
PART V

**Challenges for the new
millennium**

11. Conclusions and recommendations

11.1 General conclusions

1. Obesity (BMI ≥ 30) is a disease that is largely preventable through lifestyle changes. Overweight (BMI ≥ 25) is a major determinant of many other NCDs including NIDDM, CHD and stroke, and increases the risk of several types of cancer, gallbladder disease, musculoskeletal disorders and respiratory symptoms. In some populations, the metabolic consequences of weight gain start at modest levels of overweight. The costs attributable to obesity are high not only in terms of premature death and health care but also in terms of disability and a diminished quality of life.
2. The prevalence of overweight and obesity is rapidly increasing worldwide. In many developing countries overweight and obesity coexist with undernutrition. This constitutes a double burden for these countries, and their efforts to combat both should be carefully balanced. There is an urgent need to prevent or reverse unhealthy trends in diet and physical activity patterns in developing countries.
3. Some individuals may become overweight and obese because they have a genetic or biological predisposition to gain weight readily in an unfavourable environment. However, the fundamental causes of the obesity epidemic are societal, resulting from an environment that promotes sedentary lifestyles and the consumption of high-fat, energy-dense diets. These two principal factors interact so that, while it is possible for people who sustain moderately high levels of physical activity throughout life to tolerate diets with a higher fat content (e.g. 30–40% of energy), increasing evidence suggests that lower fat intakes (e.g. 20–25% of energy) are needed to minimize energy imbalance and weight gain in sedentary individuals and societies.
4. Prevention of overweight and obesity should begin early in life, and should involve the development and maintenance of lifelong healthy eating and physical activity patterns. In adults, the prevention of overweight should include efforts to prevent further weight gain even when BMI is still in the acceptable range. Healthy lifestyles, combining balanced diets of lower energy density (increased amounts of vegetables, fruits, grains and cereals) with increased levels of physical activity (such as walking) and reductions in sedentary behaviour, should be promoted. Prevention is not just the responsibility of individuals but also requires structural changes in societies.

5. The management of individuals who are already obese should combine a primary goal of long-term weight maintenance with appropriate treatment to achieve a modest weight loss (5–15% of initial weight) and the management of comorbidities. Individuals and groups at high risk of becoming obese in the future because they are overweight (BMI 25–29.9) should also receive medical attention but here the emphasis should be on prevention of weight gain. Appropriate support and assistance for making sustainable dietary, physical, activity and other healthy lifestyle changes should be an intrinsic part of all management strategies. Drug therapy and surgery can be considered as adjuvant therapy for obese individuals who fail to respond to primary management approaches, especially when there is concurrent risk from other NCDs. However, many countries lack health care delivery systems to implement such a management system. There is an urgent need for adequate training of health professionals and selected lay people, based on the principles outlined above and recognizing that stigmatization of the obese is counterproductive.
6. Obesity cannot be prevented or managed solely at the individual level. Communities, governments, the media and the food industry need to work together to modify the environment so that it is less conducive to weight gain. Such partnerships are required to ensure that effective and sustainable changes in diet and everyday levels of physical activity can be achieved throughout the community. This approach will also allow obesity prevention and management strategies to be harmonized with existing public health policies and programmes for the control of all NCDs.

11.2 Recommendations

The recommendations in sections 11.2.1–11.2.3 are mainly concerned with identifying priority areas for further research, while those in section 11.2.4 deal primarily with the strategies and actions required for the effective management of the global epidemic of obesity.

