Obesity management in primary care: Challenges and opportunities

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Understanding obesity and how it develops

key issues
1. Defining and measuring obesity
2. Engaging people with weight problems
3. Bias against people with obesity
4. How obesity develops
5. The process of weight gain and weight loss
Practical issues in managing obesity in primary care

1. Selecting and engaging patients into a program of care
2. Managing expectations and setting realistic goals
3. Referral options for specialist care
4. How to assess and identify appropriate dietary and physical activity change
5. Behaviour change strategies
6. Importance of multidisciplinary care
7. When and how to use more intensive therapies
8. Special issues with children
Defining and measuring obesity

Obesity in the media

MIDDLE-AGED SPREAD IS ‘DEMENTIA TIMEBOMB’

BY 2020 THE COST OF OBESITY IS FORECASTED TO BE £26.9 BILLION

THOUSANDS MORE TO GET OBESITY OPERATIONS ON THE NHS

The 22st girl ... aged ten

1 IN 5 CANCER DEATHS NOW CAUSED BY OBESITY

OBESITY BY NUMBERS

£16bn cost to the economy

5th highest prevalence of obesity, behind the USA, Mexico

£47bn cost of poor health

£425m recruitment costs

14% of elderly patients to have surgery

Childe and New Zealand

65000 more operations on the NHS

www#

#myPINT# 4

13/07/2017
DEFINITION OF OBESITY

OBESITY:
A condition of abnormal or excessive body fat accumulation, to the extent that health may be impaired

WHO, 1997

Obesity is usually assessed in terms of body mass index (BMI)

\[ \text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2} \]

<table>
<thead>
<tr>
<th>Classification</th>
<th>BMI (kg/m(^2))</th>
<th>Risk of co-morbidities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal range</td>
<td>18.5–24.9</td>
<td>Average</td>
</tr>
<tr>
<td>Overweight</td>
<td>≥ 25</td>
<td>Increased</td>
</tr>
<tr>
<td>Pre-obese</td>
<td>25–29.9</td>
<td>Increased</td>
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<tr>
<td>Obese class I</td>
<td>30.0–34.9</td>
<td>Moderate</td>
</tr>
<tr>
<td>Obese class II</td>
<td>35.0–39.9</td>
<td>Severe</td>
</tr>
<tr>
<td>Obese class III</td>
<td>≥ 40.0</td>
<td>Very severe</td>
</tr>
</tbody>
</table>

World Health Organization, 1998
Body Mass Index

- Simple, reliable measure
- Correlates significantly with body fat, morbidity, and mortality
- Useful population measure for indicating obesity
- Needs to be interpreted with caution in individuals

The relationship between BMI and body fat in 104 women aged 14-60 years

Webster et al. 1984
Potential problems with using BMI to assess obesity

- BMI may not accurately represent body fat levels in some individuals
- BMI does not define regional fat stores
- Total fat may not be the key health risk factor associated with adiposity
- The relationship between BMI and adiposity varies with ethnicity and other factors
- The relationship between BMI and health is modulated by a variety of factors

Approach for reporting different population BMI distribution recommended by WHO

- Suggested cutpoints for reporting population BMI distribution and specific action levels for populations and individuals
Regional fat distribution

Waist circumference is a surrogate marker of visceral fat

- Waist circumference is a predictor of mortality and chronic disease.
- It is a prognostic indicator along with BMI.
- The presence of excess body fat in the abdomen, when out of proportion to total body fat, is considered an independent predictor of risk factors and ailments associated with obesity.

Women

- >80 cm = Increased risk
- >88 cm = greatly increased risk

Men

- >94 cm = increased risk
- >102 cm = greatly increased risk

Relative risk of type 2 diabetes according to waist circumference (women)

<table>
<thead>
<tr>
<th>Waist circumference (cm)</th>
<th>Relative risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;71</td>
<td>4</td>
</tr>
<tr>
<td>71–75.9</td>
<td>8</td>
</tr>
<tr>
<td>76–81</td>
<td>12</td>
</tr>
<tr>
<td>81.1–86</td>
<td>16</td>
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<tr>
<td>86.1–91</td>
<td>20</td>
</tr>
<tr>
<td>91.1–96.3</td>
<td>24</td>
</tr>
<tr>
<td>≥96.4</td>
<td>24</td>
</tr>
</tbody>
</table>

Adapted from Carey et al. Am J Epidemiol 1997; 145: 614–9

Other measures of fatness

- Skinfold thickness
- Bio-electric impedance
- DEXA scans
- Body fat distribution by CT or MRI scans

Example of an abdominal CT scan
ASSESSING OBESITY: BMI, WAIST CIRCUMFERENCE, AND DISEASE RISK

