

Programme for the Prevention of Type 2 Diabetes in Finland

2003–2010

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DEHKO – Development Programme for the Prevention and Care of Diabetes in Finland 2000–2010
Programme for the Prevention of Type 2 Diabetes in Finland 2003–2010

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Foreword

The increase in type 2 diabetes presents a real and serious challenge for public health in Finland, as well as other industrialized countries. According to background data for the Programme for the Prevention of Type 2 Diabetes in Finland, 160,000 Finns today have type 2 diabetes. If no prevention measures are undertaken, the number of people with adult-onset diabetes will increase by 15,000-20,000 every year. Such rapid growth in the number of patients threatens to seriously compromise or completely devastate our health care system.

Owing to the complications of type 2 diabetes, it is now considered together with cardiovascular diseases. From a public-health perspective, it has therefore become ever more important to seek to prevent this type of diabetes.

The positive news with regard to type 2 diabetes is that research evidence shows that this disease can be effectively prevented and controlled by lifestyle modification. Changes in lifestyle have proved up to twice as effective as drug therapy in preventing type 2 diabetes. Investment of resources in prevention is essential, as it is the only way of preventing care expenditure from becoming impossible for society to support. Naturally, it is also beneficial for individuals if development of the disease can be averted. It should be noted that the measures proposed in the Programme for the Prevention of Type 2 Diabetes, such as alterations in eating and exercise habits, work to prevent not just diabetes but cardiovascular diseases, osteoporosis and many other health problems associated with aging as well.

The Programme for the Prevention of Type 2 Diabetes is the first national-level programme of its kind in the world, and as such it will be under close international scrutiny. The increase in diabetes is a worldwide phenomenon, and has been on the agenda of the World Health Organization since the early 1990s.

The Ministry of Social Affairs and Health considers it a great advantage that the other current national programmes and strategies form an integral part of the prevention programme. The Type 2 Prevention Programme is in line with the set national health objectives and provides an excellent tool for achieving them. I also view with great satisfaction the extensive cooperation that has taken place among various organizations in the development of the prevention programme. Concurrently with the formulation of the programme, the Finnish Diabetes Association and the Finnish Heart Association have been actively developing tools and symbols to help the general public in choosing food products, for instance.

I wish to thank all those who have contributed to the programme, in particular the Finnish Diabetes Association and the Finnish Heart Association for their outstanding effort in preparing the programme. I propose that the Programme for the Prevention of Type 2 Diabetes be implemented without delay throughout the health-care system and within catering, physical education, town planning and other services. Citizens' health and well-being must be a primary concern for the whole society.



Eva Biaudet

Minister of Health and Social Services

Programme for the Prevention of Type 2 Diabetes

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1. Programme for the Prevention of Type 2 Diabetes in Brief

There are 200,000 people with diabetes in Finland. 160,000 of them have type 2 diabetes, and it is estimated that this number will grow by up to 70 per cent by the year 2010. Type 2 diabetes is already one of the foremost problems for the primary health-care system, within which most patients with this disease are treated. Type 2 diabetes is a serious disease which is often associated with complications requiring expensive medical interventions. Prevention of the development of type 2 diabetes and its complications is the only way of preventing the problem from becoming too great for society to bear.

The sharp increase in the prevalence of type 2 diabetes has been brought about by poor eating habits and diminished physical activity, which in turn have led to an unprecedented rate of obesity, itself a significant risk factor for type 2 diabetes.

At least a third, and possibly up to half, of the Finnish population have a genetic predisposition to this disease. It is therefore important to aim any prevention measures simultaneously at the population as a whole and at individuals with a particularly high risk of developing the disease.

About 50,000 Finns are estimated to have type 2 diabetes without knowing it because the disease remains asymptomatic for a long time and may develop insidiously for up to 15 years. Early diagnosis and promptly instituted treatment are the only way of preventing the development of serious complications.

The prevention programme is based on evidence derived from the Finnish Diabetes Prevention Study (DPS). DPS was the first study in the world to show that the

risk of diabetes can be markedly reduced by lifestyle modification.

The Programme for the Prevention of Type 2 Diabetes comprises three concurrent strategies:

The **Population Strategy** is aimed at promoting the health of the entire population by means of nutritional interventions and increased physical activity so that the risk factors for type 2 diabetes, such as obesity and metabolic syndrome, are reduced in all age groups. This strategy comprises both society-oriented measures and measures targeting individuals with the important aim of preventing obesity.

In the **High-Risk Strategy**, individual-oriented measures are targeted at individuals at a particularly high risk of developing type 2 diabetes. This strategy provides a systematic model for the screening, education and monitoring of people at risk. People at risk will be screened using the Type 2 Diabetes Risk Assessment Form developed by the National Public Health Institute.

The **Strategy of Early Diagnosis and Management** is directed at persons with newly diagnosed type 2 diabetes. Its aim is to bring these people into the sphere of systematic treatment, thus preventing the development of diabetic complications that reduce the affected person's quality of life and are expensive to manage. This strategy offers practical instructions for intensive lifestyle management.

The prevention programme includes organizational objectives and outcome goals for each strategy and 12 key measures for achieving these. The implementation of the programme requires wide-ranging cooperation among various players for promoting healthy nutrition and physical activity, as well as improvement of the preparedness of the Finnish health-care system and restructuring of health-promotion activities. In implementation, all current health policy strategies, programmes and projects will be utilized, as well as the services of non-go-

vernmental organizations involved in public health, nutrition and physical education. Cooperation under the Population Strategy will encompass the entire range of Finnish non-governmental organizations.

The feasibility and cost-effectiveness of the prevention programme will be assessed in four hospital districts within a five-year Implementation Project (2003–2007). Training and materials related to the prevention programme will be made available throughout the country.

2. Type 2 Diabetes – a Time Bomb for Health Care

■ A Combination of Many Diseases

Type 2 diabetes is a metabolic disorder with both genetic and lifestyle etiology. Treatment that is inadequate or instituted too late predisposes the affected individual not only to the basic metabolic disturbances but also to a number of serious complications of diabetes.

Almost 80 per cent of people with type 2 diabetes are overweight, and their risk of developing coronary heart disease or stroke is two to four times that of the rest of the population. Heart failure and death from myocardial infarction are significantly more common among people with diabetes than among the rest of the population. Cardiovascular diseases are the cause of death in 75–80 per cent of people with diabetes.

The substantial cardiovascular mortality of people with diabetes is also linked to kidney disease (nephropathy) which may require dialysis therapy and kidney transplantation. Nephropathy is present in 25–50 per cent of people with type 2 diabetes. Type 2 diabetes is the most common cause of chronic renal failure, and the need for active treatment (dialysis therapy) of renal failure caused by type 2 diabetes has grown sixfold within 10 years. People with diabetes face a 13-fold risk of lower-limb amputation because of peripheral vascular disease and neurological disorder (neuropathy), compared with the rest of the population. Disease of the retina (retinopathy) is encountered in more than 50 per cent of people who have had type 2 diabetes for 10 years.

■ Almost a Third of Finns Have a Predisposition to Develop Type 2 Diabetes

At least a third of Finns have a genetic predisposition to develop type 2 diabetes, and 10–20 per cent have impaired glucose tolerance, which is one of the early warning signs of type 2 diabetes.

There are 200,000 people with diabetes in Finland (data from 2000). 160,000 of them have type 2 diabetes and 40,000 have type 1 diabetes. In addition, at least 50,000 Finns are estimated to have type 2 diabetes without knowing it because the disease remains asymptomatic for a long time and may take up to 15 years to develop.

It is estimated that the number of people with type 2 diabetes will increase by 70 per cent by the year 2010. The sharp increase in the prevalence of this disease has been brought about by poor eating habits and diminished physical activity, which in turn have led to an unprecedented rate of obesity, itself a significant risk factor for type 2 diabetes. Obesity and type 2 diabetes are encountered at an ever younger age.

■ High Health-Care Costs from Diabetic Complications

Cardiovascular diseases put a great burden on the national economy. The nation spends more than 410 million euros each year on reimbursements for drugs required to treat these diseases and on various treatment procedures in hospitals. As regards obesity, hospital care accounts for 1.4–7 per cent of total health-care expenditure in Finland.

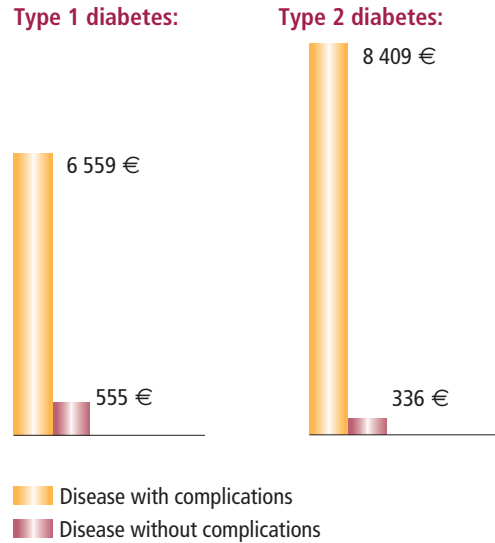
Although people with diabetes make up only about 4 per cent of the population of Finland, the annual cost of the care of people with diabetes is over 11 per cent of total annual health-care expenditure.

The total annual cost of the care of people with diabetes is 875 million euros (data from 1997), with diabetes and its complications accounting for 58 per cent of this amount (505 million euros). The remaining 370 million euros (42 per cent of the total cost) is spent on management of diseases other than diabetes; it therefore indicates the cost of care “excluding diabetes”.

Unless the increase in type 2 diabetes is prevented, annual expenditure on the care of diabetes and its complications could rise from the present figure of 505 million euros to 841 million euros by the year 2010.

Majority (90 per cent) of the 505 million euros care cost consists of treating the complications of diabetes. As diabetic complications often require expensive inpatient care, these complications can cause 24-fold and 12-fold increases in the care-costs of type 2 diabetes and type 1 diabetes respectively. A large part of the cost of the inpatient care of individuals with type 2 diabetes originates from the treatment of cardiovascular diseases.

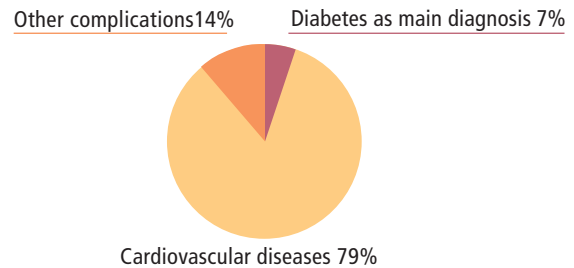
Mean cost of the care of diabetes (euros per person per year)



Complications in type 1 diabetes cause on average a 12-fold rise and in type 2 diabetes on average a 24-fold rise in the cost of care of diabetes.

Reference: Kangas

Breakdown of the cost of inpatient care associated with type 2 diabetes (155 euros/year)



Reference: Kangas

3. Three Approaches to Prevention of Type 2 Diabetes

Type 2 diabetes is one of the leading problems for the primary health-care system, within which most patients with this disease are treated. Prevention of the development of type 2 diabetes and its complications is the only way of preventing the problem from becoming too great for society to bear.

Prevention of type 2 diabetes is backed by compelling research evidence. The Finnish Diabetes Prevention Study (DPS) was the first in the world to demonstrate the feasibility and successfulness of prevention (Tuomilehto et al 2001). The message from the study is clear: development of type 2 diabetes can be prevented or delayed by modification of eating and physical activity habits despite the presence of a genetic predisposition to the disease and risk factors for its development.

The major modifiable risk factors for type 2 diabetes are mostly well known: obesity, sedentary lifestyle and nutritional imbalance, ie excessive intake of energy and fat and insufficient intake of fibre. According to DPS (see Chapter 7), addressing these factors can lower the risk of diabetes by 58 per cent.

■ Three Strategies of the Prevention Programme

Probably at least a third, and possibly up to half, of the Finnish population have a genetic predisposition to type 2 diabetes. It is therefore important to aim any prevention measures simultaneously at the population as a whole and at individuals with a particularly high risk of developing the disease.

In addition, a straightforward system is

required for initiating early treatment of persons with type 2 diabetes diagnosed at screening, with a view to preventing the development of complications, particularly cardiovascular diseases.

To meet these requirements, the Programme for the Prevention of Type 2 Diabetes comprises three concurrent strategies. The mainstays of all three strategies are health-promoting eating and exercise habits, intensive lifestyle counselling and an extensive range of participating players. Acting alongside the primary health-care system are the entire occupational health-care system, pharmacies with their diabetes liaison pharmacists and the network of weight-management and physical-education services offered by various non-governmental organizations. The prevention programme has great significance for public health, as the interventions proposed also work to prevent obesity and cardiovascular disease.

The **Population Strategy** (see Chapter 8) is aimed at promoting the health of the entire population by means of nutritional interventions and increased physical activity so that the risk factors for type 2 diabetes, such as obesity and metabolic syndrome, are reduced in all age groups. This strategy comprises both society-oriented measures and measures targeting individuals with the aim of preventing obesity.

In the **High-Risk Strategy** (see Chapter 9), individual-oriented measures are targeted at individuals with a particularly high risk of developing type 2 diabetes. This strategy provides a systematic model for the scree-

ning, education and monitoring of people at risk. People at risk will be screened using the Type 2 Diabetes Risk Assessment Form developed by the National Public Health Institute (see Chapter 12.4).

The **Strategy of Early Diagnosis and Management** (see Chapter 10) is directed at individuals with newly diagnosed type 2 diabetes. Its aim is to bring these people into the sphere of systematic treatment, thus preventing the development of diabetic complications that reduce the affected person's quality of life and are expensive to manage. This strategy offers practical instructions for intensive lifestyle management, as well as quality criteria for its practical implementation.

■ Responding to WHO Recommendations

Preventing type 2 diabetes is the main objective of the Finnish national DEHKO Programme (Development Programme for the Prevention and Care of Diabetes in Finland 2000-2010). Implementation of the prevention programme poses a great challenge for Finland both nationally and internationally. From a national point of view, the programme is essential since the personnel and economic resources of health care will not be sufficient to cope with an explosive growth in the number of people with type 2 diabetes.

The increase in diabetes is a worldwide phenomenon, and has been on the agenda of the World Health Organization (WHO) since the early 1990s. WHO issued its first recommendation on diabetes prevention in 1994, and in 2000 the WHO World Health Assembly passed a resolution emphasizing the importance of preventing major public-health problems, such as diabetes.

WHO is setting up a worldwide strategy using physical activity and diet to prevent type 2 diabetes, obesity and other growing major public-health problems. In May 2002, the WHO World Health Assembly passed a resolution entitled Diet, Physical Activity and Health, urging the health departments of the world's nations to launch national nutrition- and physical activity based programmes aimed at preventing these major public-health problems.

■ The Prevention Programme is Interlinked with National Programmes

The Programme for the Prevention of Type 2 Diabetes is a practical response not only to WHO recommendations but also to the challenges of the Health 2015 Public-Health Programme, the National Health Care Project, the Strategies for Social Protection 2010 and the Target and Action Plan for Social Welfare and Health Care for 2000-2003. The programme is also naturally interlinked with local government welfare programmes, the Healthy City Project and local government strategies relating to the promotion of the health and well-being of children and young people.

The programme also takes into account the Current Care Guideline on Hypertension, the Current Care Guideline on Adult Obesity, the Current Care Guideline on Smoking, Nicotine Addiction and Addiction Treatment, the Report of the Committee on Development of Health-Enhancing Physical Activity, the ideas presented in the Guide on School Health Services and the principles and recommendations set out in the Action Programme for Implementing National Nutrition Recommendations.

The Programme for the Prevention of Type 2 Diabetes draws on the insight of

Finland's foremost experts in the fields of diabetes, obesity, nutrition and physical education, on the data and experience from DPS, on the knowledge of everyday reality gathered by primary health-care and occupational health professionals and on the substantial contribution of non-governmental organizations involved in social affairs, health and physical education.

The Action Plan for Promoting Finnish Heart Health has been the cornerstone of cooperation between the Finnish Diabetes Association and the Finnish Heart Association in preparing the Population Strategy of the Programme for the Prevention of Type 2 Diabetes. The extensive cooperation of these two organizations has also borne fruit in the form of the Heart Symbol System (see Chapter 12.6), helping consumers

to put together a healthy diet, and the One Small Decision a Day Project (see Chapter 12.3) which has provided the health-care community and the population at large with new models for weight-management group education and instructor training and for peer-group arrangements supporting lifestyle modification.

We now have the requisite resources and infrastructure to carry out the Programme for the Prevention of Type 2 Diabetes: a society keen to promote health and providing many action programmes supporting the aims of the prevention programme, top expertise in the disciplines of health care, nutrition and physical education, as well as a vast body of participating players.

4. Organizational Objectives and Outcome Goals of the Programme

The main objective of the Programme for the Prevention of Type 2 Diabetes is to develop the organization of health promotion and the practices of preventive health care so that the prevention of obesity, type 2 diabetes and cardiovascular disease becomes broad-based, systematic activity. The programme's organizational objectives and outcome goals for 2010 are pursued through the Population Strategy, the High-Risk Strategy and the Strategy of Early Diagnosis and Management.

■ Population Strategy

Organizational Objectives

- ★ There will be a functional health-promotion organization at the national, regional and local levels, with well-defined responsibilities. Health-promotion activity will encompass cooperative efforts for the improvement of environments and social practices, as well as coordination of cooperation in physical education, nutritional education and weight management, using national networks.
- ★ The current resources for health promotion and the prevention of major public-health problems will be reviewed and utilized effectively. Additional resources will be allocated as necessary at national, regional and local levels.
- ★ Each municipality will have an action plan of its own for health promotion and for the prevention of the major public-health problems as part of the local government welfare strategy. There will also be a network of players and services relating to health promotion in each municipality. The outcome of the action plan will be assessed on a regular basis, and the outcome data, new insights and experience gained will be used to update activities.
- ★ A model of "ease of access" will be employed in health promotion, with a view to reaching target groups outside formal institutions such as the school health service and occupational health care.
- ★ Health promotion and focused prevention of the major public-health problems will be planned and target-oriented forms of activity in the primary health-care system (including health-guidance centres, occupational health care, school and student health services), as well as the health care of conscripts and the elderly.
- ★ Common approaches jointly agreed by the various players, continuing training of personnel, quality assurance and associated regular assessments will ensure that health promotion is effective.
- ★ The level of nutritional expertise will be enhanced in primary and occupational health care. Support groups for weight management will be a permanent feature of the customer service at health-care centres and units of occupational health care. Conversely, health care will be an integral part of local networks of services related to weight management, physical education and nutritional education.