11.2.1 **Defining the problem of overweight and obesity**

International classification of overweight and obesity

1. General recommendations

To ensure that meaningful comparisons between populations can be made, the classification of overweight and obesity should be standardized on an international basis, as follows:

- *Adults.* The existing WHO classification of adult body weight status based on BMI should be used with minor modifications. The cat-

egory of “overweight” (BMI ≥ 25) should be subdivided into “preobese” (BMI 25–29.9) and “obese” (BMI ≥ 30). The category of obese should be further subdivided into the following three classes:

- Obese class I: BMI 30–34.9;
 - Obese class II: BMI 35–39.9;
 - Obese class III: BMI ≥ 40 .
- *Children.* The existing WHO classification of overweight and obesity in children based on weight-for-height values of +2SD or more of the median NCHS (National Center for Health Statistics) reference curves should be used until a new consensus is reached and a more appropriate classification system can be recommended. Caution is needed when interpreting BMI data collected from populations with stunted children, especially in countries undergoing a rapid nutrition transition, as the relationship of BMI to adiposity may be altered.

2. *Priority areas for further research*

Priority should be given to research on:

- The establishment of the most useful standard method of defining childhood and adolescent obesity, which should then be used to formulate new reference curves for growth and to evaluate existing and future child and adolescent data from around the world.
- The validity and tracking of simple measures of excess weight, e.g. BMI-for-age and sex in children and adolescents from different societies and ethnic groups.
- The relationship between BMI and adiposity in stunted children.
- BMI standards for the elderly (>60 years or >80 years).

International comparisons of obesity rates

3. *General recommendations*

Cross-sectional studies of nationally representative samples should be regularly undertaken in all WHO regions to facilitate international comparisons of adulthood obesity rates, to predict the magnitude of the future obesity problem, and to monitor and evaluate the effectiveness of intervention strategies. These studies should document BMI and waist circumference and assess progressively the variety of intervention strategies under way. In particular:

- Countries in the WHO African Region, Region of the Americas, South-East Asia and Eastern Mediterranean Regions should give priority to regular larger-scale surveys of body weight status.

- Data should be recorded according to a standard protocol, i.e. using the WHO classification system for body weight status (BMI ≥ 25 for overweight and BMI ≥ 30 for obesity), and based on measured rather than self-reported height and weight.
- Data should be age-standardized and divided according to urban and rural areas.
- Where appropriate, data should be linked to morbidity and mortality outcomes classified, for example, in accordance with ICD-10.¹
- Countries with the highest obesity rates and/or with rapidly rising secular trends in obesity should be identified within each WHO region and highlighted in regional reports.
- Waist circumference measurements should be included as a useful additional tool for more readily identifying NCD risk.

11.2.2 ***Establishing the true costs of the problem of overweight and obesity***

Health impact of overweight and obesity in adults

1. General recommendations

The health consequences of overweight and obesity should be fully evaluated in all parts of the world and among different ethnic groups, as follows:

- While short-duration studies are useful for identifying the major health impact of obesity, long-term monitoring of health indicators should be carried out to determine the full range and impact of obesity-related illnesses, and where the outcome (e.g. cancer) is the result of a multistage process in which obesity has an effect on some, but not necessarily all, stages.
- Standard procedures for estimating the relative risks of chronic health problems associated with weight gain and obesity should be established.
- The prevalence and relative risks in different societies of the chronic health problems associated with obesity should be documented.
- The psychosocial impact of weight gain should be re-evaluated using modern psychosocial techniques.

2. Priority areas for further research

Priority should be given to research on:

¹ *International Statistical Classification of Diseases and Related Health Problems. Tenth Revision. Vol. 1. Tabular list.* Geneva, World Health Organization, 1992.

- The relationship between obesity and the development of certain cancers.
- The non-fatal health consequences associated with obesity, especially in developing countries.
- The interactions between measures of fatness (specifically BMI and waist circumference) and both dietary factors and physical activity in determining obesity comorbidities.
- The sex- and population-specific relationships between measures of fatness (specifically BMI and waist circumference) and both morbidity and mortality.

Health impact of overweight and obesity in childhood

3. General recommendations

The health consequences associated with overweight and obesity in childhood and adolescence should be investigated further.

4. Priority areas for further research

Priority should be given to research on:

- The long-term health consequences of childhood obesity and its persistence into adulthood.
- The implications of early excess weight gain in different populations and ethnic groups.
- The nature of the association between rapid childhood growth, early menarche and the later risk of breast cancer.

