Real Life Weight Loss
What Works?

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My Declaration of Interest:
I have nothing to declare
Aims of the session

To explore the evidence surrounding the various management strategies used to treat the ever growing problem of obesity.

• Dietary Programmes
• Public Health Campaigns
• Promoting Physical Activity
• Pharmacotherapy
• Behaviour Therapy
• Bariatric Surgery
• Combination of the above?
Medical Complications of Obesity

Pulmonary disease
- abnormal function
- obstructive sleep apnea
- hypoventilation syndrome

Nonalcoholic fatty liver disease
- steatosis
- steatohepatitis
- cirrhosis

Gall bladder disease

Gynecologic abnormalities
- abnormal menses
- infertility
- PCOS

Osteoarthritis

Gout

Stroke

Cataracts

CHD Diabetes Dyslipidemia Hypertension

Severe pancreatitis

Cancer
- breast, uterus, cervix
- colon, esophagus, pancreas
- kidney, prostate

Phlebitis
- venous stasis
Social and economic impact..

• The consequences of obesity are far reaching. Being overweight and obese has adverse social consequences: discrimination, social exclusion, loss of or lower earnings, adverse consequences on the wider economy (working days lost and higher benefit payments) (Morgan et al 2010)
Why is it so hard to lose weight?

Central Signals

<table>
<thead>
<tr>
<th>Stimulate</th>
<th>Inhibit</th>
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<tbody>
<tr>
<td>NPY</td>
<td>α-MSH</td>
</tr>
<tr>
<td>AGRP</td>
<td>CART</td>
</tr>
<tr>
<td>galanin</td>
<td>CRH/UCN</td>
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<tr>
<td>Orexin-A</td>
<td>NE</td>
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<tr>
<td>dynorphin</td>
<td>GLP-I</td>
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<tr>
<td>α-MSH</td>
<td>5-HT</td>
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Peripheral signals

- Glucose
- CCK, GLP-1, Apo-A-IV
- Vagal afferents
- Insulin
- Ghrelin
- Leptin
- Cortisol

Peripheral organs

- Gastrointestinal tract
- Adipose tissue
- Adrenal glands

Food Intake

External factors

- Emotions
- Food characteristics
- Lifestyle behaviors
- Environmental cues
Degree of intervention dependent on severity (National Institute for Health and Clinical Excellence 2006)

<table>
<thead>
<tr>
<th>BMI Classification</th>
<th>Low waist circumference Males &gt; 94 cm Females &gt; 80 cm</th>
<th>High waist circumference Males &gt; 94-102cm Females &gt; 80-88cm</th>
<th>Very High waist circumference Males &gt;102cm Females &gt; 88cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight 26-29.9</td>
<td>Commence diet and physical activity programme</td>
<td>Commence diet and physical activity programme</td>
<td>Commence diet and physical activity programme</td>
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<tr>
<td>Obesity I 30.0-34.9</td>
<td>Commence diet and physical activity programme</td>
<td>Commence diet and physical activity programme</td>
<td>Commence diet and physical activity programme</td>
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<tr>
<td>Obesity II 35.0-39.9</td>
<td>Commence diet and physical activity programme and consider drug therapy</td>
<td>Commence diet and physical activity programme and consider drug therapy</td>
<td>Commence diet and physical activity programme and consider drug therapy</td>
</tr>
<tr>
<td>Obesity III 40.0 or above</td>
<td>Commence diet and physical activity programme. Drugs and or surgery</td>
<td>Commence diet and physical activity programme. Drugs and or surgery</td>
<td>Commence diet and physical activity programme. Drugs and or surgery</td>
</tr>
</tbody>
</table>
“Today I ate two bowls of dog food, a sandwich crust, some spaghetti that fell on the floor, half of your cat food, a wet tea bag, three bugs and the inside of a sneaker. How many grams of fat is that?”
Dieting

• Dieting is highly ineffective - 95% long term failure rate

• Often results in higher weight than before the diet

(British Dietetic Association 2006)

“When you deprive your body by dieting, it may interpret this as starvation and adapt as necessary to survive.”
The Pitfalls....

