

Interventions to combat smoking and obesity

Background

Smoking and obesity are probably the two most important preventable causes of ill health in developed countries resulting as they do, for the most part, from poor lifestyle choices.

It might be reasonably assumed that community based interventions to promote physical activity and a healthy diet will have a positive effect on obesity levels overall, as might campaigns to discourage smoking have an effect on smoking levels. The effect of such community campaigns may not always be measurable at an individual level and, at a community level, may only result in holding the line, preventing the situation from getting worse.

So many different types of intervention to combat smoking have been tried and fully evaluated that, for smoking interventions, this review has, in large part, had to concentrate on earlier systematic reviews, each one covering a particular type of intervention.

Summary and key findings

Obesity

Although lifestyle and behavioural interventions produced moderate additional weight loss in patients with type 2 diabetes, significant weight loss was also achieved without these interventions for patients with this condition indicating that personal circumstances and perceived risk may be a significant driver for weight loss.

For surgical interventions, systematic reviews and the Swedish Obesity Subjects study (SOS) indicate that bariatric surgery is effective both in achieving weight loss and improvements in overall mortality and in the reduced occurrence of diabetes, heart attack, stroke and cancer but that the use of intra-gastric balloons (IGB) has very limited effect. Long-term pharmacotherapy for obesity and overweight achieves only modest results

Community wide interventions to promote cycling and other physical activity, while being both effective and cost effective overall in promoting physical activity, have not, in themselves, demonstrated a direct effect on obesity.

Computer and internet based interventions, while sometimes more effective than no or minimal interventions, are, in general, less effective than in-person interventions.

Some psychologically based interventions, such as motivational interviewing, mindfulness and cognitive behaviour therapy have been shown to be effective in achieving weight loss.

Lifestyle interventions by nurse practitioners in general practice are no more effective than usual care but there is repeated evidence that referral of overweight patients to a commercial weight loss programme is both effective and cost-effective.

Smoking Cessation

There is evidence that anti-smoking interventions timed to coincide with key life events such as retirement, pregnancy or an operation may be particularly effective, especially if, as in the case of pregnancy or an operations, heightened perceived risk to the person or the unborn child may be a factor. Other times of heightened awareness, for example at lung cancer screening, are also times when interventions may be more effective.

Psychosocial interventions for patients with coronary heart disease, and psychosocial and pharmacological interventions for patients with chronic obstructive pulmonary disease, can be effective in reducing smoking for these patient groups, presumably, once again, aided by enhanced levels of perceived risk.

There is no firm evidence that internet based interventions to reduce smoking are any more effective than usual care or self help, and workplace based interventions appear to be no more effective than similar interventions carried out elsewhere. Mobile phone interventions using text messaging have been shown to be effective but there has, as yet, been no evaluation of the effectiveness of smart-phone app-based interventions.

Nicotine replacement therapy (NRT) and other pharmacological interventions for smoking cessation have been shown to be effective but with a significant risk of side effects in some cases. Relapse rates (a return to smoking) are unaffected by the use of NRT. Pharmacological interventions can be moderately enhanced by providing behavioural support in person or by telephone.

The use of e-cigarettes may hold promise as a future smoking cessation method but evaluations to date, although showing positive outcomes, have been small scale and limited in number.

Review of evidence

	Page
Obesity	
a) Obesity - Reviews and overviews	4
b) Obesity - Interventions	15
Smoking Cessation	
c) Smoking – Reviews and overviews	25
d) Smoking - Interventions	41
References	51

The reviewed evidence is listed in reverse chronological order with the most recent evidence first.

Obesity

a) Obesity - Reviews and overviews

Study	Findings
<p>Bernstein A M, Bar J, Pernotto Ehrman J, Golubic M and Roizen M F (2014) Yoga in the Management of Overweight and Obesity, <i>American Journal of Lifestyle Medicine</i> 8 (1) : 33-41</p>	<p>Although yoga may help manage conditions co-morbid with overweight and obesity, such as low back pain, whether yoga helps with weight loss or maintenance beyond that which can be achieved with diet and exercise remains unclear. A search of multiple databases through September 2012 was undertaken identifying peer-reviewed studies on yoga, meditation, mindfulness, obesity, and overweight. Studies on yoga and weight loss are challenged by small sample sizes, short durations, and lack of control groups. In addition, there is little consistency in terms of duration of formal group yoga practice sessions, duration of informal practices at home, and frequency of both.</p> <p>Studies do however suggest that yoga may be associated with weight loss or maintenance. Yoga appears promising as a way to assist with behavioural change, weight loss, and maintenance but the evidence base is poor..</p>

<p>Wieland L S, Falzon L, Sciamanna C N, Trudeau K J, Brodney Folse S, Schwartz J E and Davidson K W (2012) Interactive computer-based interventions for weight loss or weight maintenance in overweight or obese people, <i>Cochrane Database of Systematic Reviews, Issue 8. Art. No.: CD007675</i></p>	<p>The standard treatment for overweight and obesity is to help patients change their diet and exercise habits. This study looked for randomized or quasi-randomized trials in which an interactive computer intervention was compared with no treatment, a limited treatment such as usual care or paper materials, or an in-person treatment to help people lose weight or keep it off.</p> <p>The review included 14 weight loss studies with a total of 2537 participants, and four weight maintenance studies with a total of 1603 participants. Treatment duration was between four weeks and 30 months. At six months, computer-based interventions led to greater weight loss than minimal interventions (mean difference (MD) -1.5 kg; 95% confidence interval (CI) -2.1 to -0.9; two trials) but less weight loss than in-person treatment (MD 2.1 kg; 95% CI 0.8 to 3.4; one trial). At six months, computer-based interventions were superior to a minimal control intervention in limiting weight regain (MD -0.7 kg; 95% CI -1.2 to -0.2; two trials), but not superior to infrequent in-person treatment (MD 0.5 kg; 95% -0.5 to 1.6; two trials). The study did not observe consistent differences in dietary or physical activity behaviours between intervention and control groups in either weight loss or weight maintenance trials.</p> <p>Authors' conclusions: Compared to no intervention or minimal interventions (pamphlets, usual care), interactive computer-based interventions are an effective intervention for weight loss and weight maintenance. Compared to in-person interventions, interactive computer-based interventions result in smaller weight losses and lower levels of weight maintenance. The amount of additional weight loss, however, is relatively small and of brief duration, making the clinical significance of these differences unclear.</p>
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<p>Garrett S, Raina E C, Rose S B, O'Dea D, Lawton B and Dowell A C (2011) Are physical activity interventions in primary care and the community cost-effective? A systematic review of the evidence, <i>British Journal of General Practice</i> 61 (584) : e125-e133</p>	<p>A systematic review to assess the cost-effectiveness of physical activity interventions in primary care and the community. Thirteen studies fulfilled the inclusion criteria. Eight studies were of good or excellent quality. Interventions, study populations, and study designs were heterogeneous, making comparisons difficult. The cost to move one person to the 'active' category at 12 months was estimated for four interventions ranging from €331 to €3673. The cost-utility was estimated in nine studies, and varied from €348 to €86 877 per QALY.</p> <p>Conclusion: Most interventions to increase physical activity were cost-effective, especially where direct supervision or instruction was not required. Walking, exercise groups, or brief exercise advice on prescription delivered in person, or by phone or mail appeared to be more cost-effective than supervised gym-based exercise classes or instructor-led walking programmes. Many physical activity interventions had similar cost-utility estimates to funded pharmaceutical interventions and should be considered for funding at a similar level.</p>
<p>Oja P, Titze S, Bauman A, de Geus B, Krenn P, Reger-Nash B and Kohlberger T (2011) Health benefits of cycling: a systematic review, <i>Scandinavian Journal of Medicine & Science in Sports</i> 21 (4) : 496-509</p>	<p>The purpose of this study was to update the evidence on the health benefits of cycling. A systematic review of the literature resulted in 16 cycling-specific studies. Cross-sectional and longitudinal studies showed a clear positive relationship between cycling and cardiorespiratory fitness in youths. Prospective observational studies demonstrated a strong inverse relationship between commuter cycling and all-cause mortality, cancer mortality, and cancer morbidity among middle-aged to elderly subjects. Intervention studies among working-age adults indicated consistent improvements in cardiovascular fitness and some improvements in cardiovascular risk factors due to commuting cycling. Six studies showed a consistent positive dose–response gradient between the amount of cycling and the health benefits. Systematic assessment of the quality of the studies showed most of them to be of moderate to high quality. According to standard criteria used primarily for the assessment of clinical studies, the strength of this evidence was strong for fitness benefits, moderate for benefits in cardiovascular risk factors, and inconclusive for all-cause mortality, coronary heart disease morbidity and mortality, cancer risk, and overweight and obesity.</p> <p>The evidence reinforces the current efforts to promote cycling as an important contributor for better population health.</p>

<p>Armstrong M J, Mottershead T A, Ronksley P E, Sigal R J, Campbell T S and Hemmelgarn B R (2011) Motivational interviewing to improve weight loss in overweight and/or obese patients: a systematic review and meta-analysis of randomized controlled trials, <i>Obesity Reviews</i> 12 (9) : 709-723</p>	<p>Motivational interviewing, a directive, patient-centred counselling approach focused on exploring and resolving ambivalence, has emerged as an effective therapeutic approach within the addictions field. However, the effectiveness of motivational interviewing in weight-loss interventions is unclear.</p> <p>This study examined randomized controlled trials evaluating behaviour change interventions using motivational interviewing in overweight or obese adults. Standardized mean difference (SMD) for change in body mass, reported as either body mass index (BMI; kg m⁻²) or body weight (kg), was the primary outcome, with weighted mean difference (WMD) for change in body weight and BMI as secondary outcomes. Twelve studies, met the inclusion criteria and 11 were included for meta-analysis.</p> <p>Motivational interviewing was associated with a greater reduction in body mass compared to controls (SMD = -0.51 [95% CI -1.04, 0.01]). There was a significant reduction in body weight (kg) for those in the intervention group compared with those in the control group (WMD = -1.47 kg [95% CI -2.05, -0.88]). For the BMI outcome, the WMD was -0.25 kg m⁻² (95% CI -0.50, 0.01). Motivational interviewing appears to enhance weight loss in overweight and obese patients.</p>
<p>Witham M D and Avenell A (2010) Interventions to achieve long-term weight loss in obese older people - a systematic review and meta-analysis, <i>Age and Ageing</i> 39 (2) : 176-184</p>	<p>A systematic review and meta-analysis of studies which included with participants' with a mean age 60+ and mean body mass index (BMI) 30kg/m² or more, with outcomes at a minimum of 1 year.</p> <p>Meta-analysis (7 studies) demonstrated a modest but significant weight loss of 3kg ((95% confidence interval (CI) 5.1-0.9) at 1 year. Total cholesterol (4 studies) did not show a significant change: -0.36 mmol/l (95% CI -0.75 to 0.04). There was no significant change in high density lipoprotein, low density lipoprotein, or triglycerides. In one study, recurrence of hypertension or cardiovascular events was significantly reduced (hazard ratio 0.65, 95% CI 0.50-0.85).</p> <p>Six-minute walk test did not significantly change in one study. Health-related quality of life (HRQoL) significantly improved in one study but did not improve in a second study. Although modest weight reductions were observed, there is a lack of high-quality evidence to support efficacy of weight loss programmes for older people.</p>

