

Exercise and smoking cessation

Dr Michael Ussher

Reader (Associate Professor) in Health Psychology

Division of Population Health Sciences and Education

St. George's University of London

musser@sgul.ac.uk

Amsterdam 2nd Dec 2010

Outline

- Rationale for promoting exercise
- Review of previous studies
- Review of studies in progress
- Conclusions

Why promote exercise for smoking cessation?

- Reducing cravings/withdrawal/mood disturbance
- Managing weight gain
- Improving self-esteem and non-smoking identity
- General health benefits



Deruiter WK et al 2008 Characteristics of physically active smokers and implications for harm reduction. Am J Public Health. 2008 98:925-31.

Objectives of Cochrane review

Reviewed trials comparing exercise

Interventions plus versus smoking cessation

Programme alone

Ussher M et al Exercise interventions for smoking cessation.
Cochrane Systematic Review, 2008

Characteristics of studies

- 13 trials identified
- 12 trials provided multi-session behavioural for smoking cessation support
- 5 studies nicotine replacement therapy
- 12 supervised exercise
- 6 had < 25 participants in each arm
- Only 5 studies were powered to detect a difference between the conditions at 6 months or longer

Effects of exercise intervention on rates of smoking cessation

- **At end of treatment:** 3 studies (2 women, 1 mixed) using supervised vigorous exercise found significantly higher abstinence rates in exercise group versus control.
- **At 12 month follow-up:**
 - 1 study with women (Marcus et al 1999) reported higher abstinence rates for exercise versus control of borderline significance ($p=0.05$, 12% versus 5%). They used 3 sessions of vigorous exercise per week for 15 weeks.
 - Another study (Marcus et al 2005) found that those who achieved at least 110 minutes of exercise per week were significantly more likely to be abstinent at 12 months. This study involved one session of moderate intensity supervised exercise per week for 8 weeks.

Large studies not showing a benefit:

- Martin et al 1997 – alcohol problems

- Cornuz et al 2007, Ussher et al 2003: Moderate intensity exercise, low exercise adherence

Effects on cravings and withdrawal symptoms: Smoking cessation trials

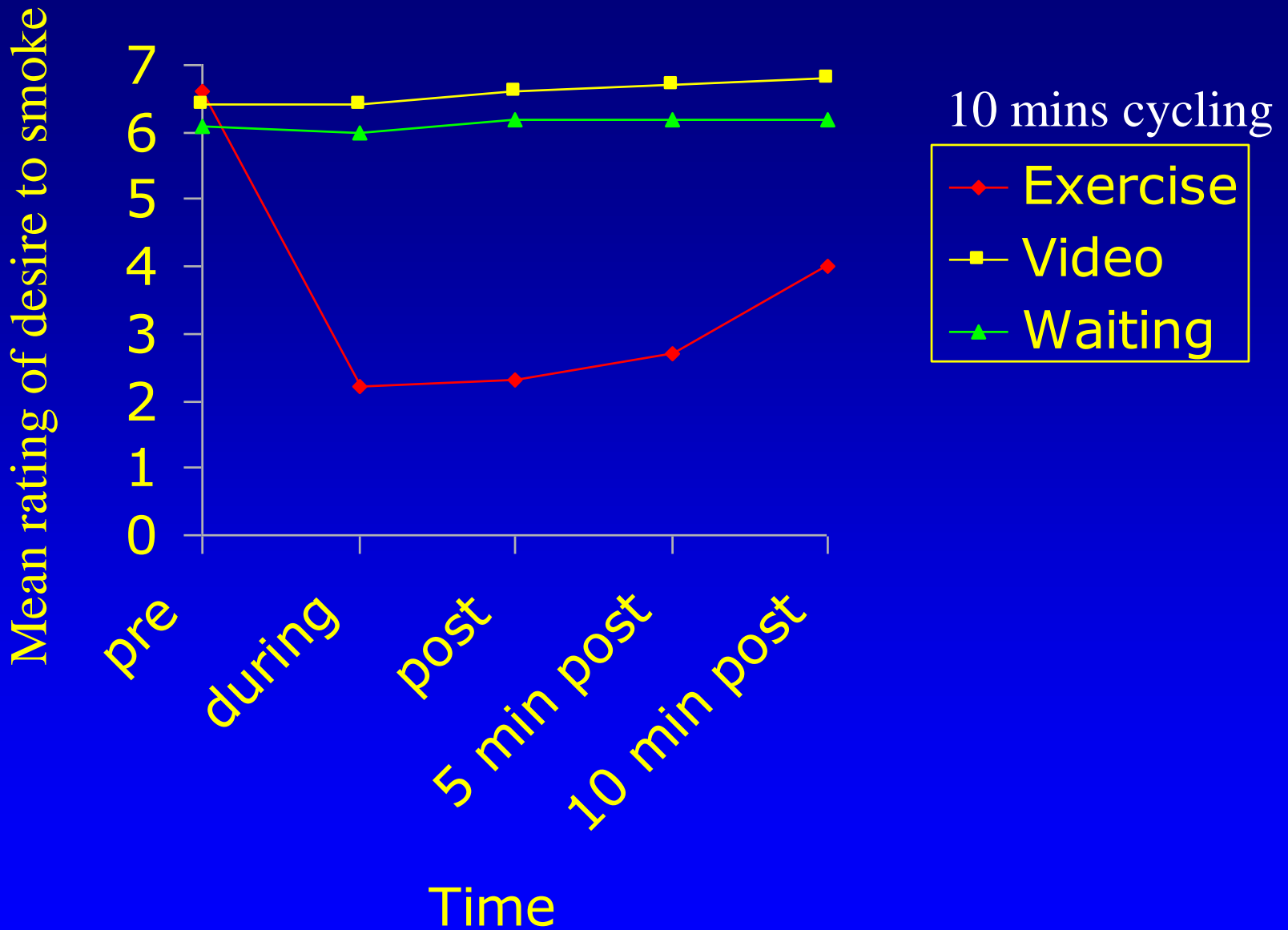
- 5 studies
- Marcus 1999 – Acute benefits for exercise, but no effect on weekly reports of symptoms for exercise versus control
- Marcus 2005 – Increased fitness associated with less depressive symptoms
- Ussher 2003 – Reduction in withdrawal for exercise group versus control, but no effect on cravings
- Cornuz 2007, Kinnunen 2008 – No difference in withdrawal symptoms or cravings.

