

## Practice Pointer

Approach to a child or young person with excess weight concerns

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## **How this article was created**

In researching this article, we searched online (PubMed, Cochrane Database, Google) for key articles on the management of childhood obesity, including the effectiveness of weight management and other interventions (search terms: child or children or adolescent, overweight or obesity or obese, management or interventions or guidance) as well as manually searching for relevant professional guidance on relevant websites (the NHS, Royal College of Paediatrics and Child Health, National Institute for Health and Clinical Excellence).

## **Contributorship and the guarantor**

OM conceived the article and is the guarantor. All authors contributed to writing and reviewing the article. OM was the contact for patient involvement. The authors thank [name] (patient) who contributed to and reviewed the article.

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## **How patients were involved in the creation of this article**

Parents who attended MoreLife Weight Management services for children in Milton Keynes, Central Bedfordshire and Bedford Borough were asked about their experience of consulting with doctors about their children's weight and what they found helpful and unhelpful from those consultations. The article has given greater weight to the importance of sensitive language (with examples suggested by the group included), acknowledged the important role of doctors in initiating conversations, and acknowledged that whilst parents can find conversations difficult, they can also be grateful for help being offered.

## **Conflicts of Interest**

Competing Interest: None declared.

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### **Approach to a child or young person with excess weight concerns**

#### What you need to know

- Excess weight can contribute to poor health in childhood or may be an indicator of other physical or emotional problems
- There are child-specific tools (e.g. z-BMI) that should be used alongside clinical judgement to assess a child's weight status and to identify children who may benefit from intervention
- Use sensitive and appropriate language when discussing weight with parents and their children, and where possible offer practical strategies for changing eating habits, activity patterns or sleeping behaviours
- There are increasing range of treatments and other interventions to support children with excess weight, although access to services will vary between areas

Excess weight (overweight or obesity) in childhood is common.[1] For example in England, the latest data report that 22.2 % of children in reception year have excess weight and 37.7% in Year 6. Excess weight can contribute to significant physical and emotional problems in childhood, as well as later life, and may be an indicator of significant health concerns.[1]

Discussing weight is an emotive subject and raising the issue in a short consultation without implying blame or judgement can be challenging, particularly where a child's weight is not perceived as a problem by the parents and is not the presenting issue.

Whilst, it is fundamentally a 'public health issue' that needs to be addressed using public health measures,[1,2] and there are genetic and environmental factors that contribute to its development that may be outside the influence of doctors or parents, there is still an important role for doctors, particularly GPs and paediatricians. Some example scenarios of excess weight in clinical consultation are set out in Box 1.

### **Box 1: Education into Practice**

- For a child with excess weight, when would you seek to intervene?
- When would you consider seeking specialist support?
- Consider the two case studies below, how would you respond?

**Case Study One:** A parent comes to your surgery. They are upset as they have recently received a letter from the local public health team stating that their 11-year-old child is very overweight. They don't agree and say their child is healthy, active and eats well.

**Case Study Two:** A nine year-old child presents with worsening asthma. You have undertaken a detailed assessment of the asthma and put together a management plan. They are no longer able to keep up with their friends when running in the playground. On measuring the child's health and weight, you find the child is on the 98<sup>th</sup> centile for BMI.

[1]. These clinicians are well placed to identify the issue and offer or sign-post evidence-informed support to families and children.[1–3] Understanding and reflecting some of the challenges and uncertainties can be important when raising the issue in consultations.

This article offers an approach to recognising and discussing excess weight in a child or young person, drawing on formal guidance from the UK (the NHS, the National Institute of Health and Care Excellence and the Royal College of Paediatrics and Child Health).[4–6] The approach needs to be nuanced to the developmental stage of the child or young person, and the article does not discuss appropriate intervention strategies in the first six to twelve months of life that may need to be specific to that stage, e.g. relate to bottle feeding or

weaning. The principles may be applicable in other settings, although some of the precise local guidance (notably around the classification of excess weight) may differ.

### **How and when to measure height and weight**

Whilst body mass index (BMI) has its limitations it is still the recognised tool for assessing weight status in children.[4] In children the use of BMI is complicated by children's growth and for this reason BMI needs to be interpreted relative to the child's age, using either z-BMI or BMI centile, and used alongside clinical judgement (see Box 2).