<p>Yang L, Sahlqvist S, McMinn A, Griffin S J, and Ogilvie D (2010) Interventions to promote cycling: Systematic review, <i>BMJ</i> 341 : c5293</p>	<p>A systematic review to determine what interventions are effective in promoting cycling, the size of the effects of interventions, and evidence of any associated benefits on overall physical activity or anthropometric measures.</p> <p>Twenty five studies (of which two were randomised controlled trials) from seven countries were included. Six studies examined interventions aimed specifically at promoting cycling, of which four (an intensive individual intervention in obese women, high quality improvements to a cycle route network, and two multifaceted cycle promotion initiatives at town or city level) were found to be associated with increases in cycling. Those studies that evaluated interventions at population level reported net increases of up to 3.4 percentage points in the population prevalence of cycling or the proportion of trips made by bicycle. Sixteen studies assessing individualised marketing of “environmentally friendly” modes of transport to interested households reported modest but consistent net effects equating to an average of eight additional cycling trips per person per year in the local population. Other interventions that targeted travel behaviour in general were not associated with a clear increase in cycling. Only two studies assessed effects of interventions on physical activity; one reported a positive shift in the population distribution of overall physical activity during the intervention.</p> <p>Conclusions: Community-wide promotional activities and improving infrastructure for cycling have the potential to increase cycling by modest amounts. Studies of individualised marketing report consistent positive effects of interventions on cycling behaviour. Whether interventions to promote cycling result in an increase in overall physical activity or changes in anthropometric measures is unclear.</p>
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<p>Colquitt J L, Picot J, Loveman E and Clegg A J (2009) Surgery for obesity, <i>Cochrane Database of Systematic Reviews</i>, Issue 2. Art. No.: CD003641</p>	<p>The review aimed to compare bariatric procedures with each other and with conventional treatment (such as drugs, diet and exercise).</p> <p>The review found that surgery results in greater weight loss than conventional treatment in people with BMI greater than 30 as well as those with more severe obesity. Surgery also leads to some improvements in quality of life and obesity related diseases such as hypertension and diabetes. However, complications (for example pulmonary embolism), side-effects (for example heartburn) and some deaths may occur.</p> <p>Although several different surgical procedures are available, not all have been compared with each other. Gastric bypass had greater weight loss than vertical banded gastroplasty or adjustable gastric banding, but similar to isolated sleeve gastrectomy and banded gastric bypass. Isolated sleeve gastrectomy appears to result in greater weight loss than adjustable gastric banding. The evidence comparing vertical banded gastroplasty with adjustable gastric banding was not clear. Complications may occur with any bariatric procedure, but information from the included trials did not allow us to reach any conclusions about the safety of these procedures compared with each other. Weight loss and quality of life were similar between open and laparoscopic surgery. Conversion from laparoscopic to open surgery may occur.</p> <p>Authors' conclusions: Surgery is more effective than conventional management. Certain procedures produce greater weight loss, but data are limited. The evidence on safety is even less clear. Due to limited evidence and poor quality of the trials, caution is required when interpreting comparative safety and effectiveness</p>
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<p>Fernandes M A P, Atallah A N, Soares B, Saconato H, Guimarães S M, Matos D, Carneiro Monteiro L R and Richter B (2007) Intra-gastric balloon for obesity, <i>Cochrane Database of Systematic Reviews, Issue 1. Art. No.: CD004931</i></p>	<p>The silicon intra-gastric balloon (IGB) has been developed as a temporary aid to especially achieve weight loss in obese people with 40% or more their optimal weight, who have had unsatisfactory results in their treatment for obesity, despite of being cared for by a multidisciplinary team and in super obese patients who often have a high risk for surgery. The placement and removal of the IGB is an interventionist endoscopic procedure and the balloon is designed to float freely inside the stomach, its size might be changed during the placement. The IGB technique reduces the volume of the stomach and leads to a premature feeling of satiety</p> <p>Nine randomised controlled trials involving 395 patients were evaluated. Six out of nine studies had a follow-up of less than one year, the longest study duration was 24 months. The overall quality of trials was variable, only a third of the analysed studies showed a low risk of bias. No information was available on quality of life, all-cause mortality and morbidity.</p> <p>Compared with conventional management, IGB did not show convincing evidence of a greater weight loss. The relative risks for minor complications, for example gastric ulcers and erosions were significantly raised.</p>
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<p>Shaw K A, Gennat H C, O'Rourke P and Del Mar C (2006) Exercise for overweight or obesity, <i>Cochrane Database of Systematic Reviews, Issue 4</i>. Art. No.: CD003817</p>	<p>A systematic review to assess exercise as a means of achieving weight loss in people with overweight or obesity, using randomised controlled clinical trials.</p> <p>Although significant heterogeneity in some of the main effects' analyses limited ability to pool effect sizes across some studies, a number of pooled effect sizes were calculated. When compared with no treatment, exercise resulted in small weight losses across studies.</p> <p>Exercise combined with diet resulted in a greater weight reduction than diet alone (WMD - 1.0 kg; 95% confidence interval (CI) -1.3 to -0.7). Increasing exercise intensity increased the magnitude of weight loss (WMD - 1.5 kg; 95% CI -2.3 to -0.7). There were significant differences in other outcome measures such as serum lipids, blood pressure and fasting plasma glucose. Exercise as a sole weight loss intervention resulted in significant reductions in diastolic blood pressure (WMD - 2 mmHg; 95% CI -4 to -1), triglycerides (WMD - 0.2 mmol/L; 95% CI -0.3 to -0.1) and fasting glucose (WMD - 0.2 mmol/L; 95% CI -0.3 to -0.1). Higher intensity exercise resulted in greater reduction in fasting serum glucose than lower intensity exercise (WMD - 0.3 mmol/L; 95% CI -0.5 to -0.2). No data were identified on adverse events, quality of life, morbidity, costs or on mortality.</p> <p>Authors' conclusions: The results of this review support the use of exercise as a weight loss intervention, particularly when combined with dietary change. Exercise is associated with improved cardiovascular disease risk factors even if no weight is lost.</p>
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<p>Norris S L, Zhang X, Avenell A, Gregg E, Brown T, Schmid CH and Lau J (2005) Long-term non-pharmacological weight loss interventions for adults with type 2 diabetes mellitus, <i>Cochrane Database of Systematic Reviews, Issue 3. Art. No.: CD004095</i></p>	<p>A systematic review to assess the effectiveness of lifestyle and behavioural weight loss and weight control interventions for adults with type 2 diabetes. The 22 studies of weight loss interventions identified had 4,659 participants and follow-up of 1 to 5 years.</p> <p>The pooled weight loss for any intervention in comparison to usual care among 585 subjects was 1.7 kg (95 % confidence interval [CI] 0.3 to 3.2), or 3.1% of baseline body weight among 517 subjects. Other main comparisons demonstrated non significant results: among 126 persons receiving a physical activity and behavioural intervention, those who also received a very low calorie diet lost 3.0 kg (95% CI -0.5 to 6.4), or 1.6% of baseline body weight, more than persons receiving a low-calorie diet. Among 53 persons receiving identical dietary and behavioural interventions, those receiving more intense physical activity interventions lost 3.9 kg (95% CI -1.9 to 9.7), or 3.6% of baseline body weight, more than those receiving a less intense or no physical activity intervention. Comparison groups often achieved significant weight loss (up to 10.0 kg), minimizing between-group differences. Changes in glycated hemoglobin generally corresponded to changes in weight and were not significant when between-group differences were examined. No data were identified on quality of life and mortality.</p> <p>Authors' conclusions: Weight loss strategies using dietary, physical activity, or behavioural interventions produced small between-group improvements in weight. These results were minimized by weight loss in the comparison group, however, and examination of individual study arms revealed that multi-component interventions including very low calorie diets or low calorie diets may hold promise for achieving weight loss in adults with type 2 diabetes.</p>
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<p>Shaw K A, O'Rourke P, Del Mar C and Kenardy J (2005) Psychological interventions for overweight or obesity, <i>Cochrane Database of Systematic Reviews</i>, Issue 3. Art. No.: CD003818</p>	<p>Thirty six studies met the inclusion criteria and were included in the review. Overall, 3495 participants were evaluated.</p> <p>The majority of studies assessed behavioural and cognitive-behavioural weight reduction strategies. Cognitive therapy, psychotherapy, relaxation therapy and hypnotherapy were assessed in a small number of studies. Behaviour therapy was found to result in significantly greater weight reductions than placebo when assessed as a stand-alone weight loss strategy (WMD -2.5 kg; 95% CI -1.7 to -3.3). When behaviour therapy was combined with a diet / exercise approach and compared with diet / exercise alone, the combined intervention resulted in a greater weight reduction. Studies were heterogeneous however the majority of studies favoured combining behaviour therapy with dietary and exercise interventions to improve weight loss. Increasing the intensity of the behavioural intervention significantly increased the weight reduction (WMD -2.3 kg; 95% CI -1.4 to - 3.3). Cognitive-behaviour therapy, when combined with a diet / exercise intervention, was found to increase weight loss compared with diet / exercise alone (WMD -4.9 kg; 95% CI -7.3 to - 2.4).</p> <p>This review found that cognitive behaviour therapy and behaviour therapy significantly improved the success of weight loss for overweight or obese people. Cognitive therapy was not effective as a weight loss treatment. There was not enough evidence to reach a conclusion about other psychological forms of therapy, such as relaxation therapy and hypnotherapy, however the evidence that is available suggests that these therapies may also be successful in improving weight loss. No data on mortality, morbidity or quality of life were found.</p>
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<p>Padwal R S, Rucker D, Li S K, Curioni C and Lau D C W (2003) Long-term pharmacotherapy for obesity and overweight, <i>Cochrane Database of Systematic Reviews, Issue 4. Art. No.: CD004094</i></p>	<p>This review assessed the long-term benefits and risks of approved anti-obesity drugs in clinical trials of 1 to 4 years duration. Sixteen orlistat (10,631 patients), 10 sibutramine (2623 patients) and four rimonabant (6635 patients) studies were examined. Attrition rates averaged 30% to 40%.</p> <p>Compared to placebo, orlistat reduced weight by 2.9 kg (95% confidence interval (CI) 2.5 to 3.2 kg), sibutramine by 4.2 kg (95% CI 3.6 to 4.7 kg), and rimonabant by 4.7 kg (95% CI 4.1 to 5.3 kg). Patients on active drug therapy were significantly more likely to achieve 5% and 10% weight loss thresholds. Placebo-controlled weight losses were consistently lower in patients with diabetes. Orlistat reduced diabetes incidence, improved total cholesterol, LDL-cholesterol, blood pressure, and glycaemic control in patients with diabetes but increased rates of gastrointestinal side effects and slightly lowered HDL levels. Sibutramine improved HDL and triglyceride levels but raised blood pressure and pulse rate. Rimonabant improved HDL-cholesterol, triglyceride and blood pressure levels and glycaemic control in patients with diabetes but increased the risk of mood disorders.</p> <p>There was no data to show that any of the three drugs lowers the risk of death or cardiovascular disease. The most prominent side effects were gastrointestinal for orlistat, cardiovascular for sibutramine (raised blood pressure and/or pulse rate) and psychiatric for rimonabant (mood disorders). In Europe, rimonabant is contraindicated for patients with severe depression and/or patients who are treated with antidepressive medications. Rimonabant is furthermore not recommended for patients with other untreated psychiatric conditions.</p> <p>The study concluded that average weight losses with current anti-obesity agents appear modest but may be of clinical benefit.</p>
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b) Obesity - Interventions