Outcome Goals

- ★ The Implementation Project of the Programme for the Prevention of Type 2 Diabetes (2003–2007) and the core recommendations of the national action programmes for the enhancement of health and the prevention of the major public-health problems will be implemented.
- ★ These include the Action Plan for Promoting Finnish Heart Health (1997–), the Government Resolution on the Development of Health-Enhancing Physical Activity (2002), the Action Programme for Implementing National Nutrition Recommendations (2003), National Recommendations for the Local Promotion of Health-Enhancing Physical Activity (2000) and the Development Programme for the Prevention and Care of Diabetes (2000–2010).
- ★ Most people will be familiar with the basic messages concerning healthy eating and health-enhancing physical activity, which will be reflected as an increase in daily activity and wider adherence to health-promoting nutrition.
- ★ The number of people who have at least 30 minutes of exercise each day – including normal daily activity – will increase.
- ★ The proportion of obese individuals (body-mass index, BMI \geq 30) among the working-age population will decline from 20 per cent to 15 per cent, the increase in type 2 diabetes will taper off, and cardiovascular disease and other adverse consequences of obesity will be reduced.
- ★ Families, day-care centres and schools will work actively together in education for healthy lifestyles. Physical activity, healthy eating habits and mental and physical well-being will increase and obesity will decrease, among children and young people.

- ★ The core messages of the prevention programme will have reached the various players, from local government policy-makers to health-care professionals and non-governmental organization officials. Awareness of the programme, attitudes, the success of public information and effectiveness will be assessed by questionnaires.
- ★ An ever greater proportion of the population will be aware of their own opportunities for enhancing their health and will know the causes of type 2 diabetes and ways of preventing the development of the disease. The quality of health communication will be improved, and the marketing of health-promoting activities will be enhanced. Attitudes and the level of knowledge will be measured by conducting opinion polls.

■ High-Risk Strategy

Organizational Objectives

- ★ Screening, education and monitoring of individuals at risk of developing type 2 diabetes will be planned forms of activity for primary and occupational health care. Recording of lifestyles will be a functional and practical element of the electronic patient record system, and monitoring of outcomes will be part of health-care units' quality monitoring system.
- ★ Current Care Guidelines relating to hypertension, adult obesity and smoking will be applied to the education and care of individuals at risk of developing type 2 diabetes. Health-guidance centres, school health services and the pediatrics units of specialized medical care will adhere to the Current Care Guideline on Childhood Obesity.

Outcome Goals

- ★ 75 per cent of those belonging to the risk groups for type 2 diabetes will recognize having a high probability of developing the disease and will have received instructions for managing their diabetes risk.
- ★ 50 per cent of high-risk individuals will receive intensive lifestyle counselling and monitoring or will make self-motivated efforts to prevent type 2 diabetes.
- ★ Screening will detect 70 per cent of those with undiagnosed diabetes.
- ★ The functionality of the Programme for the Prevention of Type 2 Diabetes and the cost-effectiveness of prevention will have been demonstrated by means of the Implementation Project of the programme over the period 2003–2007.

■ **Strategy of Early Diagnosis and Management**

Organizational Objectives

- ★ Intensive lifestyle management will be started immediately, cardiovascular risks

will be assessed and a long-term management plan including subsequent options will be drawn up for individuals with type 2 diabetes diagnosed in conjunction with screening and monitoring. Their risk factor status will be regularly monitored at annual check-ups and, if necessary, their treatment will be stepped up without delay by instituting appropriate medication to prevent the development of diabetic complications.

Outcome Goals

- ★ People with newly developed type 2 diabetes will get off to a good start in treatment, learn right from the start the significance of nutrition, physical activity and weight control for the management of their disease and see their personal role in preventing complications.
- ★ The drug therapy related to diabetes management will be implemented optimally.
- ★ Complications of diabetes will be reduced in line with the objectives of DEH-KO.

5. Recommendations for Action

The Programme for the Prevention of Type 2 Diabetes includes 12 key measures for achieving the goals of the Population Strategy, the High-Risk Strategy and the Strategy of Early Diagnosis and Management.

The implementation of the key measures requires wide-ranging cooperation among various players for promoting healthy nutrition and physical activity, as well as improvement of the preparedness of the Finnish health-care system and restructuring of preventive health care. In implementation, all current health policy strategies, programmes and projects will be utilized, as well as the services of organizations involved in public health, nutrition and physical education.

Key Measures

1

The national, regional and local health-promotion organization will be built into a functional, modern and service-oriented system. Health promotion will be included in the operational and financial plans of local government, and the resources allocated to this activity will be increased as necessary.

Players: municipalities • provinces • central government • Finnish Centre for Health Promotion • non-governmental organizations

2

The level of nutritional expertise in primary health care will be enhanced by creating a substantial number of new posts for nutritionists.

Players: municipalities • hospital districts

3

An efficient system of further training of health-care, catering and teaching staff will be set up with the aim of developing and maintaining professional skills in nutrition, physical education, weight management and the prevention of the major public-health problems.

Players: health care • hospital districts • provinces • educational institutions • Local Government Training Ltd • National Research and Development Centre for Welfare and Health • UKK Institute for Health Promotion Research • non-governmental organizations

4

Uniform national recommendations will be drawn up for carrying out age-related periodic health examinations of adults in primary health care.

Players: Ministry of Social Affairs and Health • National Research and Development Centre for Welfare and Health • Association of Finnish Municipalities • professional bodies and expert organizations in health care • other organizations

5

A model of “ease of access” will be constructed for health promotion, with a view to reaching target groups outside formal institutions such as the school health service and occupational health care.

Players: National Research and Development Centre for Welfare and Health • Association of Finnish Municipalities • municipalities

6

Public authorities, the health-care system and non-governmental organizations will engage in wide-ranging cooperation to direct resources to the well-being of children, young people and families.

Players: Ministry of Education • Ministry of Social Affairs and Health • National Board of Education • National Research and Development Centre for Welfare and Health • Association of Finnish Municipalities • Finnish Centre for Health Promotion • schools • day-care centres • Children’s Health Forum • other organizations

7

The Type 2 Diabetes Risk Assessment Form will be put to use by health-care centres and occupational health units. People assessed as having a high risk of developing type 2 diabetes will receive counselling aimed at reducing this risk. Intensive education and treatment of persons with newly diagnosed diabetes will be started without delay.

Players: health-care centres • occupational health units • hospital districts • Finnish Diabetes Association

8

The proposals of the Committee on Development of Health-Enhancing Physical Activity will be implemented as set out in the relevant Government resolution.

Players: Government • ministries • expert organizations in physical education, social welfare and health • primary health care and social service institutions • municipalities • schools • day-care centres • workplaces • non-governmental organizations

9

The proposals of the National Nutrition Council's Action Programme for Implementing National Nutrition Recommendations will be implemented.

Players: Government • ministries • municipalities • families • primary health care • occupational health care • health care for the elderly • mass catering • non-governmental organizations

10

A national network of nutritional-education, physical-education and weight-management services will be set up to support the health-care system.

Players: Ministry of Social Affairs and Health • Finnish Centre for Health Promotion • sports institutes • UKK Institute for Health Promotion Research • rehabilitation institutions • non-governmental organizations

11

A national system for assessment of health promotion will be set up.

Players: Ministry of Social Affairs and Health • National Research and Development Centre for Welfare and Health • National Public Health Institute • Finnish Institute of Occupational Health • Social Insurance Institution • Association of Finnish Municipalities • Finnish Centre for Health Promotion • UKK Institute for Health Promotion Research • universities

12

A project entitled Healthy Media! will be implemented. The Healthy Media! Project is a cooperative effort among non-governmental organizations, the media and various other players with the aim of enhancing Finnish news and health journalism so that media publicity will provide sustained support for other forms of health promotion and disease prevention.

Players: Finnish Diabetes Association • Finnish Heart Association • other non-governmental organizations involved in public health, nutrition or physical education

6. Implementation and Assessment of the Programme

■ Implementation

Preventing type 2 diabetes is the main objective of the DEHKO Programme (Development Programme for the Prevention and Care of Diabetes in Finland 2000–2010). By 2010, the prevention of type 2 diabetes and, at the same time, cardiovascular disease and obesity, should be a planned and evidence-based form of activity for primary and occupational health care, backed by an extensive cooperation network of non-governmental organizations and other players.

As coordinator of the preparation and implementation of DEHKO, the Finnish Diabetes Association also undertook to prepare the Programme for the Prevention of Type 2 Diabetes with the help of a broad-based group of invited experts. In addition, the Finnish Diabetes Association is itself one of the numerous players in the programme. In the implementation of the programme, the Population Strategy concerns all the inhabitants of Finland, with the players consisting of parties involved in health promotion at the local, regional and national levels. The High-Risk Strategy and the Strategy of Early Diagnosis and Management are mainly the responsibility of the health-care system, together with other local government players and non-governmental organizations.

Non-governmental organizations involved in social affairs, health and physical education contribute to the prevention programme by systematically directing their existing services to both the entire population and risk groups in cooperation with primary and occupational health care.

All the players will have access to the Programme for the Prevention of Type 2 Diabetes and its ancillary materials. For each of the three strategies, a cooperation network will

be formed to carry out the practical implementation of the programme. As regards health care, the programme will be launched as a joint exercise by the Finnish Diabetes Association, the Finnish Heart Association, the diabetes working groups of the various hospital districts, occupational health service, non-governmental organizations involved in physical education, etc. Training related to the programme and the prevention of type 2 diabetes in general will be arranged in all hospital districts.

Implementation Project in Four Hospital Districts in 2003–2007

To get the prevention programme underway and measure its effectiveness, four hospital districts have been appointed as Pilot Districts for a period of five years, 2003–2007. In these Pilot Districts the implementation of the programme will be systematically assessed, particularly in terms of the High-Risk Strategy and the Strategy of Early Diagnosis and Management. The Pilot Districts of this Implementation Project comprise the hospital districts of South Ostrobothnia, Central Finland, Pirkanmaa and North Ostrobothnia. It is envisaged that the Implementation Project will produce data that will enhance the implementation of the prevention programme in all parts of Finland.

Practical Aims of the Implementation Project

Aims for a service infrastructure:

- 1) To introduce a new preventive approach focused on type 2 diabetes to primary and occupational health care, which will also enhance the prevention of the other major public-health problems.

- 2) To generate regional and local models and programmes for the prevention of type 2 diabetes and the associated cardiovascular, retinal, renal and leg complications.
- 3) To train health-care personnel in the basics of preventive health care, team work and cooperation with other players in the field of health promotion.
- 4) To develop preventive methods of working that can be applied across the health-care system, such as the model of lifestyle management and counselling.
- 5) To promote the dissemination of the methods of working presented in the Programme for the Prevention of Type 2 Diabetes throughout the Finnish health-care system.
- 11) To provide earlier diagnosis of people who are unaware of their type 2 diabetes.
- 12) To bring people with diagnosed type 2 diabetes quickly into the sphere of appropriate treatment.
- 13) To reduce the prevalence of and the care requirement for the complications of type 2 diabetes.

As the task is one of creating evidence-based, national procedures for the prevention of type 2 diabetes, the implementation phase of the prevention programme calls for joint contribution by the Ministry of Social Affairs and Health, the National Public Health Institute, the Finnish Institute of Occupational Health, the UKK Institute for Health Promotion Research, the Social Insurance Institution, the National Research and Development Centre for Welfare and Health, the Association of Finnish Municipalities, etc.

Aims for health promotion:

- 6) To demonstrate that targeted prevention has an effect on the prevalence of type 2 diabetes, its age of onset and the general health status of the population.
- 7) To further develop the diagnosis-related approach (High-Risk Strategy, Strategy of Early Diagnosis and Management) that is required in addition to health enhancement at population level.
- 8) To improve the geographical and social equality of the population in terms of health.
- 9) To demonstrate the cost-effectiveness of prevention.

Clinical aims:

- 10) To identify among the population those individuals who are at high risk of developing diabetes.

■ Assessment

The Implementation Project 2003–2007 of the Programme for the Prevention of Type 2 Diabetes will provide a way of assessing the programme with regard to practical feasibility and effectiveness, as well as cost-effectiveness. The results for the project districts (Pilot Districts) will be compared with those for all hospital districts in Finland.

The National Public Health Institute's periodic studies of the health and health behaviour of Finns and the institute's periodic Nutrition Reports will be utilized in the assessment of the Programme for the Prevention of Type 2 Diabetes throughout the programme.

In 2010, the population-level effects of the programme will be studied in terms of coverage, effectiveness, rate of adoption, feasibility and permanence.

7. Programme Backed by Research Evidence

■ **DPS confirms: Type 2 Diabetes Can Be Prevented by Lifestyle Modification**

The Finnish Diabetes Prevention Study (DPS) was the first in the world to demonstrate that type 2 diabetes can be prevented by modification of eating habits and physical activity (Tuomilehto et al 2001). The subjects' risk of diabetes decreased by 58 per cent as a result of lifestyle modifications brought about by nutritional and physical activity counselling. Similar findings were made in the Diabetes Prevention Program in the USA (Diabetes Prevention Research Group 2002).

A total of 522 middle-aged people participated in the DPS which was carried out at five locations (Helsinki, Kuopio, Turku, Tampere and Oulu) from 1993 to 1998. All the participants had some degree of overweight (body-mass index over 25 kg/m²) and slightly elevated blood glucose or impaired glucose tolerance. The subjects filled in detailed food diaries at the start of the study and then on a yearly basis, and physical activity was measured using thorough questionnaires. Anthropometric measurements and laboratory tests were also performed. The measurements were repeated every year during the study.

The subjects were randomly assigned to receive intensive or ordinary counselling. The **Intensive Counselling Group** received individual counselling particularly in weight reduction, in reducing the total energy and fat contents of their diet, in changing the type of fat by replacing animal fats with vegetable fats and oils and in increasing the fibre content of their diet. Physical activity counselling was also indi-

vidual, striving whenever possible to advise the person to undertake the physical activity he/she preferred. The aim was to improve the subjects' physical fitness and strengthen those muscles that are important for glucose metabolism. The exercise programme included exercises using gym equipment and physical activity in groups, and the subjects were also instructed to get as much physical exercise as possible in connection with daily chores.

The **Ordinary Counselling Group** received nutritional and physical activity counselling at baseline and on annual follow-up visits with a physician and a nutritionist. The counselling was general in nature and was not based on detailed personal measurements. The aim was to provide the subjects with advice allowing them to make the necessary changes in their lifestyles if they so wished.

Most New Cases of Diabetes Occurred in the Ordinary Counselling Group

By the end of the follow-up phase of the study in March 2000, 86 study subjects had developed diabetes, 59 of them in the Ordinary Counselling Group and 27 in the Intensive Counselling Group.

In all, the incidence of new cases of diabetes in the Intensive Counselling Group was 58 per cent lower than in the Ordinary Counselling Group. In other words, more than half of cases of diabetes could be prevented, or at least the time of onset of diabetes could be delayed until an older age. There was no difference between men and women in the effect of the intensive counselling programme.

The effect of lifestyle modification on diabetes risk was observed quite rapidly. After just two years, the incidence of diabetes was significantly lower in the Intensive Counselling Group than in the Ordinary Counselling Group.

The lifestyle changes made in the Intensive Counselling Group were relatively small. It is important, however, that the subjects modified several lifestyle elements simultaneously. This had a great impact on the study results. None of those who achieved all five lifestyle modification targets developed diabetes during the study. Conversely, 35 per cent of those who failed to achieve a single target did develop diabetes.

The following targets had been set for subjects receiving intensive nutritional and physical activity counselling:

- 1) Body-mass index < 25 kg/m² or weight reduction of at least 5 per cent of baseline weight.
- 2) Reduction in total fat intake to less than 30 per cent of total energy intake.
- 3) Reduction in the proportion of animal fats (saturated fat) to less than 30 per cent of the total fat intake.
- 4) Amount of fibre > 15 g/1,000 kcal.
- 5) More than four hours of exercise per week.

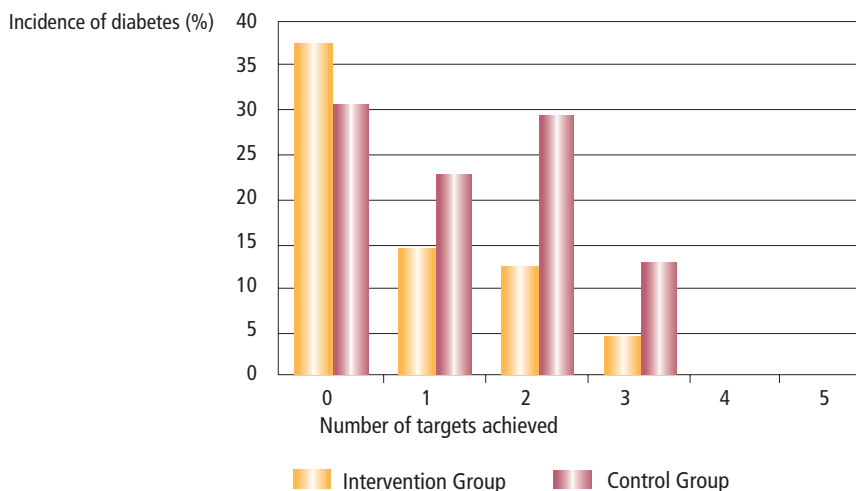
None of those who achieved four or five of the targets developed diabetes during the follow-up period. The fewer targets a person achieved, the higher was his/her probability of developing diabetes. (See chart below).

Weight Loss Is Accompanied by Considerable Lowering of the Risk of Diabetes

The effect of weight change is crucial in the prevention of diabetes. The study showed that a weight increase of 2–3 kg doubles the risk of an overweight person developing type 2 diabetes. On the other hand, the diabetes risk of an overweight person is reduced by 80 per cent if he/she succeeds in losing 10 kg.