- Feelings of deprivation
- Binge eating on favorite foods (Massey & Hill 2012)
- Guilt
- Too few calories
- Metabolism lowers
- Increased fat storage
- Disordered eating is on the rise, especially among the adolescent
Meal Replacement Therapy

Convenient and remove responsibility for food choice from the individual (Shepherd 2010)

Weight loss plans based on snacks encourage snacking instead of regular eating and should be avoided! (Thomas & Bishop 2007)
Light, “lite” low in sugar?

• To say that a food is "light" or "lite", it must be at least 30% lower in at least one typical value such as calories or fat, than standard products

BEWARE

A "light" or "lite" version of one brand of crisps may contain the same amount of fat or calories as the standard version of another brand

Just because a food contains "no added sugar", this does not necessarily mean it has a low sugar content (NHS choices 2012)

Confusing food labelling systems don’t help!
Light, low fat, low in sugar?

• Increasing the proportion of complex carbohydrate foods in the diet facilitates a reduction in dietary energy intake and can increase weight loss (Rolls 2009).
Home Delivery Diets

All the meals, including snacks, are calorie-counted, portion-controlled and delivered to your door.

Eat “real” food, receive telephone support and learn about portion size, calories and exercise

Does this mean making healthier choices beyond the programme?

Meals don’t contain fruit, vegetables or dairy foods, which will be an additional expense.

This isn’t an approach that works in the longer term.

It’s vital to learn how to prepare or choose healthy food rather than relying on someone else (BDA 2012)
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 (Jolly et al 2011)

- **Objective** To assess the effectiveness of a range of weight management programmes in terms of weight loss.
- **Design** Eight arm randomised controlled trial.
- **Setting** Primary care trust in Birmingham, England.
- **Participants** 740 obese or overweight men and women with a comorbid disorder identified from general practice records.
- **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.
- **Main 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.
Does this work?

- 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).

Conclusion:

Commercially provided weight management services are more effective and cheaper than primary care based services led by specially trained staff, which are ineffective.
One sized approach does NOT fit all..

- 600 kcal deficit to daily diet required to promote slow steady weight loss of 0.5-1kg per week (National Institute for Health and Clinical Excellence 2006)
- Important! The heavier the person the greater their energy requirements.
- Body weight, age and gender also influences individual calorific requirements (Thomas & Bishop 2007)
- Quick fixes don’t work
- Don’t advise restricting or abstaining from any major macronutrients in the diet without supervision.
- Work with a qualified dietician to establish personal choices goals and plans for weight loss
How to Identify Fad Diets

• Promote dramatic weight loss.
  – Weight loss should be gradual and not exceed 2 pounds per week.
• Promote diets that are nutritionally unbalanced or extremely low in kilocalories.
  – Reasonable caloric intake is not less than 1200 per day.
  – Protein around .8 g/kg of body weight.
  – Fat around 20 to 30% of calories.
  – At least 100 g of carbs per day and 20 to 30 g of fiber per day.
  – Variety of fruits and vegetables.
  – At least 1 liter of water per day.
• Use liquid formulas rather than foods.
• Attempt to make clients dependent upon special foods, devices, or herbal remedies.
• Does not include exercise plan.
• Fail to encourage realistic lifestyle changes.
Key Messages

- up & about
  - get moving...

- 5 A DAY
  - it's easier than you think

- 60 active minutes
  - it all adds up

- sugar swaps
  - tasty alternative

- me sized meals
  - stay in control

- cut back fat
  - give fat the elbow
Public health campaigns have played a significant part in attempting to solve the crisis, and much research has been devoted to examining their impact and effectiveness (Bauman et al 2006).

“Don’t mention obesity” Is this a sensible option? (Piggin & Lee 2011)

Mentioning obesity may encourage “deselection” obesity is a very sensitive subject.. Imagery only.