<table>
<thead>
<tr>
<th></th>
<th>BMI (kg/m²)</th>
<th>Obesity Class</th>
<th>Men ≤ 102 cm (≤ 40 in)</th>
<th>Women ≤ 88 cm (≤ 35 in)</th>
<th>&gt; 102 cm (&gt; 40 in)</th>
<th>&gt; 88 cm (&gt;35 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt; 18.5</td>
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<tr>
<td>Normal</td>
<td>18.5 – 24.9</td>
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<tr>
<td>Overweight</td>
<td>25.0 – 29.9</td>
<td>Increased</td>
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<tr>
<td>Obesity</td>
<td>30.0 – 34.9</td>
<td>I</td>
<td>High</td>
<td></td>
<td>Very High</td>
<td></td>
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<tr>
<td></td>
<td>35.0 – 39.9</td>
<td>II</td>
<td>Very High</td>
<td></td>
<td>Very High</td>
<td></td>
</tr>
<tr>
<td>Extreme Obesity</td>
<td>≥ 40</td>
<td>III</td>
<td>Extremely High</td>
<td></td>
<td>Extremely High</td>
<td></td>
</tr>
</tbody>
</table>


Clinical assessment of overweight and obesity should:

- not be based on BMI alone
- consider level and duration of weight gain
- include a waist circumference measurement
- include assessment of other risk factors
- be based on age, gender, family history etc
Question:

What waist circumference is associated with a greatly increased risk of ill health in males:

a. 90 cm  
b. 102 cm  
c. 106 cm  
d. 92 cm

Engaging people with weight problems
Proportion of patients receiving assessment advice or referral; Health Improvement in Practice study, 2009

Source: Harris and Lloyd, ANPHA 2012

Reluctance to engage with patient with a weight problem

- Patients do not ask for advice about weight
- Lack of time to deal with complex issues in consultations
- Perceived lack of skills/capacity from practitioner to effectively address weight issues
- Lack of confidence around patient ability to effectively manage weight
- Challenges raising the topic
- Bias against patients with obesity

Tips for raising weight management with patients

Step 1.
Make the Most of the Patient Visit and Set an Effective Tone for Communication

Step 2.
Assess Patient’s Motivation/Readiness to Lose Weight

Step 3
Build a Partnership With the Patient

People first language in obesity

Appropriate language can have an important role in reducing stigma around obesity

• Growing awareness that language affects attitudes and behavioural intentions toward persons with specific conditions or disabilities

• Many health professional associations have policies that advise:
  • Avoid labelling (and thus equating) people with their disabilities or diseases (e.g., the blind, schizophrenics, and epileptics). Instead put the person first
  • This particularly applies to persons with obesity (rather than “the obese”)
### Using appropriate language

**Patent rating of terms to describe excess weight**

<table>
<thead>
<tr>
<th>More desirable terms</th>
<th>Less desirable terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>Heaviness</td>
</tr>
<tr>
<td>Excess weight</td>
<td>Obesity</td>
</tr>
<tr>
<td>BMI</td>
<td>Large size</td>
</tr>
<tr>
<td>Weight problem</td>
<td>Excess fat</td>
</tr>
<tr>
<td>Unhealthy body weight</td>
<td>Fatness</td>
</tr>
<tr>
<td>Unhealthy BMI</td>
<td>Overweight status</td>
</tr>
</tbody>
</table>


### Deal with patient’s health concerns first

| Image of a patient saying, "Doctor! I’ve been impaled!" and a doctor saying, "Well maybe you’ll feel better if you lose some weight." |
Bias against persons with obesity
Why it is so damaging

Survey of bias experiences of 2,449 obese and overweight women in USA

<table>
<thead>
<tr>
<th>Source of Bias</th>
<th>Ever Experienced</th>
<th>More than Once &amp; Multiple Times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family members</td>
<td>72</td>
<td>62</td>
</tr>
<tr>
<td>Doctors</td>
<td>69</td>
<td>52</td>
</tr>
<tr>
<td>Classmates</td>
<td>64</td>
<td>56</td>
</tr>
<tr>
<td>Sales clerks</td>
<td>60</td>
<td>47</td>
</tr>
<tr>
<td>Friends</td>
<td>60</td>
<td>42</td>
</tr>
<tr>
<td>Co-workers</td>
<td>54</td>
<td>38</td>
</tr>
<tr>
<td>Mother</td>
<td>53</td>
<td>44</td>
</tr>
<tr>
<td>Spouse</td>
<td>47</td>
<td>32</td>
</tr>
<tr>
<td>Servers at restaurants</td>
<td>47</td>
<td>35</td>
</tr>
<tr>
<td>Nurses</td>
<td>46</td>
<td>34</td>
</tr>
<tr>
<td>Members of community</td>
<td>46</td>
<td>35</td>
</tr>
<tr>
<td>Father</td>
<td>44</td>
<td>34</td>
</tr>
<tr>
<td>Employer/supervisor</td>
<td>43</td>
<td>26</td>
</tr>
<tr>
<td>Sister</td>
<td>37</td>
<td>26</td>
</tr>
<tr>
<td>Dietitians/nutritionists</td>
<td>37</td>
<td>26</td>
</tr>
<tr>
<td>Brother</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>Teachers/professor</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>Authority figure (e.g. police)</td>
<td>23</td>
<td>15</td>
</tr>
<tr>
<td>Mental Health Professionals</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>Son</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Daughter</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>13</td>
</tr>
</tbody>
</table>

Health Professional prejudice against obese

- **Survey of Canadian Nurses**
  1/3 prefer not to care for obese at all
  24% agreed that obese are repulsive
  12% would prefer not to touch them
  Bud et al, Applied nursing research: 2009; 24(3):127-37

- **Survey Of Physicians**
  21% reluctant to do pelvic examinations on obese patients
  0% reluctant to do examinations on thin patients

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Influence of perceived bias on cancer prevention health care in women of different BMI status

Percentage of women in BMI categories who responded affirmatively to the question 'Have you ever delayed seeking health care or cancer-screening tests because of your weight?' and 'Has your weight been a barrier to getting appropriate health care?'

