

SUMMARY

THE PREVALENCE AND TRACKING OF OVERWEIGHT AND OBESITY IN CHILDREN AND ADOLESCENTS

There is evidence that the prevalence of overweight and obesity in children and adolescents in Australia has increased in the last 15 years: an estimated 20 to 25 per cent of children and adolescents are now overweight or obese. The trend is similar in other developed and developing countries.

Epidemiological studies provide evidence that relative body weight tracks from childhood to adulthood and that the predictive power of this association increases with age.

Not all overweight and obese adults were overweight or obese as children. However, once a child or adolescent is on an overweight or obese percentile, it is unlikely that they will revert spontaneously to a lower weight percentile.

The prevalence of overweight and obesity in children and adolescents is high enough to warrant both intervention and preventive action.

DEFINITION AND MEASUREMENT OF OVERWEIGHT AND OBESITY IN CHILDREN AND ADOLESCENTS

Many definitions of overweight and obesity in children and adolescents are used in the literature and in clinical practice. Unlike the situation with adults, though, these definitions are not based on morbidity and are thus more arbitrary.

There is general consensus that an age-related body mass index (BMI) should be used, since BMI is significantly associated with body fatness in children and adolescents. BMI has also been validated against more direct measures of adiposity.

An Australian reference standard based on adult BMI cut-off points has been developed for children and adolescents, but it is not considered suitable for clinical use. An individual's BMI can, however, be compared with a BMI-for-age centile chart. When this method is used, a child can be followed over time with serial measurement. For children and adolescents in the clinical setting, the Centers for Disease Control and Prevention BMI percentiles are recommended, with a BMI above the 85th percentile suggesting overweight and a BMI above the 95th percentile suggesting obesity.

Australia has no growth reference charts and at present would have to use an alternative reference on which to base aged-related BMI definitions of overweight and obesity in children and adolescents.

There is a growing body of evidence that waist circumference can be used to assess cardiovascular risk in children and adolescents and to assess response to weight management.

RISK FACTORS

A number of risk factors—some of them relatively easy to modify and some not—have been identified as being associated with child and adolescent overweight and obesity:

- There is a significant genetic predisposition to obesity. Parental obesity is a strong risk factor for future, if not present, obesity.
- American studies show a positive correlation between television viewing and overweight. There is no evidence available for other forms of small-screen entertainment. Television viewing is a highly modifiable risk factor.
- Reduced physical activity energy expenditure may play a role in weight gain over time in children and adolescents and is another modifiable risk factor.
- The role of diet composition in the development of overweight and obesity in children and adolescents is unclear. There is, however, evidence for breastfeeding's protective effect against obesity and evidence that disordered eating in a parent may be associated with excess body weight in the child.
- A number of single-gene abnormalities have been described in which obesity is the predominant finding, but these contribute little to the total number of obese children and adolescents.
- Ethnicity, birthweight and early adiposity rebound are all risk factors for obesity in children and adolescents, but they are not highly modifiable.
- Certain well-characterised endocrine disorders, hypothalamic damage, treatment for acute lymphatic leukaemia, and the use of certain pharmacotherapeutic agents are non-genetic obesity risks, but they contribute little to the total number of obese children and adolescents.

Socio-economic status and urban living are not identified as special risk factors for obesity in children and adolescents in Australia.

MORBIDITY AND CHILDHOOD AND ADOLESCENT OBESITY

Cardiovascular risk factors and obesity cluster in childhood and track through to adolescence. Cardiovascular risk factors in parents increase the risk of such factors being present in their offspring.

Childhood and adolescent obesity that persists into adulthood confers increased adult morbidity and mortality risks. Childhood and adolescent obesity is, however, also associated with morbidity in childhood.

There is evidence from descriptive studies that obese children and adolescents suffer a higher level of physical discomfort than their non-obese peers.

The prevalence of type 2 diabetes is increasing in children and adolescents from certain ethnic groups (including those of Aboriginal and Torres Strait Islander and Middle Eastern backgrounds); the increase appears related to the high prevalence of obesity in these populations.

Obese children and adolescents suffer from an increase in other medical morbidities that impair their current health. Among these morbidities are obstructive sleep apnoea, hepatic steatosis, slipped capital femoral epiphyses, and the polycystic ovarian syndrome.

Obese children and adolescents exhibit impaired psychosocial function; the impairment is greater in females and with increasing age.

A significant proportion of children and adolescents use unhealthy dietary practices for weight control; these practices are more common in those who are overweight and female.

CONVENTIONAL WEIGHT-MANAGEMENT STRATEGIES

Conventional weight-management strategies have not been studied as extensively in children and adolescents as they have in adults. The conventional strategies are a reduction in energy intake, by dietary means and using conventional food items; an increase in energy expenditure, by increasing physical activity and decreasing sedentary behaviours; behaviour modification; and family involvement in the process of change.

Published results of weight-management programs using conventional therapies show modest success in children and adolescents in the medium to long term. There is some evidence that children and adolescents maintain weight loss better than their parents. Most of these studies are limited to a few investigating groups, however, and there is a need for the studies to be reproduced in other settings. There is some limited evidence that similar weight-loss outcomes can be achieved in a number of different settings and using different types of programs.

There is no direct evidence on either optimal dietary prescription or behaviour-modification strategies in the management of obesity in children and adolescents. There is some limited evidence that increasing physical activity or reducing sedentary behaviours improves weight-loss outcomes in children and adolescents.

For obese children and adolescents, weight-management programs that involve parents have better outcomes than programs that do not. There is also evidence, in children of primary school age, that a program that involves parents alone does better than one that requires regular attendance by their children as well.

NON-CONVENTIONAL WEIGHT-MANAGEMENT STRATEGIES

For extreme degrees of obesity and associated co-morbidity, particularly in adolescents, it may be necessary to consider weight-management strategies additional to those therapies that are deemed conventional. Most of these non-conventional therapies should, however, be attempted only in tertiary institutions and within a specialist, multi-disciplinary team.

Very low energy diets have been shown to produce rapid weight loss in adolescents in a short period, but it is not so clear that they provide any long-term weight-loss benefit.

There is no evidence for the use of sibutramine and very limited evidence for the use of orlistat in adolescents. Nevertheless, there are enough adult trial data to warrant consideration of using these medications in obese adolescents with obesity-related co-morbidity.

There is limited evidence that gastric bypass or gastric restrictive surgery in obese adolescents induces a weight loss comparable to that shown in adult studies. There are, however, no established criteria for determining which subjects would benefit from such a procedure.

Targeted therapy has potential for single gene-defect obesity, as exemplified by the efficacy of leptin-replacement therapy in leptin deficiency.