Whilst not always practical, height and weight, ideally, should be part of regular clinical assessment. Routine measurement may help to ensure the practice of being weighed is normalised and accepted by children and their parents. It also helps create a longitudinal record of growth, which can be more informative than single measurements. Collecting regular measurements can make it easier to raise the issue of excess weight in subsequent consultations, allowing the conversation to be based on objective measurements of z-BMI or BMI centile over time rather than appearance.

#### **Box 2: What you need to know about BMI in children**

- **BMI variation with natural growth periods**
- Children naturally have periods of growth where they have more, or less, body fat.
- Consequently, there is no fixed normal range of BMI in children, unlike adults.
- BMI is compared to age norms. In practice this means using height, weight and age to either identify the BMI centile by plotting the BMI on a growth chart or to calculate a BMI z-score (z-BMI), a measure of the number of standard deviations from the mean of a reference population.

#### **2. Using z-BMI or BMI centile**

- Online tools to estimate z-BMI or BMI centile.z-BMI or BMI centile does not correlate perfectly with body fat
- NICE recommends that z-BMI or BMI centile should be used alongside clinical judgement, e.g. could a high z-BMI or BMI centile be attributed to higher muscle mass or early puberty?[9]
- Past measurements may provide helpful trends.

#### **3. Using the correct reference population**

- Ensure the correct population for calculating BMI centile or z-BMI scores.
- The World Health Organisation has growth reference data that is considered an international standard,[7,8] but some countries (e.g. UK and US) have their own standards for assessing BMI.
- Reference standards are typically based on historical cohorts.
- For example, in the UK, the standard is to assess BMI against reference growth charts representative of white children in the UK in 1990 (the UK90 growth charts). The charts were derived from seven datasets measuring around 25,000 white children between 1978 and 1990.[9]
- BMI centile can be estimated by plotting a child's BMI on the published charts (published by the Royal College of Paediatrics and Child Health) [6] or by using an appropriate calculator based on those charts.[10]
- If using online tools check they are valid for the child you are assessing.

#### **4. Thresholds based on z-BMI or BMI centile**

- Clinical cut-points used in the UK are different to the cut-points used for public health purposes, i.e. population monitoring as part of the National Child Measurement Programme. In the UK use the clinical thresholds when assessing individual children for support.
- NICE defines three clinical thresholds for children:
  - Overweight:  $\geq 91^{\text{st}}$  centile (BMI-z score = 1.34)
  - Clinical obesity:  $\geq 98^{\text{st}}$  centile (BMI-z score = 2.05)
  - Severe obesity:  $\geq 99.6^{\text{th}}$  centile (BMI-z score = 2.68)
- NICE suggests considering tailored intervention for a child with a BMI centile at or above the 91<sup>st</sup> centile.[9]
- No accepted international threshold for intervention because there is international variation in the cut-points to define overweight and obesity.
- **Influence of ethnicity and puberty**
- BMI centile and z-BMI tend to overestimate body fat in black children and underestimate body fat in South Asian children.[11]
- During puberty, girls tend to gain body fat while boys gain muscle mass.
- Since the onset of puberty varies and the standard growth charts reflect the population averages, early or late puberty may affect a child's BMI centile or z-BMI. For example, a girl entering puberty earlier would gain weight, move up the

centiles for weight and have an apparently raised BMI centile and z-BMI score. This would be a normal response to puberty and not necessarily a cause for concern.

## **6. Alternatives to assess adiposity in children**

- For younger children, particularly in the first year of life, it is less common to calculate BMI centile or z-BMI as height/length measurement is unreliable before children can stand.
- Rapid growth (e.g. in the UK, crossing two centiles on the growth chart) or markedly discrepant weight and height centiles (i.e. high weight centile and low height centile) may be a cause for concern. Consider using waist-to-height ratio in those aged five years and over, although its evidence base is much less established than its equivalent in adults.[4]

## **How and when to have conversations about weight**

Conversations about weight should be approached thoughtfully and respectfully. Weight is sensitive and personal, as it is determined and experienced uniquely for each individual. It is important to take cues from the parent and child when initiating a conversation. Think carefully about when to raise, how to raise and where to have a conversation. NICE recommends explicitly seeking consent to have a conversation about weight.[4] Box 3 gives some suggestions for conversation openers.

