recruited from London, Ontario ($N = 23$) and St. George's Hospital, South West London, England. There were no significant differences between the samples in the two locations in demographic or smoking characteristics. Individuals were eligible to participate if they were between 20 and 40 years of age, in their second trimester of pregnancy (13–24 weeks), smoked more than five cigarettes per day and at least 10 cigarettes per day prior to gravidity, were not receiving psychiatric treatment, did not present contraindications to exercise, and did not meet the physical activity guidelines for pregnancy (i.e., exercising less than three times per week for 30 minutes at a moderate intensity; Davies et al., 2003). Participants were also screened with the Physical Activity Readiness Medical Examination (Wolfe & Mottola, 2002) for pregnancy for contraindications to exercise.

2.2. Sample size

In a recent meta-analysis (Roberts et al., 2012), the average weighted reduction in desire to smoke was 1.9 points. Therefore, the authors selected a study (Janse Van Rensburg, Taylor, Hodgson, & Benattayallah, 2012) that reflected this change. Using calculated means and standard deviations for exercise ($M = 3.6$; $SD = 1.0$) and control ($M = 5.3$; $SD = 1.0$) post-condition for desire to smoke from Janse van Rensburg et al., it was estimated that for a between-group design, with a power of 0.99 and alpha at 0.05, a sample of 15 participants per group was needed to detect differences on this primary outcome variable (SamplePower Version 3, SPSS).

2.3. Primary outcome measure

Cigarette cravings were assessed using a seven-point scale (1 = not at all, 4 = somewhat, 7 = extremely) for the statement 'How strong is your desire to smoke right now?' (West et al., 1989).

2.4. Secondary outcome measures

Six tobacco withdrawal symptoms (irritability, depression, tension, restlessness, difficulty concentrating, and stress), which have previously been shown to be sensitive to the effects of exercise (Taylor, Ussher, & Faulkner, 2007), were evaluated using the Mood and Physical Symptoms Scale (MPSS; West et al., 1989; West & Hajek, 2004; West & Russell, 1985). Each symptom was measured in the present state using a seven-point scale (1 = not at all, 4 = somewhat, 7 = extremely).

2.5. Exercise condition

The exercise condition entailed a single bout of treadmill walking at a mild-to-moderate intensity (25–55% of heart-rate reserve; Davenport, Mottola, McManus, & Gratton, 2008) for 20 min, which commenced upon reaching the lower limit of the heart-rate prescription. Approximately 2 min and 5 min were allocated for warm-up and cool down, respectively.

2.6. Passive control condition

The passive control condition required participants to view a neutral DVD (27 min in duration) about home gardening, in a quiet, isolated room in the laboratory. This control condition has been shown to be acceptable in previous studies (e.g., Ussher, Nunziata, Cropley, & West, 2001).

2.7. Design and procedure

Participants were assigned, according to a computer-generated randomization scheme, to a (i) mild-to-moderate exercise ($n = 14$) or (ii) passive control ($n = 16$) condition. Group allocation was concealed from participants, but not researchers. Prior to study involvement, participants were informed that the study was interested in measuring cravings and withdrawal symptoms following a temporary period of abstinence. Since all participants, irrespective of randomization, received this level of detail concerning the purpose of the study, the impact of blinding on the findings would be equivalent between groups and across time. This investigation received ethics approval from both institutions. The conduct of the trial followed the principles outlined in the Declaration of Helsinki and the World Health Organization 2002 Good Clinical Research Practice. All participants provided informed written consent. Study procedures, described below, were identical between sites.

Participants were required to attend a screening session (pre-abstinence) to complete questionnaires and confirm smoking status

Download English Version:

https://daneshyari.com/en/article/10443217

Download Persian Version:

https://daneshyari.com/article/10443217

Daneshyari.com