



Prevention in Practice



AVOIDING WEIGHT GAIN AFTER STOPPING SMOKING

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Stopping smoking is associated with considerable health benefits and large numbers of smokers want to quit. However, concern about weight gain is one of the reasons people often give for not being able to quit smoking. It often reinforces the decision to continue smoking, particularly in women and young people who may mistakenly believe that smoking is an effective way to control their weight. Even if an individual successfully quits smoking, weight gain can often be the factor that causes relapse. What can we do to help?

Smokers try to quit the habit once every two to three years, on average. Health professionals involved in health promotion can help people to make the most of these opportunities by exploring – and overcoming – barriers to quitting. This might usefully include helping people to understand the reasons for weight gain and to consider the relative risks of a small amount of weight gain compared with continuing to smoke. It is also helpful to support people in effective strategies for limiting any weight increase on quitting smoking and helping them to lose any weight gained.



Key points: controlling weight gain in ex-smokers

- Concern about potential weight gain is a common reason that people give for failing to stop smoking
- Efforts to limit weight gain can play an important role in helping people to quit
- Health professionals in health promotion are well placed to offer interventions to help immediate and long term weight management in smokers trying to quit
- Useful techniques include: interventions to improve dietary intake and behaviours, efforts to increase physical activity and pharmacological treatments

HOW MUCH WEIGHT DO EX-SMOKERS GAIN?

The amount of weight gained after quitting smoking is highly variable. An American study looked at weight change over 10 years in 760 adults, including some who stopped smoking during this time. The average weight increase due to smoking cessation was 2.8 kg for men and 3.8 kg for women, after controlling for other variables. However, major weight gain – defined as more than 13 kg – occurred in around 10% of men and 13% of women. Those most susceptible to weight gain were younger adults, people with a lower education level and those who had smoked more than 15 cigarettes per day.

It's worth noting that this research was carried out before the higher levels of obesity prevalence we see today. More recent studies suggest substantial

numbers of quitters gain more than 5% of their initial body weight, with an average increase of 7 kg over longer-term follow-up. For most people this weight gain does not appear to negate the health benefits from stopping smoking, but it may be a health concern for those who are already overweight or obese, or for those particularly concerned with body weight issues.

“...recent studies suggest substantial numbers of quitters gain more than 5% of their initial body weight...”



WHY DO EX-SMOKERS GAIN WEIGHT?

A variety of physiological and behavioural mechanisms have been proposed to account for the changes in energy balance that follow smoking cessation. Nicotine can depress appetite and food intake. Smoking also provides the smoker with a substitute activity for eating and snacking. Smoking can also serve as a marker of the end of a meal. Rather than taking a second helping or having dessert, smokers may be more likely to stop eating and have a cigarette.

After quitting, the urge to smoke can be frequent and uncomfortable, so food is often used as a replacement. Recent research suggests that the pleasurable and rewarding value of food may increase in certain susceptible individuals following smoking cessation.

Food intake studies show that average energy intake increases by 250-300 kcal per day after smoking cessation. However, there is disagreement in the literature as to whether additional food intake is sufficient to account for the observed weight gain and it is widely believed that other factors are important.

Nicotine appears to increase the resting metabolic rate and so increases energy expenditure. Metabolic studies have shown that smoking 24 cigarettes a day increases energy expenditure by around 200 kcals. Similar studies have shown reductions in resting metabolic rate of around 16% in females after 30 days of smoking cessation. However, it is important to note that not all studies have found such marked effects on metabolism and the importance is under debate.

Other proposals for explaining weight gain following smoking cessation include changes in fat oxidation and adipose tissue enzyme activity and reductions in the production of chemicals associated with appetite control in individuals with underlying genetic susceptibility. For a comprehensive review of the subject area see the further information section at the end of this article.

WHAT CAN EX-SMOKERS DO TO LIMIT WEIGHT GAIN?

