What interventions are available to treat obesity and what works?

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Patterns and trends in adult obesity

Trend in obesity prevalence among adults
Health Survey for England 1993 to 2017 (three-year averages)
Adult BMI status by sex
Health Survey for England 2017

**Adult (aged 16+) BMI thresholds:**
- Underweight: <18.5kg/m²
- Healthy weight: 18.5 to <25kg/m²
- Overweight: 25 to <30kg/m²
- Obese: ≥30kg/m²

**Men**
- Healthy weight: 31.5%
- Overweight: 39.8%
- Obese: 27.4%
- Underweight: 1.4%

**Women**
- Healthy weight: 36.7%
- Overweight: 31.5%
- Obese: 30.0%
- Underweight: 1.8%
Obesity harms health

- Heart disease
- Stroke
- Depression and anxiety
- Sleep apnoea
- Cancer
- Asthma
- Liver disease
- Reproductive complications
- Type 2 diabetes
- Osteoarthritis
- Back pain
Obesity is associated with increased mortality

30% higher mortality for every 5 kg/m² rise in BMI

Adjusted for age, smoking and study
OVERWEIGHT AND OBESITY IS THE UK'S BIGGEST CAUSE OF CANCER AFTER SMOKING

Brain and other central nervous system
- Thyroid
- Oesophagus
- Breast
- Liver
- Stomach
- Kidney
- Gallbladder
- Pancreas
- Bowel
- Ovary
- Uterus
- Myeloma

Larger circles indicate more UK cancer cases

Circle size here is not relative to other infographics based on Brown et al 2019.
Source: Brown et al, British Journal of Cancer, 2018

LET'S BEAT CANCER SOONER
cr.uk.org/prevention
BMI and risk of diabetes

Weight loss interventions reduce premature mortality

Systematic review of 34 RCTs of weight loss interventions for adults who are obese

Weight loss treatment vs control:
Risk ratio = 0.82
(95% CI:0.71-0.95)

Equivalent to 6 fewer deaths per 1000 (95% CI = 2-10)
Diabetes Prevention Program:
Sustained reductions in diabetes incidence - despite weight regain

Lancet, 14 (2009), pp. 1677–1686
How common are weight-loss interventions in primary care?

Booth et al. BMJ Open 2014
Why do people with overweight and obesity not receive support to lose weight?

• Large number of patients
• Limited time
• Lack of awareness of effective/available interventions
• Concerns about weight regain
• Sensitivities in raising the issue of obesity
Treating obesity – what works?


Effectiveness of community weight loss groups

Commercial providers vs control:
-2.27 kg (95% CI: -2.81, -1.73); p<0.00001
Primary care referral to a community weight loss group increases weight loss
How many people ‘succeed’?

At least 5% weight loss

- BI: 0%
- 12wk: 10%
- 52wk: 30%

At least 10% of weight loss

- BI: 0%
- 12wk: 5%
- 52wk: 10%

1 in 4 offered a 12 week referral

2 in 5 offered a 1 y referral

1 in 8 offered a 12 week referral

1 in 6 offered a 1 y referral
(Very) Low Energy Total Diet Replacement

• **ALL** foods are replaced with specially formulated low-energy food replacement products, such as soups, shakes and bars, which provide around 800kcal day and all essential nutrients, vitamins and minerals, usually for 8-12 weeks

• Gradual food re-introduction

• Regular behavioural support
Total Diet Replacement for routine treatment of obesity: a randomised controlled trial

Primary outcome:
Weight loss at 1 y
TDR = -10.7 (9.6) kg
UC = -3.1 (7.0) kg

Adjusted difference:
-7.2 (-9.4, -4.9) kg; p<0.0001

Astbury, Jebb et al. BMJ. 2018 Sep 26;362:k3760
Weight loss can lead to remission from diabetes

Odds ratio per kg weight loss 1.32, 95% CI 1.23–1.41; p<0.0001

Lean et al. The Lancet. Dec 5 2017
What is the cost, and are there other options?

Low energy diets
(\sim 800\text{ kcal/day})

“Total Diet Replacement”

DiRECT: -10kg at 1y (vs 1kg)
\textbf{£1223/y}

Droplet: -10.7kg at 1y (vs 3.1kg)
\textbf{£830/y}

Real food?