Why Care about Weight Stigma?

Weight bias may:
- Create an atmosphere of blame and intolerance
- Negatively affect treatment of patients
- Increase reluctance of patients to seek needed health care services
- Result in subtle and overt forms of discrimination

Results in less willingness to address key issues driving obesity.

Identifying children with obesity
Defining obesity in children

- Issues in children below 2 years of age
- Above 2 YO use BMI for age (WHO or US CDC curves recommended)
- Skinfolds
- Visual assessment
- Waist circumference?

Can you see risk? Are these children underweight, healthy weight, overweight or obese?

Photos from UC Berkeley Longitudinal Study, 1973; AND http://www.cdc.gov/GROWTHCHARTS/
Can you see risk? Are these children underweight, healthy weight, overweight or obese?

Photos from UC Berkeley Longitudinal Study, 1973; AND http://www.cdc.gov/GROWTHCHARTS/

Challenges for dealing with obesity in children

- Many parents, and even GPs, do not recognise the child as being overweight or obese:
  - Improved recognition with very obese children
  - Obese parents are poorer at recognising obesity in their own child, compared with lean parents
  - Even if the parents recognise their child as being overweight, it may not be seen as a health problem for the child
  - Issues of denial, increased acceptance of overweight as the norm, fear of “labelling” a child with a stigmatising condition, sense that “nothing can be done” etc
Actual versus Perceived (by parents) weight status of children

<table>
<thead>
<tr>
<th>Actual</th>
<th>Perceived</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>About right</td>
</tr>
<tr>
<td>Healthy</td>
<td>97</td>
</tr>
<tr>
<td>Overweight</td>
<td>70</td>
</tr>
<tr>
<td>Obese</td>
<td>25</td>
</tr>
</tbody>
</table>

Raising the issue with parents

Some suggested strategies ...in the absence of hard evidence:

- Growth Assessment
  - Regular assessment of growth and plotting of BMI allows the issue of growth and weight to be raised
  - In line with recommendations from the NHMRC Clinical Practice Guidelines

- Example of an introduction to the issue:
  - To a parent: “I notice that Katie’s weight (adjusted for height) is fairly high for her age. Is that something you’ve been concerned about? ..... Would you like to discuss it at some stage?”
Suggested approach with children

• Attitudes and approach
  • Be non-judgemental and sensitive
  • Avoid stigmatising the child, young person or the family
  • Avoid blaming
  • Be solution-focussed
  • Be supportive

• Take into account the health risks for the child or young person
  • Severity of obesity
  • Age of the patient eg older child or adolescent
  • Associated co-morbidities (including psychological)
  • Family history of obesity, diabetes and related disorders

Epidemiology of obesity
The prevalence of overweight and obesity in men and women in 2012 (Australian Health Survey 2011/12)

![Bar chart showing prevalence of overweight and obesity in men and women.]

Source: 2011-12 Australian Health Survey ABS Canberra 2013

Overweight and obesity – Australian children 2011-12

![Bar chart showing prevalence of overweight and obesity among Australian children.]

Source: 2011-12 Australian Health Survey ABS Canberra 2013
Consequences of obesity

The health, social and economic costs

Aspects of weight which potentially influence health risks of BMI

• Absolute level of BMI
• Amount of weight gain in adulthood
• Duration of overweight
• Where and how fat deposited
• When and how fat gained?
Medical Complications of Obesity

- Pulmonary disease
  - abnormal function
  - obstructive sleep apnea
  - hypoventilation syndrome
- Idiopathic intracranial hypertension
- Stroke
- Cataracts
- Severe pancreatitis
- Nonalcoholic fatty liver disease
  - steatosis
  - steatohepatitis
  - cirrhosis
- Gall bladder disease
- Gynecologic abnormalities
  - abnormal menses
  - infertility
  - polycystic ovarian syndrome
- Osteoarthritis
- Skin

Obesity is associated with high costs

Source: Obesity Australia 2014
Data taken from Access Economics 2008
Health consequences of obesity in childhood

Immediate effects
• orthopaedic complications
• sleep apnoea
• hepatic steatosis
• Elevated levels of CVD risk factors,
• type 2 diabetes
• psycho-social problems, including low self-esteem and depression

Longer term consequences
• Progression of obesity in adulthood and consequent illness
• Excess cardiometabolic morbidity