Study	Methods	Findings
<p>Sjöström L (2013) Review of the key results from the Swedish Obese Subjects (SOS) trial – a prospective controlled intervention study of bariatric surgery, <i>Journal of Internal Medicine</i> 273 (3) : 219-234</p>	<p>The Swedish Obese Subjects (SOS) study is the first long-term, prospective, controlled trial to provide information on the effects of bariatric surgery on the incidence of diabetes, cardiovascular disease events, cancer and overall mortality.. The SOS study involved 2010 obese subjects who underwent bariatric surgery [gastric bypass (13%), banding (19%) and vertical banded gastroplasty (68%)] and 2037 contemporaneously matched obese control subjects receiving usual care. The age of participants was 37–60 years and body mass index (BMI) was =34 kg m⁻² in men and =38 kg m⁻² in women. Follow-up periods varied from 10 to 20 years in different reports.</p>	<p>The mean changes in body weight after 2, 10, 15 and 20 years were -23%, -17%, -16% and -18% in the surgery group and 0%, 1%, -1% and -1% in the control group respectively. Compared with usual care, bariatric surgery was associated with a long-term reduction in overall mortality (primary endpoint) [adjusted hazard ratio (HR) = 0.71, 95% confidence interval (CI) 0.54–0.92; P = 0.01] and decreased incidences of diabetes (adjusted HR=0.17; P < 0.001), myocardial infarction (adjusted HR = 0.71; P = 0.02), stroke (adjusted HR=0.66; P = 0.008) and cancer (women: adjusted HR = 0.58; P = 0.0008; men: n.s.). The diabetes remission rate was increased several-fold at 2 years [adjusted odds ratio (OR) = 8.42; P < 0.001] and 10 years (adjusted OR = 3.45; P < 0.001). Whereas high insulin and/or high glucose at baseline predicted favourable treatment effects, high baseline BMI did not, indicating that current selection criteria for bariatric surgery need to be revised.</p>

<p>Schauer P R, Kashyap S R, Wolski K, Brethauer S A, Kirwan J P, Pothier C E, Thomas S, Abood B, Nissen S E, and Bhatt D L (2012) <i>Bariatric Surgery versus Intensive Medical Therapy in Obese Patients with Diabetes</i>, 366 : 1567-1576</p>	<p>A randomized, non-blinded, single-centre trial, to evaluate the efficacy of intensive medical therapy alone versus medical therapy plus Roux-en-Y gastric bypass or sleeve gastrectomy in 150 obese patients with uncontrolled type 2 diabetes. The mean (\pmSD) age of the patients was 49 ± 8 years, and 66% were women. The average glycated haemoglobin level was $9.2\pm 1.5\%$. The primary end point was the proportion of patients with a glycated haemoglobin level of 6.0% or less 12 months after treatment.</p> <p>Of the 150 patients, 93% completed 12 months of follow-up. The proportion of patients with the primary end point was 12% (5 of 41 patients) in the medical-therapy group versus 42% (21 of 50 patients) in the gastric-bypass group ($P=0.002$) and 37% (18 of 49 patients) in the sleeve-gastrectomy group ($P=0.008$).</p>	<p>Glycemic control improved in all three groups, with a mean glycated haemoglobin level of $7.5\pm 1.8\%$ in the medical-therapy group, $6.4\pm 0.9\%$ in the gastric-bypass group ($P<0.001$), and $6.6\pm 1.0\%$ in the sleeve-gastrectomy group ($P=0.003$). Weight loss was greater in the gastric-bypass group and sleeve-gastrectomy group (-29.4 ± 9.0 kg and -25.1 ± 8.5 kg, respectively) than in the medical-therapy group (-5.4 ± 8.0 kg) ($P<0.001$ for both comparisons). The use of drugs to lower glucose, lipid, and blood-pressure levels decreased significantly after both surgical procedures but increased in patients receiving medical therapy only. The index for homeostasis model assessment of insulin resistance (HOMA-IR) improved significantly after bariatric surgery. Four patients underwent re-operation. There were no deaths or life-threatening complications.</p>
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<p>Friedenreich C M, Woolcott C G, McTiernan A, Terry T, Brant R, Ballard-Barbash R, Irwin M L, Jones C A, Boyd N F, Yaffe M J, Campbell K L, McNeely M L, Karvinen K H and Courtney K S (2011) Adiposity changes after a 1-year aerobic exercise intervention among postmenopausal women: a randomized controlled trial, <i>International Journal of Obesity</i> 35 : 427-435</p>	<p>A two-centre, two-armed, randomized controlled trial to examine the effects of an aerobic exercise intervention on adiposity outcomes. The 1-year-long exercise intervention included 45 min of moderate-to-vigorous aerobic exercise five times per week, with at least three of the sessions being facility based. The control group was asked not to change their activity and both groups were asked not to change their diet.</p> <p>A total of 320 postmenopausal, sedentary, normal weight-to-obese women aged 50–74 years who were cancer-free, nondiabetic and nonhormone replacement therapy users were included in this study. Anthropometric measurements of height, weight and waist and hip circumferences; dual energy X-ray absorptiometry measurements of total body fat; and computerized tomography measurements of abdominal adiposity were carried out.</p>	<p>Women in the exercise group exercised a mean of 3.6 days (s.d.=1.3) per week and 178.5?min (s.d.=76.1) per week. Changes in all measures of adiposity favored exercisers relative to controls (P<0.001). The mean difference between groups was: -1.8?kg for body weight; -2.0?kg for total body fat; -14.9?cm² for intra-abdominal fat area; and -24.1?cm² for subcutaneous abdominal fat area. A linear trend of greater body fat loss with increasing volume of exercise was also observed.</p> <p>Conclusion: A 1-year aerobic exercise program consistent with current public health guidelines resulted in reduced adiposity levels in previously sedentary postmenopausal women at higher risk of breast cancer.</p>
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<p>Appel L J, Clark J M, Yeh H-C, Wang N-Y, Coughlin J W, Daumit G, Miller E R, Dalcin A, Jerome G J, Geller S, Noronha G, Pozefsky T, Charleston J, Reynolds J B, Durkin N, Rubin R R, Louis T A and Brancati F L (2011) Comparative Effectiveness of Weight-Loss Interventions in Clinical Practice, <i>New England Journal of Medicine</i> 365 : 1959-1968</p>	<p>A randomized, controlled trial to examine the effects of two behavioural weight-loss interventions in 415 obese patients with at least one cardiovascular risk factor. Participants were recruited from six primary care practices; 63.6% were women, 41.0% were black, and the mean age was 54.0 years. One intervention provided patients with weight-loss support remotely — through the telephone, a study-specific Web site, and e-mail. The other intervention provided in-person support during group and individual sessions, along with the three remote means of support. There was also a control group in which weight loss was self-directed.</p> <p>At baseline, the mean body-mass index for all participants was 36.6, and the mean weight was 103.8 kg.</p>	<p>At 24 months, the mean change in weight from baseline was -0.8 kg in the control group, -4.6 kg in the group receiving remote support only ($P<0.001$ for the comparison with the control group), and -5.1 kg in the group receiving in-person support ($P<0.001$ for the comparison with the control group).</p> <p>The percentage of participants who lost 5% or more of their initial weight was 18.8% in the control group, 38.2% in the group receiving remote support only, and 41.4% in the group receiving in-person support. The change in weight from baseline did not differ significantly between the two intervention groups.</p> <p>Conclusions: In two behavioural interventions, one delivered with in-person support and the other delivered remotely, without face-to-face contact between participants and weight-loss coaches, obese patients achieved and sustained clinically significant weight loss over a period of 24 months.</p>
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<p>Jolly K, Lewis A, Beach J, Denley J, Adab P, Deeks J J, Daley A and Aveyard P (2011) Comparison of range of commercial or primary care led weight reduction programmes with minimal intervention control for weight loss in obesity: Lighten Up randomised controlled trial, <i>BMJ</i> 343 : d6500</p>	<p>To assess the effectiveness of a range of weight management programmes in terms of weight loss in a primary care trust (PCT) in Birmingham, England. 740 obese or overweight men and women with a comorbid disorder were identified from general practice records.</p> <p>Interventions: Weight loss programmes of 12 weeks' duration: Weight Watchers; Slimming World; Rosemary Conley; group based, dietetics led programme; general practice one to one counselling; pharmacy led one to one counselling; choice of any of the six programmes. The comparator group was provided with 12 vouchers enabling free entrance to a local leisure (fitness) centre.</p> <p>Outcome measures: The primary outcome was weight loss at programme end (12 weeks). Secondary outcomes were weight loss at one year, self reported physical activity, and percentage weight loss at programme end and one year.</p> <p>Follow-up data were available for 658 (88.9%) participants at programme end and 522 (70.5%) at one year.</p>	<p>All programmes achieved significant weight loss from baseline to programme end (range 1.37 kg (general practice) to 4.43 kg (Weight Watchers)), and all except general practice and pharmacy provision resulted in significant weight loss at one year. At one year, only the Weight Watchers group had significantly greater weight loss than did the comparator group (2.5 (95% confidence interval 0.8 to 4.2) kg greater loss,). The commercial programmes achieved significantly greater weight loss than did the primary care programmes at programme end (mean difference 2.3 (1.3 to 3.4) kg). The primary care programmes were the most costly to provide. Participants allocated to the choice arm did not have better outcomes than those randomly allocated to a programme.</p> <p>Conclusions: Commercially provided weight management services are more effective and cheaper than primary care based services led by specially trained staff. The latter were ineffective in this case.</p>
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<p>Kelders S M, Van Gemert-Pijnen J E W C, Werkman A, Nijland N and Seydel E R (2011) Effectiveness of a Web-based Intervention Aimed at Healthy Dietary and Physical Activity Behavior: A Randomized Controlled Trial About Users and Usage., <i>Journal of Medical Internet Research</i> 13 (2) : 2-2</p>	<p>A study to investigate the users and effect of the Healthy Weight Assistant (HWA), a Web-based intervention aimed at healthy dietary and PA behaviour.</p> <p>The design was a two-armed randomized controlled trial that compared the HWA with a waiting list control condition. A total of 150 participants were allocated to the waiting list group, and 147 participants were allocated to the intervention group. Online questionnaires were filled out before the intervention period started and after the intervention period of 12 weeks. After the intervention period, respondents in the waiting list group could use the intervention. Objective usage data was obtained from the application itself.</p> <p>: In the intervention group, 64% (81/147) of respondents used the HWA at least once and were categorized as "users." Of these, 49% (40/81) used the application only once.</p>	<p>Users underestimated their behaviour more often than non-users, and non-users overestimated their behaviour more often than users. Intention-to-treat analyses showed no meaningful significant effects of the intervention. Exploratory analyses of differences between pre-test and post-test scores of users, nonusers, and the control group showed that on dietary behaviour only the nonusers significantly improved (effect size $r = -.23$, $P = .03$), while on physical activity behaviour only the users significantly improved (effect size $r = -.17$, $P = .03$). Conclusions: Respondents did not use the application as intended. From the proposed framework, a social and economic factor (age) and a condition-related factor (chronic condition) predicted usage. Moreover, users were healthier and more knowledgeable about healthy behaviour than nonusers. The study found no apparent effects of the intervention.</p>
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<p>Morgan P J, Collins C E, Plotnikoff R C, Cook A T, Berthon B, Mitchell S and Calliste R (2011) Efficacy of a workplace-based weight loss program for overweight male shift workers: The Workplace POWER (Preventing Obesity Without Eating like a Rabbit) randomized controlled trial, <i>Preventive Medicine</i> 52 (5) : 317-325</p>	<p>To evaluate the feasibility and efficacy of a workplace-based weight loss program (Workplace POWER-WP) for male shift workers.</p> <p>A prospective, two-armed randomized controlled trial of 110 overweight/obese (BMI 25–40) (mean [SD] age = 44.4 [8.6] years; BMI = 30.5 [3.6]) male employees at Tomago Aluminium aged 18–65. In October (2009) men were randomized to either (i) WP program (n = 65) or (ii) a 14-week wait-list control group (n = 45). The 3-month program involved one information session, program booklets, group-based financial incentives and an online component. Men were assessed at baseline and at 14-week follow-up for weight (primary outcome), waist circumference, BMI, blood pressure, resting heart rate, self-reported physical activity and dietary variables, and physical activity and dietary cognitions.</p>	<p>Intention-to-treat analysis using linear mixed models revealed significant between group differences for weight loss after 14 weeks ($P < .001$, Cohen's $d = 0.34$). Significant intervention effects were also found for waist circumference ($P < .001$, $d = 0.63$), BMI ($P < .001$, $d = 0.41$), systolic blood pressure ($P = .02$, $d = 0.48$), resting heart rate ($P < .001$, $d = 0.81$), physical activity ($P = .03$, $d = 0.77$), sweetened beverages ($P < .02$, $d = 0.5–0.6$) and physical activity-related cognitions ($P < .02$, $d = 0.6$).</p> <p>Conclusion: The WP program was feasible and efficacious and resulted in significant weight loss and improved health-related outcomes and behaviours in overweight male shift workers.</p>
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<p>Daubenmier J, Kristeller J, Hecht F M, Maninger N, Kuwata M, Jhaveri K, Lustig R H, Kemeny M, Karan L, and Epel E (2011) Mindfulness Intervention for Stress Eating to Reduce Cortisol and Abdominal Fat among Overweight and Obese Women: An Exploratory Randomized Controlled Study, <i>Journal of Obesity</i> 2011 : Article ID 651936-13 pages</p>	<p>Psychological distress and elevated cortisol secretion promote abdominal fat, a feature of the Metabolic Syndrome. Effects of stress reduction interventions on abdominal fat are unknown. Forty-seven overweight/obese women (mean BMI) were randomly assigned to a 4-month intervention or waitlist group to explore effects of a mindfulness program for stress eating. The study assessed mindfulness, psychological distress, eating behaviour, weight, cortisol awakening response (CAR), and abdominal fat (by dual-energy X-ray absorptiometry) pre- and post-treatment..</p>	<p>Treatment participants improved in mindfulness, anxiety, and external-based eating compared to control participants. Groups did not differ on average CAR, weight, or abdominal fat over time. However, obese treatment participants showed significant reductions in CAR and maintained body weight, while obese control participants had stable CAR and gained weight. Improvements in mindfulness, chronic stress, and CAR were associated with reductions in abdominal fat. This proof of concept study suggests that mindfulness training shows promise for improving eating patterns and the CAR, which may reduce abdominal fat over time</p>
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<p>ter Bogt N C W, Bemelmans W J E, Beltman F W, Broer J, Smit A J, van der Mee K (2011) Preventing Weight Gain by Lifestyle Intervention in a General Practice Setting: Three-Year Results of a Randomized Controlled Trial, <i>Archives of Internal Medicine</i> 171 (4) : 306-313</p>	<p>This study was conducted to determine whether structured lifestyle counselling by nurse practitioners (NPs) group compared with usual care by general practitioners (GP-UC) in overweight and obese patients can prevent (further) weight gain.</p> <p>A randomized controlled trial in 11 general practice locations in the Netherlands of 457 patients (body mass index, 25-40 [calculated as weight in kilograms divided by height in meters squared]; mean age, 56 years; 52% female) with either hypertension or dyslipidemia or both. The NP group received lifestyle counselling with guidance of the NP using a standardized software program. The GP-UC group received usual care from their GP. Main outcome measures were changes in body weight, waist circumference, blood pressure, and fasting glucose and blood lipid levels after 3 years.</p>	<p>In both groups, approximately 60% of the participants achieved weight maintenance after 3 years. There was no significant difference in mean (SD) weight change and change of waist circumference between the NP and GP-UC groups (weight change: NP group, -1.2% [5.8%], and GP-UC group, -0.6% [5.6%] [P = .37]; and change of waist circumference: NP group, -0.8 [7.1] cm, and GP-UC group, 0.4 [7.2] cm [P = .11]). A significant difference occurred for mean (SD) fasting glucose levels (NP group, -0.02 [0.49] mmol/L, and GP-UC group, 0.10 [0.53] mmol/L [P = .02]) (to convert to milligrams per decilitre, divide by 0.0555) but not for lipid levels and blood pressure.</p> <p>Conclusions: Lifestyle counselling by NPs did not lead to significantly better prevention of weight gain compared with GPs. In the majority in both groups, lifestyle counselling succeeded in preventing (further) weight gain.</p>
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<p>Jebb S A, Ahern A L, Olson A D, Aston L M, Holzapfel C, Stoll J, Amann-Gassner U, Simpson A E, Fuller N R, Pearson S, Lau N S, Mander A P, Hauner H and Caterson I D (2011) Primary care referral to a commercial provider for weight loss treatment versus standard care: a randomised controlled trial, <i>The Lancet</i> 378 (9801) : 1485-1492</p>	<p>This study compared weight loss with standard treatment in primary care with that achieved after referral by the primary care team to a commercial provider in the community.</p> <p>Methods: In this parallel group, non-blinded, randomised controlled trial, 772 overweight and obese adults were recruited by primary care practices in Australia, Germany, and the UK. Participants were randomly assigned with a computer-generated simple randomisation sequence to receive either 12 months of standard care as defined by national treatment guidelines, or 12 months of free membership to a commercial programme (Weight Watchers), and followed up for 12 months.</p> <p>The primary outcome was weight change over 12 months. Analysis was by intention to treat (last observation carried forward [LOCF] and baseline observation carried forward [BOCF]) and in the population who completed the 12-month assessment.</p> <p>377 participants were assigned to the commercial programme, of whom 230 (61%) completed the 12-month assessment; and 395 were assigned to standard care, of whom 214 (54%) completed the 12-month assessment.</p>	<p>In all analyses, participants in the commercial programme group lost twice as much weight as did those in the standard care group. Mean weight change at 12 months was -5.06 kg (SE 0.31) for those in the commercial programme versus -2.25 kg (0.21) for those receiving standard care (adjusted difference -2.77 kg, 95% CI -3.50 to -2.03) with LOCF; -4.06 kg (0.31) versus -1.77 kg (0.19; adjusted difference -2.29 kg, -2.99 to -1.58) with BOCF; and -6.65 kg (0.43) versus -3.26 kg (0.33; adjusted difference -3.16 kg, -4.23 to -2.11) for those who completed the 12-month assessment. Participants reported no adverse events related to trial participation.</p> <p>Interpretation: Referral by a primary health-care professional to a commercial weight loss programme that provides regular weighing, advice about diet and physical activity, motivation, and group support can offer a clinically useful early intervention for weight management in overweight and obese people that can be delivered at large scale.</p>
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Smoking Cessation

