ABC of obesity

Obesity—can we turn the tide?

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Recent headlines highlighting the current and projected obesity levels in the United Kingdom—in 2010 a third of adults will be obese—reiterate the cry that “it’s time to do something about it.” As already shown in this series, the consequences of obesity affect all ages and nearly all organ systems. Obesity diminishes quality of life, and many problems begin well before a body mass index of 30 is reached. Well over half the entire population of the UK has a BMI of >25 and will experience greater morbidity and total mortality.

Medical complications of obesity

Whose responsibility?

Although the old attitude of “pull yourself together, eat less, and exercise more” is receding, it is still evident among less perceptive health professionals and is commonly voiced by the media. Most overweight or obese individuals would prefer to be normal weight, and many are doing as much as they can to keep their weight lower than it would otherwise be.

We are all to some extent addicted to food. As with any disorder, people with excessive addiction to food require help, advice, and sympathy. Many become caught in a negative cycle of excess energy intake, continuing weight gain, and impaired appetite regulation, with physical inactivity an inevitable compounding factor.

People clearly have some responsibility for their health, but society and government have a responsibility to make the preferred, easy choices healthier ones. Health professionals have a responsibility to treat patients with understanding and sympathy and to call for changes in the food and activity environments to support improvements in public health.

This is the final article in the series

Trends in obesity in adults in England, 1980-2002 (graph adapted from *Health Survey for England 2004*). Projected levels suggest that by 2010 nearly a third of adult men and 28% of women in England will be obese (*Forecasting obesity to 2010*, www.dh.gov.uk/). The figures will be higher for older people

The problem of rising prevalence in obesity may get much worse—rates could climb still further, bankrupting the health system and leading soon to reductions in life expectancy. So, can we offer effective management? And can we reverse the rising trend in the prevalence of obesity, and if so, when?

Vicious cycle of weight gain. Food provides short term pleasure and is addictive

It is increasingly apparent that most individuals are unable to make enough “proactive” changes to prevent excess weight gain but are simply “reactive” to their environment. Thus education alone will fail to halt this obesity epidemic, and environmental changes (physical, food, and fiscal policy) are urgently needed

Lessons from other countries

More attention could usefully be paid to the trends and differences in and between countries. Economic analyses show that recent increases in energy intake may be the predominant cause of increasing obesity, with physical inactivity playing an early facilitating but now compounding role. For example, in the United States, dependence on motorised transport, automated appliances in the home and workplace, and television viewing was established by 1970. However, obesity rates only began to accelerate in the '80s and '90s. This coincided with steady increases in food production and decreases in relative food costs, combined with more snacking and eating away from the home and consuming energy dense foods that are provided in ever bigger portions. The same trend now exists in other countries.

The real goal: prevention

Maintaining a stable weight is easier than losing excess weight. Indeed, a third to a half of all obese patients will not lose weight by any medical method. Much more effort should focus on discovering how to prevent individuals becoming overweight or obese in the first place and maintaining current weight. Prevention is the only economic long term solution to the problem. Even a complete understanding of the genes and peptide cascades that regulate appetite and metabolism can never reverse an epidemic driven by environmental and cultural change.

Relative contributions of diet and physical activity in achieving weight loss or weight maintenance

	Weight loss (big changes: ≥ 500 kcal/day)	Maintenance and prevention of weight gain (small changes: 50-100 kcal/day)
Diet alone	Substantial	Modest
Physical activity alone	Absent or minor	Modest
Diet and physical activity combined	Substantial	Substantial

Changing the obesogenic environment

If environments—physical, food, fiscal, and social environments—have become highly obesogenic, can they be changed? Although this has not yet happened anywhere, food consumption patterns can be adapted to enable people to satisfy both energy needs and taste buds without much conscious thought.

This can be facilitated by altering our physical activity environment. But changes are also needed both in the practices of the food industry and in the attitudes and behaviour of the public. Only small changes are needed, but it is difficult to imagine this all happening without an agency dedicated to combating obesity—with multifaceted specialist inputs and high level political influence.

Food industry and government

The 2002 joint consultation of the Food and Agriculture Organization of the United Nations and the World Health Organization used a systematic approach to published evidence to rank possible interventions. This ranking may, however, be misleading because comparable research efforts have not been

Rates of adult obesity in the Japanese and the French are strikingly lower than in the US and the UK, despite no evidence that they are more physically active. Their food cultures, however, are very different. Traditional ways of providing and eating food—such as families eating together at table—persist, albeit under threat from globalised catering, especially among young people