Why is obesity associated with so much ill health?
Adipocytes are a Veritable Endocrine Factory

- Fat cells are continually absorbing or releasing substances in response to the body's energy needs
- Fat cells are better adapted to preserving calories than shedding them

What aspects of Adiposity can Potentially Affect Metabolism and Health

- Total body fat
- Abdominal fat
- Abdominal visceral fat
- Abdominal deep subcutaneous layer
- Intramuscular lipid stores
- Non-alcoholic liver fat
- Pancreatic lipid infiltration
- Cardiac muscle lipid infiltration
- Hypertrophic adipocytes
- Adipose tissue hormone and cytokine secretions
- Adipose tissue metabolism
Question:

Which health problem is not associated with obesity and excessive fatness?

a. Colon cancer
b. Infertility
c. Liver cirrhosis
d. Back pain

Answer: All are associated or exacerbated by obesity

Which health problem is not associated with obesity and excessive fatness?

a. Colon cancer
b. Infertility
c. Liver cirrhosis
d. Back pain
How obesity develops.

**Energy Balance**

- **Energy equilibrium**
  - Intake = output
  - Maintain weight

- **Positive energy balance**
  - Intake > output
  - Gain weight

- **Negative energy balance**
  - Intake < output
  - Lose weight
Byrne and Hills. Current Obesity Reports, 2(1), pp. 65-76.

Energy balance is much more complex

Body Weight and Composition

Energy balance is subject to a complex array of biological, behavioural and environmental factors

Source: Private communication C Bouchard
Pennington Biomedical Research Centre
Original hunter-gatherer lifestyle

The modern food environment
Modern activity environment

The process of weight gain (and weight loss)
The physiological regulation of body weight

- Weight gain occurs when the physiological mechanisms that attempt to maintain energy balance are exceeded by a sufficiently large amount for a sufficiently long period of time.
- Weight loss occurs when a sufficiently large enough energy deficit is created and maintained so that the physiological mechanisms that attempt to maintain energy balance are exceeded.

- The process of weight gain/weight loss is not completely understood and subject to much theory.
- The energy gap or imbalance required to exceed physiological energy regulation is uncertain and likely to vary in individuals.
  - Many estimates but likely to be modest (best estimates of 100-200 Kcal/day).
The “Set Point” theory

a. Homeostatic regulation of body fat mass
b. Weight gain


Dynamic equilibrium of body weight

Adapted from Schultz, 1995.
Hypothetical Natural history of individual weight gain

Study of weight gain in University Staff over 12 months

Mean (±SE) Weight Change in 195 Subjects.

Lessons from understanding the process of weight gain

• Intervening early to prevent weight gain is the best option
• Maintaining current weight is more achievable than losing weight
• Weight gain and weight loss are not likely to be continuous processes
• A significant energy deficit will need to be instituted to initiate weight loss
• Energy deficits may need to constantly revised to maintain weight loss

Practice points
• Understand how people become overweight and maintain respect
• Accept limitations of your advice to patients

Managing obesity in primary care.
Practical issues in managing obesity in primary care

- Selecting and engaging patients into a program of care
- Managing expectations and setting realistic goals
- Referral options for specialist care
- How to assess and identify appropriate dietary and physical activity change
- Behaviour change strategies
- Importance of multidisciplinary care
- When and how to use more intensive therapies
- Special issues with children

Australian algorithm for the management of obesity

DA, OA, ANZOS 2016
Critical ages and life stages for weight gain

<table>
<thead>
<tr>
<th>Critical ages and life stages</th>
<th>Reason for increased risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-natal</td>
<td>In-utero development has permanent effects on later growth and energy regulation.</td>
</tr>
<tr>
<td>Adiposity rebound (5-7 years)</td>
<td>Body mass index begins to increase rapidly after a period of reduced adiposity during pre-school years.</td>
</tr>
<tr>
<td>Adolescence</td>
<td>Period of increased autonomy which is often associated with irregular meals, changed food habits and periods of inactivity during leisure combined with physiological changes.</td>
</tr>
<tr>
<td>Early adulthood</td>
<td>Early adulthood usually correlates to a period of marked reduction in physical activity and significant changes in diet and alcohol consumption.</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>Excessive weight gain during pregnancy often results in retention of weight after delivery, particularly with early cessation of breastfeeding. This pattern is often repeated after each pregnancy.</td>
</tr>
<tr>
<td>Menopause</td>
<td>It is not certain why menopausal women are particularly prone to rapid weight gain.</td>
</tr>
</tbody>
</table>
High risk groups in the community for weight gain and diabetes

• Family history of weight problems
• Certain ethnic groups
  • including Aboriginal and Torres Strait Islander people; Pacific Islands and the Middle East; recent migrants from Africa and Asia.
• Socially or economically disadvantaged (esp with mental health problems)
• Recent successful weight reducers
• Recent past smokers

Goal Setting
Prevention efforts in those with existing weight problems (severe)

• Focus on the **individual**

• **Goal**
  limit or prevent further weight gain and development of disease

• **Tools**
  • NHMRC clinical guidelines, clinical care pathways
  • Technology, apps online programs
  • Telephone coaching
  • Lifescripts