c) Smoking – Reviews and overviews

Study	Findings
<p>White A R, Rampes H, Liu J, Stead L F and Campbell J (2014) Acupuncture and related interventions for smoking cessation, <i>Cochrane Database of Systematic Reviews 2014, Issue 1</i>. Art. No.: CD000009</p>	<p>A review of randomized trials comparing a form of acupuncture, acupressure, laser therapy or electro-stimulation with either no intervention, sham treatment or another intervention for smoking cessation. Thirty eight studies were included.</p> <p>Based on three studies, acupuncture was not shown to be more effective than a waiting list control for long-term abstinence, with wide confidence intervals and evidence of heterogeneity (n = 393, risk ratio [RR] 1.79, 95% confidence interval [CI] 0.98 to 3.28, I² = 57%). Compared with sham acupuncture, the RR for the short-term effect of acupuncture was 1.22 (95% CI 1.08 to 1.38), and for the long-term effect was 1.10 (95% CI 0.86 to 1.40). Acupuncture was less effective than nicotine replacement therapy (NRT). There was no evidence that acupuncture is superior to psychological interventions in the short- or long-term. There is limited evidence that acupressure is superior to sham acupressure for short-term outcomes (3 trials, n = 325, RR 2.54, 95% CI 1.27 to 5.08), but no trials reported long-term effects, The pooled estimate for studies testing an intervention that included continuous auricular stimulation suggested a short-term benefit compared to sham stimulation (14 trials, n = 1155, RR 1.69, 95% CI 1.32 to 2.16); subgroup analysis showed an effect for continuous acupressure (7 studies, n = 496, RR 2.73, 95% CI 1.78 to 4.18) but not acupuncture with indwelling needles (6 studies, n = 659, RR 1.24, 95% CI 0.91 to 1.69). At longer follow-up the CIs did not exclude no effect (5 trials, n = 570, RR 1.47, 95% CI 0.79 to 2.74). The combined evidence on electro-stimulation suggests it is not superior to sham electro-stimulation (short-term abstinence: 6 trials, n = 634, RR 1.13, 95% CI 0.87 to 1.46; long-term abstinence: 2 trials, n = 405, RR 0.87, 95% CI 0.61 to 1.23).</p> <p>Conclusions: Although pooled estimates suggest possible short-term effects there is no consistent, bias-free evidence that acupuncture, acupressure, or laser therapy have a sustained benefit on smoking cessation for six months or more. Electro-stimulation is not effective for smoking cessation.</p>