Intensive lifestyle counselling helped the subjects in losing weight: the subjects'

Incidence of diabetes according to the number of targets achieved



weight decreased on average by 4.2 kg during the first year, and the weight reduction achieved at two years was 3.5 kg. Those receiving ordinary lifestyle counselling achieved a weight loss of 0.8 kg. The subjects' weight loss was clearly related to reduced intake of energy and increased physical activity.

The counselling had an effect on both eating habits and exercise habits. For example, there was a greater decrease in dietary fat and a greater increase in dietary fibre in the Intensive Counselling Group than in the Ordinary Counselling Group. The rate of target achievement was best for exercise: 12 months after the start of the follow up 80 per cent of those in the Intensive Counselling Group had at least four hours of exercise per week. Exercise was also quite popular in the Ordinary Counselling Group.

The results indicate that it is possible to prevent diabetes by self-motivated efforts once experts have provided the requisite counselling. The study did not involve drug therapy or any procedures outside the scope of normal primary health care. Furthermore, all the measures that produced reductions in diabetes risk were carried out by the study participants themselves.

DPS was conducted under the auspices of the National Public Health Institute, with Academy Professor Jaakko Tuomilehto of the National Public Institute and Professor Matti Uusitupa of the University of Kuopio as the principal investigators. The study was published in the *New England Journal of Medicine* in May 2001.

■ Obesity Is a Significant Risk Factor for Type 2 Diabetes

Assessment of Adult Obesity

1. Body-Mass Index

Obesity in adults is assessed using the body-mass index (BMI = body weight in

kg divided by the square of body height in metres) which is strongly correlated with the amount of adipose tissue. According to recommendations by a WHO expert group, the upper limit for normal weight in adults is 25 kg/m². The incidence of obesity-related health problems begins to rise when this limit is exceeded.

A person with a body-mass index of 30 kg/m² or higher is classified as obese, and he/she has a clearly elevated risk of developing health problems. The higher the body-mass index, the higher the morbidity and mortality risks become. The risk of diabetes increases 15-fold as the body-mass index rises from 23 kg/m² to 35 kg/m².

The Current Care Guideline on Adult Obesity (2002) classifies levels of obesity according to body-mass index as follows:

Body-mass index (kg/m ²)	
18.5–25	Normal weight
>25	Overweight, obesity
25–30	Mild obesity
30–35	Marked obesity
35–40	Severe obesity
>40	Morbid obesity

The above reference limits of the body-mass index are best applied to the 20 to 60 age group and can be used to indicate health risks associated with a person's current weight and, in particular, any weight increase.

2. Waist Circumference

The body-mass index does not indicate the distribution of body fat, and waist circumference is therefore also used as a measure of obesity and the associated health risks. Excess visceral fat (fat inside the abdominal cavity), in particular, worsens the risk factors (insulin resistance and diabetes, disturbances of fat metabolism, hypertension) for cardiovascular disease. Measurement of

waist circumference complements body-mass index when assessing health risks, particularly in cases of mild or marked obesity.

According to the Current Care Guideline on Adult Obesity, women run a high risk of cardiovascular and other diseases if their waist circumference is greater than 90 cm. The corresponding limit for men is 100 cm.

Assessment of Childhood Obesity

Obesity in children is defined by means of growth curves. A child is considered to be mildly obese if his/her relative weight is more than 20–29 per cent higher than the mean weight corresponding to his/her height. If the relative weight is 40–60 per cent higher than the corresponding mean weight, the child is markedly obese. And severe obesity is concerned if the child's weight is more than 60 per cent higher than the corresponding mean weight.

Obesity Contributes to Many of the Major Public-Health Problems

Obesity is a significant factor in the development of many of the major public-health problems. It is particularly related to the incidence of type 2 diabetes, hypertension, coronary heart disease, gout, gallstones, osteoarthritis of the knee and cancers of the breast and uterus.

Obesity-associated illnesses and the levels of evidence for the associations:

Illness	Level of evidence
Type 2 diabetes	A
Hypertension	A
Metabolic syndrome	B
Coronary heart disease	A
Obstructive sleep apnea	C
Gout	A
Gallstones	A
Fatty liver	B
Osteoarthritis of the knee	A
Asthma	B
Impaired quality of life	B
Some types of cancer:	
Breast cancer	A
Cancer of corpus uteri	A
Cancer of the large intestine	B

- A = Strong evidence base. Multiple relevant high-quality studies with homogenous results.
 B = Moderate evidence base. At least one high-quality study or several adequate studies.
 C = Limited evidence base. At least one adequate study.

Reference: Current Care Guideline on Adult Obesity (2002)

The risk of developing diabetes is the highest: when the body-mass index exceeds 30 kg/m², the risk of a middle-aged person developing the disease is at least 10-fold compared with that of a person of normal weight. Treatment of obesity will prevent illness development in individuals at risk and improve quality of life and prevent late complications in those already affected. In recent years, attention has been increasingly focused on the incidence of central obesity which has been found to strongly predict risks of type 2 diabetes and metabolic syndrome.

Obesity on the Rise among Finns

Every other man and a third of women of working age in Finland are overweight. Although Finland already tops the Nordic statistics in the number of overweight people, the Finnish population continues to put on weight, with central obesity, which presents the greatest health hazard, gaining ground in particular. Two-thirds of overweight and obesity is caused by lifestyle; indeed, lifestyle modification can bring weight reduction in 90 per cent of overweight individuals.

The National FINRISK Study repeated every five years since 1972 by the National Public Health Institute has documented a steady rise in men's mean body-mass index. The proportion of obese individuals (BMI > 30 kg/m²) rose from 15.5 per cent to 19.8 per cent between 1982 and 1997.

The mean body-mass index for women appeared to be falling in the late 1970s but has since then shown an upturn. The share of obese women rose from 17.2 per cent to 19.4 per cent between 1982 and 1997.

Men approaching retirement age and young men and women all had significantly higher body-mass indices by the end of the 1990s than in the early 1980s. The gender differentials have diminished, but women's body-mass index is still rising faster, and the prevalence of obesity is increasing more steeply with age in women than in men.

Prevalence (%) of obesity (BMI ≥ 30) according to the Health 2000 Study

	Men	Women
30–44 yrs	15.4	13.7
45–54 yrs	23.3	25.4
55–64 yrs	27.5	31.9
65–74 yrs	22.7	33.5
75–84 yrs	20.6	30.4
85+	11.3	14.5

Population Groups Diverge

There are distinct differences among the various population groups. Women's obesity is associated with level of education: those with least education have a markedly higher body-mass index than those with a better education. Among men, the mean body-mass index has increased in all educational groups but there is a difference between employed men and those without employment: men who had retired early or were unemployed were substantially more obese at the end of the 1990s than men in corresponding life situations in the early 1980s.

Ever More Obese Children

Childhood obesity is following the upward adult trend throughout the world. This has also led to an increase in type 2 diabetes in children: studies in the USA, China and Britain, for instance, indicate that type 2 diabetes is encountered in children down to the age of 12. High birth weight has been found to predispose the individual to obesity, whereas low birth weight is correlated with susceptibility to diabetes. Obesity is one of the common nutritional disorders among Finnish children. According to the most recent research, 11–15 per cent of 7 to 15-year-olds are obese.

The Cardiovascular Risk in Young Finns Study confirmed that childhood obesity is a fact even in Finland. Another Finnish research venture, the STRIP Project, has shown that there are far fewer obese children in families who receive regular nutritional education. Obesity carries an elevated risk of cardiovascular disease and type 2 diabetes even in children.

Obesity Prevention is Significantly Cheaper than Treatment

The ongoing increase in overweight and obesity is a serious threat to Finns' health,

Relative risk of diabetes by body-mass index



Reference: Colditz et al 1995

and the management of obesity-related illness is a burden on the health-care system. About 80 per cent of the 160,000 persons with type 2 diabetes in Finland are overweight.

Prevention of obesity is essential, as treatment is expensive and difficult and the long-term results of weight reduction programmes so far are rather modest. There are, moreover, such a great number of overweight and obese individuals in Finland that the health-care system is able to assist only a fraction of those in need of treatment and counselling.

Prevention of obesity should be started in childhood. There are two periods in a child's life span that are favourable for the development of obesity: the age from 5 to 7 and adolescence. Obesity that has become established during these periods may be more enduring than normal. Long-term follow-up studies indicate that 30 per cent of obese adult women were already obese in early adolescence, whereas the corresponding figure for men is only 10 per cent. It is also noteworthy that parents' obesity is significant for the development of obesity in a child: the relative weights of children of obese parents appear to increase faster with

age than do the relative weights of children of normal-weight parents.

There is little chance of prevention and treatment succeeding, however, unless overweight and obesity are generally acknowledged as a major health hazard and addressed early enough in the life of an individual. Hence, measurement of body weight and waist circumference should be an integral part of health-care work, just as blood pressure measurement already is.

■ Smoking Predisposes to Type 2 Diabetes

Many prospective studies have shown a correlation between smoking and the risk of developing type 2 diabetes. The risk is dose-dependent: the more and the longer someone smokes, the higher the risk of the disease becomes.

In various population surveys, smoking has been found to increase the risk of developing type 2 diabetes by 20–94 per cent. It might be thought that smokers have a generally healthier lifestyle than others and the increase in type 2 diabetes would thus be due to overweight etc. Other lifestyle features do not, however, explain the additional

risk conferred by smoking.

Will et al (2001) followed up 275,190 men and 434,637 women for 14 years, investigating, among other things, the incidence of type 2 diabetes. The intensity of smoking had a cumulative effect on the risk of type 2 diabetes, with those who smoked more than 20 cigarettes (one pack) a day having a 1.2-fold risk and those who smoked more than 40 cigarettes (two packs) a day having a 1.45-risk in the case of men and 1.37-fold risk in the case of women.

The effect of smoking was independent of body weight, so that smoking increased

the risk of developing type 2 diabetes by 40 per cent in all classes of body-mass index. For example, women smokers with a body-mass index of over 30 had a ninefold risk of type 2 diabetes compared with women smokers of normal body weight.

Sargeant et al (2001), too, conclude that the additional risk of type 2 diabetes associated with smoking cannot be explained by nutritional factors, and that smoking is instead an independent risk factor. Overweight and smoking appear to exert a mutually cumulative effect on the risk of the disease.

8. Population Strategy

Aim: *prevention of metabolic syndrome and the risk factors for type 2 diabetes.*

Methods: *systematic prevention of obesity and the promotion of healthy eating and daily activity, using media communication, training, lifestyle counselling and an extensive service network supporting these activities.*

Target group: *entire population.*

Players: *all players at national, regional and local levels.*

The Population Strategy is primarily aimed at preventing obesity. The prevention of obesity is founded upon changing the lifestyle of the population so that daily activity increases, eating habits become healthier and alcohol consumption is reduced, thus rendering the balance between energy intake and energy utilization more favourable.

The principal aims for the prevention of obesity are:

- 1) **to prevent normal-weight children and adults from becoming overweight**
- 2) **to prevent overweight from progressing into obesity in those who are already overweight**
- 3) **to support weight management after weight loss.**

The specific aims for all age groups follow the recommendations set out in Obesity – the Problem and its Management (Fogelholm et al 1998):

Children and young people:

Aim: Body weight will not increase more than 20 per cent above the mean of growth curve statistics.

Adults with BMI < 30 and waist circumference less than 90 cm (women) or less than 100 cm (men):

Aim: No weight gain.

Adults with BMI > 30 or waist circumference over 90 cm (women) or over 100 cm (men):

Aim: Body weight and waist circumference will decrease permanently by 5–10 per cent.

Special emphasis will be placed on the following risk groups and risk periods:

1. Risk groups

- Children of obese parents
- Close relatives of individuals with type 2 diabetes

2. Risk periods

- Puberty, menopause and pregnancy
- Unemployment, retirement
- Smoking cessation, recent weight loss

The prevention of obesity and type 2 diabetes and other obesity-related illnesses calls for both society-oriented measures and measures targeting individuals.

The health of the population at large will be promoted using measures relating to sports policy, food policy, health policy, educational policy, social development policy and environmental policy, to support citizens' self-motivated daily physical activity and weight management. The relevant players include the Government, provinces, municipalities, food industry, non-governmental organizations, etc.

The society-oriented measures are as follows:

- 1) **The level of expertise in physical activity and nutrition will be enhanced in primary and occupational health care.**
- 2) **The further training of health-care and catering staff and nursery and school teachers will be enhanced.**
- 3) **The quality of mass catering will be improved.**
- 4) **The health education, nutritional education and physical education of children and young people will be enhanced.**
- 5) **Sports facilities serving the general population will be supported and their numbers will be increased.**
- 6) **The range of low-fat and low-salt foods will be augmented.**
- 7) **Forms of daily physical activity will be taken into account in planning the built environment.**
- 8) **The contents and practice of health examinations will be improved.**
- 9) **Health promotion will be coordinated at national, provincial and municipal levels.**
- 10) **Pharmacies will contribute to type 2 diabetes prevention with their own diabetes programme.**
- 11) **The cooperation of non-governmental organizations will be intensified.**

These society-oriented measures will be presented in detail later in this chapter.

The most important measures targeting individuals are the enhancement of the core knowledge and skills concerning health, nutrition and physical activity in the entire population, the arrangement of support services for weight management and physical activity to risk groups and all others needing them and the provision of education and support to individuals at risk. The principal players are primary health care, occupational health care, non-governmental organizations and the media.

The measures targeting individuals are as follows:

- 1) **Simple lifestyle counselling focusing on the essential.**
 - A) **Nutritional education**
 - B) **Physical activity education concentrating on daily activity**
 - C) **Weight-management courses and peer-support groups**
 - D) **Counselling aimed at reducing smoking**
- 2) **Health promotion by media communication.**

These measures targeting individuals will be presented in detail later in this chapter.

■ Society-Oriented Measures

1) *The level of expertise in physical activity and nutrition will be enhanced in primary and occupational health care*

There is a lack of nutritional expertise in primary health care because very few health-care centres employ nutritionists. As a result, nurses are often responsible for nutritional education and weight-management courses, although nurses have only sporadic access to training in these fields. There are, as a rule, no nutritionists in the occupational health service, and occupational health nurses have to deal with nutritional education and weight-management issues beside their other health-care duties. Further training in nutritional education is badly needed.

The role of the nutritionist in formulating nutritional policies, in coordinating practical implementation and in training other health-care staff is fundamental to all endeavours of preventing the major public-health problems. There are (in 2002) some 30 posts for nutritionists or public-health nutritionists in primary health care. More than three million Finns live in localities where no nutritional therapy services are available.

Both the DEHKO Programme (Development Programme for the Prevention and Care of Diabetes in Finland 2000-2010) and the Action Programme for Implementing National Nutrition Recommendations (2003) propose a sizeable increase in the number of nutritionists, the target being one nutritionist per 30,000 inhabitants in Finland.

In primary health care, the expertise in physical activity is usually with the physiotherapists. In practice, however, health-care centres and occupational health units seldom have the resources to provide physical acti-

vity education for the general population. Weight management relies on a combination of diet and physical activity. Indeed, one of the key messages from all Finnish and foreign studies is the emphasis on increased daily activity as a major tool in the prevention of obesity. Adequate education and courses in weight management also call for the use of physical activity specialists in primary and occupational health care.

2) *The further training of health-care and catering staff and nursery and school teachers will be enhanced*

As the entire population of Finland uses primary health-care services, and 80 per cent of the working-age population is covered by occupational health care, systematic further training of health-care staff is essential, especially in topics related to the prevention of the major public-health problems. In the future, risk-factor monitoring and education related to the prevention of obesity, type 2 diabetes and cardiovascular disease will increasingly become the responsibilities of nurses. The preparedness of nurses for handling these tasks must therefore be ensured through high-quality basic education and an efficient system of further training.

This fact is also stressed in the recommendations for action presented in the Report of the National Project on Safeguarding the Future of Health Care Services, the Action Programme for Implementing National Nutrition Recommendations and the previously published Action Plan for Promoting Finnish Heart Health and DEHKO Programme (Development Programme for the Prevention and Care of Diabetes).

3) *The quality of mass catering will be improved*

Most of the Finnish population use mass catering services, for instance in day-care centres, in schools and other educational institutions, in the army and in workplaces. Well-organized basic education and further training of catering staff is crucial for the successful implementation of the national nutrition recommendations.

Mass catering can have a significant impact on eating habits, and therefore the nutritional quality of the food served by institutional kitchens and monitoring of the mass catering sector need to be improved along the lines of the Action Programme for Implementing National Nutrition Recommendations and the Action Plan for Promoting Finnish Heart Health.

4) *The health education, nutritional education and physical education of children and young people will be enhanced*

In addition to a child's home, other important contributors to the prevention of child and adolescent obesity include day-care centres, schools, vocational institutions and polytechnics. The further training of teachers should therefore contain a permanent curricular element dealing with health, nutrition, physical activity and the prevention of the major public-health problems (obesity, type 2 diabetes and cardiovascular disease).

Children will be taught the basics of prevention not only at child-health centres and as part of school health care but also at day-care centres and as part of the comprehensive school curriculum. To ensure home support for such education, families should interact closely with child-health centres, day-care centres, schools and the school health service.

Young people's knowledge of the factors that influence health, including nutrition and physical activity, will be gradually ex-

panded in upper secondary schools, vocational institutions, polytechnics and military service. The degree to which young people internalize the teaching will be monitored as part of conscripts' health care and school and student health care.

5) *Sports facilities serving the general population will be supported and their numbers will be increased*

Allocations for sports facilities from the Ministry of Education to local government should be used primarily to finance facilities serving large numbers of people, whether the projects concern building new or expansion of existing facilities for non-competitive physical activity. The principles of the subsidy policy should emphasize the importance of providing free or low-cost, health-enhancing sports facilities for the local population.

6) *The range of low-fat and low-salt foods will be augmented*

In spite of positive developments, Finns still receive too much salt and fat, particularly hard fats, in their diet. It is one of main purposes of the society-oriented measures of this programme to steer the development of basic foods products towards recommendations regarding the quality and quantity of fat and salt content. The food industry is the key player in this respect, whereas the contribution of the retail and wholesale sector is needed to promote the marketing of low-fat and low-salt products.