In primary care?
DR MICHAEL MOSLEY: Convincing evidence that we CAN turn back the diabetes tsunami (but it's hard when hospitals keep giving patients sugar-packed breakfasts)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Intervention [Low-Carb.]</th>
<th>Control [High Carbs.]</th>
<th>Mean Difference</th>
<th>Mean Difference</th>
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<td>Mean</td>
<td>SD</td>
<td>Total</td>
<td>Mean</td>
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<td>7.9</td>
<td>1.3</td>
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</table>

Total (95% CI) 401

Heterogeneity $\tau^2 = 0.09, \chi^2 = 26.00, \text{df} = 7 (P = 0.0003), I^2 = 74\%$

Test for overall effect $Z = 2.34 (P = 0.02)$

- Researchers believe this is because many carbs raise blood sugar levels quicker, increasing hunger and make people more likely to gain weight.
• 3 month feasibility RCT
• 3 practices
• 33 patients

Reducing energy intake to 800-1000 calories/day

Cutting out carbohydrates

Eating fresh, healthy foods

Behavioural support programme
• 1 x GP appt (10mins)
• 4 x PN apt (65 mins)
Clinical outcomes at 12 weeks

DIAMOND intervention group

- Mean weight loss: **9.9kg** (SD 5.23, range 1.4-26.8kg)
- Mean reduction in HbA1c: **16.5mmol/mol** (SD 13.6mmol/mol, -3 to 52mmol/mol)

Control group

- Mean weight loss: **1.9kg** (SD 2.6kg, range -2.2 to 5.7kg)*
- Mean reduction in HbA1c: **0.3mmol/mol** (SD 3.1mmol/mol, range -6 to 4mmol/mol)*

*Between group difference p<0.001

Morris et al, 2019, in press
Are opportunistic interventions effective?

“While you’re here, I just wanted to talk about your weight…” said the doctor to their patient.

The BWEL (Testing a Brief intervention for WEight Loss in primary care) trial tested the effect of GPs advising people who are overweight about losing weight. At the end of a consultation about another health problem, GPs spent just 30 seconds advising their patient that the best way to lose weight was to attend a weight loss programme and offered an NHS referral to a weight-loss group in their local community.

- 30 seconds to carry out this brief opportunistic intervention.
- 40% attended the weight management programme they were referred to.
- On average after 1 year compared with 1.04kg in the control group.
- 25% lost 5% of their bodyweight over 12 months.
- 4 out of 5 patients agreed that the conversation with their doctor was appropriate and helpful.

What should I do?

State that a commercial weight management service like weight watchers or slimming world is the best way to lose weight
Encourage the patient to commit to attend
Ask the patient to book a follow-up appointment immediately following your consultation

Delivering Brief Interventions For Weight Loss

Best way to lose weight
Encourage commitment
Book follow-up
Delivering *successful* interventions

What you say and how you say it really matters.

Using audio-recordings from the BWeL trial we testing associations between doctors’ conversational techniques and patient outcomes.

Certain words or phrases are clearly related to:
1. patient agreement within the consultation
2. patient attendance of the programme
3. smooth/efficient delivery of the intervention
Four elements to a successful intervention

1. **Good News**: Describe referral as a positive thing
   - ‘I have an excellent opportunity to offer you…’

2. **It's Free**: Emphasise it’s free
   - ‘and the good news is it’s free for you’

3. **Would you be willing?**: Positive questions
   - ‘would you be willing to give it a go?’

4. **I think…**: Show your patient YOU are offering
   - ‘I think this could be a really good thing for you’
Summary

Offering support to lose weight leads to greater weight loss than self-management and is welcomed by patients.

Structured programmes lead to greater weight-loss than the ‘ad hoc’ interactions typical of weight management in routine care settings.

Community weight loss groups are cheap, effective and widely available.

Total diet replacement programmes lead to significantly greater weight loss.

Treating obesity is key to reducing morbidity and premature mortality. Outstanding challenge is to roll-out support to treat obesity at scale through routine healthcare contacts to all those who could benefit.
We have good evidence of how to help people lose weight.

What can we do to make weight management interventions a normal part of routine healthcare?
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