<p>Thomsen T, Villebro N and Møller A (2014) Interventions for preoperative smoking cessation, <i>Cochrane Database of Systematic Reviews 2014,</i> <i>Issue 3. Art No: CD002294</i></p>	<p>This study reviews the evidence about the effects of providing smoking cessation interventions to people awaiting surgery on their success in quitting at the time of surgery and longer-term, and at complications following surgery.</p> <p>Thirteen studies met the inclusion requirements. The overall quality of evidence was moderate, limited by the small number of studies contributing to key analyses. Participants were awaiting a range of different types of surgery. Interventions differed in their intensity, and in how long before surgery they began.</p> <p>Both brief (seven trials, 1141 participants) and intensive (two trials, 210 participants) behavioural interventions were effective in increasing the proportion of smokers who were not smoking at the time they had surgery. The two trials using intensive interventions which started four to eight weeks before surgery had larger effects. Six trials of behavioural interventions assessed postoperative complications. Both trials of intensive interventions (210 participants) detected a reduction in complications in people receiving intervention, but the combined results of the four trials of brief interventions did not show a significant benefit. Only four trials of behavioural interventions followed up participants at twelve months. The two intensive interventions (209 participants) reduced the number of people smoking but the two brief interventions (341 participants) no longer showed a difference in the number of smokers. One trial of varenicline (286 participants), a pharmacotherapy shown to assist quitting in other groups of smokers, showed a benefit on cessation after twelve months, but did not show a benefit at the time of surgery or affect complications. In this trial smokers were only asked to stop the day before surgery.</p> <p>Smokers have a substantially increased risk of postoperative complications. Preoperative smoking intervention may be effective in decreasing this incidence, and surgery may constitute a unique opportunity for smoking cessation interventions.</p>
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<p>Cahill K and Lancaster T (2014) Workplace interventions for smoking cessation, <i>Cochrane Database of Systematic Reviews 2014, Issue 2 Art No: CD003440</i></p>	<p>This is an update of a review first published in 2003. Interventions were categorised into those aimed at helping individual smokers, and those that targeted the workplace environment as a whole.</p> <p>The review found that programmes based on group behaviour therapy (eight trials; 1309 participants), on individual counselling (eight trials; 3516 participants), on medications (five trials; 1092 participants), and on several interventions combined (six trials; 5018 participants) helped people to stop smoking. The chances of stopping smoking using these methods are about the same in the workplace as they are in other settings.</p> <p>This review found that the following do not help people to stop smoking when delivered in the workplace: self-help methods, support from friends, family and workmates, relapse prevention programmes, environmental cues, or comprehensive programmes aimed at changing several high-risk behaviours.</p> <p>Results were mixed for incentives, with one high-quality trial finding a clear benefit for incentives while the remaining five did not.</p> <p>Authors' conclusions:</p> <p>There is strong evidence that some interventions directed towards individual smokers increase the likelihood of quitting smoking. These include individual and group counselling, pharmacological treatment to overcome nicotine addiction, and multiple interventions targeting smoking cessation as the primary or only outcome. All these interventions show similar effects whether offered in the workplace or elsewhere. Self-help interventions and social support are less effective. Although people taking up these interventions are more likely to stop, the absolute numbers who quit are low.</p> <p>The review failed to detect an effect of comprehensive programmes targeting multiple risk factors in reducing the prevalence of smoking, although this finding was not based on meta-analysed data.</p> <p>There was limited evidence that participation in programmes can be increased by competitions and incentives organized by the employer, although one trial demonstrated a sustained effect of financial rewards for attending a smoking cessation course and for long-term quitting.</p>
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<p>Carson K V, Brinn M P, Labiszewski N A, Esterman A J, Chang A B and Smith B J (2013) Community interventions for preventing smoking in young people, <i>Cochrane Database of Systematic Reviews 2013, Issue 6 Art No: CD001291</i></p>	<p>A review of randomized and non randomized controlled trials that assess the effectiveness of multi-component community interventions compared to no intervention or to single component or school-based programmes only in influencing smoking behaviour, including preventing the uptake of smoking in young people.</p> <p>Twenty-five studies were included in the review. All studies used a controlled trial design, with fifteen using random allocation of schools or communities. One study reported a reduction in short-term smoking prevalence (twelve months or less), while nine studies detected significant long-term effects. Two studies reported significantly lower smoking rates in the control population while the remaining thirteen studies showed no significant difference between groups. Improvements were seen in secondary outcomes for intentions to smoke in six out of eight studies, attitudes in five out of nine studies, perceptions in two out of six studies and knowledge in three out of six studies, while significant differences in favour of the control were seen in one of the nine studies assessing attitudes and one of six studies assessing perceptions.</p> <p>Authors' conclusions: There is some evidence to support the effectiveness of community interventions in reducing the uptake of smoking in young people, but the evidence is not strong and contains a number of methodological flaws.</p>
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<p>Civiljak M, Stead L F, Hartmann-Boyce J, Sheikh A and Car J. (2013) Internet-based interventions for smoking cessation, <i>Cochrane Database of Systematic Reviews 2013, Issue 7 Art No: CD007078</i></p>	<p>To determine the effectiveness of Internet-based interventions for smoking cessation. The review included randomized and quasi-randomized trials. Participants were people who smoked, with no exclusions based on age, gender, ethnicity, language or health status. Any type of Internet intervention was eligible. The comparison condition could be a no-intervention control, a different Internet intervention, or a non-Internet intervention.</p> <p>Fifteen trials compared an Internet intervention to a non-Internet-based smoking cessation intervention or to a no-intervention control. In a post hoc subgroup analysis, pooled results from three trials that compared interactive and individually tailored interventions to usual care or written self help detected a statistically significant effect in favour of the intervention (RR 1.48, 95% CI 1.11 to 2.78). However all three trials were judged to be at high risk of bias in one domain and high statistical heterogeneity was detected ($I^2 = 53\%$), with no obvious clinical explanation. Pooled results from two studies of an interactive, tailored intervention involving the Internet and automated phone contacts also detected a significant effect (RR 2.05, 95% CI 1.42 to 2.97, $I^2 = 42\%$). Results from a sixth study comparing an interactive but non-tailored intervention to control did not detect a significant effect, nor did the seventh study, which compared a non-interactive, non-tailored intervention to control. Three trials comparing Internet interventions to face-to-face or phone counselling also did not detect evidence of an effect, nor did two trials evaluating Internet interventions as adjuncts to other behavioural interventions. A trial in college students increased point prevalence abstinence after 30 weeks but had no effect on sustained abstinence. Two small trials in adolescents did not detect an effect on cessation compared to control. Fourteen trials, all in adult populations, compared different Internet sites or programmes. Pooled estimates from three trials that compared tailored and/or interactive Internet programmes with non-tailored, non-interactive Internet programmes did not detect evidence of an effect (RR 1.12, 95% CI 0.95 to 1.32, $I^2 = 0\%$). One trial detected evidence of a benefit from a tailored email compared to a non-tailored one, whereas a second trial comparing tailored messages to a non-tailored message did not detect evidence of an effect. Trials failed to detect a benefit of including a mood management component (three trials), or an asynchronous bulletin board.</p> <p>Authors' conclusions: Results suggest that some Internet-based interventions can assist smoking cessation at six months or longer, particularly those which are interactive and tailored to individuals. However, the trials that compared Internet interventions with usual care or self help did not show consistent effects and were at risk of bias.</p>
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<p>Rice V, Hartmann-Boyce J and Stead L F (2013) Nursing interventions for smoking cessation, <i>Cochrane Database of Systematic Reviews 2013, Issue 8. Art. No.: CD001188</i></p>	<p>A review of randomized trials of smoking cessation interventions delivered by nurses or health visitors, with follow-up of at least six months, to determine the effectiveness of nursing-delivered smoking cessation interventions.</p> <p>Forty-nine studies met the inclusion criteria. Pooling 35 studies (over 17,000 participants) comparing a nursing intervention to a control or to usual care, the authors found the intervention to increase the likelihood of quitting (RR 1.29; 95% CI 1.20 to 1.39). In a subgroup analysis the estimated effect size was similar for the group of seven studies using a particularly low intensity intervention but the confidence interval was wider. There was limited indirect evidence that interventions were more effective for hospital inpatients with cardiovascular disease than for inpatients with other conditions. Interventions in non-hospitalized adults also showed evidence of benefit. Eleven studies comparing different nurse-delivered interventions failed to detect significant benefit from using additional components. Six studies of nurse counselling on smoking cessation during a screening health check or as part of multi-factorial secondary prevention in general practice (not included in the main meta-analysis) found nursing intervention to have less effect under these conditions.</p> <p>Authors' conclusions: The results indicate the potential benefits of smoking cessation advice and/or counselling given by nurses, with reasonable evidence that intervention is effective. The evidence for an effect is weaker when interventions are brief and are provided by nurses whose main role is not health promotion or smoking cessation.</p>
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<p>Cahill K, Stevens S, Perera R and Lancaster T (2013) Pharmacological interventions for smoking cessation: an overview and network meta-analysis, <i>Cochrane Database of Systematic Reviews 2013, Issue 5. Art. No.: CD009329</i></p>	<p>There are a number of medications which can help people to quit smoking. Three of these, nicotine replacement therapy (NRT), bupropion and varenicline, are licensed for this purpose in the USA and Europe. Cytisine (similar to varenicline) is licensed for use in Russia and Eastern Europe. This review examined these and other treatments, including nortriptyline, to compare their benefits and risks. NRT and bupropion helped about 80% more people to quit than placebo; (for every 10 people who quit with placebo about 18 could be expected to quit with NRT or with bupropion). Varenicline more than doubled the chances of quitting compared with placebo, (for every 10 who quit with placebo about 28 could be expected to quit with varenicline).</p> <p>Varenicline helped about 50% more people to quit than nicotine patch and 'other' NRT (tablets, sprays, lozenges and inhalers), and about 70% more people than nicotine gum. So for every 10 people who quit with NRT patch or with 'other' NRT, about 15 could be expected to quit with varenicline, and for every 10 who quit with NRT gum about 17 could be expected to quit with varenicline. Combining two type of NRT was as effective as using varenicline, and helped more people to quit than single types of NRT. There was little to choose between different types of NRT, apart from 'other' NRT, which helped slightly more people than nicotine gum; for every 10 people who quit with NRT gum, about 12 could be expected to quit with 'other' NRT.</p> <p>NRT combined with nortriptyline or with bupropion was not more effective than NRT alone.</p> <p>Both cytisine and nortriptyline compared with placebo improved the chances of quitting, with minimal risk of harms.</p> <p>Bupropion carries a known risk of seizures (about 1 per 1000 users), but fewer than expected were found in the included and excluded trials, at about 1 in 1500. Although there may be a marginal increase in the likelihood of any serious adverse event while taking bupropion, the review did not find increased risks of neuropsychiatric or heart and circulatory problems in the bupropion studies. The evidence for the safety of varenicline is still under investigation; the review found no evidence from the trials that it is linked to an increase in neuropsychiatric problems, or with increased heart and circulatory problems.</p> <p>Clonidine helped people to quit, but caused side effects. It is not clear whether or not mecamlamine used with NRT helps people to quit. Other treatments did not seem to help. So far, nicotine vaccines are not licensed for use anywhere in the world. Nicobrevin is no longer available in the UK, and rimonabant, taranabant and dianicline have all been withdrawn from the market.</p>
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<p>Chamberlain C, O'Mara-Eves A, Oliver S, Caird J R, Perlen S M, Eades S J and Thomas J (2013) Psychosocial interventions for supporting women to stop smoking in pregnancy, <i>Cochrane Database of Systematic Reviews 2013, Issue 10. Art No: CD001055</i></p>	<p>Tobacco smoking in pregnancy remains one of the few preventable factors associated with complications in pregnancy, stillbirth, low birth-weight and preterm birth and has serious long-term implications for women and babies.</p> <p>This review showed that psychosocial interventions to support women to stop smoking increased the proportion of women who stopped smoking in late pregnancy and reduced the number of low birth-weight and preterm births. There did not appear to be any adverse effects from the psychosocial interventions, and three studies measured an improvement in women's psychological wellbeing.</p> <p>The review included 86 randomised controlled trials, with data from seventy-seven trials (involving over 29,000 women). Nearly all studies were in high-income countries. The intervention that supported the most women to stop smoking in pregnancy appeared to be providing incentives. However, these results are based on only four trials with a small number of women (all in the US), and they only seemed to help women stop smoking when provided intensively (three trials). Counselling also appeared to be effective in supporting women to quit, but only when combined with other strategies (27 trials). The effectiveness of counselling was less clear when women in the control group received a less intensive smoking intervention (16 trials). Feedback also appeared to help women quit, but only when compared with usual care and combined with other strategies (two studies). It was unclear whether health education alone helped women quit, but the numbers of women involved in these trials were comparatively small. The evidence for social support was mixed; for instance, targeted peer support appeared to help women quit (five trials) but in one trial partner support did not. Women also reported that peer and partner support could be both helpful and unhelpful.</p> <p>Increasing the frequency and duration of the intervention did not appear to increase the effectiveness. Interventions appeared to be as effective for women who were poor, as those who were not; but there is insufficient evidence that the interventions were effective for ethnic (five trials) and aboriginal women (two trials). Trials where the interventions became part of routine pregnancy care did not appear to help more women to quit, which suggests there are challenges to translating this evidence into practice.</p>
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<p>van der Meer R M, Willemsen M C, Smit F and Cuijpers P (2013) Smoking cessation interventions for smokers with current or past depression, <i>Cochrane Database of Systematic Reviews 2013, Issue 8 Art No: CD006102</i></p>	<p>A review to determine whether treatments to help people quit smoking are effective for people with current depression or with a history of depression.</p> <p>Treatments were divided into those with or without specific attention to handling depression. The review found that smoking cessation treatments with specific attention to handling depression helped smokers who suffered from depression to quit. Psychosocial 'mood management' interventions, where participants learn how to handle depressive symptoms with psychological techniques, were effective in those with current depression and with a history of it. Bupropion, an antidepressant medication to help quit smoking, has been shown to be effective for smoking cessation in healthy smokers. Findings show that bupropion may benefit smokers with a history of depression as well. However, this was not found for those with current depression. There was a lack of evidence for the effectiveness of other antidepressants to help smokers with a history of depression to quit. There was also not enough evidence for the use of antidepressants in smokers with current depression. Although treatments without specific attention to handling depression, such as nicotine replacement therapy and standard psychosocial smoking cessation interventions, have been shown to help other groups of people to quit smoking, there was not enough evidence to show that they were helpful in people with a history of or with current depression.</p> <p>Authors' conclusions: Evidence suggests that adding a psychosocial mood management component to a standard smoking cessation intervention increases long-term cessation rates in smokers with both current and past depression when compared with the standard intervention alone. Pooled results from four trials suggest that use of bupropion may increase long-term cessation in smokers with past depression. There was no evidence found for the use of bupropion in smokers with current depression. There was not enough evidence to evaluate the effectiveness of the other antidepressants in smokers with current or past depression. There was also not enough evidence to evaluate the group of trials that investigated interventions without specific mood management components for depression, including NRT and psychosocial interventions.</p>
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<p>Stead L F and Lancaster T. (2012) Behavioural interventions as adjuncts to pharmacotherapy for smoking cessation, <i>Cochrane Database of Systematic Reviews 2012, Issue 12. Art. No.: CD009670</i></p>	<p>Medications (including all types of nicotine replacement therapy, bupropion and varenicline) have been shown to help people quit smoking. It has been unclear how much additional benefit is gained from also providing behavioural support, such as counselling or a telephone quitline. Combined results from 38 trials suggests that increasing the amount of behavioural support (in person or via telephone) increases the chances of quitting smoking for the long term by about 10 to 25%. The effect may be a little greater when adding some support compared to no support, and a little smaller when more support is compared to some support. Providing some personal contact is beneficial, and people making a quit attempt with pharmacotherapy will increase their chances of success if they also have access to behavioural support.</p> <p>Authors' conclusions: Providing behavioural support in person or via telephone for people using pharmacotherapy to stop smoking has a small but important effect. Increasing the amount of behavioural support is likely to increase the chance of success by about 10 to 25%, based on a pooled estimate from 38 trials. A subgroup analysis of a small number of trials suggests the benefit could be a little greater when the contrast is between a no contact control and a behavioural intervention that provides at least four sessions of contact. Subgroup analysis also suggests that there may be a smaller incremental benefit from providing even more intensive support via more or longer sessions over and above some personal contact.</p>
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<p>Stead L F and Lancaster T (2012) Combined pharmacotherapy and behavioural interventions for smoking cessation, <i>Cochrane Database of Systematic Reviews 2012, Issue 10 Art No: CD008286</i></p>	<p>To assess the effect of combining behavioural support and medication to aid smoking cessation, compared to a minimal intervention or usual care, and to identify whether there are different effects depending on characteristics of the treatment setting, intervention, population treated, or take-up of treatment.</p> <p>This review includes 41 studies which compare combinations of behavioural support and medication to help smokers to stop compared to groups receiving usual care or less behavioural support. One large study found a very strong treatment effect; it had an intensive intervention which included extended availability of nicotine gum, multiple group sessions, and long term contact to help maintain abstinence or encourage additional quit attempts. Because it was not typical of most treatment programmes, it was not included when the results from the included studies were combined although it shows that such intensive support can be very effective. Based on the remaining 40 studies, it was found that using a combination of behavioural support and medication might typically increase the chances of a person successfully quitting smoking by 70 to 100 per cent compared to their chance of success if they just received brief advice or support. There was no clear evidence that providing more contact time increased the effect of the intervention, and there was only weak evidence that studies offering a larger number of behavioural support sessions had larger effects. However, looking at studies where most people used the treatments offered, there was some evidence that intensive support was more effective.</p> <p>Authors' conclusions: Interventions that combine pharmacotherapy and behavioural support increase smoking cessation success compared to a minimal intervention or usual care. Further trials would be unlikely to change this conclusion. We did not find strong evidence from indirect comparisons that offering more intensive behavioural support was associated with larger treatment effects but this could be because intensive interventions are less likely to be delivered in full.</p>
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<p>Ussher M H, Taylor A and Faulkner G (2012) Exercise interventions for smoking cessation, <i>Cochrane Database of Systematic Reviews 2012, Issue 1. Art. No.: CD002295</i></p>	<p>Exercise is routinely recommended as an aid to smoking cessation by specialist clinics and self-help materials.</p> <p>The review identified 15 trials, seven of which had fewer than 25 people in each treatment arm. They varied in the timing and intensity of the smoking cessation and exercise programmes. Three studies showed significantly higher abstinence rates in a physically active group versus a control group at end of treatment. One of these studies also showed a significant benefit for exercise versus control on abstinence at the three-month follow up and a benefit for exercise of borderline significance ($p = 0.05$) at the 12-month follow up. One study showed significantly higher abstinence rates for the exercise group versus a control group at the three-month follow up but not at the end of treatment or 12-month follow up. The other studies showed no significant effect for exercise on abstinence.</p> <p>Authors' conclusions: Only one of the 15 trials offered evidence for exercise aiding smoking cessation at a 12-month follow up. All the other trials were too small to reliably exclude an effect of intervention, or included an exercise intervention which was insufficiently intense to achieve the desired level of exercise.</p>
<p>Whittaker R, McRobbie H, Bullen C, Borland R, Rodgers A and Gu Y (2012) Mobile phone-based interventions for smoking cessation, <i>Cochrane Database of Systematic Reviews, Issue 11 Art No: CD006611</i></p>	<p>Five studies with at least six month cessation outcomes were included in this review. Three studies involve a purely text messaging intervention that has been adapted over the course of these three studies for different populations and contexts. One study is a multi-arm study of a text messaging intervention and an internet QuitCoach separately and in combination. The final study involves a video messaging intervention delivered via the mobile phone. When all five studies were pooled, mobile phone interventions were shown to increase the long term quit rates compared with control programmes (RR 1.71, 95% CI 1.47 to 1.99, over 9000 participants), using a definition of abstinence of no smoking at six months since quit day but allowing up to three lapses or up to five cigarettes. Statistical heterogeneity was substantial as indicated by the I^2 statistic ($I^2 = 79\%$), but as all included studies were similar in design, intervention and primary outcome measure, we have presented the meta-analysis in this review.</p> <p>Combined, evidence from the five studies included in this review finds that interventions delivered by mobile phones can help people stop smoking, though the results from individual studies varied. The interventions included in this review mainly use text messaging to provide motivation, support and tips for quitting. There are no published studies on smartphone applications designed to help people stop smoking.</p>

