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National Obesity  
Observatory



# Treating adult obesity through lifestyle change interventions

## A briefing paper for commissioners

March 2010



## Introduction

This briefing paper aims to support commissioners by providing a brief guide to current best available evidence on the effective treatment of obesity through lifestyle change interventions for adults who are overweight or obese.

For the purpose of this paper 'effective' is defined as interventions that can demonstrate positive lifestyle changes to help adults achieve a healthy weight. Parallel papers are available from the National Obesity Observatory (NOO) for preventing and treating obesity among children and young people.

The paper is concerned with services available for the treatment of obesity among adults (aged 18+)<sup>a</sup> with a focus on diet, physical activity, or both in combination. It covers a range of approaches including interventions conducted with individuals on a one-to-one basis or in groups, and in clinical or community settings. The paper refers to any service that explicitly sets out to reduce body weight or prevent further weight gain among adults who are currently defined as obese or at risk of becoming obese. Medical interventions such as bariatric surgery and drugs, or wider environmental interventions such as changes to the built environment are not included.

This paper has been commissioned to support the theme of 'effective services for those at risk' in *Healthy Weight, Healthy Lives: One Year On*.<sup>1</sup> It should also be seen in the context of the recent five year plan for the NHS<sup>2</sup> and the NHS Operating Framework.<sup>3</sup>

The evidence presented has been extracted from national guidance documents and systematic reviews. More detailed guidance on obesity is available in the *Healthy Weight Healthy Lives toolkit*.<sup>4</sup> Also of note will be the forthcoming guidance on 'whole systems approaches to preventing obesity' being published by the National Institute of Clinical Excellence in 2012.

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<sup>a</sup> Note that QOF targets refer to people aged 16+. The evidence base does not tend to differentiate between interventions aimed at people aged 16+ or 18+, although it does seem likely that the evidence presented here is applicable to both age groups.

## Background

The prevalence of obesity among adults has increased sharply in recent years. The proportion of people categorised as obese (BMI 30kg/m<sup>2</sup> or over) increased from 13% of men in 1993 to 24% in 2008 and from 16% of women in 1993 to 25% in 2008.<sup>5</sup>

However, the most recent Health Survey for England has found that the rate of increase in obesity prevalence has been slower in the second half of the period than the first half, and there are indications that the trend may be flattening out, at least temporarily.<sup>5</sup>

The Foresight report<sup>6</sup> referred to obesity as a “complex web of societal and biological factors that have, in recent decades, exposed our inherent human vulnerability to weight gain”. The report presented an obesity system map with energy balance at its centre. Around this, over 100 variables directly or indirectly influence energy balance. These variables can be broadly categorised into biology, food consumption and environment, physical activity and activity environment, individual psychology and societal influences.

The most recent rigorous and systematic reviews of the evidence for tackling obesity have been undertaken by (NICE)<sup>7</sup> and the Cochrane Collaboration.<sup>8-14</sup> The NICE review contains evidence from primary research published up to 2005 while the Cochrane reviews contain evidence up to 2004 or 2007, depending on the individual review. The data from these reviews have been extracted for this paper and are shown in Appendices 1 and 2.

The Cochrane review focuses solely on high quality data from randomised controlled trials (RCTs). NICE reviews acknowledge that a strict focus only on RCTs may produce insufficient evidence of effectiveness, and in many cases may be inappropriate for the types of interventions being considered. NICE reviewers therefore extract data from a variety of sources, with the evidence weighted according to its quality.

***Overall, the evidence summarised in this briefing shows that there is sufficient evidence to justify well-targeted action to manage and treat adult obesity.***

The evidence base however, tends to lack detail on the effectiveness of specific approaches or individual programmes, with the result that guidance tends to be somewhat general in nature. For example, both evidence reviews identify a huge variation in study design and a general lack of evidence from: UK studies; standard service settings; studies with long (more than one year) follow up; studies that include robust cost effectiveness data; and from interventions with vulnerable and minority groups.