Effects on cravings and withdrawal symptoms: Acute experimental studies

- 20 + studies showed reduction in cravings and withdrawal
- Effects similar for vigorous and moderate intensity CV exercise
- Temporarily abstinent smokers
- Reduced symptoms for up to 50 minutes after exercise
- Exercise lasted from 5 minutes to 30 minutes
- Also, benefits for 5 mins and 10 mins



Isometric exercise



Ussher M et al 2001, Psychopharmacology, 158:66-72.

Exercise and attention to smoking cues

- n=20, crossover design
- Less attention to smoking cues after 15mins stationary cycling (mod. Intensity) versus passive waling

Van Rensburg K et al. Addiction. 2009 104:1910-7

The role of exercise intensity and cortisol

- N=18, cross-over design, 3 conditions
15mins:
 - Passive
 - walking
 - running
- Walking and running both reduce cravings, but no difference between these two
- Decline in cortisol overcome only in running group

Relapse prevention trial

- Women (n=420)
- 14 weeks supervised exercise (group, cardiovascular, x3 week 8 weeks, x2 week, week 9-11 x 2 week, week 12 & 13 x 1 week, week 14 zero) + NRT

Randomised to:

- (i) Exercise maintenance
- (ii) Exercise maintenance and relapse prevention booklets
- (iii) Relapse prevention booklets and contact
- (iv) Contact control

Exercise for pregnant smokers

- 866 women
- 14 sessions of supervised exercise over 8 weeks, plus smoking cessation support versus 7 sessions of cessation support only



Ussher M et al BMC Public Health, 2008
23:328.

Yoga for smoking cessation

- Women
- 8 weeks yoga (1 hour twice a week) + smoking cessation support versus
- 8 weeks wellness programme + smoking cessation support



Bock BC et al BMC Complementary and Alternative Medicine 2010, 10:14

Exercise for depressed women smokers

- 60 Women
- 10 weeks exercise counselling (once a week) + NRT + smoking cessation support
- 10 weeks wellness counselling (once a week) + NRT + smoking cessation support
- Abstinence at end of treatment: 17% exercise
23% control

Smoking advisors attitudes to promoting exercise

- 170 advisors, 56% promoted exercise for smoking cessation
- Determinants of exercise promotion:
 - more physically active
 - higher self-efficacy
 - beliefs

Everson ES et al Patient Education and Counseling, 2010, 78, 53-56

Conclusions

- Only 1 of 13 studies provides evidence for exercise aiding smoking cessation in the long-term. However, other studies were too small or exercise adherence was poor
- 20 plus studies have shown short-term benefits of exercise on withdrawal symptoms and cravings
- Further large trials are needed with facility –based exercise on 2 or more days per week.