Little evidence to suggest that community based and social marketing campaigns which target obesity provide substantial or lasting benefits (Walls et al 2011).
Management: drug treatment for adults (NICE 2010)

Drug treatment should be considered for adults:

- only after dietary and exercise advice have been started and evaluated
- for patients who have not reached their target weight or have reached a plateau

These recommendations update the NICE technology appraisal on orlistat
Orlistat

• The only recommended anti obesity drug in Europe
• Amphetamines, rimonabant and sibutramine licenses as anti-obesity drugs have been withdrawn because of their adverse effects (Derosa & Maffioli 2012)
• Does it work in the short and longer term?
Orlistat Plan (Waterfield 2010)

- PxE as part of overall obesity management plan
- In conjunction with hypo caloric diet
- Patient should have the following criteria

  BMI of 30.0kg/m2 or more
  BMI of 28.0kg/m2 or more with type 2 diabetes, hypertension or hypercholesterolemia

Therapy should only be considered beyond 3 months if patient has lost at least 5% of their initial bodyweight on commencement of drug therapy

Ethical.. Limits and benefits should always be discussed..

Best choice for obesity (Derosa & Maffioli 2012).
Side effects

• Oily leakage from rectum
• Flatulence
• Faecal urgency
• Liquid or oily stools
• Faecal incontinence
• Abdominal distension/pain
• Tooth and gingival disorders
• Respiratory and urinary tract infections
• Fatigue
• Anxiety
• Hypoglycaemia (BNF 2009)
• Drug interactions (sodium valporate, lamotrigene)
Future Research
(Simpson & Ashton 2010)

- Inhibition of nutrient absorption
- Enhancement of peripheral satiety and adiposity signals (Ghrelin peptide YY amylin (Derosa & Maffioli 2012)
- Alteration of metabolic rate or substrate use
- Action at CNS target causing altered energy balance
- Despite patient perceptions that herbal remedies are free of adverse effects, some supplements are associated with severe hepatotoxicity (Yellapu et al 2012)
- Ephedra-related compounds considered dangerous and should not be prescribed for weight control..
- The efficacy of majority of supplements for altering weight and body fat remain inconclusive (Laddu et al 2012)
Increasing Physical Activity
Encouraging Physical Activity

• Major challenge for health care professionals (Drummond 2002).
• I run around all day surely that's enough??
• Offer a pedometer (Bravata et al 2007)
• 30 minutes vigorous physical activity 5-7 days a week (norm) for weight loss need to increase to a min of 60 minutes MVPA per week (Scheoller et al 1997).
• Obese people may have trouble with walking and may present reduced postural control
• Start exercising without risk, or excessive strain on the joints and enjoy.. (Muller-Pinget et al 2012)
• Physical exercise alone or in combination with diet? (Lakka & Bouchard 2005).

Dynamic moderate intensity aerobic activity is best..(Donnelly et al 2009).
Transtheoretical Stages of Change

- Pre-contemplation
- Contemplation (Thinking about it Ambivalent about change)
- Preparation (Decision)
- Action (Changing)
- Maintenance (Trying to prevent relapse)
- Relapse (Trying not to be demoralized by the relapse)

Prochaska & DiClemente 1992
Evidence of success? (Tuah et al 2011)

• Transtheoretical model stages of change (TTM SOC) model has long been considered a useful interventional approach in lifestyle modification programmes, but its effectiveness in producing sustainable weight loss in overweight and obese individuals has been found to vary considerably.

• **Objective:** To assess the effectiveness of dietary and physical activity interventions based on the Transtheoretical model, to produce sustainable weight loss in overweight and obese adults.

• **Strategy:** 5 Studies were obtained from searches of multiple electronic bibliographic databases. Date of last search for The Cochrane Library was issue 10, 2010, for MEDLINE December 2010, for EMBASE January 2011 and for PSYCHINFO January 2011.

• **Conclusion:** TTM SOC and a combination of physical activity, diet and other interventions resulted in minimal weight loss, and there was no conclusive evidence for sustainable weight loss.

• The impact of TTM SOC as theoretical framework in weight loss management may depend on how it is used as a framework for intervention and in combination with other strategies like diet and physical activities.
Encouraging behaviour change?