In the late 1990s, the Action Plan for Promoting Finnish Heart Health turned to the Finnish food industry suggesting the development of low-fat and low-salt food products and the creation of a system to help consumers in choosing health-promoting foods. After wide-ranging preparatory work by experts, the Finnish Heart Asso-

ciation and the Finnish Diabetes Association in 2000 introduced the Heart Symbol System under which food manufacturers can apply for the right to display the Heart Symbol on a packaged food product. The decision to grant the Heart Symbol is based on the quality and amount of fat and the amount of salt in a product, compared with other products in the same group. By the beginning of 2003, the Heart Symbol had been granted to more than 130 products from 19 companies. The Heart Symbol System helps consumers make nutritionally wiser choices in terms of fat and salt content, thus facilitating in this respect the compilation of a healthy diet (see Chapter 12.6).

The Heart Symbol System facilitates and supports health-promoting food choices by people, and the food industry should, for its part, seek to increase the range of such food products. The Ministry of Agriculture and Forestry and the Ministry of Trade and Industry should provide substantial support for the development of food products towards low fat and salt contents, whereas the retail and wholesale sectors should invest actively in marketing these types of food products.

7) Forms of daily activity will be taken into account in planning the built environment

The marked reduction in daily activity has been found to be perhaps the leading cause of weight gain among Finns. Several studies have indicated that the benefit afforded by physical activity depends on the frequency of this activity. Thus, daily activity in connection with getting to work and back, for instance, can promote health and facilitate weight management.

Society has an important role in encouraging increased daily activity, as it is up to local government to make possible and ensure safe cycling and walking and in gene-

ral foster the generation of an environment conducive to physical activity. The planning of pedestrian and cycle networks should be aimed at allowing people to travel to school and work on foot or by bicycle, as well as using the network to engage in physical activity in their leisure time.

Finland is among world leaders in developing traffic safety, and so far the construction of pedestrian and cycle routes has mainly served the objective of accident-free travel. Nevertheless, policy-makers should be aware that improving facilities for walking and cycling also constitutes an investment promoting the health of the entire population.

8) The contents and practice of health examinations will be improved

The mainly statutory system of health examinations is one of the strengths of Finnish health care. The system includes examinations of pregnant women, children's periodic health examinations from infancy to school entry, health examinations of schoolchildren and students, call-up examinations of conscripts, pre-employment examinations and age-related periodic examinations in primary and occupational health care. The health-examination scheme is by no means watertight, however, as it fails to catch individuals who are outside the student and occupational health-care systems, for instance.

Considering the prevention of obesity and type 2 diabetes, the health-examination scheme has defects both in content and practice that need to be remedied before real results can be expected.

The following procedures should be incorporated as part of health examinations:

- ★ measurement of body-mass index and waist circumference and recording of the

medical history of close relatives as an integral part of adult health examinations

- ★ monitoring of diabetes risk by using the Type 2 Diabetes Risk Assessment Form (see Chapter 12.4)
- ★ recording of eating and exercise habits and monitoring of changes in these
- ★ systematic counselling of overweight persons in weight management (weight-management courses, self-motivated activity, peer support)
- ★ systematic prevention, management and monitoring of childhood obesity.

Age-Related Periodic Examinations and Examinations in Occupational Health Care

The time intervals applied in age-related periodic examinations in adults are currently very variable both in occupational health care and local government schemes. Occupational health care includes a statutory pre-employment examination within a certain period of starting employment, as well as periodic re-examinations during the course of employment. The re-examinations are intended for monitoring the employee's state of health during employment, and by repeating them regularly after a certain number of years the employee's risk factors can be addressed early enough to prevent disease development. As there are no uniform definitions for the time intervals of the re-examinations, however, the pre-employment examination may turn out to be the only health examination the employee will have prior to developing a disease.

The adult health examinations arranged by local government vary in form and frequency among municipalities, and the number of age groups invited for examination may depend on the budgetary amounts

allocated for the purpose in different years. In order for the prevention of obesity and type 2 diabetes to truly succeed on a national scale, agreement must be reached on uniform nationwide practice for age-related health examinations.

Health Examinations of the Unemployed

Those who are unemployed fall outside the examinations conducted under the occupational health-care system, and they may not have the energy to act upon any invitations to municipal age-related examinations. As unemployed and marginalized persons show some of the highest increases in obesity, an "ease of access" model must be constructed for them, preferably as a joint effort by primary health care, labour administration and unemployed people's associations. As to marginalized persons, a health-examination scheme for them might be developed by municipal social welfare departments, the Salvation Army, alcoholism treatment clinics and the primary health-care system.

A health examination should be aimed at ascertaining the state of health of the unemployed or marginalized person, looking at his/her risk factors with referrals for further investigations as required, as well as interviewing the client about his/her life situation, problems and support requirement.

Examinations at Maternal-Health Centres

Examinations at maternal-health centres and monitoring of expectant mothers are key functions regarding the prevention of obesity and type 2 diabetes and the involvement of young families in lifestyle assessment and counselling. All questionnaire surveys among schoolchildren are in agreement on mothers' crucial role in eating habits and other health-related behaviour, and maternal counselling in these matters should therefore be emphasized during

pregnancy.

Mothers' body-mass index and waist circumference will be measured at the start of pregnancy, their weight will be monitored throughout the pregnancy, and they will receive instructions for post-pregnancy weight management. It is also important to record the health history of close relatives to determine a mother's risk of gestational diabetes and subsequent type 2 diabetes.

Women who have had gestational diabetes belong to a risk group for type 2 diabetes. Action with regard to risk groups will be dealt with in the context of the High-Risk Strategy of the programme (see Chapter 9).

Health Examinations of Children and Young People

The examinations of children at child-health centres are clearly defined, and the guidelines for these centres are currently under review. It would be advisable to increase the emphasis on obesity prevention in the forthcoming guidelines. An option for weight monitoring and the associated support functions has been formulated by the Health-Promotion Unit of the Centre for Social and Health Services at Jyväskylä, in their Model for the Prevention of Childhood Obesity. The model, which makes use of the Great Kids and Grand Teens weight-control group treatments developed by the Association of Clinical and Public-Health Nutritionists in Finland, has now been implemented for a couple of years.

The new Guide on School Health Services (2002) divides the health examinations in schoolchildren into screening examinations and comprehensive health examinations. The topics of screening examinations include overweight and obesity, the prevalences of which are determined annually by means of growth curves. According to the new guide, if a child is found to be obese, he/she should be referred for further investiga-

tions, but there is no mention of lifestyle counselling. Schoolchildren will have comprehensive health examinations in the first or second year, fifth or sixth year and eight year of school. The comprehensive examinations address topics such as family history of hereditary diseases, the course of daily life of the child and leisure activities. Parents' participation in their children's health examinations and parent-school cooperation has been given increased attention. Both types of health examination also attend to preventing cardiovascular disease. Obesity and type 2 diabetes, too, should be highlighted as risk factors that are preventable.

Call-up Examinations of Conscripts

Call-up examinations concern conscripts entering the military service, the great majority of whom are men. According to the FINRISK surveys, there has been a substantial increase in obesity among men, and physicians conducting call-up examinations have noted the same trend, as well as ever declining physical fitness. In addition, more and more conscripts gain weight during their military service.

As the Finnish Army's catering services abide by the national nutrition recommendations, it is entirely logical that a recent study attributes the weight gain to the traditional Finnish doughnuts devoured by conscripts off-duty in the military canteen. On the basis of the message from the call-up examinations, the Army has started providing conscripts with advice regarding physical fitness before their actual entry into service.

The health care during military service should place greater emphasis on lifestyles, and the health hazards associated with overweight must be brought out in a specific way. Running the Type 2 Diabetes Risk Test (see Chapter 12.4) in conjunction with health examinations is an illustrative met-

hod of exploring the individual's situation and providing him/her with advice for the future.

9) *Health promotion will be coordinated at national, provincial and municipal levels*

Prevention of obesity, type 2 diabetes and cardiovascular disease, all of which are great burdens on both individuals and society, calls in the first instance for implementation of the recommendations for action presented in the finalized and forthcoming national programmes, as well as integrated coordination of health-promoting activities at national, regional and local levels.

Such coordination will encompass establishing systematic cooperation among the various programmes and players, extensive utilization of current activities and regular monitoring and assessment of the attainment of targets.

All the elements needed for the prevention of the major public-health problems are now in place, but current weaknesses still have to be addressed and the health-promotion organization restructured to allow effective operation at all levels.

Coordination of Health Promotion at National Level

Coordination of Nutritional Policy and Policy on Health-Enhancing Physical Activity

Matters related to nutrition and physical activity are handled and administrated separately in national government, although these sectors are tightly interwoven as regards obesity prevention, weight management and all aspects of health promotion.

Nutritional affairs are under the control of the Ministry of Social Affairs and Health and the Ministry of Agriculture and Forestry, with the National Nutrition Council

acting as the expert body. The Action Programme for Implementing National Nutrition Recommendations drawn up by the National Nutrition Council proposes the employment of a full-time general secretary for the council and added resources to upgrade the council's role and better coordinate the nutrition sector. It appears that the secretary general would be located at the Ministry of Agriculture and Forestry.

The Ministry of Education is responsible for sport and physical education, but the Ministry of Social Affairs and Health has recently assumed an active role in issues concerning health-enhancing physical activity: it produced together with non-governmental organizations the National Recommendations for the Local Promotion of Health-Enhancing Physical Activity (2000), it and the Ministry of Education jointly finance the Fit for Life Programme, and it appointed the Committee on Development of Health-Enhancing Physical Activity (2000). The committee's work resulted in a Committee Report (2001) and the Government Resolution on the Development of Health-Enhancing Physical Activity (2002). The proposals in the Committee Report included, among other things, the hiring of a full-time secretary, the appointment of a Committee for Health-Enhancing Physical Activity and the allocation of resources for health-enhancing physical activity. In the autumn of 2002, a post of Senior Planning Officer for Physical Activity Affairs was established at the Ministry of Social Affairs and Health. In addition, a Committee for Health-Enhancing Physical Activity was appointed as a new expert body for the Ministry of Social Affairs and Health.

For adequate coordination of health promotion and the prevention of the major public-health problems, it is important that national coordination responsibility regard-

ding the health aspects of nutrition and physical activity is clearly assigned to one quarter only. It would appear most natural for the overall responsibility to be borne by the Health-Promotion Branch, operative since the beginning of 2002 at the Ministry of Social Affairs and Health, with the personnel dealing with nutrition and health-enhancing physical activity being subordinated to this branch.

Restructuring the System of Health-Education Coordinators

The old local government system of health-education coordinators is today administrated at national level by the National Research and Development Centre for Welfare and Health. In a report published in 2000, Pirskanen and Pietilä put forward specific proposals for restructuring of the outdated system.

The examples of a few enterprising municipalities (Jyväskylä, Rauma) indicate that great advances can be made in health promotion by organizing the activity in a modern and professional manner and by correct allocation of resources. The National Research and Development Centre for Welfare and Health should, therefore, together with the Association of Finnish Municipalities and such municipalities as have already set up health-promotion units of their own, draw up a national recommendation for local government for restructuring of the system of health-education coordinators in the direction of health-promotion planning or health-promotion units as set out in the above report. In the future, the National Research and Development Centre for Welfare and Health should, in cooperation with Local Government Training Ltd, undertake to organize the further training of personnel employed in this sector.

The National Research and Development Centre for Welfare and Health should,

together with individual municipalities and the Association of Finnish Municipalities, also continue to work on local government welfare strategies, for instance by expanding the Healthy City Project and the Healthy Schools Project to cover the whole of Finland.

Restructuring the Activities of the Finnish Centre for Health Promotion in the Prevention of the Major Public-Health Problems

The Finnish Centre for Health Promotion is a semi-governmental organization mainly funded by Finland's Slot Machine Association and the Ministry of Social Affairs and Health. Its membership consists of 118 organizations, and it employs a staff of 30 people. It operates as a centre of excellence in the field of health promotion. Its functions include dissemination of health-related knowledge and skill, piloting new modes of operation and assessment and improvement of health-promotion programmes, methods and materials. The Ministry of Social Affairs and Health annually decides on the recipients of the funds allocated to health promotion on the basis of proposals prepared by the Finnish Centre for Health Promotion.

Collaboration of non-governmental organizations and the health-care system is an important element in the prevention of the major public-health problems. Non-governmental organizations run a large number of health-promotion services, programmes and projects that could be used to support the population-level lifestyle interventions by the health-care system. No comprehensive arrangement for smooth coordination of services has been devised, however.

The internet-based Network of Health Promoters maintained by the Finnish Centre for Health Promotion is a good source of information on the services available.

Nevertheless, tangible cooperation between health care and non-governmental organizations can only be achieved through a jointly formulated approach, and this is where the Finnish Centre for Health Promotion should act an instigator. The approach should be one of prevention of obesity, type 2 diabetes, cardiovascular disease and the other major public-health problems through wide-ranging cooperation based on systematic utilization of non-governmental organizations' physical-education, nutrition and weight-management services by the primary and occupational health care. The model should be conducive to creating a service network with websites and service guides in which health-care providers can readily obtain the essential details of various services. Such a service network should be an integral part of the current Network of Health Promoters.

In its operations, the Finnish Centre for Health Promotion should also put more human resources into preventing the major public-health problems than is the case today. Intensified activity in this area will require the full-time contribution of one official.

Strengthening Provinces' Role in Regional Health-Promotion Training and Assessment

The social and health-care departments of the state provincial offices are also responsible for health promotion in each province. Provincial efforts to prevent obesity, type 2 diabetes and cardiovascular disease should be developed with the aim of providing strong support for professional further training in this sector and investing in health promotion and the assessment of health-promotion activities.

Coordination of Health Promotion at Municipal Level

Prevention of obesity and the associated major public-health problems is in the interests

of both local government and the local inhabitants and an absolute necessity if expenditure in social welfare and health is to be curbed. Prevention relies on smooth-running organization of health promotion, with the heads of local government assuming the main responsibility for enhancing the health of the population under their responsibility and ensuring that sufficient resources are secured for this purpose. Prevention is mainly implemented by primary health care, occupational health care and non-governmental organizations.

The former National Board of Health in its day set up a system of local health education, and as a legacy of this system there are still some 250 health-education coordinators in local government in Finland. Only a third of municipalities still have an operative Joint Working Group for Health Education, however. The current job descriptions of the health-education coordinators and the Joint Working Groups for Health Education are unclear, and the resources placed at their disposal are minimal in many municipalities. Today's municipalities have a wide range of on-going health-promotion schemes but these often lack overall coordination, methodical approach and assessment. On the other hand, the need for systematic health promotion is acknowledged, and there is no shortage of motivation in this respect.

The report published by the National Research and Development Centre for Welfare and Health of an interview and questionnaire survey of health-education coordinators (Pirkanen and Pietilä 2000) recommends the following development measures:

- ★ Municipalities should create a health-promotion infrastructure of their own, based on the size, working culture and circumstances of the municipality.

- ★ The managements of the municipality and its health-care centre and the representatives of the various operational sectors should form a Health Promotion Responsibility Group (corresponding to the previous Joint Working Group for Health Education).
- ★ A health-care professional with the provisional title of Health Promotion Planning Officer should be employed to replace the current health-education coordinator. The post should be full-time in large municipalities, half-time in the smaller municipalities.
- ★ The job description, administrative status and operational resources of the Health Promotion Planning Officer should be defined clearly.
- ★ The Health Promotion Planning Officer should be ensured access to regular further training, and he/she should in turn undertake to train other staff in various aspects of the municipal strategies of health promotion.

The development measures proposed would render municipal health promotion systematic, allowing quality targets to be set for the activity and its outcomes to be assessed.

10) *Pharmacies will contribute to type 2 diabetes prevention with their own diabetes programme*

Focusing on the prevention of type 2 diabetes and the improvement of its care, the Diabetes Programme for Pharmacies launched by the Association of Finnish Pharmacies largely parallels the objectives of DEHKO. To date more than 600 diabetes liaison pharmacists have been appointed in

pharmacies under the programme. The Diabetes Programme for Pharmacies lists tasks for pharmacies, eg negotiation and agreement on local models of operation together with other health-care sectors and patients' organizations, reinforcing the message of positive effects of lifestyle changes and advising patients to seek medical attention in cases of suspected high blood glucose. The lifestyle counselling provided by pharmacies will concentrate on weight management, diet, physical activity, smoking cessation and alcohol. The pharmacy may often be the only health-care facility visited by the high-risk individual. Although pharmacies do not perform blood glucose measurements, measurements may be offered on pharmacy premises under agreement with a local health-care provider. Pharmacies may, for instance, contribute to screening campaigns arranged by health-care centres or local branches of the Finnish Diabetes Association. The Type 2 Diabetes Risk Assessment Form has already found its way onto the customer counters of most pharmacies.

11) *The cooperation of non-governmental organizations will be intensified*

Non-governmental public-health organizations and other social and health organizations have always been active in health promotion. Nevertheless, since the risks posed by obesity, type 2 diabetes, cardiovascular disease and the other major public-health problems concern the entire Finnish population, conventional channels of influence must now be augmented by fully utilizing the vast range of non-governmental organizations in Finland. Any organization feels responsible for its membership, and health promotion is in the interest of each and every member. Working through non-governmental organizations, at least two mil-

The dual nature of dietary fat

Quantity		Quality	
Invisible fat	Visible fat	Hard fat • in cold • often invisible fat	Soft fat • in cold • often visible
eg sausage, cheese, Danish pastry, pasty, chocolate	eg tub margarine, butter, oil	eg fatty meat, meat products, dairy products, pastries, chocolate	eg tub margarine, oils, fatty fish, chicken, nuts, avocado
		↓ Raises blood cholesterol	↓ Lowers blood cholesterol

Reference: Weight Watchers

lion Finns of different ages can be reached.

The large membership in non-governmental organizations and the direct channels available to them provide excellent prospects for effective cooperation in disseminating information related to the prevention of obesity, type 2 diabetes and cardiovascular disease.

A key role in child-health promotion is played by the Children's Health Forum network consisting of 11 organizations (2003), all of which are focused on enhancing the health of children and young people. In addition to this network, parish day-care clubs should be involved in health promotion, as this can be envisaged as engaging many families otherwise beyond reach.