Use of nicotine replacement therapy (NRT) and other pharmacotherapies

NRT is a way of partially and temporarily replacing some of the nicotine provided by cigarettes, so it can ease the withdrawal symptoms and help during the transition to complete abstinence. Nicotine gums, transdermal patches, inhalers, sublingual microtablets or lozenges, and nasal sprays can be bought over the counter and are also available on prescription.

A recently updated Cochrane Review including more than 130 trials concluded that all forms of NRT were able to increase the rate of quitting smoking by around 50-70% compared to placebo. The likelihood of staying stopped for more than six months is also increased when a smoker uses NRT according to the directions.

It is useful to dispel some of the myths and misunderstandings about the use of NRT. This might include educating patients about who can use these therapies, the correct way to use them, the recommended duration for use, their relative safety and side-effects, and fear of addiction, which sometimes prevent effective use (<http://www.smokefree.gov/docs/MythsaboutNRTFactSheet.pdf>). Individuals also benefit from personal advice on which type or combinations of NRT are best suited to their level and style of smoking.

Effective non-nicotine pharmacological treatments for smoking cessation include bupropion SR, which modulates levels of neurotransmitters in the brain, and varenicline, which is a nicotine receptor partial agonist. Not only do these

Table 1: Effective behavioural techniques for weight management during smoking cessation

- Keeping a diary to monitor lifestyle behaviour changes
- Monitoring progress and giving self-rewards for achieving short- and long-term goals to reinforce changes
- Effectively dealing with triggers to eat and with high-risk situations
- Coping with relapse
- Seeking support and encouragement
- Learning to cope with stress and problem-solving in ways other than eating or smoking
- Changing eating behaviour – sitting down to eat at a table, slowing rate of eating
- Adopting a non-smoking activity to signal the end of a meal, such as taking a walk, brushing teeth, washing dishes or sucking a mint

agents increase the chances of effective smoking cessation, they seem to have at least short-term effects in limiting associated weight gain. They seem to be particularly effective in people who have been shown to increase food intake after stopping smoking.

The effects have been shown to be modest over the long term once treatment has stopped. Nevertheless, they may be worthwhile if weight gain is at least delayed until the ex-smoker feels better able to consider additional lifestyle changes to address weight gain.

Behavioural solutions

Individually tailored behavioural interventions, including some of the techniques of cognitive behavioural therapy (CBT), are effective in improving smoking abstinence and reducing associated weight gain (see Table 1). Benefits of these approaches have been shown both at end of treatment programmes and in longer-term follow-up. Behavioural techniques are also effective in weight management. Many self-help resources are available for health professionals and patients (see <http://www.bdaweightwise.com/going.html>).

DIETARY INTERVENTIONS

Unsurprisingly, generalised and non-tailored dietary advice on its own is not very effective for achieving weight control in ex-smokers or in the general population. In contrast, individualised dietary advice tailored to food preferences, particularly when used in conjunction with other interventions, may be effective.

Surveys of the dietary habits of people who are successful in losing weight – whether ex-smokers or non-smokers – show that effective strategies include eating regular meals, taking smaller portions, avoiding extreme diets, eating a diet low in fat and high in fruit, vegetables and whole grains, and restricting alcohol (see Table 2). These recommendations are now incorporated into the NICE guidelines on successful weight management.

Even if an individual does not intend to lose weight, advice on a healthy diet can have other health benefits, particularly as research shows that many smokers have less healthy diets than non-smokers.