<p>Brinn M P, Carson K V, Esterman A J, Chang A B and Smith B J (2010) Mass media interventions for preventing smoking in young people, <i>Cochrane Database of Systematic Reviews 2010, Issue 11 Art No: CD001006</i></p>	<p>To evaluate the effectiveness of mass media interventions to prevent smoking in young people in terms of reduced smoking uptake, in addition to secondary outcomes including improved smoking outcomes, attitudes, behaviours, knowledge, self-efficacy and perception.</p> <p>Campaigns which researched and developed their message to reach their target audience had a higher success rate than those which did not. Overall, effective campaigns lasted longer with a minimum of three consecutive years, and were also more intense than less successful ones for both school based lessons (minimum eight lessons per grade) and media spots (minimum 4 weeks' duration across multiple media channels with between 167 and 350 TV and radio spots). The timing and type of broadcast made a difference to their success, with older youths in one study preferring radio to television. Implementation of combined school based curriculum/components (i.e. school posters) and the use of repetitive media messages delivered via multiple channels (i.e. newspapers, radio, television) over a minimum period of three years contributed to successful campaigns. Changes in attitudes, knowledge or intention to smoke did not generally seem to affect the long-term success of the campaigns</p> <p>There is some evidence that mass media can prevent the uptake of smoking in young people, however the evidence is not strong and contains a number of methodological flaws.</p>
<p>Cahill K, Lancaster T and Green N (2010) Stage-based interventions for smoking cessation, <i>Cochrane Database of Systematic Reviews 2010, Issue 11 Art No: CD004492</i></p>	<p>The transtheoretical model is one of several stage-based theories of behaviour change. It suggests that smokers move through a series of motivational stages before they manage to stop smoking. These are <i>precontemplation</i> (no thoughts of quitting), <i>contemplation</i> (thinking about quitting), <i>preparation</i> (planning to quit in the next 30 days), <i>action</i> (quitting successfully for up to six months), and <i>maintenance</i> (no smoking for more than six months). According to this widely-known theory, programmes which help people to stop smoking should be matched to their stage of readiness to quit.</p> <p>The review found 41 trials (>33,000 participants) which met inclusion criteria. Four trials, which directly compared the same intervention in stage-based and standard versions, found no clear advantage for the staging component.</p> <p>Based on four trials using direct comparisons, stage-based self-help interventions (expert systems and/or tailored materials) and individual counselling were neither more nor less effective than their non-stage-based equivalents.</p>