As it is essential that we continue to tackle obesity, this paper has been produced to provide a summary of best available evidence upon which to commission new interventions. The National Obesity Observatory recommends that all new programmes, for which evidence of effectiveness does not already exist, are thoroughly evaluated. This will ensure the gaps identified by NICE and Cochrane are filled, resulting in a stronger evidence base, and improvements to future commissioning. Guidance on evaluation is available in the NOO Standard Evaluation Framework<sup>15</sup> ([www.noo.org.uk/sef](http://www.noo.org.uk/sef)).

## Commissioning overview

Given the prevalence of obesity and seriousness of associated co-morbidities, commissioning of effective weight management services should be given a high priority. It is important for commissioners to be aware of the multifaceted nature of obesity and the challenges of defining effective interventions. It may, for example, be difficult to demonstrate the effectiveness of a specific intervention within a short timescale given the complex interplay of different environmental, biological and social determinants. Although this might result in small changes at individual level the public health impacts at population level have the potential to be significant.

It is also important to see the commissioning of weight management interventions as part of a wider approach to the development of local care pathways for obesity. This should address all the relevant stages from screening patients to identify those who would benefit from an intervention, through offering brief interventions in primary care, before referring to a specific weight management service. Reference should be made to *Let's Get Moving*, the care pathway for physical activity.<sup>16</sup> Parallel work is being undertaken by the Department of Health on an obesity care pathway, and a number of guidance documents are available focusing on more specific guidance for commissioners.<sup>b</sup>

The evidence presented in this paper is also intended to assist with the World Class Commissioning competency Five, which refers to the need to: 'Manage knowledge and undertake robust and regular needs assessments that establish a full understanding of current and future local health needs and requirements' and competency eleven (making sound financial investments).<sup>17</sup>

Although this briefing does not focus on pharmacological or surgical approaches to treating obesity, it is important to note that in some cases these will be a potentially important part of a care pathway for obesity. NICE guidance provides clear advice on when to consider drugs and surgery in addition to lifestyle interventions. Figure 1 shows that interventions on diet and physical activity should be considered for all people with a BMI over 30, but that for people with higher BMIs and larger waist circumferences, there may be a case to combine this with drugs and/or surgery.

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<sup>b</sup> See <http://www.dh.gov.uk/Commissioning>  
and [http://www.dh.gov.uk/en/PublicHealth/HealthImprovement/Obesity/DH\\_112937](http://www.dh.gov.uk/en/PublicHealth/HealthImprovement/Obesity/DH_112937)

A guide to deciding the initial level of intervention to discuss				
BMI classification	Waist circumference			Co-morbidities present
	Low	High	Very high	
Overweight				
Obesity I				
Obesity II				
Obesity III				

General advice on healthy weight and lifestyle.  
 Diet and physical activity.  
 Diet and physical activity; consider drugs.  
 Diet and physical activity; consider drugs; consider surgery.

Figure from NICE obesity guidance<sup>c,18</sup>

The following therefore provides a summary of the current best available evidence, which should be incorporated within the service specification for any commissioned weight management services.

<sup>c</sup> Overweight = BMI 25-29.9; Obesity I = BMI 30-34.9; Obesity II = BMI 35-39.9; Obesity III = BMI 40+

## **NICE and Cochrane evidence<sup>7, 8-14</sup>**

### **Intervention content**

#### **The importance of multi-component tailored interventions**

- Interventions should be multi-component and focus on diet and physical activity together, rather than attempting to modify either diet or physical activity alone. There is good evidence that interventions which provide support and advice on physical activity and diet together are more likely to be effective for weight outcomes than single-component approaches.
- Weight management interventions should include behaviour change strategies to: increase people's physical activity levels and/or decrease inactivity; improve eating behaviour and the quality of the person's diet; reduce energy intake.
- Many interventions have the potential to be delivered to families as well as to individuals.
- All interventions should be tailored to the individual and provide on-going support. Health professionals should discuss the range of weight management options with people who want to lose or maintain their weight, or are at risk of weight gain, and help them decide what best suits their circumstances and what they may be able to sustain in the long term. This might include a motivational interviewing approach if using appropriately trained staff.