What we can reasonably do about obesity now?*

- Establish a dedicated central agency responsible for all aspects of obesity nationally
- Develop a scoring system for obesogenicity of neighbourhoods, workplaces, and at or near schools
- Make certified training in obesity and weight management available for all healthcare professionals
- Fund evidenced based weight management in UK primary care
- Teach energy balance in all primary schools and disseminate information to all parents
- Encourage physical education for all school pupils, and use of school facilities out of school hours
- Ensure a health check (including body mass index and waist measurement) for all school leavers, both primary and secondary
- Display energy content of all meals and snacks at retail and catering outlets, with a warning if > 700 kcal or > 250 kcal, respectively
- Display saturated fat content of all ready meals and snacks at all retail and catering outlets, with a warning if $> 10\%$ of total energy
- Allow new urban roads only if they have safe cycle lanes
- Allow new housing complexes only if they have sports facilities and green park areas
- Include helpline numbers for advice with all clothes sold with waist > 102 cm for men; > 94 cm for boys; > 88 cm or size > 16 for women; > 80 cm for girls
- Ban advertising of slimming services without independent evaluation
- Ban television advertising of sweets and energy dense snacks and drinks before 9 pm and regulate all marketing to children
- Ban placement of sweets and energy dense snacks and drinks at or near shop tills and at child's eye level
- Fund adequate, effective obesity surgery in NHS for people with a body mass index of > 40 facing disability
- Tax processed foods that are high in sugar or saturated fat, and reinvest that money in effective measures to increase intake of fruit, vegetables, and other low fat foods
- Introduce tax breaks for genuine corporate social responsibility to help avoid obesity by changes in food or activity environment
- Launch a health promotion campaign on the methods and benefits of weight maintenance and 5-10 kg weight loss

*The effectiveness of any adopted measures should be evaluated using continuous improvement methods

In the drive against rising obesity, new roads should be allowed only if they have safe cycle lanes, similar to those common in the Netherlands

applied to these or to other, potentially valuable measures. Furthermore, individual interventions may not be effective in isolation.

The food industry is the largest, most powerful industry of all; food is essential for life and health, and the industry must remain profitable. The industry is largely driven by commercial forces aimed at maximising consumption and hence profit. Given people's increasing reliance on processed and precooked food, the industry needs to assume much more responsibility for preventing obesity. Governments, as custodians of public health, have key roles in creating the conditions for this to happen. Voluntary agreements have not been enough. Foods that are less energy dense are needed; this would reduce the total energy content of what is sold and eaten in meals and snacks, without reintroducing calories in other foods.

What is provided determines what is eaten, and so what is provided has to change. This will require attention to pricing and marketing policies, product design, portion sizes, energy content and density, and customer information. Moreover, the advertising of energy dense foods needs to be substantially curtailed—"out of sight, out of mind" holds especially true for children.

The Treaty of Rome included the principle that public health consequences should be considered for all decisions made in public life: ministers can no longer ignore this issue. We need effective regulations or active support and incentives for measures that reflect "corporate social responsibility."

Education

For the public

The measures outlined above may not succeed unless the public is also persuaded to change its dietary and physical behaviour. Intensive efforts, supported by government, are also needed to change the prevailing food and drink culture.

A reasonable educational target for the near future might be to teach the simplest principles of energy balance at primary school level. But education alone may have only a limited effect, and even that is likely to be mainly among those best able to assimilate knowledge. The highest obesity levels seem to be among those in the most deprived socioeconomic areas, particularly in women (although many factors other than knowledge are relevant here). Education is essential at all levels—for children and adults, and for policy planners.

More innovative ways of educating the public, including children, are clearly needed. The media also have a role in disseminating messages and must be trained appropriately.

For health professionals

Historically, nutrition has been poorly taught to doctors, but the General Medical Council's *Tomorrow's Doctors* initiative has urged improvements in nutrition education for medical undergraduates.

A strong case now exists for making obesity a core part of all medical curriculums and part of the training of all other health professions. Continuing emphasis should be placed on obesity in postgraduate teaching—both in the early generic professional training programmes for all specialties and then later in relevant specialty programmes. In other words, any contact between a medical professional and a patient is an opportunity to assess whether that patient has a weight problem—and to offer advice.

Embracing obesity treatments

Some issues peculiar to obesity remain complex—for example, what constitutes success for medical interventions against

Summary of strength of evidence on factors that might promote or protect against weight gain and obesity. Source: Food and Agriculture Organization of the United Nations

Strength of evidence	Factors protecting against obesity	Factors promoting obesity
Convincing	Regular physical activity; high intake of dietary fibre	Sedentary lifestyles; high intake of foods high in energy and poor in micronutrients
Probable	Home and school environments that support healthy food choices for children; breast feeding	Heavy marketing of energy dense foods and fastfood outlets; high intake of sugars (sweetened soft drinks and fruit juices); adverse socioeconomic conditions (in developed countries, especially for women)
Possible*	Foods with low glycaemic index	Large portion sizes; high proportion of food prepared outside home (developed countries); eating patterns showing "rigid restraint and periodic disinhibition"
Insufficient	Increased frequency of eating	Alcohol

*Possible evidence also exists that the protein content of a diet has no effect on weight gain and obesity.