<p>Barth J, Critchley J A, Bengel J (2008) Psychosocial interventions for smoking cessation in patients with coronary heart disease., <i>Cochrane Database of Systematic Reviews 2008, Issue 1.</i> Art. No.: CD006886</p>	<p>Smoking is a risk factor for coronary heart disease and stopping smoking lowers that risk. Psychosocial smoking cessation interventions such as behavioural therapy, telephone support and self-help materials are effective in helping coronary heart disease patients to stop smoking, if they are provided for over 1 month. The review found evidence that psychosocial interventions increased quit rates after 6 months. Most trials used a mixture of different intervention strategies, therefore no single strategy showed superior efficacy.</p> <p>The review found 16 RCTs meeting inclusion criteria. Interventions consist of behavioural therapeutic approaches, telephone support and self-help material and were either focused on smoking cessation alone or addressed several risk factors. The trials mostly included older male patients with CHD, predominantly myocardial infarction. Overall there was a positive effect of interventions on abstinence after 6 to 12 months (odds ratio (OR) 1.66, 95% confidence interval (CI) 1.25 to 2.22), but substantial heterogeneity between trials. Studies with validated assessment of smoking status at follow-up had lower efficacy (OR 1.44, 95% CI 0.99 to 2.11) than non-validated trials (OR 1.92, 95% CI 1.26 to 2.93). Studies were clustered by intervention strategy and intensity of the intervention. Clustering reduced heterogeneity, although many trials used more than one type of intervention. The ORs for different strategies were similar (behavioural therapies OR 1.69, 95% CI 1.33 to 2.14; telephone support OR 1.58, 95% CI 1.28 to 1.97; self-help OR 1.48, 95% CI 1.11 to 1.96). More intense interventions showed increased quit rates (OR 1.98, 95% CI 1.49 to 2.65) whereas brief interventions did not appear effective (OR 0.92, 95% CI 0.70 to 1.22). Two trials had longer term follow-up, and did not show any benefits after 5 years.</p> <p>Authors' conclusions: Psychosocial smoking cessation interventions are effective in promoting abstinence at 1 year, provided they are of sufficient duration.</p>
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<p>van der Meer R M, Wagena E, Ostelo R W J G, Jacobs A J E and van Schayck C P (2003) Smoking cessation for chronic obstructive pulmonary disease, <i>Cochrane Database of Systematic Reviews 2003, Issue 2. Art. No.: CD002999</i></p>	<p>Smoking cessation is the most important treatment for smokers with chronic bronchitis and emphysema. Smoking cessation interventions can be divided into psychosocial interventions (e.g. counselling, self-help materials, and behavioural therapy) and pharmacotherapy (e.g. nicotine replacement therapy, bupropion). Although a lot of research has been done on the effectiveness of interventions for "healthy" smokers, the effectiveness of smoking cessation interventions for smokers with chronic bronchitis and emphysema has so far gained far less attention. However, there is some evidence that combining psychosocial intervention with pharmacotherapy could be effective for this group of smokers trying to quit smoking.</p> <p>Five studies were included in this systematic review, two of which were of high-quality. The high-quality studies show the effectiveness of psychosocial interventions combined with pharmacological intervention compared to no treatment: psychosocial interventions combined with nicotine replacement therapy (NRT) and a bronchodilator versus no treatment at a 5 year follow-up (RD = 0.16, 95% CI 0.14 to 0.18), (RR = 4.0, 95% CI 3.25 to 4.93), psychosocial interventions combined with NRT and placebo versus no treatment at a 5 year follow-up (RD = 0.17, 95% CI 0.14 to 0.19), (RR = 4.19, 95% CI 3.41 to 5.15). Furthermore the results show the effectiveness of various combinations of psychosocial and pharmacological interventions at a 6 months follow-up (RD = 0.07, 95% CI 0.0 to 0.13), (RR = 1.74, 95% CI 1.01 to 3.0). None of the included studies compared psychosocial interventions with no treatment so there was no evidence with regard to the effectiveness of the interventions.</p> <p>This systematic review found evidence that a combination of psychosocial interventions and pharmacological interventions is superior to no treatment or to psychosocial interventions alone. It concludes that there is no clear or convincing evidence for the effectiveness of any psychosocial intervention for patients with COPD due to lack of a sufficient number of high-quality studies.</p>
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<p>Secker-Walker R, Gnich W, Platt S and Lancaster T (2002) Community interventions for reducing smoking among adults, <i>Cochrane Database of Systematic Reviews 2002, Issue 3 Art No: CD001745</i></p>	<p>To assess the effectiveness of community interventions for reducing the prevalence of smoking. Although intervention communities often showed substantial awareness of their programme, this rarely led to higher quit rates. Similarly, increased knowledge of health risks, changes in attitudes to smoking, more quit attempts, and better environmental and social support for quitting were not accompanied by reductions in community smoking levels. In the best designed trials, light to moderate smokers did slightly better than heavy smokers (the US COMMIT study), and men did a little better than women (the Australian CART study), but overall smoking rates remained similar between intervention and control communities.</p> <p>Thirty-seven studies were included, of which 17 included only one intervention and one comparison community. Only four studies used random assignment of communities to either the intervention or comparison group. The population size of the communities ranged from a few thousand to over 100,000 people. Change in smoking prevalence was measured using cross-sectional follow-up data in 21 studies. The estimated net decline ranged from -1.0% to +3.0% for men and women combined (11 studies). For women, the decline ranged from -0.2% to + 3.5% per year (n=11), and for men the decline ranged from -0.4% to +1.6% per year (n=12). Cigarette consumption and quit rates were only reported in a small number of studies. The two most rigorous studies showed limited evidence of an effect on prevalence. In the US COMMIT study there was no differential decline in prevalence between intervention and control communities, and there was no significant difference in the quit rates of heavier smokers who were the target intervention group. In the Australian CART study there was a significantly greater quit rate for men but not women.</p> <p>Authors' conclusions: The failure of the largest and best conducted studies to detect an effect on prevalence of smoking is disappointing.</p>
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d) Smoking - Interventions

Study	Methods	Findings
<p>Alpert H R, Connolly G N and Biener L (2013) A prospective cohort study challenging the effectiveness of population-based medical intervention for smoking cessation, <i>Tobacco Control</i> 22 (1) : 32-37</p>	<p>To examine the population effectiveness of nicotine replacement therapies (NRTs), either with or without professional counselling, and provide evidence needed to better inform healthcare coverage decisions.</p> <p>A prospective cohort study was conducted in three waves on a probability sample of 787 Massachusetts adult smokers who had recently quit smoking. The baseline response rate was 46%; follow-up was completed with 56% of the designated cohort at wave 2 and 68% at wave 3. The relationship between relapse to smoking at follow-up interviews and assistance used, including NRT with or without professional help, was examined</p>	<p>About one-quarter of recent quitters at each wave reported to have relapsed by the subsequent interview. Odds of relapse were unaffected by use of NRT for >6 weeks either with (p=0.117) or without (p=0.159) professional counselling and were highest among prior heavily dependent persons who reported NRT use for any length of time without professional counselling (OR 2.68).</p> <p>Conclusions This study finds that persons who have quit smoking relapsed at equivalent rates, whether or not they used NRT to help them in their quit attempts. Cessation medication policy should be made in the larger context of public health, and increasing individual treatment coverage should not be at the expense of population evidence-based programmes and policies.</p>