Initiating a conversation about weight is easier if the child's z-BMI or BMI centile is already known. If this is not available, it should be incorporated into the clinical assessment of the consultation. Other concerns, e.g. a child having poor asthma control, may be related to excess weight and can provide an opening to measure height and weight. When this is done, it should be explained in a neutral way, e.g. "Let's see how your child is growing".

Parental perceptions of what is a normal or healthy weight have also changed, and often parents will not be aware that their child has excess weight.[12] Many parents find it helpful to see their child's growth plotted on a standard chart. The visual and objective display of information can be an easier way for parents to process and accept that their child has excess weight.

Using the correct language is important. Person first language, the accepted way to address people with physical or mental health conditions, is recommended.[13] We prefer the term

excess weight to overweight or obesity; 'obesity' as a word can be a barrier to conversation. Excess weight spans overweight and obesity. Parents we spoke to, when writing this article liked the term 'above average'. Whilst there is no evidence that talking about weight, when approached sensitively is harmful, there is some evidence that being unsensitive in approach, for example labelling a child 'fat' can be associated with poorer emotional and physical health (it is unclear if the association is causal or due to other factors).[14]

**Box 3: Suggested questions to open a conversation about weight and health**

Do you have any concerns about your child's health or wellbeing?

Do you have any concerns about your child's growth trends?

You said you were concerned about your child's asthma, is there anything you feel might be making it worse?

You have talked about your child feeling low in mood, is there anything you feel might be contributing to it?

How do you feel about child's eating habits?

How do you feel about your child's activity levels?

**How to support children and families when they are receptive to support**

**Conduct a thorough assessment**, This should seek to identify any medical conditions (or other problems) exacerbated by excess weight (e.g. asthma, musculoskeletal conditions, hypertension, depression), and any contributing medical conditions (e.g. hypothyroidism, binge eating disorder or Prader-Willi Syndrome). Try to understand the social and emotional impacts of excess weight for the child and their family. Rapid changes in weight (gain or loss) might suggest an underlying eating disorder; and questions about binge eating behaviours or weight management strategies (e.g. fasting, exercise or purging) should be asked. Factors that may indicate a higher level of concern, and which may be sought during the assessment, are set out in Box 4.



**Box 4: Factors that may indicate a higher level of concern when a child has excess weight**

- Family history of obesity
- Learning disability
- Living in a deprived area
- Asian ethnic group
- Rapid weight gain
- Medical co-morbidities that may be made worse by obesity (e.g. asthma, hypertension, musculo-skeletal problems)
- Underlying disorders that might contribute to excess weight (e.g. ADHD, Prader-Willi syndrome, hypothyroidism)
- Psycho-social distress or depression
- Rapid changes in weight or indicators of eating disorder (e.g. binge eating, purging, extreme calorie restriction)
- Safe-guarding concerns
- Significant short stature

**Focus on sustainable behaviour change and health.**

Behaviours to consider encouraging include increasing physical activity (aiming to build up to at least 60 minutes a day), more and/or better quality sleep, reducing screen time (TV or video games), eating healthy meals and keeping to child sized portions.[4,5] Try to focus on concrete and practical actions, like reviewing shopping lists for unhealthy and healthy food, swapping junk food snacks for fruit, vegetables or nuts, down-sizing or limiting takeaway meals. Collectively observational data and trial data strongly link sugary drinks to excess weight gain in childhood[15–17] and drinks with added or free sugars (including squashes, fizzy drinks and fruit juices) should be discouraged. Consider the balance between physical activity and dietary change. Generally, it is thought as with adults, there needs to be a greater focus on dietary change, although there is limited clear evidence to support this. For example, most of the studied interventions combine both dietary change and physical activity, making it difficult to disentangle their relative effects.[18,19] The appropriate mix may also depend on individual circumstance and current behaviours. The principles of the advice, embedding healthy behaviours around sleep, activity and eating are relevant for all children, not just those with excess weight.

### **Encourage change at a family level.**

This may be more effective than focusing on the child's behaviour and can avoid stigmatising the child.[20,21] This might for example include family-based activities, going for a walk as family, eating regular healthy meals as a family. Change that can be integrated into daily life, e.g. using public transport or walking instead of driving, may be more sustainable. The focus should be on physical activity – a broader set of activities (playing, dancing, gardening, walking) rather than exercise. Parental change is also important, as parents act as role models for their child.[20]

### **Do not recommend formal diets.**

Formal diets are not recommended for children unless under specialist supervision, and rarely even then. Drastic measures should be discouraged as they risk precipitating disordered eating behaviours and nutritional deficiencies.

### **Tailor advice to the individual and their socio-economic circumstance.**

Whilst individual behaviour change should be encouraged, the modern environment shapes, and frequently constrains, people's opportunities to be healthy; people living in more deprived areas tend to have more constraints on their options (and for this reason it is important for governments to implement evidence-informed policies to create opportunities for children to be healthy).[1] It is important to be mindful of this, when talking to parents, and consider acknowledging or exploring some of these challenges. For example, be mindful of the cost of healthy food or focus on activities that are free or low cost (e.g. using parks, free school clubs/activities). Also be mindful that some behaviours, e.g. watching TV as a family or getting a takeaway may be highly valued and influenced by cost. If there is an underlying medical condition that is contributing to excess weight, advice and treatment specific to that condition should also be offered. This may also provide real tangible practical benefits from addressing weight now.

For children, who have not yet reached their adult height, the aim is to grow into their weight rather than to lose weight per se. Once a child has reached adult height (more likely to happen at a younger age in children with excess weight), they would need to lose weight to achieve z-BMI normalisation. Some practical tips for having a conversation about excess weight with parents and children are given in Box 5.

#### **Box 5: Practical tips for having conversations about excess weight**

- Explore ideas, concerns and expectations

- Seek consent to have a conversation about excess weight and health
- Explore parental perceptions around weight and health
- Keep an open mind; avoid judging and blaming
- Keep the focus on health; rather than weight or appearance
- Use people-first language; i.e. a child with obesity or a child with excess weight rather than obese child; avoid labelling child as too fat
- Z-BMI or BMI centile remains the recommended tool for assessing children, both of which are adjusted for a child's age and sex, and should be used alongside clinical judgement.
- Consider using online or paper growth charts to show a parent how their child's weight and growth relates to healthy weight and expected growth trajectories.
- Check emotional wellbeing and consider possible treatable mental disorders such as depression, binge eating disorder or ADHD that may be driving weight gain
- Keep a focus on behaviours (sleep, eating, activity), rather than weight; offer practical strategies where possible, e.g. suggest swapping sugary drinks for water at meal times rather than just reducing sugary drinks consumption
- Don't push the conversation unnecessarily; might somebody else in the team be better placed to pick-up the issue at another time, and who else could support (e.g. dietician, social prescribing, health visitors, specialist support)?

### **Referral for support – community weight management services**

Guided by the parent, the child and taking into account other risk factors, it may be appropriate to suggest referral to a formal weight management programme, if available locally.[22] These services will focus on embedding physical activity, healthy eating, and good sleep behaviours into children's or family's lives. Whilst eligibility criteria may be based on BMI centile or z-BMI, many will adopt alternative labels, such as 'physical activity clubs' or 'health clubs' to remove the focus on weight.

These services, when delivered well, are generally effective at helping children, from pre-school age to adolescence, reduce their BMI z-score by a small or modest amount (0.1 units) over a six to 24 month period, according to the most recent Cochrane reviews, which are now a few years old, see Table 1. Whilst these published reviews have not explicitly been able to identify components of weight management interventions that are effective, NICE has set out some of the parameters of service delivery that are thought to be important

to ensure services are effective (e.g. multi-component, use of behaviour-change techniques, parent skills training, engaging the whole family).[23] To put the observed effect sizes in context, if there were 100 children aged 10-11 years who had excess weight (i.e. above the 91<sup>st</sup> centile) using these services, at the end one would expect to see 12 children achieve a healthy weight (i.e. below the 91<sup>st</sup> centile) and a further 7 children being classed as having overweight instead of obesity (i.e. moving from above to below the 98<sup>th</sup> centile). It is important to remember that this relatively optimistic perspective is based on evidence from well-defined trials of weight management or *treatment* services, which are different from the more loosely defined obesity *prevention* programme for which the evidence is more variable.

If there are important underlying medical conditions (e.g. binge eating disorders or ADHD) then a referral to weight management services may not be appropriate, and appropriate specialist support should be sought (e.g. child mental health services).

### **Referral for specialist clinical support**

NICE suggests offering referral to an appropriate specialist for children living with overweight ( $\geq 91^{\text{st}}$  centile) or obesity significant comorbidities or complex needs (e.g. learning disabilities).[4] This could involve referral to a paediatrician for management of specific complications (e.g. fatty liver disease) and/or to specialist medically led services that offer multi-disciplinary support to support weight loss (or maintenance), although such services are limited in the UK. In recognition of growing need, NHS England has recently opened 21 Complications of Excess Weight (CEW) clinics for children; referral criteria may vary between clinics and are often published on the internet. Broadly the clinics are open to children with significant problems due to excess weight that are likely to benefit from intervention.[24] CEW clinics and other specialist clinics can offer more intensive behavioural and psychological support and consider medication (for older children). Whilst bariatric surgery for selected adolescents can be very cost-effective,[25] it is only recommended in exceptional circumstance and when a young person has achieved or nearly achieved physiological maturity.[4] It is not often used in the UK or other settings.[26] Box 5 gives two clinical scenarios for you to think through how you might approach some of the common issues that may arise in clinical practice.

**Table 1: Summary of systematic reviews of the effect of individual or group interventions for the treatment of child with excess weight**

Author, Year	Intervention	Summary of study	Findings
Colquitt et al, 2016[27]	Weight management (pre-school children)	Cochrane review of diet, physical activity and behavioural interventions for children up to six years of age with obesity and overweight	Modest reduction in z-BMI score compared controls (-0.3, 95%CI: -0.4 to -0.2 at 6-12 months, 4 trials, n=210; -0.4, 95%CI: -0.2 to -0.6 at 12-18 months, 4 trials, n=202).
Mead et al, 2017[28]	Weight management (school children)	Cochrane review of diet, physical activity and behavioural interventions for children aged six to 11 years of age with obesity and overweight	Small reduction in z-BMI score compared controls (-0.06, 95%CI: -0.10 to -0.02 at follow-up of six months to three years, 37 trials, n=4019). Substantial heterogeneity observed in the findings between studies.
Al-Khudairy et al, 2017[19]	Weight management (adolescents)	Cochrane review of diet, physical activity and behavioural interventions for children aged 12 to 17 years of age with obesity and overweight	Small to modest reduction in z-BMI (-0.13, 95%CI: -0.21 to -0.05, 20 trials at six to 24 months follow-up, 20 trials, n= 2399). Substantial heterogeneity observed in the findings between studies.
Mead et al, 2016[18]	Medication	Cochrane review of medication for the treatment of obesity in children and adolescents (mean age of participants in trial ranged from 10.1 years to 16.3 years). Medications used included: metformin, sibutramine, orlistat and fluoxetine. Intervention was for 3 months or longer and follow-up after 6 months or longer.	Intervention versus comparator for mean difference in BMI change was -1.3 kg/m <sup>2</sup> (95% -1.9 to -0.8, 16 trials; n=1884) at follow-up. When the trials were split by drug type, sibutramine, metformin and orlistat all showed reductions in weight in favour of the intervention.

Pedroso et al, 2018[29]	Bariatric surgery	Systematic review of weight loss after bariatric surgery in adolescents with obesity.	The short-term absolute change in BMI at 6 months compared to pre-operative was $-5.4 \text{ kg/m}^2$ (95%CI: $-3.0$ to $-7.8$ ) after gastric band, $-11.5 \text{ kg/m}^2$ ( $-8.8$ to $-14.2$ ) after gastric sleeve, and $-18.8 \text{ kg/m}^2$ ( $-10.9$ to $-26.6$ ) after gastric bypass. Weight loss at 36 months compared to pre-operative was $-10.3 \text{ kg/m}^2$ ( $-7.0$ to $-13.7$ ), $-13.0 \text{ kg/m}^2$ ( $-11.0$ to $-15.0$ ) and $-15.0 \text{ kg/m}^2$ ( $-13.5$ to $-16.5$ ) respectively, based on 24 studies (n=1928).
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