#### **Physical activity component**

- The physical activity component of interventions should focus on activities that fit easily into people's everyday lives (such as walking, cycling or dance) and are tailored to people's individual preferences and circumstances.
- Interventions should aim to improve people's belief in their ability to change (for example, by verbal persuasion, modelling exercise behaviour and discussing positive effects). Ongoing support (including appropriate written materials) should be given in person or by phone, mail or internet.
- Interventions aimed at people who have been obese and have lost weight should emphasise that it may be necessary to be active for 60–90 minutes a day to avoid re-gaining weight.

## Dietary component

- The dietary components of interventions should aim to improve diet and reduce energy intake, and should bring together a number of components such as dietary modification, targeted advice, family involvement and goal setting.
- Dietary changes should be individualised, tailored to food preferences and allow for flexible approaches to reducing calorie intake. In the longer term, people should move towards eating a balanced diet, consistent with other healthy eating advice.
- The main requirement of a dietary approach to weight loss is that total energy intake should be less than energy expenditure. Diets that have a 600 kcal/day deficit (that is, they contain 600 kcal less than the person needs to stay the same weight) or that reduce calories by lowering the fat content (low-fat diets), in combination with expert support and intensive follow-up, are recommended for sustainable weight loss.
- Low-calorie diets (1000–1600 kcal/day) may also be considered, but are less likely to be nutritionally complete. Very-low-calorie diets (less than 1000 kcal/day) may be used for a maximum of 12 weeks continuously, or intermittently with a low-calorie diet (for example for 2–4 days a week), by people who are obese and have reached a plateau in weight loss. Low glycaemic index or load diets can be effective.
- Any diet of less than 600 kcal/day should be used only under clinical supervision.

## Behavioural component

- Behavioural interventions for adults should include the following strategies tailored to the needs of the individual:
  - self monitoring of behaviour and progress
  - stimulus control
  - goal setting
  - slowing rate of eating
  - ensuring social support
  - problem solving
  - assertiveness
  - cognitive restructuring (modifying thoughts)
  - reinforcement of changes
  - relapse prevention
  - strategies for dealing with weight regain
- Both behaviour therapy and cognitive behaviour therapy have been found to be effective in leading to weight loss among people who are overweight or obese. Cognitive therapy alone was not found to be

effective as a weight loss treatment. Other psychological forms of therapy such as relaxation therapy and hypnotherapy may be tried, although there is less evidence of their effectiveness.

- Interventions may include promotional, awareness-raising activities, but these should be part of a long-term, multi-component intervention rather than one-off activities. A social marketing approach can be used to help understand the needs of the target population and tailor resources accordingly.

### **Commercial and community-based weight management programmes**

- Self-help, commercial, or community weight management programmes should only be commissioned if they follow best practice, by:
  - helping people assess their weight and decide on a realistic healthy target weight (people should usually aim to lose 5–10% of their original weight)
  - aiming for a maximum weekly weight loss of 0.5–1 kg
  - focusing on long-term lifestyle changes rather than a short-term, quick-fix approach
  - being multi-component, addressing both diet and activity, and offering a variety of approaches
  - using a balanced, healthy-eating approach
  - recommending regular physical activity (particularly activities that can be part of daily life, such as brisk walking and gardening) and offering practical, safe advice about being more active
  - including some behaviour-change techniques, such as keeping a diary and advice on how to cope with 'lapses' and 'high-risk' situations
  - recommending and/or providing ongoing support
- If commercial, community and/or self-help weight management programmes are recommended, commissioners should ensure that there is on-going monitoring of patients and provision of support and care.