Health promotion among young people can be influenced via youth organizations, sports clubs, the Young Finland Association, the Finnish School Sport Federation, the Finnish Students Sports Federation and various recreational organizations.

Working-age people who are employed are best reached through trade unions and employers' organizations, as well as by contacting various recreational organizations. Unemployed people's associations make contact with at least some of those who are unemployed, and non-governmental public-

health organizations also have the option of approaching unemployed people by collaborating with employment offices. As regards marginalized individuals, the Salvation Army with its wide range of night-shelter and meal services is in a strategic position.

Finnish pensioners' organizations have some 400,000 members. While these organizations do arrange health-promotion campaigns of their own, there is also a willingness to cooperate. Their membership belongs to the core target group for the prevention of obesity, type 2 diabetes, cardiovascular disease and the other major public-health problems.

■ Measures Targeting Individuals

1) *Simple lifestyle counselling focusing on what is essential*

A) **Nutritional education**

The nutritional education aimed at prevention of obesity is built upon the Finnish nutrition recommendations. In content, it focuses on achieving a balance between energy intake and energy utilization, reducing the consumption of fat and salt and guidance towards moderation in alcohol use. It also stresses the use of vegetables, fruits and berries and increased consumption of cereal products. The education should pay attention

to the main problems in nutrition, making better food choices in terms of health and the significance of one's daily food choices. The education should be stripped of non-essentials, concentrate on core messages and simple language and seek to explain things as illustratively as possible. The basics will be the same in all age groups but the teaching methods will depend on the age of the audience and the medium used.

The critical balance between energy intake and energy utilization must be made clear from an early age.

The education should seek to make people aware at a relatively young age of:

- ★ what the energy obtained from food is needed for
- ★ what the daily energy requirement is
- ★ how the energy from different kinds of meals adds up (practical example of one's own meals of the day in relation to one's own energy requirement)
- ★ what foods can be eaten without restriction (food triangle)
- ★ what foods provide the most energy (lists with examples, food triangle)
- ★ how one's own choices can influence one's energy intake
- ★ what is meant by energy utilization and how various forms of physical activity affect it.

Cutting fat consumption and choosing healthier fats are some of the fundamental points to be addressed by nutritional education. Although the changeover from high-fat dairy products to low-fat and non-fat alternatives has made a good start in Finland, high intake of fat continues to be

a major factor contributing to the obesity of the population (see chart on previous page 40).

Consumers are assisted in their choices of dairy products and margarines by clear sorting and labelling of products, such as differently coloured milk cartons and conspicuous markings of fat content or the phrase "fat-free" on margarine and yoghurt packaging, etc. Nevertheless, the identification of the various types of fat should be illustrated in nutritional education.

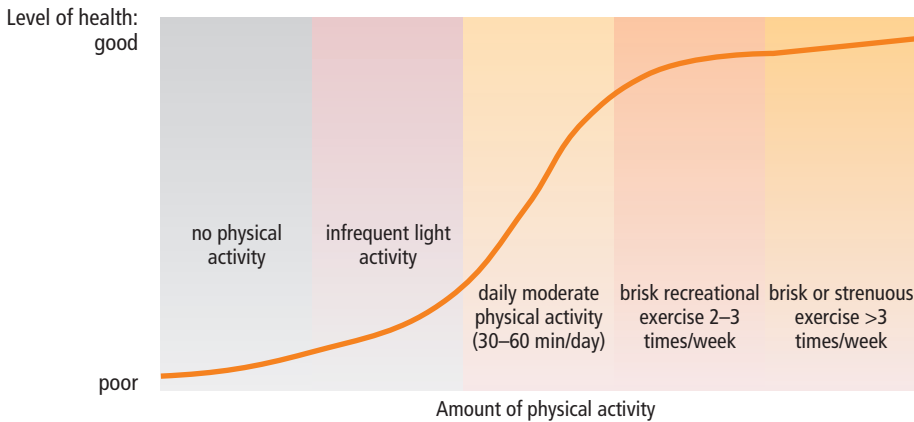
Familiarizing people with the **Heart Symbol** (see Chapter 12.6) is also an important item on today's nutritional education agenda. The Heart Symbol helps the consumer make nutritionally wiser choices in terms of fat and salt content.

The product information contained on food labelling is an important source of data when making food choices, and finding, reading and understanding this information should form part of basic consumer skills. Apart from the best-before date, some of the most relevant product information is the total energy content and the amounts of fat, fibre and salt.

The soaring popularity of fast-food meals shows that this type of eating is here to stay. Nevertheless, the nutritional information on hamburger chains' products today also allows the various fast-food dishes and meals to be compared for energy and fat content.

According to questionnaire surveys and other studies, 80 per cent of schoolchildren eat sweets and consume soft drinks every day during school hours, and children spend most of their weekly or monthly pocket money on sweets. Although this is an issue for families themselves to address, they should be made aware of the risk of obesity and type 2 diabetes. As to the role of schools, they would be well advised to consider how to make school meals more

Physical activity and health



The greatest health benefit is achieved by increasing the amount of daily physical activity. Recreational exercise augments the positive effects.

Reference: Obesity – the Problem and its Management (Fogelholm et al 1998)

appealing and whether restrictions should be placed on sweet and soft-drink vending machines in schools.

Curbing the high consumption of alcohol calls for intensified communication by health-care providers, non-governmental organizations and the media about the adverse health effects of excessive alcohol use. In health examinations, the issue of alcohol use will come up when completing the health questionnaire. The grouping of respondents on the questionnaire form according to their alcohol use will at least draw the attention of those who see themselves categorized as heavy users of alcohol. It is also a good idea to show the examined person a tabulation of the amount of energy derived from alcohol, with the aim of making him/her realize that even a low consumption of alcohol means excess energy for the body.

It would be ideal if the population at large were to learn to monitor changes in their own physical condition and state of health. The main tools in this respect are bathroom scales, a measuring tape, body-mass index tables and taking the Type 2 Diabetes Risk Test from a young age (see Chapter 12.4).

B) Physical activity education concentrating on daily activity

Health promotion by encouraging people to increase their physical activity should be characterized by a positive and optimistic approach. Physical activity has clear implications for mental well-being: it can alleviate anxiety and depression, improve self-esteem and help in coping with mental stress. The most significant effects of regular physical activity, however, are seen in physical health and, particularly, in the prevention of obesity, type 2 diabetes and cardiovascular disease. It is important in conjunction with health examinations to discuss the client's physical activity habits and to encourage him/her to maintain daily activity and also to try out various forms of recreational exercise. It is essential that the sedentary person grasps the physical, mental and health-related benefits of physical activity.

Physical activity education is primarily aimed at increasing daily activity and adopting a daily exercise profile that is composed of small amounts of physical activity and can be put into effect gradually and gently depending on one's life situation.

According to the National Recommendations for the Local Promotion of Health-Enhancing Physical Activity (Ministry of Social Affairs and Health 2000), adults should undertake moderate exercise or other physical activity on most days of the week, preferably daily, for at least 30 minutes in one session or divided into several sessions. The physical activity may comprise many different activities, such as climbing stairs, gardening, raking leaves or shovelling snow, dancing or travelling all or part of the way to and from work on foot or by bicycle, etc. The recommended 30 minutes of physical activity may also consist of recreational exercise or sport. Walking a distance exceeding three kilometres will meet the basic daily requirement for health-enhancing physical activity of an adult with normal fitness.

Physical activity counselling aimed at obesity prevention needs to primarily focus on increasing the daily activity of the population. Obesity – the Problem and its Management (Fogelholm et al 1998) lists the following examples of how to increase one's daily activity:

- * use stairs instead of taking the lift
- * walk or cycle to work
- * if using the bus, get off at the previous stop and walk the rest of the way
- * if using the car, park it sufficiently far away from your destination and walk the rest of the way
- * walk to the supermarket, barber shop, hairdresser's and on other errands
- * run around, romp about and ride snow sleds with your children
- * shovel snow, trowel and weed in the garden, mow the lawn
- * tidy briskly around the house, scrub, sweep the floor and brush the yard, beat the rugs

* go dancing

* accustom yourself to moving briskly, as brisk daily activity will improve your energy expenditure and benefit your health.

Physical activity counselling aimed at obesity prevention should address in particular such habits as tend to diminish daily activity. Such habits include, for instance, using the car or bus for travelling short distances to work or school, taking the lift instead of climbing stairs, spending a lot of time watching TV (currently on average 2.5 hours a day among Finns) and excessive playing of computer games as a pastime.

Physical activity also tends to drop in certain life situations, which should be taken into account in physical activity counselling. The book Obesity – the Problem and its Management identifies six stages of life or life situations in which a person's physical activity tends to decrease:

- 1) **Age 6–7 years:** physical activity related to play diminishes at school entry.
- 2) **Puberty:** sport-related leisure decreases.
- 3) **Age 25–35 years/men:** taking employment and starting a family; daily activity decreases with improved standard of living; sport-related leisure decreases.
- 4) **Age 20–40 years/women:** daily activity and sport-related leisure decrease.
- 5) **Age 60–70 years:** physical activity caused by employment falls away and daily activity may also decrease.
- 6) **Unemployment:** physical activity due to employment falls away and daily activity may often decrease. The unemployed person may undertake more recreational exercise for want of anything else to do, or he/she may cut back on recreational exercise because of shortage of money or loss of motivation.

An example of daily physical activity adding up to 60 minutes (Obesity – the Problem and its Management, Fogelholm et al 1998):

Walking from home to the bus stop	5 min
Walking from the bus to work	7 min
Climbing stairs during the working day	8 min
Walking to the canteen and back	6 min
Walking from work to the bus	7 min
Walking from the bus to the supermarket	8 min
Walking home from the supermarket	6 min
Shovelling snow	13 min
Total	60 min

C) Weight-management courses and peer-support groups

Achieving permanent weight control necessitates long-term commitment and having access to professional counselling and support. Primary and occupational health care have long experience of instructing overweight people how to reduce weight, and weight-loss courses have been arranged by various organizations (eg the KiloKimp-pa Programme of the Finnish Sport for All Association, Weight Watchers' schemes, courses run by social and health organizations). The Finnish Association of Weight Reduction Counsellors has been established, and training for weight-management group instructors is provided by the UKK Institute for Health Promotion Research, the Finnish Sport for All Association and the Finnish Institute for Behavioural Science.

Finns continue to gain weight, however, and the outcomes of weight reduction programmes among overweight individuals have mostly been meagre. Moreover, weight-management course leaders' energy and motivation are often severely tested, especially in primary and occupational health-care settings.

Prevention of obesity concerns all society. The National Nutrition Council's Action Programme for Implementing National Nutrition Recommendations requires that the health-care system assumes responsibility for organizing the services promoting weight management among the population (nutritional education, weight-management courses), as well as ensuring adequate availability of these services at all health-care centres in Finland. As a result, the primary and occupational health-care systems must increase their investment in activities supporting self-motivated weight management. Further, more personnel must be trained in this sector, and existing forms of activity also have to be boosted.

As part of the One Small Decision a Day Project launched by the Finnish Diabetes Association and the Finnish Heart Association, a new type of instructor training and a new group model for weight-management courses were devised and the Self-Help Peer Group scheme was developed (see Chapter 12.3).

D) Counselling aimed at reducing smoking

Each smoker is an individual, and therefore a host of different means and methods exist for smoking cessation. One of these, known as the Six-Step Programme, has helped many people to give up tobacco. The six steps of the programme are as follows: (1) prepare yourself; (2) get support and encouragement; (3) learn new skills and behavioural models; (4) obtain medication if needed and use replacement therapy as instructed; (5) be prepared for relapses and difficult moments; and (6) thank and reward yourself. Information about the programme and other cessation-support materials and activities are available on the internet at www.tupakka.org.

2) *Health promotion by media communication*

Media communication in support of health promotion is one of the most important means of improving the level of knowledge and motivation of the population. Over the decades, the media have created havoc but also positive development with their health-related messages. Recent events have nevertheless shown that the more up-to-date research data on Finns' health, foods, eating habits, physical activity and lifestyles are made available, the more factual are the articles and editorials in the press and the better they support the policies of health promotion — this is also true for TV and radio programmes.

Media communication directed at the general population should be sustained and unambiguous, and its core message should be the preventability of type 2 diabetes and cardiovascular disease and the means to achieve prevention. Just as importantly, the individual's or family's own responsibility and many options for health enhancement and disease prevention should be put across. The forms of collaboration with

media professionals, such as medical editors, are being mapped out. The communication channels of the players involved in the Programme for the Prevention of Type 2 Diabetes will be systematically utilized. The Healthy Media! Project will be used in cooperation with other non-governmental public-health organizations to influence Finnish health journalism – its editorial policies, use of sources of health data, etc.

The Programme for the Prevention of Type 2 Diabetes will be publicized both through mass media (entry on the society agenda, opinion forming) and targeted communication to opinion leaders such as local-government decision makers, health-care professionals, key officials in non-governmental organizations (support for starting the programme). The start up and progress of the programme in the Pilot Hospital Districts of the Implementation Project will be reported actively, and intra-programme communication will receive proper emphasis. Media publicity (programme itself, basic messages) will be measured by the number of hits received on Observer monitoring.

9. High-Risk Strategy

Aim:	<i>to prevent and delay the development of type 2 diabetes in individuals at high risk.</i>
Methods:	<i>assessment of personal risk of diabetes, targeted screening and monitoring of blood glucose, investigations and treatment of cardiovascular diseases, nutritional and physical activity education, intensive obesity management.</i>
Target group:	<i>individuals at risk of developing type 2 diabetes, ie close relatives of individuals with type 2 diabetes, women with a history of gestational diabetes, individuals with hypertension or elevated blood glucose or a disturbance of fat metabolism or metabolic syndrome, individuals with overweight or central obesity.</i>
Players:	<i>particularly primary health care, occupational health care, networks of services related to nutritional education, weight management and physical education.</i>

■ Identification of Pre-Type 2 Diabetes

Type 2 diabetes usually emerges slowly and with few symptoms, and is thus insidious in its development. Diabetes is preceded by an asymptomatic disturbance in glucose metabolism, with blood glucose values between normal and diabetic levels (IFG = impaired fasting glucose; IGT = impaired glucose tolerance). These are detected by measuring the fasting plasma glucose and glucose at two hours after a glucose challenge (oral glucose tolerance test) or a meal respectively. The prevalence of IGT observed in different studies varies depending on the population studied and the methodology used. In the Finnish population, IGT is found in 11–15 per cent of the 45 to 54 age group and in 20–25 per cent of the over 65 age group. According to various studies, the risk of development of type 2 diabetes within 5–10 years is about 50 per cent.

Metabolic Syndrome

Metabolic syndrome is a cluster of risk factors for type 2 diabetes and cardiovascular disease. The accumulation of several risk factors confers a higher risk than that estimated on the basis of the individual risk factors. Prevention and treatment of metabolic syndrome help to prevent the development of type 2 diabetes and cardiovascular disease.

Criteria for Metabolic Syndrome (WHO 1999)

Presence of IGT, IFG, diabetes or separately diagnosed insulin resistance and two of the following:

- Elevated arterial pressure ($\geq 140/\geq 90$ mmHg)
- Elevated serum triglyceride concentration (≥ 1.7 mmol/l) and/or low HDL cholesterol (< 0.9 mmol/l in men and < 1.0 mmol/l in women)

- Central obesity (waist/hip ratio > 0.90 in men and > 0.85 in women) and/or body-mass index > 30 kg/m²
- Microalbuminuria (urinary albumin excretion rate ≥ 20 µg/min).

According to the US National Cholesterol Education Program (www.nhlbi.nih.gov/guidelines/cholesterol/), clinical identification of metabolic syndrome can be made if three of the following five criteria are met:

- 1) central obesity: waist circumference > 88 cm (women) and > 102 cm (men)
- 2) blood pressure ≥ 130/≥ 85 mmHg
- 3) fasting glucose ≥ 6.1 mmol/l
- 4) 0serum triglycerides ≥ 1.7 mmol/l
- 5) HDL cholesterol < 1.29 mmol/l (women) and < 1.0 mmol/l (men).

40 to 60 per cent of people with type 2 diabetes have elevated blood pressure. Metabolic syndrome is present in 50–70 per cent of people with impaired glucose tolerance and in about 80 per cent of people with type 2 diabetes (Isomaa et al 2001).

Type 2 Diabetes Risk Test

Risk of type 2 diabetes is detected using the Type 2 Diabetes Risk Assessment Form (see Chapter 12.4) developed in 2001 as a DEHKO project by the National Public Health Institute on the basis of data from the FINRISK surveys.

The Risk Test comprises eight scored questions, with the total test score providing

a measure of the probability of developing type 2 diabetes over the following 10 years.

The test takes only a couple of minutes to complete and can be easily done on the internet (www.diabetes.fi), in pharmacies or at various public campaign events. The reverse of the form contains brief advice on what the respondent himself/herself can do to lower his/her risk of developing the disease.

The Risk Test is used for targeted screening in conjunction with health examinations within primary and occupational health care.

A person with less than 12 points in the Risk Test will receive general counselling and written materials about health-enhancing lifestyles and diets, and he/she will be reminded about locally available weight-management and physical-education services. Reference materials for counselling these persons include materials published by the Finnish Heart Association, the Finnish Diabetes Association's pamphlet entitled "What Should I Do Now?" and the local sports calendar.

■ Involving Individuals at High Risk in Prevention Activities

If a person scores 12 or higher in the Risk Test or is already receiving medical attention because of mildly elevated blood glucose (IFG, IGT), hypertension, dyslipidemia or gestational diabetes, he/she may be referred directly for interventions aimed at preventing diabetes and cardiovascular disease.