Health impact of weight loss

5. General recommendations

The health benefits and risks of weight loss should be further investigated through well controlled studies that distinguish between unintentional weight loss (which may result from underlying disease or smoking) and intentional weight loss.

6. Priority areas for further research

Priority should be given to research on:

- An accurate definition of the health benefits and risks for both morbidity and mortality of sustained weight loss (i.e. for more than 2 and preferably 5 years).
- The quantification of the health impact of varying degrees of weight loss in individuals, with and without coexisting disease.

- The impact of weight cycling on obesity-associated illness and the likelihood of future weight gain.
- The impact on intentional weight loss of alterations in the diet and physical activity.

Economic impact of overweight and obesity

7. General recommendations

The economic burden of overweight and obesity should be systematically evaluated in all regions of the world using a standardized methodology. For this reason:

- A variety of health care systems should be evaluated so that different countries and regions can apply the analyses to their own national and regional policies.
- Wherever possible, assessments should include an analysis of the broader social and quality of life issues relating to excess weight gain.

8. Priority area for further research

Priority should be given to research on:

- The evaluation of the relative cost-effectiveness of different management strategies aimed at both the prevention and treatment of excess weight gain.

11.2.3 Understanding how the problem of overweight and obesity develops

Providing a basis for intervention strategies

1. General recommendations

To enable the global problem of obesity to be tackled in a coherent and progressive manner, it is essential that the range of factors implicated in its development, from both an individual and a population perspective, should be fully characterized and investigated through a coherent strategy of short- and long-term studies. In particular, the relative importance of dietary factors and physical activity patterns associated with a modern lifestyle should be investigated further.

2. Priority areas for further research

Priority should be given to research on:

- Dietary factors, including:
 - the influence of the energy density and/or fat content of the diet on the propensity to consume excess energy relative to require-

- ment, and how this relationship is influenced by different levels of physical activity;
- the quantitative significance of sweetened foods or sweet-fat combination foods in promoting a passive overconsumption of energy;
 - how taste preferences and eating patterns (including those associated with the consumption of energy-dense diets) develop during childhood and whether these are associated with any specific developmental stages;
 - the optimum ranges of energy density and nutrient/energy ratios for children's diets that will promote appropriate growth and development but prevent the development of excess adiposity.
- Physical activity patterns, including:
 - the relationship between levels of physical activity and future weight gain;
 - factors that promote and reinforce physical inactivity;
 - the relationship between obesity and sedentary behaviours such as television viewing, video games and computer work in a wide variety of countries;
 - quantification of the amount of voluntary energy expenditure necessary to prevent weight gain in adults in sedentary occupations;
 - changes in food selection in the general population with relatively small changes in levels of physical activity.
 - Societal and cultural factors influencing energy intake and physical activity patterns, including:
 - the effects on the development of overweight and obesity in children of existing programmes to combat undernutrition in developing countries;
 - the relative influence of different aspects of modernization on the energy density of the food supply and levels of physical activity;
 - the influence of socioeconomic status, including educational level, on the risk of becoming obese;
 - the process of nutrition transition and its impact on average body weight in a population.
 - Genetic/biological factors involved in weight gain and obesity, including:
 - the identification of genes and mutations responsible for the susceptibility of some individuals and groups of people to weight gain in conjunction with an energy-dense diet and a sedentary mode of life;

- the relative importance of vulnerable periods of life for the development of obesity.