<p>Chan S S C, Leung D Y P, Abdullah A S M, Wong V T, Hedley A J and Lam T-H (2011) A randomized controlled trial of a smoking reduction plus nicotine replacement therapy intervention for smokers not willing to quit smoking, <i>Addiction</i> 106 (6) : 1155-1163</p>	<p>To examine the effectiveness of smoking reduction counselling plus free nicotine replacement therapy (NRT) for smokers not willing to quit.</p> <p>A total of 1154 Chinese adult smokers not willing to quit but who were interested in reducing smoking were allocated randomly to three arms. Intervention group A1 (n = 479) received face-to-face counselling on smoking reduction and adherence to NRT at baseline, 1 week and 4 weeks with 4 weeks of free NRT. Group A2 (n = 449) received the same intervention, but without the adherence intervention. Control group B (n = 226) received simple cessation advice at baseline.</p> <p>Measures: Self-reported 7-day point prevalence of tobacco abstinence and reduction of cigarette consumption (=50%) at 6 months and continuous use of NRT for 4 weeks at 3 months.</p>	<p>Using intention-to-treat analysis, compared to control group B, the intervention groups (A1 + A2) had achieved higher 6-month tobacco abstinence (17.0% versus 10.2%, P = 0.01) and reduction rates (50.9% versus 25.7%, P < 0.001). There was no significant difference in the 4-week NRT adherence rate at 3 months, but group A1 achieved a higher abstinence rate than group A2 at 6 months (20.9% versus 12.9%; P = 0.001).</p> <p>Conclusions: In smokers with no immediate plans to quit, smoking reduction programmes with behavioural support and nicotine replacement therapy are more effective than brief advice to quit. Current guidelines recommend advice to quit on medical grounds as the best clinical intervention in this group of smokers, but smoking reduction programmes offer an alternative and effective option.</p>
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<p>Walker N, Howe C, Bullen C, Grigg M, Glover M, McRobbie H, Laugesen M, Jiang J, Chen M-H, Whittaker R and Rodgers A (2011) Does improved access and greater choice of nicotine replacement therapy affect smoking cessation success? Findings from a randomized controlled trial, <i>Addiction</i> 106 (6) : 1176-1185</p>	<p>A single-blind, randomized controlled trial in New Zealand to determine the effect of offering smokers who want to quit easy access to nicotine replacement therapy (NRT), a period of familiarization and choice of product on smoking abstinence at 6 months.</p> <p>A total of 1410 adult smokers who called the national Quitline for quitting support were randomized to usual Quitline care or a box containing different NRT products (patch, gum, inhaler, sublingual tablet, oral pouch) to try for a week prior to quitting, and then to choose one or two of these products for 8 weeks' use.</p> <p>The primary outcome was 7-day point prevalence smoking abstinence 6 months after quit day. Secondary outcomes included continuous abstinence, cigarette consumption, withdrawal, NRT choice and serious adverse events at 1 and 3 weeks and 3 and 6 months.</p>	<p>No differences in 6-month quit rates (7-day point prevalence or continuous abstinence) were observed between the groups. However, smokers allocated to the intervention group were more likely to have quit smoking at 3 months [self-reported point prevalence, relative risk (RR) = 1.17, 95% confidence interval (CI): 1.02, 1.35, P = 0.03], had a longer time to relapse (median 70 days versus 28 days, P < 0.01) and used significantly more NRT. The selection box concept was highly acceptable to users, with the patch and inhaler combination the most popular choice (34%).</p> <p>Conclusions: In terms of smoking abstinence at 6 months, offering smokers who want to quit free access to a wide range of nicotine replacement therapy, including a 1-week period of familiarization and choice of up to two products, appears no different to offering reduced cost and choice of nicotine replacement therapy, with no familiarization period.</p>
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<p>Tashkin D P, Rennard S, Hays J T, Ma W, Lawrence D and Lee T C (2011) Effects of Varenicline on Smoking Cessation in Patients With Mild to Moderate COPD: A Randomized Controlled Trial, <i>Chest</i> 139 (3) : 591-599</p>	<p>Smoking is the most important risk factor for COPD and accelerates its progression. Despite the health implications, a large proportion of patients with COPD continue to smoke, so finding effective smoking cessation interventions for this population is paramount. This may be the first randomized clinical trial to compare the efficacy and safety of varenicline tartrate vs placebo in smokers with mild to moderate COPD.</p> <p>In a 27-centre, double-blind, multinational study, 504 patients with mild to moderate COPD (postbronchodilator FEV₁/FVC < 70%; FEV₁ percent predicted normal value at least 50%) and without known psychiatric disturbances were randomized to receive varenicline (n = 250) or placebo (n = 254) for 12 weeks, with a 40-week non-treatment follow-up. The primary end point was carbon monoxide-confirmed continuous abstinence rate (CAR) for weeks 9 to 12. A secondary end point was CAR for weeks 9 to 52.</p>	<p>CAR for weeks 9 to 12 was significantly higher for patients in the varenicline group (42.3%) than for those in the placebo group (8.8%) (OR, 8.40; 95% CI, 4.99-14.14; P < .0001).</p> <p>CAR in the patients treated with varenicline remained significantly higher than in those treated with placebo through weeks 9 to 52 (18.6% vs 5.6%) (OR, 4.04; 95% CI, 2.13-7.67; P < .0001).</p> <p>Nausea, abnormal dreams, upper-respiratory tract infection, and insomnia were the most commonly reported adverse events (AEs) for patients in the varenicline group. Serious AEs were infrequent in both treatment groups. Two patients in the varenicline group and one patient in the placebo group died during the study. Reports of psychiatric AEs were similar for both treatment groups.</p> <p>Conclusions: Varenicline was more efficacious than placebo for smoking cessation in patients with mild to moderate COPD and demonstrated a safety profile consistent with that observed in previous trials.</p>
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<p>Siegel M B, Tanwar K L and Wood K S (2011) Electronic Cigarettes As a Smoking-Cessation Tool : Results from an Online Survey, <i>American Journal of Preventive Medicine</i> 40 (4) : 472-475</p>	<p>Electronic cigarettes (e-cigarettes) are battery-powered devices that deliver nicotine without any combustion or smoke.</p> <p>This study aimed to examine the effectiveness of e-cigarettes for smoking cessation using a survey of smokers who had tried e-cigarettes.</p> <p>Using as a sampling frame a cohort of all first-time purchasers of a particular brand of e-cigarettes during a 2-week period, a cross-sectional, online survey was conducted in 2010 to describe e-cigarette use patterns and their effectiveness as a smoking-cessation tool. There were 222 respondents, with a survey response rate of 4.5%. The primary outcome variable was the point prevalence of smoking abstinence at 6 months after initial e-cigarette purchase.</p>	<p>The primary finding was that the 6-month point prevalence of smoking abstinence among the e-cigarette users in the sample was 31.0% (95% CI=24.8%, 37.2%). A large percentage of respondents reported a reduction in the number of cigarettes they smoked (66.8%) and almost half reported abstinence from smoking for a period of time (48.8%). Those respondents using e-cigarettes more than 20 times per day had a quit rate of 70.0%. Of respondents who were not smoking at 6 months, 34.3% were not using e-cigarettes or any nicotine-containing products at the time.</p> <p>Conclusions: Findings suggest that e-cigarettes may hold promise as a smoking-cessation method and that they are worthy of further study using more-rigorous research designs.</p>
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<p>Free C, Knight R, Robertson S, Whittaker R, Edwards P, Zhou W, Rodgers A, Cairns J, Kenward M G and Roberts I (2011) Smoking cessation support delivered via mobile phone text messaging (txt2stop): a single-blind, randomised trial, <i>The Lancet</i> 378 (9785) : 49-55</p>	<p>Smoking cessation programmes delivered via mobile phone text messaging show increases in self-reported quitting in the short term. This study assessed the effect of an automated smoking cessation programme delivered via mobile phone text messaging on continuous abstinence, which was biochemically verified at 6 months.</p> <p>In this single-blind, randomised trial, undertaken in the UK, smokers willing to make a quit attempt were randomly allocated, using an independent telephone randomisation system, to a mobile phone text messaging smoking cessation programme (txt2stop), comprising motivational messages and behavioural-change support, or to a control group that received text messages unrelated to quitting. The system automatically generated intervention or control group texts according to the allocation. Outcome assessors were masked to treatment allocation. The primary outcome was self-reported continuous smoking abstinence, biochemically verified at 6 months. All analyses were by intention to treat.</p> <p>11 914 participants were assessed for eligibility. 5800 participants were randomised, of whom 2915 smokers were allocated to the txt2stop intervention and 2885 were allocated to the control group; eight were excluded because they were randomised more than once.</p>	<p>Primary outcome data were available for 5524 (95%) participants. Biochemically verified continuous abstinence at 6 months was significantly increased in the txt2stop group (10.7% txt2stop vs 4.9% control, relative risk [RR] 2.20, 95% CI 1.80—2.68; $p < 0.0001$). Similar results were obtained when participants that were lost to follow-up were treated as smokers (268 [9%] of 2911 txt2stop vs 124 [4%] of 2881 control [RR 2.14, 95% CI 1.74—2.63; $p < 0.0001$]), and when they were excluded (268 [10%] of 2735 txt2stop vs 124 [4%] of 2789 control [2.20, 1.79—2.71; $p < 0.0001$]). No significant heterogeneity was shown in any of the pre-specified subgroups.</p> <p>Conclusion: The txt2stop smoking cessation programme significantly improved smoking cessation rates at 6 months and should be considered for inclusion in smoking cessation services.</p>
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<p>Rigotti N A, Pipe A L, Benowitz N L, Arteaga C, Garza D and Tonstad S (2010) Efficacy and Safety of Varenicline for Smoking Cessation in Patients With Cardiovascular Disease: A Randomized Trial, <i>Circulation</i> 121 : 221-229</p>	<p>Smoking cessation is a key component of secondary cardiovascular disease prevention. Varenicline, a partial $\alpha 4\beta 2$ nicotinic acetylcholine receptor agonist, is effective for smoking cessation in healthy smokers, but its efficacy and safety in smokers with cardiovascular disease are unknown.</p> <p>A multicentre, randomized, double-blind, placebo-controlled trial compared the efficacy and safety of varenicline with placebo for smoking cessation in 714 smokers with stable cardiovascular disease. Participants received varenicline (1 mg twice daily) or placebo, along with smoking-cessation counselling, for 12 weeks. Follow-up lasted 52 weeks. The primary end point was carbon monoxide-confirmed continuous abstinence rate for weeks 9 through 12 (last 4 weeks of treatment).</p>	<p>The continuous abstinence rate was higher for varenicline than placebo during weeks 9 through 12 (47.0% versus 13.9%; odds ratio, 6.11; 95% confidence interval [CI], 4.18 to 8.93) and weeks 9 through 52 (19.2% versus 7.2%; odds ratio, 3.14; 95% CI, 1.93 to 5.11). The varenicline and placebo groups did not differ significantly in cardiovascular mortality (0.3% versus 0.6%; difference, -0.3%; 95% CI, -1.3 to 0.7), all-cause mortality (0.6% versus 1.4%; difference, -0.8%; 95% CI, -2.3 to 0.6), cardiovascular events (7.1% versus 5.7%; difference, 1.4%; 95% CI, -2.3 to 5.0), or serious adverse events (6.5% and 6.0%; difference, 0.5%; 95% CI, -3.1 to 4.1). As a result of adverse events, 9.6% of varenicline and 4.3% of placebo participants discontinued study drug.</p> <p>Conclusions: Varenicline is effective for smoking cessation in smokers with cardiovascular disease. It was well tolerated and did not increase cardiovascular events or mortality; however, trial size and duration limit definitive conclusions about safety.</p>
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<p>van der Aalst C M, van den Bergh K A M, Willemsen M C, de Koning H J and van Klaveren R J (2010) Lung cancer screening and smoking abstinence: 2 year follow-up data from the Dutch–Belgian randomised controlled lung cancer screening trial, <i>Thorax</i> 65 : 600-605</p>	<p>Lung cancer screening may provide a new opportunity for attempts to quit among smokers or might delay smoking cessation, but studies to date failed to provide evidence for this. This study investigated the effect of lung cancer screening on smoking abstinence in male smokers participating in the Dutch–Belgian randomised controlled lung cancer screening trial (NELSON trial).</p> <p>In the NELSON trial, 50- to 75-year-old participants at high risk for developing lung cancer were randomised to either lung cancer screening or no screening. Smoking behaviour was evaluated in two random samples of male smokers in the screen (n=641) and control arm (n=643) before (T0) and 2 years after randomisation (T1). In addition, the data were also analysed by intention-to-treat (ITT) analysis, as recommended in smoking cessation intervention trials, although non-response in screening trials can also be due to reasons other than continued smoking.</p>	<p>Almost 17% (16.6%) of the trial participants quit smoking, which is higher than the 3–7% found in the general adult population. However, screening was associated with a lower prolonged abstinence rate (14.5%) compared with no screening (19.1%) (OR 1.40, 95% CI 1.01 to 1.92; p<0.05). No statistically significant difference was found after performing an ITT analysis.</p> <p>Conclusions: This study showed that all trial participants were inclined to stop smoking more than average, which suggests that screening is a teachable moment to improve smoking behaviour. In those who underwent screening the smoking abstinence rate was significantly lower than for the control group, although the difference was modest. After ITT analysis this difference was no longer observed.</p>
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<p>MacPherson L, Tull M T, Matusiewicz A K, Rodman S, Strong D R, Kahler C W, Hopko D R, Zvolensky M J, Brown R A and Lejuez C W (2010) Randomized controlled trial of behavioral activation smoking cessation treatment for smokers with elevated depressive symptoms., <i>Journal of Consulting and Clinical Psychology</i> 78 (1) : 55-61</p>	<p>Depressive symptoms are associated with poor smoking cessation outcomes, and there remains continued interest in behavioural interventions that simultaneously target smoking and depressive symptomatology. This pilot study examined whether a behavioural activation treatment for smoking (BATS) can enhance cessation outcomes.</p> <p>A sample of 68 adult smokers with mildly elevated depressive symptoms (M = 43.8 years of age; 48.5% were women; 72.7% were African American) seeking smoking cessation treatment were randomized to receive either BATS paired with standard treatment (ST) smoking cessation strategies including nicotine replacement therapy (n = 35) or ST alone including nicotine replacement therapy (n = 33). BATS and ST were matched for contact time and included 8 sessions of group-based treatment. Quit date was assigned to occur at Session 4 for each treatment condition. Participants completed a baseline assessment; furthermore, measures of smoking cessation outcomes (7-day verified point-prevalence abstinence), depressive symptoms, and enjoyment from daily activities were obtained at 1, 4, 16, and 26 weeks post assigned quit date.</p>	<p>Across the follow-ups over 26 weeks, participants in BATS reported greater smoking abstinence (adjusted odds ratio = 3.59, 95% CI [1.22, 10.53], p = .02) than did those in ST. Participants in BATS also reported a greater reduction in depressive symptoms (B = -1.99, SE = 0.86, p = .02) than did those in ST.</p> <p>Authors conclusions: Results suggest behavioural activation treatment for smoking (BATS) is a promising intervention that may promote smoking cessation and improve depressive symptoms among underserved smokers of diverse backgrounds.</p>
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<p>Lang I, Rice N, Wallace R, Guralnik J and Melzer D (2007) Smoking cessation and transition into retirement: analyses from the English Longitudinal Study of Ageing, <i>Age and Ageing</i> 36 (6) : 638-643</p>	<p>Transitions such as retirement may represent points at which changes in health behaviour occur. A population-based prospective cohort study in England to assess whether transition into retirement is associated with increased rates of smoking cessation.</p> <p>One thousand seven hundred and twelve smokers aged 50 years and over were followed up for 5 to 6 years.</p> <p>Measurements: work status (working/retired) and smoking status (non-smoker/smoker) at baseline and follow-up.</p> <p>At baseline, 381 (22.2%) of respondents had retired, 444 (25.9%) were working and remained in work at follow-up, and 167 (9.8%) transitioned from work to retirement. Seven hundred and twenty (42.1%) had some other status (e.g. unpaid work/unemployment).</p>	<p>A total of 42.5% (95% CI 34.9–50.1) of those who retired quit smoking; for those remaining in employment this figure was 29.3% (95% CI 25.0–33.6), and for those already retired it was 30.2% (95% CI 25.5–34.9). In adjusted regression analyses, those aged 55–70 who retired were more than twice as likely (fully adjusted odds ratio 2.50 (95% CI 1.35–4.62)) to quit smoking as those who continued to work. Results were robust when those who retired for reasons of ill-health were excluded.</p> <p>Conclusions: Results suggest individuals who undergo the transition into retirement are more likely to quit smoking than those who do not. Interventions should be developed to specifically target those who are retiring, or soon to retire, and those who are due to retire should be helped to incorporate smoking cessation into their retirement planning.</p>
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