Risk Test score	Risk of developing type 2 diabetes
Lower than 7	Low (estimated 1 in 100 will develop disease)
7–11	Slightly elevated (estimated 1 in 25 will develop disease)
12–14	Moderate (estimated 1 in 6 will develop disease)
15–20	High (estimated 1 in 3 will develop disease)
Higher than 20	Very high (estimated 1 in 2 will develop disease)

Detailed Investigations Will Be Done during an Appointment with a Public-Health Nurse or Occupational Health Nurse

- Determination of weight, height, body-mass index, waist circumference and blood pressure (procedure according to Current Care Guideline on Hypertension).
- Determination of fasting glucose concentration in plasma. Unless the fasting-value is ≥ 7 mmol/l, the person is then given a drink containing 75 g glucose. Second determination of plasma glucose two hours after the first one. Alternatively, or following local procedures, the person may be referred to a medical laboratory for glucose tolerance testing.
- Laboratory tests of lipid metabolism (serum total cholesterol, HDL cholesterol, triglycerides and LDL cholesterol), liver-function (serum glutamyltransferase and/or alanine aminotransferase), thyroid function (serum thyrotropin) and renal function (serum creatinine, urinary albumin and/or creatinine or first morning urinary albumin), blood count and electrocardiography (ECG).

At this stage, the person will receive preliminary information about diabetes prevention by lifestyle modification, and he/she will be instructed to keep a food and physical activity diary. Arrangements will be made for a follow-up appointment with the nurse, and an appointment will be booked with the person's own doctor or occupational health physician. The person will also be informed about any services in the field of prevention of diabetes and cardiovascular disease, available at the care unit.

If the plasma glucose concentration in an otherwise asymptomatic person exceeds

the diagnostic limit for diabetes, ie the fasting value is ≥ 7.0 mmol/l or the two-hour value is ≥ 11.1 mmol/l, the test will be repeated.

If the repeat test shows a fasting glucose value of < 7.0 mmol/l and a two-hour value of < 11.1 mol/l, the person will be referred for preventive interventions.

If the limit values for diabetes are also exceeded in the repeat test, the person will be referred to his/her own doctor for early treatment:

- as an emergency if his/her fasting plasma glucose is > 15 mmol/l or there are ketone bodies in his/her urine
- within one week of the initial consultation if his/her fasting plasma glucose is 10–14.9 mmol/l
- within four weeks of the initial consultation if his/her fasting plasma glucose is 7–9.9 mmol/l

The nurse will see the high-risk person again within two to four weeks:

- the results of the original and any follow-up tests are recorded and explained
- personal counselling is started on the basis of the food and physical activity diary
- an appointment is booked with the person's own doctor if the doctor cannot see the person right away.

Protocol for Referral to Own Doctor

As an emergency if fasting plasma glucose > 15 mmol/l or ketone bodies in urine or blood pressure $> 200/120$ mmHg.

New appointment within one week if fasting

plasma glucose 10–14.9 mmol/l or blood pressure 180–200/110–119 mmHg or triglycerides > 10 mmol/l.

New appointment within four weeks if fasting plasma glucose 7–9.9 mmol/l or blood pressure 160–179/100–109 mmHg or triglycerides 5–10 mmol/l or LDL cholesterol > 4.5 mmol/l.

New appointment within one to three months if fasting plasma glucose 6–7 mmol/l or blood pressure 140–159/90–99 mmHg or triglycerides 1.7–4.9 mmol/l or LDL cholesterol 2.6–4.5 mmol/l.

Monitoring

If the initial tests showed an elevated glucose concentration in plasma but no diabetes (fasting plasma glucose 6.1–6.9 or glucose at two hours 7.8–11 mmol/l), the fasting glucose value will be re-tested after six months and then annually. If the initial tests were normal, the tests will be repeated at one to three-year intervals, depending on other risk factors. Risk of cardiovascular disease (Risk Calculator, Finnish-language version of EBM Guidelines, Duodecim Medical Publications Ltd; www.terveysportti.fi; www.verkkoklinikka.fi) and the relevant Current Care Guidelines will be taken into account in monitoring and management of blood pressure and blood lipids.

Personal Short Counselling or Sustained Group Counselling

The principles of the Current Care Guideline on Adult Obesity (2002) can be applied to prevention of type 2 diabetes; the Physical Activity Prescription (see Chapter 12.5) can also be put to good use.

Some people at high risk are ready and willing to change their lifestyles and eating habits after short-term counselling and

advice. They will then be referred to the local weight-management and physical-education services, and follow-up visits will be decided on an individual basis.

The care unit may also arrange public events, information sessions or health bazaars, in which people are told about the associations between increased obesity, physical inactivity and diabetes. Such activities are aimed at activating those who are still undecided about their need for change.

Some high-risk individuals will require more intensive counselling and are prepared to participate in longer-term education. These people will be referred to a nutritionist, public-health nurse, occupational health nurse or, which is preferable, to a group programme developed by a multi-professional team.

Group counselling provides intrinsic benefits linked to the dynamics of the group itself. In a group, the participants can exchange and work on peer experiences and receive support for information processing. The group members may also jointly consider and evaluate insights and look for practical applications by utilizing information offered to the group or building on information and experiences originating within the group. The members will offer one another models and surrogate experiences which the peer situation often renders more powerful than those offered by professionals.

Group counselling will consist of about 10 meetings, depending on local resources, with a nutritionist or nurse acting as instructor.

Core objectives of group work:

- ★ processing of thoughts, emotions and perceptions related to diabetes, cardiovascular disease and overweight
- ★ discussion of one's habits in relation to physical activity and eating, and

Identification of people at high risk of developing diabetes and measures to prevent disease development

1 People scoring more than 12 points in the Diabetes Risk Test

General risk testing

- internet (www.diabetes.fi)
- pharmacies
- non-governmental organizations
- media
- campaigns by health-care providers, "health bazaars"

Targeted risk testing

- occupational health care/primary health care
- periodic age-related health examinations
- call-up examinations of conscripts
- pre-employment examinations and periodic re-examinations

2 Risk factors detectable during normal health-care appointments

- central obesity: waist circumference > 88 cm (women), waist circumference > 102 cm (men) and/or body-mass index > 30 kg/m² and
- blood pressure $\geq 140/\geq 90$ mmHg or antihypertensive medication or
- known disturbance of lipid metabolism or anti-lipemic medication

3 Previously or newly diagnosed disturbance of glucose metabolism

- gestational diabetes
- impaired glucose tolerance (IGT)
- impaired fasting glucose (IFG)

PREVENTION MEASURES REQUIRED

First appointment with a public-health nurse or occupational health nurse

* Personal and family history

* Measurements:

- weight, height, body-mass index and waist circumference, two measurements of blood pressure
- fasting plasma glucose and two-hour value after drinking a 75 g dose of glucose (or referral to laboratory for glucose tolerance test)

* Referral for laboratory tests:

- fasting serum cholesterol, HDL cholesterol, triglycerides, LDL cholesterol
- urinary albumin and/or creatinine or first morning urinary albumin, fasting serum creatinine, serum glutamyltransferase, serum alanine aminotransferase, blood count and ECG

* Food and physical activity diary given and instructions on its use provided

* Arrangements for follow-up appointment(s) and information about local services supporting prevention of type 2 diabetes

* Booking an appointment with the person's own doctor or occupational health physician

Second appointment with a public-health nurse or occupational health nurse after 2–4 weeks:

* Test results

* Follow-up tests (recorded on a follow-up form and on the person's own follow-up card)

* Review of the food and physical activity diary, agreement on targets, counselling

* Recruitment into a prevention group

* Referral to use physical-education services

First appointment with own doctor or occupational health physician:

* Efforts to inspire and motivate

* Clinical examination, interpretation of laboratory tests: diagnosis and assessment of total risk with Risk Calculator

* Treatment of clinical condition, agreement on treatment targets and follow up

* Evaluation of limitations of physical activity, Physical Activity Prescription

* Nicotine replacement therapy as required, evaluation of need for pharmacological treatment of obesity

- weighing up one's readiness to alter these
- ★ improving knowledge on nutrition and physical activity
 - ★ detection of one's own opportunities for and preferred forms of physical activity
 - ★ evaluation and identification of one's own situation
 - ★ working out a concrete plan for oneself.

Training for weight-management group instructors is available from organizations such as the Finnish Diabetes Association and the Finnish Heart Association (see Chapter 12.3), the UKK Institute for Health Promotion Research and the Finnish Sport for All Association.

■ Arrangements for Systematic Obesity Management

The national framework for obesity management is set out in the Current Care Guideline on Adult Obesity prepared by a working group appointed by the Finnish Association for the Study of Obesity.

Finalized in May 2002, the guideline is mainly aimed at primary and occupational health care, which is where most obesity management takes place. Regarding the subject of severe and morbid obesity, the guideline also concerns obesity management provided under the specialized medical care system. The guideline is essentially intended to improve obesity management in all sectors of health care.

Target Groups and Objectives of the Guideline

Many health-care clients are overweight (body-mass index higher than 25 kg/m²). As resources do not permit active treatment of all overweight people, treatment will be targeted at patients with type 2 diabetes or impaired glucose tolerance, hypertension, sleep apnea or dyslipidemias. Additional

selection criteria are severity of obesity and central obesity. Obesity management is aimed at achieving a permanent weight loss of 5–10 per cent, as numerous studies show such levels of reduction to improve glycaemic control, lower blood pressure, correct dyslipidemias and alleviate sleep apnea.

Interventions

The Current Care Guideline on Adult Obesity lists five interventions for obesity:

- | | |
|----|---|
| 1) | Short counselling, ie mini-intervention |
| 2) | Regular management (several counselling sessions to achieve permanent changes in lifestyles, usually in groups) |
| 3) | Regular management + very-low-calorie diet |
| 4) | Drug therapy + lifestyle counselling |
| 5) | Surgical treatment |

Regular management, which is the most commonly used intervention, comprises the two aspects of losing weight and weight management. Both of these aspects are addressed by several sessions of lifestyle counselling, mainly in groups. The counselling concentrates on reducing the amount of energy in food (emphasis on the amount and types of fat), increasing physical activity (emphasis on daily activity), controlling eating and dealing with the associated cognitive factors (lifestyle modification based on changes in thinking and interpretations of situations and moods). Regular management usually takes 15–20 weeks, after which there may be maintenance visits at longer intervals.

Regular management cannot be provided for all obese persons, and therefore the guideline recommends adopting the option of short counselling. Short counselling, or mini-intervention, consists of one to three meetings with the aim of stimulating the patient's interest in weight management so

that he/she will take action on his/her own or seek support outside the health-care system.

Similar counselling is no doubt already in use in many places in Finland, but by creating an official status for short counselling both as an intervention and as a concept the guideline has sought to strengthen its role in obesity management and inspire health-care personnel to develop the contents of counselling. Lifestyle counselling (see Chapter 12.2) is part of all interventions for obesity.

Arrangements for Obesity Management

Obesity management should form an integral part of the normal operations of primary and occupational health care. Morbid obesity (BMI > 40 kg/m²), as well as severe obesity (BMI 35–40 kg/m²) in association with conditions that benefit from weight loss, may be managed within specialized medical care. Surgical management of obesity will be concentrated in university hospitals or other large hospitals.

Applicability of the interventions for obesity

	Regular management (group)	VLCD and regular management (group)	Drug therapy + counselling	Surgical treatment
BMI 25–30 kg/m ² + central obesity or medical conditions ¹	++		+ (BMI ≥ 28)	
BMI 30–35 kg/m ² + central obesity or medical conditions ¹	++ ++	+ ++	+ +	
BMI 35–40 kg/m ² + medical conditions ¹	++ ++	++ ++	+ +	+
BMI > 40 kg/m ²	++	++	+	+

++ = *first-line intervention*, + = *optional intervention*

VLCD = *very-low-calorie diet*

¹ = *type 2 diabetes or impaired glucose tolerance, hypertension, dyslipidemias, sleep apnea*

Selection criteria for obesity management

CRITERIA	RATIONALE
Severity of obesity	The more severe the overweight, the greater are the morbidity risks and other problems.
Distribution of body fat	Central obesity is associated with metabolic disturbances.
Obesity-associated illnesses	Type 2 diabetes or increased risk of developing the condition (impaired glucose tolerance), hypertension, dyslipidemias and sleep apnea. Other illnesses include chronic pulmonary disease, heart failure and lower-limb osteoarthritis.
Situation at diagnosis	Favourable circumstances for initiating treatment of obesity exist at the time of diagnosis of an illness curable by weight loss (such as type 2 diabetes).
Age	The younger the patient, the more important it is to treat his/her obesity. There is insufficient research data on obesity management in the elderly (over-65) population. Obesity management in the elderly is warranted only if their functional capacity is seriously threatened by overweight or if the presence of a debilitating illness requires weight loss.

Current Care Guideline on Adult Obesity (2002)

10. Strategy of Early Diagnosis and Management

Aim:	<i>to initiate treatment and monitoring as early as possible in the case of individuals meeting the diagnostic criteria for diabetes.</i>
Methods:	<i>a period of systematic lifestyle management with nutritional and physical activity counselling, appropriate examinations, evaluation and initiation of required drug therapy, education, self-care equipment and monitoring.</i>
Target group:	<i>people with diabetes diagnosed in conjunction with screening and follow up of risk groups.</i>
Players:	<i>especially primary health care, occupational health care, networks of services related to nutritional education, weight management and physical education.</i>

Screening of risk groups will always identify people who meet the criteria for diabetes. The Social Insurance Institution in Finland requires a six-month period of lifestyle management and another six-month period on basic reimbursement before qualifying a patient's diabetes medication for preferential reimbursement. No guidelines have, however, so far existed for lifestyle management, and people with newly diagnosed diabetes have received only sporadic counselling on eating and physical-activity habits.

Effective and active early management is of utmost importance if good control of diabetes is to be reached and late complications prevented. The Programme for the Prevention of Type 2 Diabetes therefore includes as a third element the Strategy of Early Diagnosis and Management which also includes a model for intensive lifestyle management and quality criteria for its practical implementation (Appendix 1).

The arrangements for lifestyle management of type 2 diabetes will be planned at

the care-unit level, including allocation of resources for this activity. Local and regional collaboration will be needed, however, when putting plans into effect.

Effective lifestyle management is multi-professional team work involving not only physicians and diabetes nurses (nurses with population-based responsibility, occupational health nurses) but also nutritionists, physiotherapists or sports instructors and psychologists. This makes great demands on communication among the staff participating in counselling.

Individual and timely lifestyle management will be started immediately when diabetes is diagnosed. From the outset, the person with diabetes will be given a readily understandable account of the disease, its management and the counselling procedures. The patient's responsibility as the implementer of his/her own care will also be emphasized. Counselling will always be patient-oriented and individually planned, albeit utilizing the group approach whenever practical. Any drug therapy that may be

initiated will not affect the need for lifestyle management.

■ Prevention of Cardiovascular Diseases through Lifestyle Modification

The first six months of counselling will concentrate on lifestyle changes with an impact on risk factors for cardiovascular disease. The benefits of the patient's spouse, another family member, partner, close friend or someone who cooks for the family participating in counselling will be evaluated and such participation agreed upon case by case.

Counselling will begin with a brief, individually executed history and motivation phase during which the person with diabetes will receive information about his/her disease, its seriousness and the treatment options. He/she will be assured of the continuity of the care contacts, receive reassurance, have his/her questions answered, understand the self-responsibility of the care, process his/her own lifestyles and situation and start to perceive the need for change. The person with diabetes will then, with the support of the staff, set targets for himself/herself for the following six months, and the counselling procedures will be jointly agreed upon.

Group Counselling

Group counselling will be preferred, unless there are specific objections. The group will be composed of persons diagnosed with type 2 diabetes over a few preceding weeks. If it proves impossible to form a group within a reasonable time, personal counselling with the same themes will be undertaken. The schedules and size (two to eight persons) of the group will depend on the current situation, but as a rule groups will start out with meetings at one- or two-week

intervals. The group programme and contents of the counselling will be formulated on a multiprofessional basis.

Topics for consideration by the group include:

- * work-through of the disease experience, self-care and responsibility for own health
- * prevention of the development of cardiovascular disease: weight, fat metabolism, blood pressure, physical activity, smoking
- * healthy eating: amount and types of fat, diet as a whole
- * attitudes toward sweets and alcohol, parties, etc.
- * control of eating and weight
- * review of own eating habits on the basis of a food diary
- * role of physical activity in health maintenance
- * positive experiences of physical activity
- * use of blood glucose measurement as a motivational factor for self-care
- * when and why drug therapy is needed (blood pressure, cholesterol, blood glucose, blood coagulation factors)
- * other organizations and sources of support for diabetes care.

Collaboration with Other Players

Diabetes group counselling will also include or be complemented by the activities of other local groups, such as those involved in weight management, physical education, smoking cessation or cooking. These groups may be run by a health-care centre, occupational health centre or other local government agency, or they be privately operated services (private nutritional therapy groups, groups run by non-governmental organizations, Weight Watchers, etc.). As required, a health-care unit may set up new groups in-house, in collaboration with other organizations or as joint projects of

11. Resources for the Prevention of the Major Public-Health Problems in 21st Century Finland

The basis for health promotion in municipalities, aimed at prevention of the major public-health problems, was established by the Letters of Instructions of the former National Board of Health in the 1970s and 1980s. The system of health-education coordinators created at the time still exists in principle but its operation varies a great deal from one locality to the next. Some municipalities, such as the town of Jyväskylä, have developed the one-person system into an extremely efficient, up-to-date health-promotion unit, whereas in most other municipalities the old model has likewise become defunct but no steps have been taken to replace it.

The National Research and Development Centre for Welfare and Health took over the coordination and development of health promotion and of the health-education coordinator system from the Ministry of Social Affairs and Health in 1997. The structure of health promotion is currently under review, with restructuring being considered along the lines of the report on health-education coordinators (Pirskanen and Pietilä 2000) and to meet the requirements of local government welfare programmes.

According to the above report, the public-health sector of local government employs 253 health-education coordinators, most of them public-health nurses by training. Originally local governments had Joint Working Groups for Health Education to support the health-education coordinators, but today most of these groups have been disbanded and only a third of municipi-

ties still formally have such a body.

Today the coordinators' job description is in most cases undefined, their weekly working hours are limited to less than half a day, facilities are inadequate, and the work lacks the support of local-government decision makers.

Nevertheless, the health-education coordinators remain highly motivated in spite of the frustrating discrepancy between the significance of their work and the minimal resources at their disposal. The report calls for greatly improved utilization of existing basic resources (see Population Strategy) and modernization of the entire system, as a precondition for the specific development proposals made in it.