## Specific issues and population groups

- Well designed and evidence-based interventions are likely to be applicable to most population groups. However, there are some population groups that may require specific tailored interventions.
- Health professionals should discuss weight, diet and activity with people at times when weight gain is more likely, such as during and after pregnancy, the menopause and while stopping smoking.
- Specific interventions should be considered for women who have gained weight following childbirth. NICE guidance on weight management in pregnancy and after childbirth is in preparation, but the existing evidence suggests that diet combined with exercise or diet alone compared to usual care seem to enhance postpartum weight loss.
- Interventions should be considered for overweight or obese people with elevated blood glucose levels (defined as 'pre-diabetic'). There is evidence that dietary, physical activity, or behavioural interventions produced significant improvements in weight among people with pre-diabetes and a significant decrease in diabetes incidence.
- Tailored interventions should be considered for people from black and minority ethnic groups, although there is very limited evidence of the effectiveness of public health interventions among black and minority ethnic groups in general. In the UK, Interventions targeted at people of South Asian origin are particularly important as this group shows raised obesity-related risk at lower BMI and lower waist circumference levels than the White population.<sup>19</sup>
- Tailored and targeted interventions should be considered for people from low income groups. This may mean maximising access to the intervention through 'outreach' programmes.
- Disability should be taken into account in the design and delivery of any intervention. Evidence is scarce in this area although there is some evidence to suggest that interventions may prevent excessive weight gain in the short term in overweight adults with Down's syndrome.

## Outcome measures

- The key outcome measure for weight management interventions is a reduction in overweight or obesity, usually defined as body mass index (BMI). As a person's height is unlikely to change, the key measure is body weight.
- It is important to note that significant health benefits can be achieved from modest amounts of weight loss. Realistic targets for weight loss for adults are usually seen to be a maximum weekly weight loss of 0.5–1 kg, and a total loss of 5–10% of original body weight over the period of the intervention.
- Weight loss targets should be related to starting weight; eg people with BMI under 40 may be encouraged to aim for a loss of 5% body weight while those with BMI >40 might aim for >10%.
- Interventions should stress that physical activity is important even if participants do not lose weight, because of the other health benefits physical activity can bring, such as reduced risk of type 2 diabetes and cardiovascular disease.
- Similarly, people should be encouraged to improve their diet even if they do not lose weight, because there are significant other health benefits such as reduced risk of cancer.
- In cases where patients have been referred to integrated programmes as part of an obesity care pathway, it is important to monitor the primary reason for referral (eg nutrition, physical activity, or psycho-social outcomes).

### **Additional NOO recommendations:**

- All programmes should be thoroughly evaluated. Good quality evaluations will strengthen the evidence base and support effective commissioning in the future. The Department of Health recommends that interventions are evaluated using the NOO Standard Evaluation Framework for weight management interventions.<sup>15</sup> Validated measurement methods should be used wherever possible.
- Programmes should be aligned with government messages such as '5 A DAY', the CMO's recommendation for physical activity, and social marketing campaigns such as Change4Life.
- Programmes should aim to be enjoyable, engaging and easy for the target audience to access.
- Given the limited robust effectiveness data currently available, it may be beneficial (where financially viable), to examine innovative approaches and programmes, as long as these are based on a clear theoretical framework, and are well evaluated.
- There is good evidence for the effectiveness of brief interventions in primary care in promoting physical activity,<sup>16</sup> and these may be useful components of any coordinated obesity prevention intervention.
- Evidence from the NICE guidance on behaviour change is also relevant for lifestyle interventions to prevent obesity.<sup>20</sup> The guidance suggests that effectiveness is enhanced when people:
  - understand the likely impact of their behaviour on their health
  - feel positive/optimistic about changing their behaviour
  - make a personal commitment to change
  - set goals to undertake specific actions over a specified time
  - plan changes in terms of easy steps
  - plan for events or situations that might get in the way of change
  - share their behaviour change goals with others

NB A series of case studies that support these recommendations is being compiled on the National Obesity Observatory website. If you would like more information or to submit a case study please contact: [info@noo.org.uk](mailto:info@noo.org.uk)

## Appendix 1

### Summary of evidence from NICE: Management of obesity in non-clinical settings<sup>7</sup>

Full evidence summaries are also available in *Healthy Weight, Healthy Lives: A toolkit for developing local strategies*.<sup>4</sup>