11.2.4 **Addressing the problem of overweight and obesity**

Focus on prevention strategies

1. General recommendations

Considerably more attention should be given to strategies aimed at preventing weight gain and obesity, since these are likely to be more cost-effective and have a greater positive impact on the long-term control of body weight than those designed to deal with obesity once it has fully developed. In particular:

- Action should be taken at the following three levels to develop effective strategies for the prevention of overweight and obesity:
 - *universal/public health prevention* (directed at everyone in the population);
 - *selective prevention* (directed at subgroups of the population with an above-average risk of developing obesity);
 - *targeted prevention* (directed at high-risk individuals with existing weight problems but who are not yet obese).
- Small-scale pilot projects should be carried out to determine the practicality and appropriateness of specific intervention strategies.
- Practical evaluation of obesity-prevention programmes should be based on the assessment of changes in the prevalence of overweight (BMI >25) combined with short-term process indicators of dietary change and physical activity levels. Assessment of changes in the prevalence of obesity (BMI >30) and its comorbidities is less reliable but may be useful in the long term. Changes in the incidence of obesity and mean population BMI are more accurate measures of change in population weight status that can be used for a more detailed and closely controlled analysis.
- Current obesity-prevention initiatives should be evaluated, their limitations identified and their designs improved.

Improving physical activity levels and healthy eating

2. General recommendations

Prevention of overweight and obesity should begin early in life, and should be based on the development and maintenance of lifelong healthy eating and physical activity patterns. In particular:

- Schools should promote physical activity by incorporating a variety of recreational activities into teaching curricula. They

should also encourage healthy eating through training in practical food skills and by adopting healthy nutrition standards for school meals.

- Community facilities should be designed and traffic and town planning policies developed to facilitate everyday walking and exercise in adults and children.
- Workplaces should promote physical activity and healthy eating by providing exercise and changing facilities, adopting healthy nutrition catering standards, and initiating other appropriate schemes.
- Interventions aimed at the prevention and management of obesity should be carefully designed so that they do not cause undue fear of fatness and precipitate eating disorders.
- Consumers should be educated and encouraged to demand food products of high nutritional quality.
- The strategies adopted should be population-specific, especially with respect to economic circumstances. Thus, for example, the main aim of physical activity interventions in developing countries should be to prevent the decline in such activity that usually accompanies economic development, whereas the main emphasis in affluent societies should be on discouraging existing patterns of sedentary behaviour.

Need for public health strategies

Population-based (universal) public health strategies should be adopted that aim to reduce the obesity-promoting aspects of the environment and to improve a population's knowledge of obesity and its management. In particular:

- Strategies should be multisectoral; governments, regional authorities, the food industry, the media, communities and the consumer should all be engaged in collaborative programmes.
- Strategies should aim to produce an environment that supports improved eating and physical activity habits throughout the entire community.
- Novel and practical strategies that go beyond traditional health promotion programmes should be investigated.
- Strategies should aim to achieve the optimum population median BMI range of 21–23. Adults in developing countries are likely to gain greater benefit from a median BMI of 23, whereas adults in affluent societies with a more sedentary lifestyle are likely to gain greater benefit from a median BMI of 21.

- Strategies should be adapted to the specific characteristics of each community or country.
- Improving the standard of living of all sectors of society, and especially of often neglected native or minority populations, should be a priority for public health action in developing and newly industrialized countries.
- Lessons learned from past campaigns on other public health problems (e.g. poor immunization rates and drink-driving) should be carefully considered and incorporated when designing public health strategies for controlling obesity.

Need for health care and community services

3. General recommendations

Obesity-management programmes should be established within health care and community services to target individuals and sub-groups of the population who have developed, or are at risk of developing, obesity and its comorbidities. In particular:

- Primary health care services should play the dominant role, but hospital and specialist services are also required to deal with very high-risk individuals.
- Steps should be taken to ensure the clear communication between the different levels of health care service that is essential.
- Weight-management services and protocols should be based on the principles outlined in this report but should be adapted to the circumstances of each country.
- In addition to strategies aimed at modest weight loss, strategies for weight maintenance and management of obesity comorbidities should be an integral part of management programmes for individuals with existing overweight and obesity.
- Simple anthropometric methods, e.g. waist circumference and waist:hip ratio, should be used to identify overweight individuals at increased risk of obesity-related illness due to abdominal fat accumulation.
- The efficacy of management schemes should be evaluated over a period of at least 1 year and preferably 2–5 years.