■ WHO Provides Boosts for Health Promotion

Health promotion was given a face-lift in the late 1990s and early 21st century in the wake of national-level adoption of WHO principles in the form of the Health for All in the 21st Century Programme and the Health 2015 Public-Health Programme. The objective of health promotion was included in the Government Programme for 1999–2003, in the new Sports Act, in the amended Constitution and in the amended Occupational Health Care Act.

The Strategy for Preventive Social and Health Policy (Ministry of Social Affairs and Health 1997), the Target and Action Plan for Social Welfare and Health Care for 2000–2003 (Ministry of Social Affairs and Health 1999) and the Strategies for Social

Protection 2010 (Ministry of Social Affairs and Health 2001) all strongly emphasize the significance of health promotion and wide-ranging prevention work in pursuing a society that is both socially sustainable and economically viable.

The Health 2015 Public-Health Programme draws upon the WHO Health for All in the 21st Century Programme and its European version (Health 21: Health for All Policy Framework for the WHO European Region). The strategy of the Finnish programme is built on specific health promotion measures, and, aiming for wide-ranging cooperation, the programme makes up a framework for health promotion development in various sectors of society. The fields of activity of everyday life are considered crucially important in the programme. Government recommends that various parties, including central and local government, research institutions and non-governmental organizations, adopt the principles laid out in the programme in their own plans. In addition to the programme, Government launched in 2001 the National Project on Safeguarding the Future of Health Care Services. The project's recommendations for action in 2002–2007 were published in April 2002, and the first funds were allocated under the project in February 2003.

■ Role of National Government in Health Promotion

The government body ultimately responsible for health promotion is the Ministry of Social Affairs and Health, its subordinate agencies in this activity being the National Public Health Institute, the Finnish Institute of Occupational Health and the National Research and Development Centre for Welfare and Health. Expert bodies assisting the ministry comprise the Advisory Board for Public Health, the Advisory

Board of Occupational Health and the Committee for Health-Enhancing Physical Activity. Each of these agencies and advisory bodies handles tasks relating to health promotion and prevention of the major public-health problems. The social and health-care departments of the state provincial offices bear regional responsibility for implementing social and health policy and promoting health.

The Finnish Centre for Health Promotion will provide liaison for health-promotion projects between non-governmental organizations and national government, as it is subsidized annually by the Ministry of Social Affairs and Health, and also prepares for the ministry the proposals concerning non-governmental organization's projects for the annual allocation of funds for health promotion.

The National Nutrition Council, which produces the national nutrition recommendations and monitors their adoption, comes under the Ministry of Agriculture and Forestry. Further, the Ministry of Education is the administrative body for physical education and sport. The roles of the ministry, provinces and local government in promoting and organizing physical activity are explicitly laid down in the Sports Act. The Social Insurance Institution, operating under parliamentary supervision, also has tasks relating to health promotion.

From Theory to Practice

Health promotion at national-government level has not been restricted to statutes, political documents and dust-gathering policy reports. The National Public Health Institute has devised excellent methods for monitoring health and health behaviour, and the National Research and Development Centre for Welfare and Health together with local governments and the Association of Finnish Municipalities has pro-

duced Healthy City-type welfare programmes as well as methods for assessing welfare projects in municipalities, in schools and among schoolchildren.

The national Fit for Life Programme has for several years now been helping over-40-year-olds to adopt an active and exercise-oriented lifestyle. As a result of financial and operational inter-ministerial cooperation (Ministry of Education, Ministry of Social Affairs and Health, Ministry of Transport and Communications, Ministry of the Environment), the programme has succeeded in creating a network of almost 700 subsidized local projects, supported by regional and national measures.

The Ministry of Social Affairs and Health together with the Finnish Heart Association and an extensive panel of experts drew up the Action Plan for Promoting Finnish Heart Health in 1997, and through the Sub-Committee on Cardiovascular Diseases and Diabetes of the Advisory Board for Public Health, the ministry also keenly monitored the preparation of the Development Programme for the Prevention and Care of Diabetes (DEHKO).

The Health 2015 Programme and the National Project on Safeguarding the Future of Health Care Services will provide the framework for health promotion by national and local government over the next few years.

The Ministry of Social Affairs and Health together with the Finnish Heart Association and the UKK Institute for Health Promotion Research in 2000 produced the National Recommendations for the Local Promotion of Health-Enhancing Physical Activity, the latter having really emerged as a concept only during the past few years. An even more substantial contribution by the ministry was the appointment of the Committee on Development of Health-Enhancing Physical Activity

which gave its report, containing specific proposals on action and resources, in late 2001. Following the committee's proposals, a post of Senior Planning Officer for Physical Activity Affairs and a Committee for Health-Enhancing Physical Activity were established at the Ministry of Social Affairs and Health in 2002. In the same year, Government passed a Resolution on the Development of Health-Enhancing Physical Activity.

The Ministry of Transport and Communications is currently running two programmes relating to physical activity and the travel-related environment. The Walking Policy Programme is aimed at promoting actions to increase the popularity of walking as an everyday means of getting around and to improve the attractiveness, safety and accessibility of the walking environment. And the Cycling Policy Programme strives to promote cycling as a form of exercise that is both healthy and compatible with sustained development. The Ministry of the Environment is also a partner in these programmes.

The National Nutrition Council has drawn up a nutritional-policy action programme for implementing the national nutrition recommendations published in 1998.

■ Municipal Welfare Policies as a Framework for Development Efforts

The responsibilities of local government in health promotion are clearly defined in the Constitution, the Public Health Act, the Local Government Act, in the Sports Act and in the Occupational Health Care Act. The municipal instruments for health promotion include the municipal social and health administration, the municipal sports administration, the municipal education administration, the municipality as an

employer and the municipality as a mass caterer. Municipalities participate in numerous national projects and programmes, resulting in ever increasing collaboration with other players.

The National Research and Development Centre for Welfare and Health together with the Association of Finnish Municipalities since the 1990s has encouraged and assisted Finnish local government to produce welfare policies for the systematic development and assessment of municipal activities. The municipal social and health sector is closely involved in these policies.

The welfare policies require periodic welfare reports to be produced. Recently, many local governments have also issued reports focusing on the well-being of children and young people. The local government welfare strategies will continue to be emphasized as part of the implementation of the Health 2015 Programme. The Ministry of Social Affairs and Health, the National Research and Development Centre for Welfare and Health and the Association of Finnish Municipalities have compiled a handbook entitled *Welfare Skills for Local Government* as an aid to the promotion of well-being and health.

The Health for All by the Year 2000 Strategy (earlier phase of the WHO Health for All in the 21st Century Programme) provided the basis for the Healthy City Project which seven municipalities piloted for two years in 1994–1995. The project was aimed at improving the implementation of national health policy at local level, evaluating the need for action programmes in municipalities, launching municipal action programmes with the purpose of meeting public-health targets, increasing the role of health aspects in municipal decision making, augmenting cooperation among different administrative sectors in health promotion and assessing the achievements of the project.

The municipalities participating in the project carried out more than 40 development schemes over the two years. The recommendations based on the municipalities' experiences stressed the importance of having a municipal health policy, the need for discussion across administrative sectors about health values, the importance of management commitment and the benefits to be gained from communication, networking and cooperation. The Healthy City Project subsequently gave rise to the Healthy City Network, the annual Healthy City Conference and the Healthy Schools Project.

■ Primary Health Care as a Way of Promoting the Health of the Population

Primary health care, the system of health guidance centres, school health services, student health care, conscript health care and occupational health care are the cornerstones of health promotion and of the prevention of the major public-health problems. Preventive work has always been part of primary health care although the resources allocated to it have invariably trailed far behind those given to curative care. Public-health nurses hand out materials produced by non-governmental organizations as a matter of course in their customer encounters, provide information about issues related to the prevention of the major public-health problems, arrange weight-management courses and contribute, whenever possible, to conducting national and local campaigns at health-care centres.

According to the UKK Institute for Health Promotion Research, the Development Programme for the Prevention and Care of Diabetes (DEHKO) has been well received by physicians, particularly those working in primary health care. The programme has been studied, and has already

produced changes in ways of working at health-care centres. It was already apparent in 2001 during the information campaign aimed at health-care providers, which prepared the ground for type 2 prevention, that there was a great deal of interest at health-care centres in the prevention of type 2 diabetes and a readiness to carry out specific instructions. The level of interest has been on the rise ever since, particularly thanks to the training provided under the auspices of DEHKO and the regional diabetes projects.

■ Eighty Per Cent of Working-Age Population Covered by Occupational Health Care

Eighty per cent of Finland's employed population of 2.3 million, or 1.8 million people, are covered by occupational health care. The coverage is currently 90 per cent for wage earners and about 50 per cent for the self-employed and business owners. Occupational health care statutorily comprises functions aimed at promoting health and preventing illness, and these functions are further emphasized in the amended Occupational Health Care Act of 2002. One of the main objectives of the Act is, through promotion of workers' health and work ability, to allow them to continue working until retirement age.

Employers also have the option of organizing curative medical care for their employees, and as a result 84 per cent of wage earners are already covered by such services. Of the total occupational health services in Finland, 40 per cent are organized through primary health care and 60 per cent through private health-care providers.

The most significant functions of occupational health care in terms of the prevention and management of the major public-health problems are the various health examinations and the associated lifestyle coun-

selling and weight-management courses and campaigns. The basic health examinations comprise pre-employment examinations and periodic re-examinations, the latter being carried out according to a departmental or occupational schedule or, if so agreed, on an age-group basis.

The persons to be examined are sent invitations which appear to be effective in reaching the target group concerned. Nowadays the health examinations usually comprise taking the medical history of the person and his/her close relatives, measurement of blood pressure, determination of body-weight index and often blood tests for blood glucose and blood lipid values. The examinations are carried out by occupational health nurses and occupational health physicians.

The health examinations conducted by occupational health care are already a form of screening for the risk factors for type 2 diabetes and cardiovascular disease, and facilities exist for developing these examinations towards even more focused screening of risk groups. The health examinations yield a database that occupational health care can avail of in arranging for the follow up of certain risk groups, organizing nutritional and physical activity education, mainly given by occupational health nurses, and managing overweight and hypertension. Most units of occupational health care now have computer systems suited to patient follow up.

■ Non-Governmental Organizations: a Wide Range of Services, Enthusiasm and Skill

Today's nationwide non-governmental social and health organizations and organizations involved in physical education and sport are widely active, professionally managed bodies which can provide a crucial input to health promotion. The Finnish

non-governmental social and health organizations have a membership of 1.5 million, and 800,000 Finns are active in non-governmental organizations involved in physical education and sport. Various projects of social and health organizations are funded by Finland's Slot Machine Association, whereas the activities of sports organizations are supported by awards from the profits of the national lottery monopoly, Oy Veikkaus Ab, and directly by the Ministry of Education. Non-governmental organizations are involved in increasing cooperation across sector divisions to enhance the visibility and scale of their projects. The current health-policy atmosphere and resources encourage organizations to engage in effective prevention of the major public-health problems.

■ Support for Health Promotion from Scientific Research

The Academy of Finland in 2001 launched its TERVE Health Promotion Research Programme for 2001-2004. TERVE comprises four research categories: health promotion policy, immediate communities, occupational health and children and young people. Important findings are expected, for instance, from three studies concerning young people, the Päijät-Häme Community Intervention Study and the Health Survey of Helsinki City Personnel. The research programme is coordinated by the Cancer Society of Finland, and is financed by the Finnish Work Environment Fund, the Ministry of Transport and Communications and the Cancer Foundation, in addition to the Academy of Finland.

Monitoring Systems Well Organized

Finns' health and well-being are monitored in several ways. The National Public Health Institute produces regularly and at

intervals of particular numbers of years various research reports on the population's health: FINRISK surveys every five years (most recent in 2002), Health 2000, Health Behaviour and Health among Finnish Adult Population (annual), Health Behaviour and Health among Finnish Population of Retirement Age (biennial) and Nutrition Report (biennial). Reports by the National Research and Development Centre for Welfare and Health, on the other hand, concern topics such as development of local government welfare strategies and development of the activities of primary health care. Recently, the centre has reported in particular on its surveys of the well-being and health of young people.

The studies, surveys and reports by both the National Public Health Institute and the National Research and Development Centre for Welfare and Health in combination yield an up-to-date picture of Finns' status and trends regarding health and well-being. It is apparent that the work on health promotion has produced benefits in many areas, but at the same time new threats of the current age tend to undermine previous achievements. New means and tools are therefore required for enhancement and maintenance of public health.

■ Finland is Well Placed for the Prevention of Type 2 Diabetes

The accomplishments of the North Karelia Project in the 1970s and 1980s demonstrate that Finland is capable of effective and broad-based health promotion and prevention of coronary heart disease. By the early 21st century Finnish society has risen to an altogether different level in knowledge, skills and resources. The current health-policy atmosphere, macroeconomic conditions and the existing resources of a wide range of players all set the scene for effecti-

vely preventing public-health problems that affect large population groups, such as obesity, type 2 diabetes and cardiovascular disease.

Nevertheless, the sheer number of central government, local government and non-governmental organization projects, pro-

grammes and initiatives aimed at health promotion call for national coordination. Only by appropriately combined resources and suitably consistent messages will it be possible to carry out extensive, truly effective health promotion.

12. Background Data and Tools for Implementing the Programme

12.1 Improvement in Eating Habits, Reduction in Physical Daily Activity

There has been an increase in obesity despite the mainly positive trend in the eating habits of the population. Over the past 30 years, the diet of the average Finn has become nutritionally better balanced, and the consumption of hard animal fats has decreased. Low-fat dairy products have taken over the market from those with higher fat content, and the consumption of fruit and vegetables has risen two- or threefold. In contrast, the consumption of energy-rich beverages, including alcohol, has shot up.

Along with the positive development in eating habits, however, there has been a reduction in people's daily activity, causing an adverse trend in the ratio between energy intake and energy utilization.

■ Marked Changes in Food Choices

The National Public Health Institute has monitored the trends in Finn's food consumption over a 30-year time span, using Food Balance Sheets. Whereas potatoes and cereals were the most common food groups in the 1950s, berries and fruit topped the statistics at the turn of the millennium. Finns today eat only a fraction of the amount of potato they did in the 1950s but boiled potato is still the most frequent accompaniment to the main dish.

The annual consumption of cereals per capita had dropped by 10 kg by the turn of the millennium, compared with the 1960s. Rye is eaten especially in eastern Finland,

and is usually favoured by the older generation. White or light-brown bread is most popular in southern Finland and among young people.

The increase in meat consumption is largely accounted for by chicken which have increased steadily in popularity. By the end of the past millennium, the share of chicken was almost a fifth of all meat varieties. The amount of fish in Finns' diet remains persistently low and fails to meet national nutrition recommendations.

Recent decades have seen a remarkable increase in vegetable use but, in spite of this welcome development, only a small proportion of adolescents and young adults eat vegetables on a daily basis. Tomato, cucumber and green salad are the most popular vegetables. In the fruit category, orange, apple and banana top the consumption list.

The total consumption of liquid milk products has dwindled for a long time. The use of full milk has plummeted while semi-skimmed milk has maintained a level of high demand since the 1970s and is preferred in particular by men and boys. Skimmed milk continues to gain in popularity, however, and is the main choice of women and girls. As to other dairy products, the consumption of cheese and yoghurt has increased, in the case of yoghurt many times over since the 1960s.

The trend has been positive regarding fat intake; this is true for both the amount and types of fat. The reduction in fat intake

relates in particular to saturated fats, with butter losing ground while the share of margarines and butter-oil mixes has correspondingly increased. There is also increased use of vegetable oil in cooking, with young people in particular adopting this practice.

There has been a rise in the consumption of soft drinks, juices and alcoholic beverages. The increase is most conspicuous for beer which is now being consumed at more than double the amount of 30 years ago. Eating habits and practices have also been markedly affected by the mass appearance of fast-food chains, the increased adoption of vegetarian diets and the food restrictions brought about by allergies and other medical conditions.

The Kitchen 2001 Survey conducted by Suomen Gallup indicated that home-cooked food and the old favourite dishes are

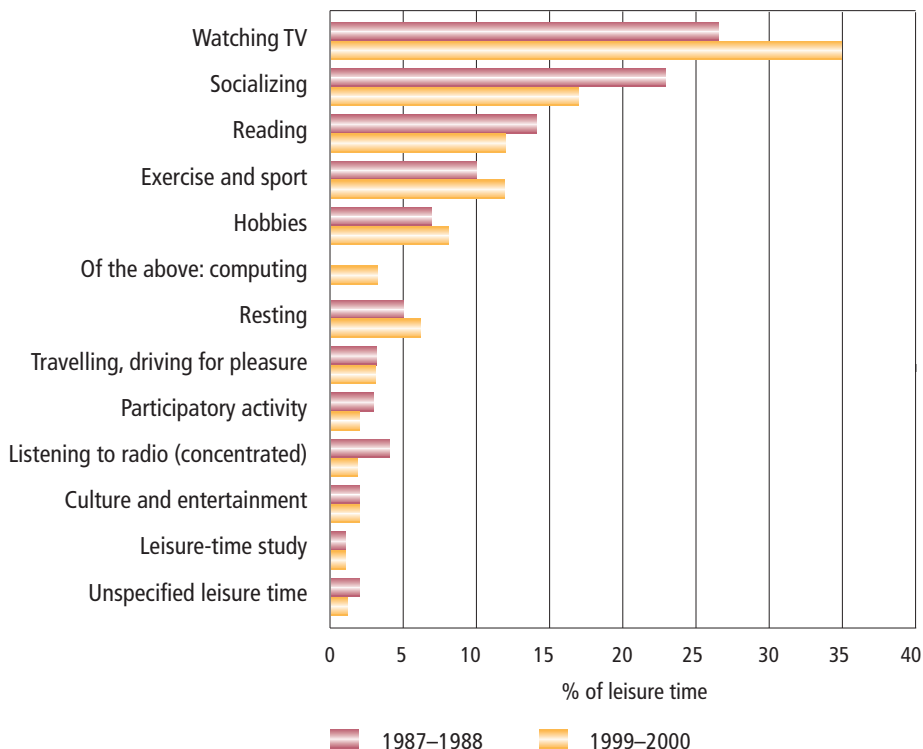
still going strong but are facing growing competition from hamburgers, pizzas and chicken.

