Executive summary

Health Council of the Netherlands. Overweight and obesity. The Hague: Health Council of the Netherlands, 2003; publication no. 2003/07.

With this advisory report the Health Council answers the request of the minister of Public Health, Welfare and Sport to make an inventory of the latest insights and expected scientific breakthroughs with regard to prevention and treatment of overweight and obesity.

Epidemic

Throughout the world, the prevalence of overweight and obesity* has taken on epidemic proportions. In the Netherlands, as elsewhere, there is a steady rise (increasing prevalence) in the number of individuals suffering from overweight and obesity. While it is comparable to the situation in other European countries, this increase is less pronounced than in the United Kingdom and Germany, for example. On average, 40% of Dutch adults are overweight, while 10% of the adult population is obese. It is estimated that 1 to 1.5% of adults suffer from morbid obesity.

The extent of the overweight epidemic is also clearly reflected in the increased prevalence of overweight during childhood. On average, 13% of boys and 14% of girls in the Netherlands are overweight. It seems that the most marked increase in prevalence occurs

* According to the WHO definition, adults are defined as obese (severely overweight) if they have a BMI of 30 kg/m² or more. Those with a BMI value of between 25 and 30 kg/m² are said to be overweight. The BMI (Body Mass Index) is defined as an individual's body weight (in kg) divided by the square of their height (in metres).

in young children above the age of three. If this trend continues, it is estimated that 15 to 20% of adults in the Netherlands will be obese by 2015.

Overweight and obesity are more common in poorly educated population groups and in population groups of Turkish and Moroccan origin.

Health risks

While the health risks associated with obesity have been well documented, much less is known about those associated with moderate overweight. One of the first consequences of weight gain is insulin resistance, which disrupts the normal action of insulin. Insulin resistance plays a key role in the development of metabolic syndrome. This syndrome is characterised by a number of associated metabolic anomalies such as insulin resistance, dyslipidaemia*, hypertension, and abdominal obesity. These anomalies in turn form the basis for the development of disorders such as type 2 diabetes mellitus (age-related diabetes) and its complications.

Other health risks that are associated with overweight and obesity are: cardiovascular diseases, various types of cancer, gall-bladder diseases, arthrosis, respiratory problems, gout, infertility, menstrual disorders and foetal defects. The greater the overweight the greater the risk of such comorbidity.

Of all these health risks, the increased prevalence of glucose intolerance and type 2 diabetes mellitus, is particularly worrying. In the United States this is even occurring in children. In addition, obesity is often accompanied by psychological and social problems, as well as a reduced quality of life. The morbidity associated with obesity (and, to a lesser extent, with overweight) leads to numerous (medicinal) treatments and additional work disability, as well as increased costs for the health care.

Physical inactivity and overconsumption

Over extended periods of time, a small positive energy balance leads to major changes in body weight. This means that overweight can easily develop when the energy intake is only slightly higher than the energy consumption. National food consumption surveys reveal that there was a fall in average energy intake in the Netherlands from 1987/1988 to 1997/1998. There are clear indications of a substantial decline in the level of daily physical activity in recent years. In view of the increased prevalence of overweight, however, the extent of this decline in physical activity must more than compensate for the fall in energy intake. It therefore seems likely that the increased prevalence of over-

* Low HDL serum cholesterol, high serum triglycerides, high LDL serum cholesterol.

weight and obesity is due to an increasing lack of exercise, combined with relative over-consumption.

If overweight is to be prevented, it is essential that energy intake be attuned to energy use. A high-fat diet carries a greater risk of overconsumption than is the case with a low-fat diet. The exact types of carbohydrates consumed are also important, although the way in which this affects the regulation of the energy balance is not yet fully understood. Nevertheless, there is strong evidence that the sugars contained in energy-rich drinks (especially soft drinks) can easily lead to a positive energy balance. In addition, epidemiological studies have revealed a clear connection between a low-fibre diet and the risk of overweight.

Various other dietary factors can also affect energy intake, such as the energy density of the diet, portion size and meal frequency (especially 'snacking' behaviour). A diet which provides the best chance of maintaining the energy balance is one with a low energy density, and which includes plenty of fruit, vegetables and cereal products.

In terms of preventing an increase in body weight, moderate daily exercise seems to be more important than one-off peak exertion. Activities which involve a moderate degree of exertion can be sustained for longer periods of time. As a result, these achieve a relatively high degree of fat oxidation.