Can people be persuaded to eat smaller portions, abandon energy dense soft drinks, and drink less alcohol? Can they be persuaded to walk more?

Obesity affects all branches of medicine and surgery, and all doctors can contribute to its treatment and prevention either directly or by appropriate referral

Training courses in obesity

- In the UK, the postgraduate intercollegiate course on nutrition offers an introduction to obesity for doctors
- Internationally, the International Obesity Task Force (part of the International Association for the Study of Obesity) has introduced postgraduate training in the SCOPE (Specialist Certification of Obesity Professional in Europe) programme

obesity. The goals of public health planners (such as halving the rate of weight gain and reducing the prevalence of obesity related diseases) do not easily translate into management targets for individuals' weight loss and maintenance. Even the internationally accepted target for weight loss (5-10 kg)—which confers a high proportion of the potential medical benefit, through loss of intra-abdominal fat—is rarely acceptable to patients.

The UK now has safe, effective adjunctive drug treatments that are approved by the National Institute for Health and Clinical Excellence, and evidence based surgical methods for obesity are also available. Routine health care now offers evidenced based, structured multidisciplinary management of obesity. In the UK, Counterweight (an obesity management project in selected general practices around the country) is a good example.

Not all patients are willing or able to participate fully in such programmes, but for over half of those who do, quite modest, achievable weight loss brings major benefits for obesity related diseases in every system of the body. Once a weight management programme is established, we have a duty to evaluate and improve the programme. Doctors, patients, and healthcare providers must recognise the costs of not providing effective weight management.

New research

Health services and governments need to realise that the research conducted so far has not answered all the essential questions. Researchers have tended to focus on the efficacy and safety of interventions. Much more research is needed on routine services in community and population settings to provide a basis for future interventions. There is also a need for continuous evaluation of current policies, commercial practices, and cultural attitudes to help in the understanding of current trends in and between countries and to shape improved approaches. New research skills, new methods, and new funding pathways are needed.

Conclusions

Medical practice must adapt to the current epidemic of obesity and nutrition related diseases. The profession must unite the forces of public health and acute services to generate sustainable changes in food and lifestyles, matters at the heart of our cultural identities. Furthermore, training in public health medicine should urge all doctors to contribute towards bringing changes in the food industry and in the environment that will lead to a more physically active, healthier, and happier population.

Society has accepted long term expensive drug treatments to reduce risks from preventable conditions such as type 2 diabetes, hypertension, and coronary heart disease. To be consistent, it must accept that many people now need drugs (and in some cases, surgery) to cut risks of and disability from obesity, and to limit its progression.

As the prevalence and costs of obesity escalate, the economic argument for giving high priority to obesity and weight management through a designated coordinating agency will ultimately become overwhelming. The only question is, will action be taken before it's too late?

The photographs of cycle lanes, ice cream drink, and swimming are published with permission from Martin Bond/Alamy, Martin Part/Magnum, and SIPA/Rex respectively.

Competing interests: For series editors' competing interests, see the first article in this series.

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Swimming is good for flexibility, but daily "weight bearing leg use" (walking, running, and even standing) is more valuable

In the Counterweight programme, patients have six appointments or group sessions over three months, with follow-up sessions every three months for one year then annual reviews. The aim is to achieve at least 5-10 kg weight loss, then weight maintenance—the success rate in the programme so far is about 30-40%. The programme is continuously evaluated and improved

Future research into obesity and its prevention

- Research questions from observational studies
- Basic science research on mechanisms in the inter-regulation of eating and physical activity, and subsequent clinical trials (phase I translational research)
- Controlled family and community interventions and evaluation of population directed policy measures (phase II translational research)
- Research on generating supportive environmental changes (physical, food, fiscal, and educational environments) and continuous improvement evaluation (phase III translational research, for sustainability)

*Adapted from Hiss (www.niddk.nih.gov/fund/other/Diabetes-Translation/conf-publication.pdf) and Petticrew and Roberts (*J Epidemiol Comm Health* 2003;57:527-9)

Further reading and resources

- World Health Organization and Food and Agricultural Organisation of the United Nations. *Diet, nutrition and the prevention of chronic diseases*. 2002. www.fao.org/docrep/005/AC911E/AC911E00.htm
- International obesity taskforce (www.iotf.org/)
- Counterweight—a multicentre obesity management project led by practice nurses, conducted in 80 general practices in seven regions of the UK (www.counterweight.org)
- SCOPE programme (www.iotf.org/media/scoperelase.htm)
- Intercollegiate Course on Human Nutrition (www.icgnutrition.org.uk/coursedet.rtf)
- International Association for the Study of Obesity. Guiding principles for reducing the commercial promotion of foods and beverages to children ("Sydney principles"). www.iotf.org/sydneyprinciples/index.asp

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