■ Daily Activity Decreased by Car Use, TV and Home Computers

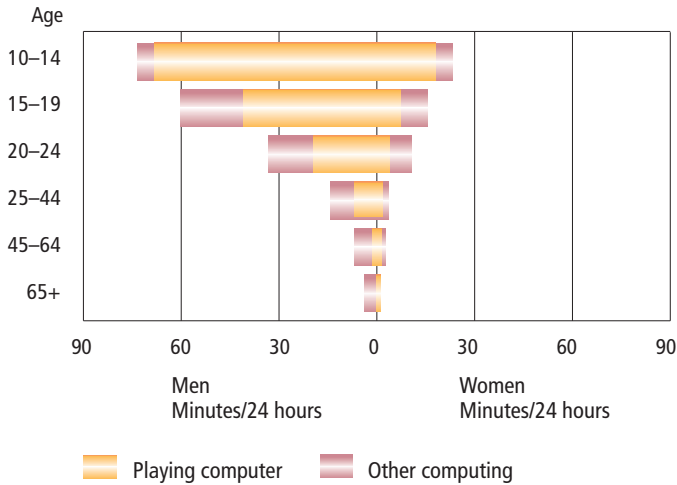
A range of studies show a slight increase in Finns' leisure-time physical activity, whereas normal daily activity has diminished for a number of reasons. The main causes of the latter trend include reduced physical demands at work, car use, increase in TV viewing and the computerization of society.

According to surveys by the Ministry of Transport and Communications, the increase in the number of cars and car travel is related more to family situation than to domicile. The birth of children, in particular, appears to persuade families to begin or

**Distribution of leisure time by type of use
in 1987–1988 and 1999–2000**



Time spent at the computer by gender and age group in 1999–2000



Reference: Statistics Finland

increase using a private car for travel. Moreover, families with school-age children often get a second car so that they can transport children to and from out-of-school activities.

The same surveys indicate that men use the car for travelling to and from work and for other kinds of travel much more than women do. Almost half (43 per cent) of all journeys made as a car driver are less than 5 km in length.

According to a time-use survey by Statistics Finland (Pääkkönen and Niemi 2002), watching TV is still the most popular pastime of Finns. The increase in TV viewing has been such over the past decade that people now spend more than a third of their leisure time watching TV. On average, more than 2.5 hours a day are spent watching TV.

A third important factor in reducing daily activity is computerization of jobs and schools and the increase in home computers. According to the time-use survey by Statistics Finland, almost half of all Finns have a computer at home, and more than half of the latter have access to the internet.

The share of leisure time spent at the computer was less than 1 per cent in 1987–1988. Ten years later it had increased to 3 per cent. The average person using a computer in his/her leisure time does so for 1.5 hours per day. The largest user group are the under 25-year-olds, with the 10 to 14 age group spending up to 10 per cent of their leisure time at the computer. Most of the leisure-time computer use consists of playing computer games. Leisure-time computer use is lower among adults than children.

12.2 Support for Lifestyle Modification

People's everyday choices affect the well-being of their cardiovascular system more than is generally assumed. The healthier the heart and blood vessels are, the more active the brain is. Good health is a prerequisite of good functional capacity, and health can be positively influenced through healthy nutrition, regular physical activity and abstinence from smoking. The right daily choices of foods and sound physical activity behaviour have positive effects on blood cholesterol, blood pressure and weight management.

Quantity and quality of knowledge alone are no guarantee for success in lifestyle modification. The basis of a person's lifestyle is established in childhood, and subsequent health behaviour is heavily dependent on family background and social reference group. Lifestyles in higher educational groups are usually closer to recommendations than those among the less-well educated. Health messages and the available options for health enhancement do not reach or register with those 10–20 per cent of people who face high health risks because of their psychosocial background.

The long-term process of lifestyle modification starts with acknowledgement of the problem and its significance. The stimulus may come from a family member or a friend falling ill or from adverse findings in a health screen. Lifestyle modification requires internalizing and understanding information. Any change will stem from the person's own resources and willingness for alterations, which are prerequisite for embarking on a search for workable solutions.

Health-care staff may provide counselling and personal support during the process of change. Multiprofessionalism is im-

portant, as is the unambiguousness of the information given. Group counselling will complement the individual counselling. The group arrangement affords the additional benefit of being able to share success and failure with others. Complying with empowerment philosophy, the counselling is aimed at supporting people's endeavours to enhance their own situation with the means at their disposal. Health-care staff should assume a role of coach and change assistant rather than authority giving orders, thus prompting the person to look for solutions actively, albeit with expert support.

Health psychology models may be used as tools in the process. Currently, the most well-known and most intensively researched models are the Theory of Planned Behaviour and the Stages of Change Model, the latter a part of the Transtheoretical Model developed by Prochaska and DiClemente (Prochaska and Velicer 1997).

■ A Change in Lifestyle is Preceded by a Change in Thinking

Conscious modification of lifestyle is not an act based on a decision taken in isolation. Aspiring for lifestyle modification and entering the modification process require changes in a person's way of thinking and in his/her attitude towards his/her own habitual behaviour. According to the Theory of Planned Behaviour Model, an intention to change one's behaviour entails sufficiently favourable attitudes, predominantly positive expectations and a perception of behavioural control. The attitudes, expectations and norms held by significant others may also play a role. Changed thinking can lead to changes in behaviour, which in turn can

produce beneficial biological changes verifiable by medical means. Changes in thinking originate in changes in one's life situation or symptoms of some disease or impending illness. The experiences of oneself and others and the models offered by others all have an impact on one's thinking. Awareness of habits' significance for health is important for commencing changes but it alone is insufficient to actually implement or maintain a modified lifestyle. A counsellor must get to know the perceptions, thoughts and experiences of those receiving counselling, and then by presenting open questions arouse the individuals' interest and stimulate their own thinking. It is essential to start out by examining the current situation and first pick out the good elements. Only after that has been done should the discussion be led towards how lifestyles might be modified.

■ Support and Counselling Step by Step

The process of acquiring a new habit runs via separate stages of change, each of which require different type of counselling. The stages of change follow one another in a logical sequence, and none of the stages can be disregarded. Change takes time, deliberation and experimentation.

In the **Pre-Contemplation Stage**, the person will not acknowledge the need for change or considers the change too ambitious. A transition from pre-contemplation to the contemplation stage may be effected by changes in one's life situation, symptoms of some disease, impending illness or new information regarding the behaviour change needed.

In the **Contemplation Stage**, the person assisted by the counsellor will find out

what the modification is about
what is required for the modification
what are the advantages and disadvantages of the modification
how the disadvantages could be limited and how to cope with them.

It is advisable to spend a lot of time and effort at the **Contemplation Stage** to consider all aspects thoroughly and openly. In the interest of attainment and maintenance of changes, it is essential to foresee future problems, prepare for them and discuss any obstacles openly, including in the future. Setbacks are to be expected.

In the **Preparation Stage**, specific preparations for the lifestyle modifications will be initiated, and modifications made by others and their experiences will be discussed. These experiences will be utilized to finalize the preparations with a view to supporting ordinary everyday well-being.

In the **Action Stage**, overt lifestyle modification takes place and the first important experiences are acquired.

In the **Maintenance Stage**, the alteration in habits will already have taken place but maintenance of the alteration still requires attention, and the new habits may need refining. Susceptibility to reverting to one's former habits is still high. When a new habit is preserved without particular effort or monitoring, the habit may be considered as established, and the termination stage is reached. Nevertheless, sustained and conscious attention is often required to successfully maintain lifestyle changes made as an adult.

In the **Stages of Change Model**, relapses to previous stages are part of the learning process. The learning also involves experimen-

ting and practising. Once modification has been initiated, subsequent progression is not likely to be straightforward; the process may come to a standstill at any point or even reverse. Sometimes a person may feel that he/she has achieved changes although no genuine change has taken place. Subjective impression may be misleading. The Stages of Change Model emphasizes two key principles of lifestyle modification support. Support and counselling should be sustained, and support must vary as modification progresses through the different stages, in other words, support must be individualized and appropriate to each situation.

■ Barriers to Change

An attempt at lifestyle modification may become bogged down because too great a change is pursued at once or too many changes are attempted simultaneously. Success is more likely if the focus is on one distinct, self-chosen change at a time. Changing consumes person's resources which therefore should not be over-stretched by tackling too many things. Success at one point will boost subsequent changes. Although DPS, the groundbreaking Finnish study of the prevention of type 2 diabetes (Tuomilehto et al 2001), emphasized the interaction of several lifestyle changes, even here intensive counselling was implemented in phases, starting with diet and later proceeding to physical activity habits.

In order to succeed in habit modification, it is sensible to begin by evaluating the person's life situation and determining whether he/she has enough resources at that time to pursue such changes. It should also be found out how much energy he/she is ready to put into achieving change. A person's mental energy may be replenished, for instance, by treating his/her depression or reducing excessive stress. A person must

get enough rest and a chance to recharge to be able to release any of his/her energy for lifestyle modification. Stimulants, such as tobacco and alcohol, or unhealthy eating provide easy means of withdrawal and comfort for a chronically overstrained person.

Actually lifestyle modification is a conscious change in a single habit, rather than alteration of one's way of living. Sometimes it is not until one has perceived and consciously altered one's way of living that lifestyle modification can come about. A lifestyle modification is thought over and carried out by the individual himself/herself, not by health-care staff. Still, health-care staff are well placed not only to demonstrate the need for change but also to provide support for the change in its various stages, to help process the experiences accrued and offer encouragement.

Counselling oriented to the specific situation and resources of the person generates close and open cooperation between the counsellor and his/her customer. Such a relationship is not characterized by one person giving instructions and the other following them but by an open situation where solutions are sought together.

■ Modification Support Is Very Demanding

Sustained support of modification carried out by the person counselled is a demanding task, for which the basic training of most health professionals provides only limited skills. Staff motivation for the job may therefore be low, which will reflect on the person counselled and impair the outcome. The organization concerned may not fully appreciate the nature of this work, leading to low esteem and encouragement and insufficient allocation of resources. It should be stressed that counselling is not

just about dissemination of information but about something far more challenging. Effective counselling requires training, planning, time and suitable facilities.

It is important to bear in mind that supporting lifestyle modifications is the responsibility of the entire local health-care team and all those operating in the health-care sector, including pharmacies. Although practical counselling will often fall on nurses, counselling must receive the support of physicians and all other health professionals, such as physiotherapists, nutritionists and psychologists. Physicians may play a consultant role, and the work team must come to an agreement on when to refer individuals for physician evaluation for pharmacological management of risk factors, for instance. It is essential that all

those involved in counselling have a common view on the significance, methods and contents of counselling. Previously, counselling was often perceived as ineffective, but recent controlled trials of diabetes prevention show the indisputable benefits of counselling. Nevertheless, good counselling outcomes require sufficient resources and the utilization of both personal and group counselling approaches.

Individual lifestyle counselling should be complemented with group counselling, or at least this should be an option. Perhaps even more important for the effectiveness of this type of intervention is the support received in groups and the common knowledge accumulated from individual experiences.

12.3 One Small Decision a Day

The One Small Decision a Day Project (2000–2003) is one of the specific forms of the extensive cooperation between the Finnish Heart Association and the Finnish Diabetes Association. Based on the Action Plan for Promoting Finnish Heart Health and the Development Programme for the Prevention and Care of Diabetes in Finland (DEHKO), the project is aimed at preventing overweight and metabolic syndrome which are important risk factors for type 2 diabetes and cardiovascular disease.

One Small Decision a Day is sponsored by Finland's Slot Machine Association, and the project comprises two categories of activity. The first category is a group intervention model for weight loss and weight management to be used by health-care professionals, with associated instructor training. The Research Department of the Social Insurance Institution has been an official partner of the two coordinating associations in developing the intervention model.

The second category draws upon experiences gained by the Finnish Heart Association about the Self-Help Peer Group scheme which has been found to support people in changing their lifestyles. Under the two above-mentioned categories of activity, the Finnish Diabetes Association and the Finnish Heart Association produce materials for instructor training, group instructor support materials and materials for customers. The training curricula and materials include the most recent information about the prevention of metabolic syndrome, obesity management, modification of eating and physical activity behaviour and utilization of group education.

■ Training for Weight-Management Group Instructors

The serviceability of the instructor training model was tested on ten pilot courses, two of them in 2001 and eight in 2002.

Each instructor course was coupled with assessment, and the practical usefulness of the pointers provided by the model was evaluated in a student thesis prepared at the Siilinjärvi Health Centre for the University of Kuopio. The Social Insurance Institution is a partner in developing the course materials.

The development project is aimed at setting up permanent instructor training based on the group intervention model. In the long term, the objective is to build an instructor network whose further training and on-the-job learning will be arranged through the internet and by means of supervision seminars.

The training is intended for those nurses, nutritionists, physiotherapists and sports instructors who encounter overweight people in their work. The new training model has been put together by nutrition, physical activity and psychology experts of the Finnish Heart Association and the Finnish Diabetes Association.

■ The Elements of Instructor Training

The emphasis in health-care activities related to nutrition and weight management is shifting towards group education. In groups, the participants receive not only information but also peer support in adopting lifestyle modifications. Personal counselling is still needed in situations where the customer for some reason does not want to participate in a group or finds group education unsuitable.

Weight-management counselling, whether personal or in groups, differs clearly from traditional health care. As there is no remedy for obesity, the overweight person must be guided to help himself/herself. The best outcome in weight management is obtained with wide-ranging programmes of sufficient duration.

Counselling uses various means to prompt clients to develop new perspectives through their own insights. The new group instructor training will stress the need for a psychological, coaching-type of approach to education and emphasize experience-based learning.

The training consists of four domains:

1. Medical domain

- basic medical facts about metabolic syndrome
- weight management and lifestyle modification (nutrition/physical activity)
- drug therapy

2. Weight-management domain

- significance of weight management
- reflection upon one's own eating habits
- qualitative/quantitative changes in diet

3. Physical-activity domain

- physical and mental significance of physical activity as an enhancer of the quality of life
- motivational start up
- dosage of physical activity

4. Group-education domain

- coaching approach to group education
- exploitation of group dynamics
- instructor's role and tasks
- study of the group model

Learning in weight-management groups takes place through each participant's own

deliberation and problem-solving orientation, and therefore those undergoing instructor training also examine and contemplate their own eating and physical activity habits. Physical activity is studied through the students' own exercise and physical activity experiences.

The training comprises both on-site training and distance learning:

- ★ on-site module, 3 days
- ★ distance learning, 4–5 weeks
- ★ on-site module, 2 days
- ★ optional supervision after the instructor has started an education group of his/her own (after 2–6-months).

■ Self-Help Peer Support Groups

Self-Help Groups are lifestyle repair groups for people who want to lose weight and bring down their elevated cholesterol, blood pressure and blood glucose values or prevent them from rising. A Self-Help Group is a good option for anyone wishing to enhance his/her health. These groups are particularly suitable for high-risk individuals or those who have already developed cardiovascular disease or type 2 diabetes. The Finnish Diabetes Association and the Finnish Heart Association operate Self-Help Groups through their local branches and together with other partners.

Self-Help Groups concentrate solely on modifying lifestyles such as diet and physical activity. The groups will not discuss drug therapies or any other treatments unless a specifically invited expert is present. Self-Help Group instructors are not necessarily health-care professionals but laypeople who themselves participate in the group. Instructor guidance is available from the Finnish Diabetes Association and the Finnish Heart Association (its regional organizations).

12.4 Type 2 Diabetes Risk Test

Risk of type 2 diabetes is screened for (High-Risk Strategy) using the Type 2 Diabetes Risk Assessment Form developed in 2001 as a DEHKO project by the National Public Health Institute.

The Risk Test Form has eight scored questions, with the total test score providing a measure of the probability of developing type 2 diabetes over the following 10 years. The reverse of the form contains brief advice on what the respondent himself/herself can do to lower his/her risk of developing the disease, and whether he/she should seek advice or have detailed examinations. The test takes only a couple of minutes to complete and can be easily done on the internet (www.diabetes.fi/diabtiet/d2testi/), in pharmacies or at various public campaign events. Risk Test Forms are available in Finnish and Swedish from the Finnish Diabetes Association.

■ The Risk Test Is Based on Data from FINRISK Population Surveys

The Risk Test is based on a highly representative random sample of the Finnish

population, derived from the FINRISK 1987 and FINRISK 1992 surveys. The incidence of diabetes in these people was monitored until the end of 1997 through the Register on Preferential Drug Reimbursement kept by the Social Insurance Institution.

Seven variables clearly correlated with the risk of developing diabetes were chosen for the test: age, body-mass index, waist circumference, use of antihypertensive medication, history of elevated blood glucose, meeting the criterion for daily physical activity and daily use of fruit or vegetables. It proved impossible to determine the use of fats with a single question, and this item had to be omitted. The variables were assigned scores according to the relative risk conferred by each, yielding a range of 0-21 for the total score. On the basis of other studies, history of diabetes in the family was incorporated in the final Risk Test, which made the maximum score 26.

The respondent's likelihood of developing diabetes is higher, the more points he/she receives in the test.

Risk Test score	Risk of developing type 2 diabetes
Lower than 7	Low (estimated 1 in 100 will develop disease)
7-11	Slightly elevated (estimated 1 in 25 will develop disease)
12-14	Moderate (estimated 1 in 6 will develop disease)
15-20	High (estimated 1 in 3 will develop disease)
Higher than 20	Very high (estimated 1 in 2 will develop disease)

TYPE 2 DIABETES RISK ASSESSMENT FORM

Circle the right alternative and add up your points.

1. Age

- 0 p. Under 45 years
 2 p. 45–54 years
 3 p. 55–64 years
 4 p. Over 64 years

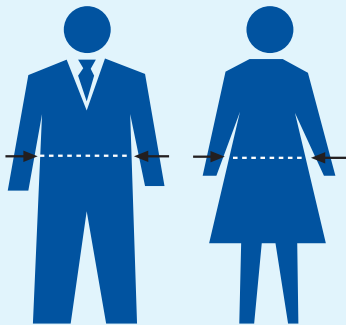
2. Body-mass index

(See reverse of form)

- 0 p. