

MOSA Guideline

Overweight and Obesity in Children and Young People, Prevention Strategies and Healthy Eating

Epidemiology

1. The prevalence of overweight and obesity in children is increasing rapidly in many regions of the world. Among European primary school-age children the prevalence rates of overweight are not only rising but accelerating.
2. Data from the Childhood Obesity Taskforce of the European Association for the Study of Obesity (EASO) shows that the UK currently has one of the highest prevalence rates of overweight children in Europe.
3. Statistics from the National Child Measurement Programme (NCMP) in 2006-2007 show that in the UK the prevalence of overweight / obese children at age 4-5 years is 22.9% and 31.6% at age 10-11 years. There are significant regional discrepancies linked in part to socio-economic factors.
4. Among boys and girls aged 2-15 years, the proportion that were obese increased from 11% in 1995 to 19% in 2004 among boys and from 12% to 18% for the same years among girls.
5. The Government's expert scientific committee - the Foresight programme - predicts that by 2050 55% of boys and 70% of girls could be overweight or obese.

Definitions and measurement

6. **Overweight** is defined generally as an excess of body *mass*, usually mostly body fat, and **obesity** is defined as an abnormal excess of body *fat*.
7. Body mass index (BMI), the individual's weight in kilograms (kg) divided by height squared in metres (m²), is the most readily available indirect method for measuring overweight and obesity. It is widely adopted for use in children, adolescents and adults by the World Health Organisation (WHO).
8. As childhood is a time of development, BMI is not a static measurement. Age and gender specific BMI centile charts, adjusted for growth, are available and should be used wherever possible.
9. **Overweight children** are defined as those with a BMI > 91st centile of the UK 1990 reference chart for age and sex and **obese children** as those with a BMI > 98th centile of the chart.
10. Waist circumference centile charts for British children and adolescents are also available and the combination of BMI and waist circumference provides a more accurate assessment of adiposity.

Causes and risk factors

11. Any factor causing energy intake to be greater than energy expenditure.
12. Possible causes of childhood obesity include: -
 - rare genetic conditions – e.g. Prader-Willi syndrome. In some cases genes do play a role in the aetiology of obesity but the rate at which the

prevalence of childhood obesity has increased indicates that this trend is unlikely to be underlined primarily by genetic factors.

- poor diet – children are consuming more foods that are high in fat, sugar and salt content. There is a positive association between the intake of beverages containing high calorie sweeteners and adiposity in children. Obese children are less likely to eat breakfast and then snack regularly on high fat and calorie-containing foods. The influence of large food corporations cannot be underestimated as children are targeted intentionally with child-specific foods endorsed by celebrities and featuring well-recognised cartoon characters.
- physical inactivity – for many children the time spent in active play has been replaced by more sedentary pursuits such as watching TV and playing computer games. Fewer children walk to and from school than previously and participation in school sport has decreased.
- risk factors include: -
 - parental obesity – for the children of parents of normal weight, there is a modest but significant correlation between adiposity in childhood and adiposity in subsequent adulthood while if the child's parents are overweight, the correlation is stronger.
 - time spent in inactive pursuits.
 - low socio-economic status.

Long term effects

13. More than 70% of obese children and more than 85% of obese adolescents will become obese adults with an increased risk of cardiovascular disease, type 2 diabetes mellitus, osteoarthritis and some cancers. In children and adolescents associated morbidities include hypertension, hyperinsulinaemia, dyslipidaemia, type 2 diabetes mellitus, sleep apnoea, depression, psychosocial dysfunction and the exacerbation of existing conditions such as asthma. Left ventricular dysfunction has been detected in morbidly obese 6 year olds.

Management

14. **Assessment** should include measurements of height, weight and waist circumference, with reference to appropriate centile charts, as well as blood pressure. The child's and family's weight history should be recorded and consideration given to the possibility of any underlying medical cause. Patterns of eating and physical activity should be assessed along with information about the child's physical and psychological health.
15. Factors that may suggest an underlying medical cause include: -
 - developmental delays
 - poor height growth
 - dysmorphic features
 - hypogonadism
16. **Referral** to hospital or a community consultant paediatrician should be considered for the following groups: -
 - children with a BMI > 99.6th centile and who are at a higher risk of obesity-related morbidity.

- children who may have already developed a serious obesity-related morbidity e.g. hypertension, sleep apnoea, obesity hypoventilation syndrome, orthopaedic problems and psychological morbidity.
 - children with a suspected underlying medical cause of obesity.
17. Otherwise, if the school doctor decides that the child has, in effect, “simple obesity”, then a suitable **intervention plan** should be devised. Strategies that reduce sedentary behaviour and increase physical activity seem to be useful while behavioural interventions appear more successful when parents are included.
 18. Intervention should begin as early as possible and frequent visits, monitoring and reinforcement will be required for success as treating obesity must be viewed as a long term process. The decision to intervene should be reached jointly by the school doctor, those involved in the pastoral care of the child, in the case of older children, the child him or herself and, ideally, the parents or guardians. However parental involvement may be difficult in the boarding situation and more so if the parents live abroad.
 19. Success achieved during the school term may be undermined in the holidays if the parents or guardians are not committed totally to supporting the child’s efforts to lose, or at least control, his or her weight.
 20. The focus of treatment should be on resolving any co-morbidities and changing eating habits and patterns of physical activity with weight maintenance as an acceptable goal.
 21. Questions about food intake should be phrased in a non-judgmental way and it is important to be sensitive when discussing weight with children, young people and their families although this should not prevent school doctors raising the issue. The importance of considering portion sizes, snacking habits and the energy density of foods should be highlighted.
 22. **Self-monitoring** of both eating and physical activity habits is a key therapeutic tool e.g. keeping a food diary or a record of how many times inappropriate food and drinks are eaten or drunk in a day or a week.
 23. Setting short-term goals will help to provide focus and direction to any treatment strategies while the **major long-term goal** must be to reduce the health risks associated with obesity and ultimately equip the child or young person with the skills required to manage their weight in adulthood.
 24. **Drug treatment** should only be considered once dietary, exercise and behavioural approaches have been started and evaluated. For children under 12 years, drug treatment is not generally recommended while it may be considered for older children if there are physical co-morbidities or severe psychological co-morbidities but only by a specialist multidisciplinary team.
 25. The involvement of other healthcare professionals such as dieticians, psychologists and school nurses should be considered.

Prevention

26. **Recommendations for primary prevention** include measurements as above although there is debate over the frequency of measuring.
27. It is recognised that within schools there is variable practice regarding the frequency of weighing.

28. Good practice might suggest an assessment of weight status for all children at school entry and then further assessments as considered appropriate, including opportunistic and / or targeted ones.
29. Some authorities recommend, as a minimum, an annual assessment of weight status and NICE concluded that the opportunistic monitoring of growth charts after 2 years of age may be beneficial.
30. The current policy of the UK National Screening Committee (NSC) is that there is **not** enough evidence available to recommend population-based screening of children for obesity.
31. In 2005, the annual NCMP (see 3. above) was introduced for the surveillance of two school year groups but to date, the effect of surveillance or screening programmes on the childhood obesity epidemic has not been evaluated.
32. Limiting the consumption of energy dense foods and following current dietary recommendations regarding a proportioned, balanced and healthy diet.
33. Minimising or eliminating sugar sweetened drinks and avoiding snacks that are high in fat, sugar and salt.
34. Recommending that the child or young person has breakfast every day and limiting portion sizes and the number of meals eaten outside the home or school.
35. Participating in regular, daily physical exercise for at least 60 minutes, limiting screen time – TV viewing, computer usage, electronic games – and recommending adequate sleep appropriate to the child’s age. Studies suggest a link between declining sleep duration and increasing obesity.
36. The school doctor may need to talk to the school authorities about the provision of tuck shops and the types of food, confectionery and beverages on sale, as well as to the catering manager regarding the provision of healthy meals in the dining room.
37. The use of vending machines in schools should be actively discouraged.
38. In October 2008 the Government launched a new national movement to tackle childhood obesity “Change4Life.” The aim is to improve children’s diets and levels of activity in order to reduce the long term threat to their future health – “eat well, move more, live longer.” Just 11.5% of parents with overweight or obese children recognise the problem. As part of the NCMP, parents of children in Reception and Year 6 may routinely be sent their child’s height, weight and interpretation at any time during the 2008/09 academic year, the letters being accompanied by a Change4Life leaflet.

References

NICE clinical guideline 43: Obesity. December 2006

Scottish Intercollegiate Guidelines Network (SIGN). Management of obesity in children and young people. Edinburgh: SIGN, 2003. (v.i.)

Useful websites

www.nice.org.uk – National Institute for Health and Clinical Excellence.

www.nationalobesityforum.org.uk – the National Obesity Forum.

www.healthforallchildren.co.uk – Harlow Printing Ltd - advice re measurement charts and approved patient weighing scales.

www.iaso.org – The International Association for the Study of Obesity. Umbrella organisation for national obesity associations.

www.iotf.org – International Obesity Task Force – and part of IASO.

www.ncmp.ic.nhs.uk/ - National Child Measurement Programme.

www.foresight.gov.uk – details of reports and papers within Foresight project.
(v.i.)

www.easoobesity.org – European Association for the Study of Obesity.

www.aso.org.uk – Association for the Study of Obesity.

www.sign.ac.uk/ - Scottish Intercollegiate Guidelines Network.

www.ic.nhs.uk – The Information Centre for Health and Social Care. Details of Health Surveys for England.

www.childgrowthfoundation.org – Child Growth Foundation.

www.eatwell.gov.uk – information from the Food Standards Agency stressing the importance of a healthy diet.

www.dh.gov.uk/change4life - for information about the Change4Life movement.

Recommended reading

UK Government's Foresight Programme. Tackling Obesities: Future Choices – International Comparisons of Obesity Trends, Determinants and Responses – Evidence Review. October 2007. Dept. of Innovation, Universities and Skills. (www.dius.gov.uk).

EUSUHM (European Union for School and University Health and Medicine) Prevention of Overweight and Obesity in Childhood. (www.eusuhm.org)

Clinical Obesity in Adults and Children: Kopelman et al. Blackwell Publishing. 2005. ISBN 1405116722, 9781405116725.

BMJ 15 December 2007: P1236-7: Thin Living – the development of healthy towns in France.

BMJ 2 August 2008: 243-4: Editorial – Public Perception of Overweight.

BMJ 30 August 2008: 472-3: Editorial – Obesity in Children.

BMJ 18 October 2008: 922-927: Clinical Review. Obesity in children. Part 1: Epidemiology, measurement, risk factors and screening. Kipping et al.

BMJ 25 October 2008: 984-989: Clinical Review. Obesity in children. Part 2: Prevention and management. Kipping et al.

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