4. Priority area for further research

Priority should be given to:

- Further investigation to determine whether documented successful management programmes for overweight in children and adoles-

cents can be replicated in different situations and in different populations.

Improved training in the management of obesity

5. General recommendations

The training of all health care workers involved in the management of obese patients should urgently be improved. In particular:

- Obesity should be viewed as a serious medical condition in its own right; it is a disease that can be treated with lifestyle modification and effective management. Obesity should be treated even when comorbidities are not present.
- Negative attitudes of health care professionals towards obesity and obese patients should be overcome, since the stigmatization of obese individuals adds to the existing burden of this disease.

Need for evaluation

6. General recommendations

Systematic assessment and evaluation should be a routine part of all interventions aimed at preventing and managing overweight and obesity. In particular:

- The effectiveness of different weight-management therapies should be evaluated in clearly defined groups of patients and in the social context of each country.
- The effectiveness of all public health programmes aimed at preventing weight gain in the population should be evaluated.
- Sound experimental design and statistical principles should be used to critically evaluate the impact of each proposed intervention.

7. Priority area for further research

Priority should be given to:

- Further long-term studies to evaluate the risk–benefit ratio of prolonged and integrated management schemes (with and without the use of drugs) for weight loss and maintenance in terms of mortality, comorbidities, quality of life and cost-effectiveness.

Shared responsibility

Since obesity cannot be prevented or managed solely at the individual level, governments, the food industry, international agencies, the media, communities and individuals should all work together to modify the environment so that it is less conducive to weight gain. In particular:

- Steps should be taken to ensure the synergistic interaction of national policies on nutrition and the control of NCDs in the prevention and management of overweight, obesity and associated comorbidities.
- The activities of the health, educational and agricultural sectors should be coordinated to ensure effective government action for the prevention and management of overweight.
- Strategies for integrated approaches to the prevention and management of overweight should include consumer education, the development and implementation of dietary guidelines, food labelling, nutrition and physical education in schools, altered feeding programmes, and efforts to ensure truth in advertising.
- The food industry should be responsible for developing and promoting affordable healthy food products.
- Governments should enforce adherence to regulations governing the marketing, advertising and labelling of food.
- The media should not induce or exacerbate eating disorders in societies where they do not exist or encourage the stigmatization of the obese in societies where this is unknown.
- The support of international agencies and nongovernmental organizations dealing with NCDs other than obesity should be sought, since this is essential for developing successful public health efforts to control obesity in developing and newly industrialized countries.

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Annex

Criteria for evaluating commercial institutions involved in weight loss¹

Appropriate criteria for evaluating commercial institutions involved in weight loss should include:

1. Identification and recording of an individual's BMI or an equivalent weight-for-height before advice is given.
2. Methods of record-keeping and analysis open to scrutiny by a health centre if patients are to be referred from the centre. Data on the health centre's patients should be available on request.
3. Use of an admission protocol that excludes those within the desirable weight range from a weight-reduction programme.
4. Identification of an individual or family-based approach to weight reduction.
5. Provision of clear written as well as oral guidance on the dietary regimen, used together with details of the expert(s) used in drawing up such guidance.
6. Specification of the methods used, if any, for encouraging physical activity.
7. Definition of the nature of behavioural modification programmes, the frequency of visits, the use of group or individual support and the origin of the behavioural scheme.
8. Whether food additives, drugs or other medicaments (e.g. ephedrine, caffeine homoeopathic remedies, and nutrient supplements) are used in association with therapy.
9. Methods for verifying therapeutic claims made in advertisements or in weight-management programmes.
10. The methods chosen to alert the members' doctors to untoward effects.
11. Any plans for coordinated activity with a health centre on weight management.
12. The experience, training and qualifications of staff.
13. The success criteria offered to clients.

¹ Adapted, with the permission of the publisher, from *Obesity in Scotland. A rational clinical guideline recommended for use in Scotland*. Edinburgh, Scottish Intercollegiate Guidelines Network, 1996.