The current Dutch standard for healthy levels of exercise stipulates a minimum of thirty minutes of moderate exertion, preferably every day but for no less than five days per week. However, this does not seem to be sufficient to prevent weight gains in the general population. The committee feels that it takes at least one hour of moderate physical activity daily in order to achieve this. This probably also suffices in adults to prevent moderate overweight to develop into obesity.

Other causes

While genetic factors play a part in the development of overweight and obesity, the influence of environmental factors appears to be of overriding importance. As yet, very few of the genes responsible for susceptibility to the development of overweight have been identified. The same is true of the part played by interactions between genes, as well as interactions between genes and lifestyle factors.

Little targeted research has been carried out into the influence of specific behavioural determinants and of environmental factors which underpin high-risk behaviour associated with the development of overweight (overconsumption and an inactive lifestyle). With regard to eating behaviour, it has been established that food preferences are often

acquired at an early age and that preferences for energy-rich foods are easily acquired. In addition, research into eating behaviour and physical exercise has shown that many people are unaware of how much they eat and how little exercise they take. Individuals must therefore develop an adequate awareness of their own eating behaviour and patterns of physical exercise. This is an essential first step in the instigation of behavioural changes. Furthermore, interactions between parents and children, role-model behaviour by parents, and rules imposed during upbringing are major factors which can affect the development of overweight in children.

There is strong evidence that various physical, economic and sociocultural factors (the so-called 'obesogenic environment') prompt individuals to eat large amounts of food and to take little exercise. For example, various studies of children have found a link between the number of hours spent watching television and the development of overweight. There is a major correlation between the higher prevalence of obesity in population groups with a low socio-economic status and environmental factors which tend to impede healthy behaviour.

Effective preventive intervention strategies

An intervention strategy that can effectively prevent weight increase has yet to be devised. Nevertheless, the reported results of some short-term interventions involving schools in other countries reveal a slight beneficial effect on the prevalence of overweight in children. It is not known whether this is a short-term or long-term effect, however. The effectiveness of interventions which target environmental factors (in such areas as housing, transport systems, education, pricing and fiscal measures, and available foods) has also been too poorly studied to enable a verdict to be reached.

There has been scarcely any systematic research into the effectiveness of preventive interventions used in accordance with modern views on health promotion. This is based on a combination of interventions in the field of information provision, regulations and environmental factors. This view dictates that the interventions be attuned to the specific behavioural determinants and environmental factors which underpin high-risk behaviour. The aim of the interventions must be both to increase the usual amount of daily physical activity and to reduce the energy intake. The development and implementation of such intervention programmes requires a broad coalition of actors, in which the local and national authorities, the industry, the health care system and the population each carry their own responsibilities.

Treatment

According to international guidelines, the primary aim of obesity treatment should be to achieve a long-lasting weight loss of about 10%. Even this relatively small weight loss can produce significant health gains. It is very important that also in the Netherlands a tretment protocol for the involved health care professionals is drafted.

Dependent on the amount of overweight involved and on the presence of comorbidity, one option is an integrated approach, aimed at bringing about changes both in terms of behaviour (diet and physical activity) and cognitions, in some cases in combination with pharmacological or surgical therapy. The only effective strategy for obese children appears to be behaviour therapy in groups, in which the parents also participate.

On the basis of strict selection criteria, individuals with extreme overweight are eligible for medicinal or surgical treatment. Surgical treatment may be the solution in some cases of extreme obesity. Both treatment strategies must be used in combination with a weight management programme. There have been favourable reports about both medicinal treatment and surgical treatment, based on weight loss and improvements in terms of health risk factors and quality of life. Data on long-term results is only available for surgical treatment.

The most important problem in current obesity treatment is that any weight loss achieved is not usually long-lasting. The suspension of treatment negates its effects. This does not mean that obesity is untreatable. What it does show is that the treatment was effective but that it was terminated prematurely. While there have been very few studies into the effectiveness of longer duration treatments (exceeding two years), some studies have described cases of long-lasting weight loss spanning periods of several years.

While the treatment prospects for obese patients have improved in recent years, it should be pointed out that the beneficial results obtained only apply to a limited group of patients and then only for the duration of their treatment.

Further research

Some research projects currently in progress may, in the future, provide important information relating to the prevention and treatment of overweight and obesity. In view of the complexity and severity of the obesity problem, however, further research is required in many subfields.

The committee expects that knowledge on the effective prevention and treatment of overweight and obesity will gradully increase. It does not expect scientific breakthroughs at short notice.