Prevention in Practice



Table 2: Effective dietary strategies for weight management during or after smoking cessation

- Eat regular meals, including breakfast. Skipping meals is not effective in helping lose weight
- Take smaller portions, especially of high-fat /high-sugar foods. Using a smaller plate can help
- Avoid unduly restrictive or nutritionally imbalanced diets as they are generally ineffective in the long term and can be harmful
- A maximum weekly rate of loss of 0.5-1 kg is a realistic target
- Very low-calorie diets may be helpful for short-term use in obese patients under clinical supervision
- Eat a low-fat diet consistent with general healthy eating advice, with plenty of fruit and vegetables and wholegrain, starchy foods
- A range of flexible approaches to reducing energy intake may help. Consider using meal replacements or commercial slimming groups that meet good practice standards.
- Restrict alcohol intake. Not only is it high in calories it can be a trigger to smoking or overeating. Drink plenty of low-calorie fluids

Table 3: Ideas for healthy snacks

- Raw vegetable batons, such as carrot or celery sticks, cherry tomatoes, mange tout, baby corn, cucumber slices, red pepper, broccoli or cauliflower florets. Try serving with a low-fat dip such as salsa or tzatziki
- Fresh fruit – whole or chopped, frozen grapes
- Plain popcorn or pretzels
- A small handful of unshelled nuts, seeds, olives or dried fruit
- Yoghurt (low-fat plain or low-sugar versions)
- Bread sticks, oatcakes, rice cakes or crispbread
- A sachet of low-calorie hot chocolate drinks or low-calorie soup
- Sugar-free jelly



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Snacking can be a particular risk for the ex-smoker. Keeping a healthy range of snacks handy can be useful when the temptation to nibble kicks in (see Table 3). Restricting access to high-fat, high-sugar foods and high-calorie snacks in the house may be helpful. Sugar-free gum or mints can be useful. Nuts are high in calories but eating a few unshelled peanuts or pistachios with a drink – instead of smoking a cigarette – will keep a person's hands busy, and the process of removing the shell slows down how much is eaten.

INCREASING PHYSICAL ACTIVITY

Increasing physical activity has been shown to be useful in controlling weight in non-smokers. Exercise may provide an ex-smoker with an alternative activity and interest that may help them cope with nicotine withdrawal. It may also help offset the decrease in metabolic rate associated with smoking cessation.

There is little evidence that interventions to increase physical activity are associated with reduced weight gain during the period of giving up smoking. However, measures to increase physical activity as part of smoking cessation programmes may help to limit weight gain over the long term. Advice should take into account a person's current level of fitness as many smokers are less active than non-smokers.

SUMMING UP

Efforts to limit weight gain can play an important role in helping people to quit smoking and to remain ex-smokers. Interventions designed to improve dietary intake and behaviours, efforts to increase physical activity and the use of pharmacological treatments can all help in immediate and long-term weight management in smokers who are trying to quit. They may be particularly important in people for whom weight gain has been an issue in previous attempts to stop smoking.

Health professionals working in health promotion are well placed to help patients understand the reasons for weight gain after smoking cessation and to

help them see the risk of weight gain compared to continuing to smoke. They can help people to find ways to limit weight gain and help with weight loss when they stop smoking as part of optimising their health.

more information

- Filozof C, Pinilla MCF, Fernandez Cruz A. Smoking cessation and weight gain. *Obesity Reviews* 2004; 5: 95-103
- National Institute for Health and Clinical Excellence, 2006. Brief interventions and referral for smoking cessation in primary care and other settings. <http://guidance.nice.org.uk/PH1/Guidance/pdf/English>
- National Institute for Health and Clinical Excellence, 2006. Obesity. Guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children www.nice.org.uk/nicemedia/pdf/CG43quickrefguide2.pdf
- Parsons AC, Shraim M, Inglis J *et al*. Interventions for preventing weight gain after smoking cessation. *Cochrane Database of Systematic Reviews* 1 CD006219, 2009

Useful resources

- Pharmacological help with smoking cessation <http://www.smokefree.gov/docs/MythsaboutNRTFactSheet.pdf>
- <http://www.patient.co.uk/health/Smoking-Nicotine-Replacement-Therapy.htm>
- <http://www.patient.co.uk/health/Smoking-Helping-to-Stop-with-Bupropion.htm>
- Weight management and healthy eating <http://www.bdaweightwise.com/index.html>