- In both children and adults, there is a paucity of good-quality evidence on the effectiveness of interventions in non-clinical settings.
- There is limited evidence on the effectiveness of interventions based in non-clinical settings to manage obesity in adults (particularly men).
- There is moderate evidence that a multi-component commercial group programme may be more effective than a standard self-help programme. It remains unclear whether the branded commercial group programme for which there is evidence of effectiveness (WeightWatchers) is more or less effective than other branded commercial programmes.
- There is no strong evidence to support the use of meal replacement products over a standard low-calorie diet.
- There is limited evidence that interventions to manage obesity based in workplace settings can be effective, though weight loss may be small in the long term.
- There is some evidence that computer/email/internet-based programmes accompanied by greater ongoing support – in person, by post or email – may be more effective than those without support.
- The effectiveness of commercial and computer-based weight loss programmes in men remains unclear.
- There is limited evidence that a diverse range of novel, multi-component community-based interventions may be effective in the management of obesity, including a peer-led programme and a group-based and individual-based weight loss programme in a religious-based setting, a home-based exercise programme (accompanied by regular group sessions) and programme providing information through interactive television.
- Among both children and adults, interventions in non-clinical settings that are shown to be effective in terms of weight management, are likely to demonstrate significant improvements in participants' dietary intakes (most commonly fat and calorie intake) or physical activity levels.
- The majority of studies identified were undertaken in the USA but many of the principles may be generalisable to the UK.
- It remains unclear whether the effectiveness of programmes in children or adults varies by age, gender, ethnicity or social status.

- It remains unclear whether the effectiveness of programmes varies by whether participants have previously attempted to lose or maintain their weight.
- The impact of participant joining fees and participant costs on the long-term effectiveness in 'real life' commercial programmes remains unclear.
- There is insufficient evidence to identify strategies in non-clinical settings that are associated with the long-term maintenance of weight and continuation of improved behaviours among overweight and obese adults and children.
- It remains unclear whether the source of delivery (both the main intervention and ongoing support) has an influence on effectiveness.
- There is insufficient evidence to assess the importance of the source of delivery (for example, health professional versus volunteer worker) on the effectiveness of programmes for children or adults.
- None of the identified studies considered inter-agency or inter-professional partnerships.

## **Appendix 2**

### **Summary of evidence from Cochrane reviews**

#### **Exercise or exercise and diet for preventing type 2 diabetes mellitus<sup>10</sup>**

- Interventions varied between studies but mainly consisted of caloric restriction if the person was overweight, low fat content (especially saturated fat), high carbohydrate content and the increase of fibre intake. Physical activity varied but on average at least 150 minutes each week of brisk walking or other activities such as cycling or jogging were recommended. Interventions were mainly delivered by frequent individual counselling by a physiotherapist, an exercise physiologist and a dietician. Incidence of diabetes was reduced by 37% (relative risk reduction) with exercise and diet. This had favourable effects on body weight, waist circumference and blood pressure.

#### **Long-term non-pharmacological weight loss interventions for adults with prediabetes<sup>9</sup>**

- Dietary, physical activity, or behavioural interventions produced significant improvements in weight among people with pre-diabetes and a significant decrease in diabetes incidence. Modest, but not statistically significant improvements were noted in the few studies that examined blood sugar control, blood pressure, and lipid levels.

#### **Exercise for overweight or obesity<sup>12</sup>**

- Exercise has a positive effect on body weight and cardiovascular disease risk factors in people with overweight or obesity, particularly when combined with diet. Exercise improves health even if no weight is lost.

#### **Psychological interventions for overweight or obesity<sup>11</sup>**

- Cognitive behaviour therapy and behaviour therapy significantly improved the success of weight loss, while cognitive therapy alone 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.

#### **Low glycaemic index or low glycaemic load diets for overweight and obesity<sup>13</sup>**

- Participants receiving the low glycaemic index or load diet lost a mean of one kilogramme more than those on comparison diets. Lipid profile also improved more in participants receiving the low glycaemic index or load diet.

## **Diet or exercise, or both, for weight reduction in women carrying excess weight after childbirth<sup>8</sup>**

- Preliminary findings suggest that diet combined with exercise or diet alone compared to usual care seemed to enhance weight loss during postpartum. Thus, there is potential for this to play a role in preventing future maternal obesity. However, there was insufficient evidence to be sure and a lack of sufficient data for women who are breastfeeding. In addition, it seems preferable to lose weight through a combination of dieting and exercise to dieting alone because exercise is thought to improve circulation and heart fitness, and to preserve lean body mass.

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## Reader Information

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