- Tailored advice to individual specific needs
- Empower the client to take responsibility (Hindle & Mills 2012)
- Online behavioural therapy and frequent contact with an RD over 6 months demonstrated greater weight loss vs those who received education only (Laddu et al 2012)
- Facebook, twitter and weight loss? (Hwang et al 2012)
- Motivational Interviewing may enhance weight loss in obesity (Laddu et al 2012)
- Cognitive behavioural therapy can promote weight loss initially and weight regain during follow up.
- Phone calls and text messages (tele health) can support weigh loss management. (Haugen et al 2007).
- Smartphone apps and weight loss increasingly popular (Hindle & Mills 2012)
Consider surgery *if all* of the following conditions are met:

- the person has a BMI of 40 kg/m$^2$ or more, OR a BMI of 35 to 40 kg/m$^2$ plus other significant disease that could be improved with weight loss
- non-surgical measures have failed to achieve or maintain clinically beneficial weight loss for at least 6 months
- the person has been receiving or will receive intensive management in a specialist obesity service, such as psychological support
Is Bariatric Surgery the way forward?

• “Obese people have only themselves to blame – they ate all the pies”

• “They should go on a diet not have an operation”

• “The NHS shouldn’t treat them its their own fault”

• “Bariatric surgery is a waste of money”
Bariatric surgery examining the evidence..

- Conservative management of obesity such as life-style modification, exercise, dieting and behavioural changes have had little impact on the problem.
- Health and socioeconomic costs of obesity are on the rise in the UK.
- Bariatric surgery has been shown to offer a more sustaining weight reduction with concomitant improvement to health through resolution of co morbidities and long term benefits to the health service (Apau & Whiteing 2011)
- Bariatric surgery and taste: novel mechanisms of weight loss (Miras & leRoux 2010)
- Impairment in Grhelin circulation following Roux-en-y-gastric bypass may explain loss of appetite (Jacobsen et al 2012)
- Grhelin may also be partially responsible for improving glucose homeostasis (perterli et al 2012).
“They should go on a diet not have an operation”

• **Diets don’t work** – RCTs at 1 year
  - Low fat diet: 5.3 kg weight loss
  - Low calorie diet: 6.3 kg
    (1000 – 1600 cal / day)
  - Very low calorie diet: 13.4 kg
    (<1000 calorie / day)

• **Swedish Obese Subjects study**
  - Weight loss at 1 year: 0%
  - Weight loss at eight years: -0.9%
“Bariatric surgery is a waste of money”

Figure 2. Cost of gastric bypass surgery versus accumulated savings in drug costs (U.S. Dollars). The savings in drug costs paid for the cost of surgery in 32 months (C).

32% increase in paid workers

66% decrease in numbers claiming state benefits
“Bariatric surgery is a waste of money”

- Prescription costs savings if 10% of diabetics lost weight
  - England £140 million per year
  - CIOSCPCST £1.4 million per year
Nutritional Genomics

The study of how different foods can interact with particular genes to increase the risk of diseases such as type 2 diabetes, obesity, heart disease and some cancers.

Genes play an important role in modifying the response to weight loss and weight maintenance programs (Laddu et al 2012)

Goal: Use of personalized diets to prevent or delay the onset of disease and optimize and maintain human health.
• Action that can be taken by individuals (e.g. diet, exercise, positive parenting)
• The environment (e.g. advertising; food labelling; sponsorship, the built environment, local authority policies and facilities etc.)
• Clinical interventions (i.e. what are the effective interventions that clinicians can make on preventing and tackling obesity)
• Fiscal measures (taxation, minimum pricing, corporate or personal incentives)
• Education (nurseries, schools, further and higher education and public information)
Recommendations.. (Laddu et al 2012)

- Prevention is better than cure
- Clinicians have a primary responsibility to work with overweight/obese people demonstrating an upward trend in body mass
- Monitor weight regularly so trends can be identified
- Behavioural therapy/motivational interviewing or CBT can be effective but much support is needed
- Combine physical activity with energy restriction to promote weight loss
- Dietary supplements are not safe and should not be used
- Evidence based drug therapy may be helpful
- Commercial weight loss programmes may be effective in weight control but more evidence is needed
- For very obese individuals where diet, exercise and drug therapy has failed bariatric surgery may be the way forward in this group..
Recommendations for Child Obesity  
(NHS Information Centre 2012)

• Prevention is better than cure…
• Advocating promotion of physical activity at Government level
• Encourage families with parental obesity in prevention activities
• Encourage parenting models of healthy dietary choices
• The primary emphasis should be on prevention of weight gain and the maintenance of normal dietary patterns
• Weight loss should only be recommended in those children presenting with diabetes and hypertension (Lazarou 2012)
References

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And Finally..