• **Partners and referrals**
  • Tertiary care clinics
  • Commercial weight loss programs and services
  • Community weight services
  • Dietitians, exercise physiologists, psychologists

Benefits of weight loss

For each 1kg of weight lost, systolic BP falls by 1mmHg (so 7kg loss is equivalent to one antihypertensive)

For each 1kg of weight lost total cholesterol decreases by just more than 1%, TG by nearly 2%, LDL by 0.3% and increases HDL by 4% (but 10kg loss has less effect than a statin)

*Wing et al, Diabetes Care. 2011;34(7):1481-6*
Goals in the management of obesity

Goal setting – the patient perspective

- Before treatment, 60 obese women (99.1 ± 12.3 kg; body mass index of 36.3 ± 4.3 kg/m–2) defined their goal weight and 4 other weights: "dream weight"; "happy weight"; "acceptable weight"; and "disappointed weight."
- Goal weight averaged a 32% reduction in body weight.
- A 17-kg weight loss was defined as disappointed
- a 25-kg loss, was acceptable.
- After 48 weeks of treatment and a 16-kg weight loss, 47% of patients did not achieve even a disappointed weight.

Patient assessment and advice for weight loss

Assessing lifestyle behaviours

• Lifestyle interventions (including dietary and/or exercise prescription) are the first line of treatment (and of continuing treatment) for those needing to lose weight.

• This is of particular importance for overweight or class 1 obesity - those with the lowest risk of cardio-metabolic disease and a BMI of 25-35kg/m².
Gathering and assessing dietary data for weight loss: primary considerations

1. Why is this person overweight?
2. Are their nutritional needs being met?

Measuring dietary intake

Clinically
- Typical intake – obtain by interview
  - also gives an idea of lifestyle and influences on eating (work, socialising)
- Food diary – patient records in real time, weighed or estimated
  - Useful if patient has poor insight
  - High burden
  - Shows eating patterns
- Apps
  - Useful if patient has poor insight
  - Lower burden
  - Focus on calories

Other methods
- 24 hour recall – may not be representative; timely
- FFQ – little information on food combinations and eating patterns
Food diaries

Probing

- Missing foods/food groups
- Drinks
- Eating between meals
- Eating after dinner
- Eating during the night
- Eating on the go
- Picking at food while cooking
- What happens to leftovers?
- How foods are cooked/served/sauces/accompaniments
- EtOH – and what they eat when drinking
- Unusual days (+ frequency)
- Eating out (+ frequency)
- Events/socialising (+ frequency)
- Times of stress (+ frequency)
Approach

• Non judgemental
• Conversational – ‘quick list’
• Avoid leading questions – “two pieces of toast or one?”
• Don’t make any assumptions
• Normalise behaviour - “A lot of people ....”

Useful questions

There’s five hours between when you have dinner and when you go to bed, do you tend to get hungry in that time?

Do you often wake up during the night or find it difficult to get to sleep? Are you hungry at that time?

There’s a long gap between lunch and dinner, do you ever get hungry then?

Do you sometimes you eat more than you plan, or feel that you want to stop but you can’t?

When you open a packet do you usually finish it or save some for later?

After an event or a party do you usually go home feeling like you over ate, under ate or got it just right?
Under reporting

• Underestimation by 4-37%\(^1\)
  BMI, gender, social desirability, restrained eating, body image, education, literacy, perceived health status

• Higher in obese populations, particularly women

• Failure to report between-meal snack foods

• Probing increases accuracy by up to 25%\(^2\)

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Reasons for eating

• Clock says its time to eat
  • Advertising and marketing
    • Reward, celebrate, congratulate
    • See or smell food
    • Bring back nice memories
    • Deal with pain
    • Change mood
  • In case get hungry later
  • Procrastination
  • For something to do
  • Take a break
  • Feeling tired
  • Offered food
  • Trying not to offend others
  • Advertising and marketing
Assessment of dietary intake

Qualitative
- Nutritional adequacy
  - Serves of fruit, vegetables, grains, proteins, dairy, discretionary foods
  - Compare to AGHE
- Distribution of intake
  - Eating frequency
  - Skipping meals
  - Grazing
  - Majority of calories in evening
- Non hungry eating & reasons - enjoyment, habit, social, emotional
- Mindless eating
- Nutritional quality of meals & snacks
  - Distribution of protein*
  - Distribution of vegetables
  - (GI)
- Frequency of eating out & takeaway
  - Contribution to total energy, fat, sugar intake
  - Difficulty meeting veg serves

Quantitative
- Energy intake
  - Compare to EER for weight loss (= reduction of 25-30% OR 500-1000kcal)
- Fat intake
  - Total fat intake
    - men: 50-60g
    - Women: 40-50g
  - Added fat
    - Men <70 yrs: 5-8 serves/day
    - Women & men >70 yrs: 3-4 serves/day
- Saturated fat intake
  - Saturated fat <20 g per day (<7% total EI, NHF)
- Sugar intake
  - Free sugars < 5 tsp/day (WHO)

Consider contribution from certain foods/drinks
- Post bariatric surgery assess total protein intake

* Post bariatric surgery assess total protein intake
By the end of the assessment

- Good idea of reasons for weight gain and current eating patterns & influences on eating
- Where calories could be saved
- **Why** those calories are consumed – e.g. unhelpful thoughts; inadequate planning; high hunger due to poor quality diet
- How you can help
- Goals must be relevant and address the reason(s) for **this** patient’s weight

---

**Strategies to achieve energy deficit**

- Simple dietary instruction
- Physical activity
- Calorie counting or points
- Fixed calorie meal plan (1200-2000 kcal/day)
- Commercial program
- LCD/ partial meal replacement
- VLCD
- Drugs
- Surgery
Comparison of Different Dietary Weight-Loss Diets

- Mean weight loss of 6 kg at 6 months - clear weight regain after 12 months.
- At 2 years: 15% and 25% protein (3.0 and 3.6 kg, respectively); 20% and 40% fat (3.3 kg for both groups); 65% and 35% carbohydrates (2.9 and 3.4 kg).
- Clinically meaningful weight loss regardless of which macronutrients they emphasize.


Common Weight Loss Strategies and Long-term Efficacy

- Diet and exercise or diet alone achieve greater weight loss than exercise alone.
- Mean weight loss of 5-9% over 6 months with reduced-energy diet and/or weight-loss medications. Weight plateaus at ~6 months.
- At 4 years, a mean weight loss of 3-6% maintained. No weight regain to baseline.

Physical Activity Usually Does Not Increase Short-Term Diet-Induced Weight Loss

Each study ranged from 4 to 6 months

*P < 0.05 vs diet-only group

Waddan 1997
Ross 1996
Marks 1995
Ross 1995
Blonk 1994
Sweeney 1993
Bertram 1990

The Benefits of Exercise Beyond Weight Loss

- At 14 weeks ~6.5% weight loss in both groups, unchanged in ‘Control’ and ‘Exercise without weight loss’.
- Cardio-respiratory fitness improved in both exercise groups.
- ‘EWL’ group: greater reduction in total fat, abdominal, and subcutaneous fat than all other groups.

Daily exercise without caloric restriction is associated with a reduction in total, abdominal and visceral fat in women.

The Benefits of Exercise Beyond Weight Loss

- A wide range of physical and mental health benefits
- Usually results in better retention of lean muscle mass during weight loss
- May result in increased visceral (abdominal) fat loss
- Helps regulate appetite
- Improves mood and sleep
- Improves food selection

Measuring exercise in primary care

Simple questioning
- Frequency (How often)
- Intensity (difficulty in talking)
- Time (how long)

Technological tools
- Pedometers
- Activity monitors (Fitbits etc)
- Mobile phone apps
How much physical activity to recommend?

• Limit time spent in sedentary behaviour
• Active every day
• 30 minutes moderate activity each day
• 20 minutes vigorous activity 3 times/week

• Much larger amounts 45-60mins/day of mod-vigorous activity to maximise weight loss
• Much research into interval training and high intensity interval training of shorter durations

• Best exercise is the exercise you enjoy (usually walking)

Behaviour Modification

• Changing one or more of one’s behavioural patterns

• Key features:
  1. Goal directed
     • Measurable and specific assessments of success
  2. Process oriented
     • What and how (to change)
     • Skills more than will power
  3. Focus on small changes
     • Learning principle of successive approximation
Transtheoretical Model (or Stages of Change)

- Pre-contemplation
- Termination (or Relapse)
- Contemplation
- Maintenance
- Preparation
- Action

Strategies for Behavioural Modification

<table>
<thead>
<tr>
<th>Cognitive Behavioural Theory</th>
<th>Transtheoretical Model</th>
<th>Social Cognitive Theory</th>
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</thead>
<tbody>
<tr>
<td>Motivational interviewing</td>
<td>Motivational interviewing</td>
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<tr>
<td>Skill development</td>
<td>Skill development</td>
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<tr>
<td>Demonstration, modelling</td>
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<td>Reinforcement, reward and contingency management</td>
<td>Reinforcement</td>
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<td>Goal setting</td>
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<tr>
<td>Social support</td>
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<td>Stimulus control</td>
<td>Stimulus control</td>
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<td>Stress management</td>
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<td>Problem solving</td>
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<tr>
<td>Cognitive restructuring</td>
<td></td>
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<tr>
<td>Relapse prevention</td>
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</tbody>
</table>
Behaviour Modification Ideas for Weight Management
University of California, San Francisco (UCSF) Medical Centre

- Controlling environment
  - Home
  - Work
  - Mealtimes

- Daily food management
  - Shopping
  - Meal preparation
  - Eating
  - Clean up and leftovers

- Eating out and social eating
  - Restaurant
  - Friends house
  - Buffet cafeteria
  - Entertaining at home
  - Holidays

- Exercise well
- Healthy attitude

Real-world Behaviour Modification Tips for Professionals

- Takes a lot of effort, patience and motivation
- Needs the right support

- Self-determination theory
  - Intrinsic motivation + skill development

- Motivational interviewing
  - Client-centred approach
  - Empathy and reflective listening
  - Identify discrepancies between perception and reality
  - Support self-efficacy

- Non-adherence
  - Readiness for change
  - Discuss with client what went wrong and work on solutions
  - Avoid criticism
Now, it’s your turn!

Motivational Interviewing

Turn to the person next to you. Choose who will be the Speaker and Listener

Acknowledgements

Dr Clare Manns

Motivational Interviewing

• Client-centred
• Help identify and solve barriers and ambivalences to change
• Transtheoretical Model (pre-Action stages)

• Practitioner skills:
  • Empathetic
  • Non-judgemental
  • Active and reflective listening
  • Open-ended questioning
  • Affirmation

• Increase adherence, goal achievement
• Little independent effect compared to only dietetic counselling
Attempt #1: Speaker

• Something about yourself that you...
  • want to change
  • need to change
  • should change
  • have been thinking about changing

BUT must be something that you haven’t changed yet.
(something you’re ambivalent about)


Acknowledgements
Dr Clare Manns

Attempt #1: Listeners

• Find out what the person wants to change
• Explain why the person should make this change
• Give at least three specific benefits that would result from making the change
• Tell the person how they could make the change
• Emphasise how important it is to change
• Persuade the person to do it
• If you meet resistance, repeat the above.

How effective was that?

Let's try again...

Persuasion: what goes wrong?

- The ambivalence trap
- The righting reflex
  - What happens when they collide?
Guiding Principles

• Express empathy
• Develop discrepancy
• Roll with resistance
• Support self-efficacy

(Miller & Rollnick, 2002)

Attempt #2

Same speaker, same topic.

• Something about yourself that you
  • want to change
  • need to change
  • should change
  • have been thinking about changing

But you haven’t changed yet.
  i.e., something you’re ambivalent about.
Attempt #2: Listeners

- Listen carefully
- Give no advice
- Ask these open questions:
  1. Why would you want to make this change?
  2. How would you go about it, in order to succeed?
  3. What are the three best reasons for you to do it?
  4. On a scale of 0-10 how important would you say it is for you to make this change
     • Follow up with and why are at XX and not zero?
- Paraphrase / summarise the speaker’s motivations for change
  • Then ask: so what do you think you will do?

Just listen with interest.

Now, it’s your turn!

Motivational Interviewing

Turn to the person next to you.
Choose who will be the Speaker and Listener
Motivational Interviewing

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Adapted from Miller, W.R., 2012, Presentation on motivational interviewing.
Attempt #1: Listeners

- Find out *what* the person wants to change
- Explain *why* the person should make this change
- Give at least *three specific benefits* that would result from making the change
- Tell the person *how* they could make the change
- Emphasise *how important* it is to change
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Just listen with interest.

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Dr Clare Manns
Adjunctive Therapy

- Meal Replacements (VLCDs)
- Pharmacotherapy
- Surgery
- Devices

Meal Replacements (VLCDs)

- 400 to 800 kcal/day (200 kcal/meal or so)
- A range of types
  - Bars
  - Shakes etc
- Ensure
  - High quality protein (45 – 60 g/day)
  - Vitamins and minerals
  - Little Carbohydrate
  - Essential fatty acids
- Readily available (cost about $2 - $2.50 per meal)
Meal Replacements (VLCDs)

- Use
  - Grade II and III obesity
  - Grade I + co-morbidities
- 1 – 3 meals replaced
  - (may need to use 4 or 5 sachets in very obese if hungry)
  - Course usually 12 – 16 weeks, but may be longer
- Add salad with olive oil at evening meal
- May need fibre etc for constipation
- Contraindications
  - Advanced cardiac, renal liver disease
  - Pregnancy
  - Type 1 diabetes

---

Meal Replacements
Flechtner-Mors M et al. Obes Res. 2000;8:399-402

![Graph showing weight changes over time for conventional diet and meal replacements.](image)
Pharmacotherapy

- Should be used as part of a lifestyle program
- Works while you are taking the drug
- Produces extra weight loss (but is not magic)
- Works in about 85%
- There are side effects

Drugs for Obesity

<table>
<thead>
<tr>
<th>Name</th>
<th>Type of Agent(s)</th>
<th>Status</th>
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<tbody>
<tr>
<td>Orlistat</td>
<td>Lipase Inhibitor</td>
<td>Approved (OTC)</td>
</tr>
<tr>
<td>Phentermine</td>
<td>Dopamine agonist</td>
<td>Approved (not Europe)</td>
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<tr>
<td>Sibutramine</td>
<td>SSRI/SNRI</td>
<td>Some countries (Brazil)</td>
</tr>
<tr>
<td>Lorcaserin</td>
<td>5-HT2c receptor agonist</td>
<td>FDA Approved</td>
</tr>
<tr>
<td>Liraglutide</td>
<td>GLP-1 agonist</td>
<td>Approved</td>
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<tr>
<td>Belanorib</td>
<td>metAP2 inhibitor</td>
<td>Phase 2</td>
</tr>
<tr>
<td>Metformin</td>
<td>AMPK activator</td>
<td>Off-label</td>
</tr>
<tr>
<td>Qnexa (Qsymia)</td>
<td>Phentermine + Topiramate ER</td>
<td>FDA Approved</td>
</tr>
<tr>
<td>Contrave</td>
<td>Naltrexone + Bupronprion</td>
<td>FDA Approved</td>
</tr>
</tbody>
</table>
Types of Obesity surgery (general)

- Laparoscopic
  - Adjustable Gastric banding (LAGB)
  - Sleeve Gastrectomy
  - Gastric Bypass
- Open (older)
  - Vertical Banded Gastroplasty
  - Bypass (Intestinal or Gastric)
Swedish Obesity Study (SOS)
2000 patients self selected to diet or gastric restrictive surgery.


*6 years into the study, 3 "surgical" patients and 27 "diet" patients had died.

When and to who to refer patients
Other options for referral

- Local weight management services
- NGOs Heart Foundation etc
- Community groups
- Gyms, exercise programs
- Online/telephone coaching eg Get Healthy Coaching
- Dieticians
- Clinical Psychologists
- Exercise Physiologists
- Tertiary Care – multi disciplinary approaches
- Bariatric Surgery


Basic principles of management of child and adolescent obesity
Helena 11 yo
Weight 87 percentile
Height 65 percentile
BMI 95<sup>th</sup> percentile for age

presents with hip pain
Loves dancing but is unable to do so because of pain

Helena’s Parents – Janis and Claudio
Helena’s older sister - Rose

Elements of effective management of overweight & obesity in children and adolescents

• Long-term behavioural change
• Family involvement
• Developmentally appropriate approach
• Long term dietary change
• Increase in physical activity
• Decrease in sedentary behaviour
• Consider non-conventional therapies – for severe obesity, in a multi-disciplinary setting

Summerbell et al, Cochrane review 2003;
NHMRC Clinical Practice Guidelines 2002;
Dietz & Robinson NEJM 2005
Changes in food intake

• Follow national nutrition guidelines

• Meal patterns:
  • Regular meals; eat together as a family; decreased portion sizes; eat breakfast

• Dietary intake:
  • Nutrient-rich foods that are lower in energy and glycaemic index; increased vegetable (and possibly fruit) intake; healthier snack food options; reduction in sugary drinks; drink water

• Whole-of-family lifestyle change:
  • Includes engagement of the person who buys and cooks the food; role modelling of parents vital

• May need involvement of a dietitian

2003 Australian NHMRC Clinical Practice Guidelines for the Management of Overweight & Obesity

Physical activity & sedentary behaviours

• Increased physical activity
  • Aim for increase in incidental or unplanned activity eg walking or cycling to/from school, household chores, playing with friends /family…
  • Organised exercise programs and sports
  • Choose activities that are fun & likely to be sustainable
  • Explore access to recreation equipment or spaces

• Addressing screen time
  • Aim to limit TV and other recreational small screens (in various forms) to <2 hours per day
  • TV out of the bedroom

• Parental involvement & role modelling crucial

• May need involvement of an exercise professional (exercise scientist or physiotherapist)

Some key behavioural change strategies

• Goal setting
  • Both behaviours and weight can be targeted; may require ++ session time to plan and review
  • Example: "I will not buy any cookies or soda drinks during the weekly shopping. To make this easier, I will leave the children at home and shop on my own. If the children ask for junk food, then I will offer fruit instead."

• Stimulus control
  • Modifying or restricting environmental influences
  • Example: "not eating in front of the TV; not having TV in bedrooms; using smaller plates and spoons; not storing unhealthy food choices in the house"

• Self-monitoring
  • Detailed recording of a specific behaviour
  • Examples: Food diary, TV use diary, daily pedometer measurement of physical activity, weekly weighing


Super 7 strategies – used for treatment-seeking families

Used at The Children’s Hospital at Westmead, Sydney

Note: The first 6 can be used for all families with children aged 5+ years, whether obesity is an issue or not.
Prevention efforts in those at high risk of weight gain, obesity and diabetes

- Focus on **groups or families**
- **Goal**
  - prevent weight gain and development of risk factors
- **Tools**
  - Screening tools
  - Brief advice at consultations
  - Family or practice group programs
  - Community programs and services (exercise groups, supermarket tours)
  - Telephone coaching
- **Partners and referrals**
  - NGOs Heart Foundation etc
  - Community groups
  - Gyms, Get Healthy Coaching
  - Dietitians, exercise physiologists, psychologists

Role of the clinical organisations in the prevention and management of obesity in the community

- **Understand how people become overweight and maintain respect**
- **Accept limitations of your advice to patients**
- **Provide brief advice and referrals to those with existing weight problems**
- **Identify and service high risk groups**
- **Provide leadership and support on healthy behaviours in the community**
- **Education of public and decision-makers**
- **Advocacy for comprehensive action on obesity**
The Challenge!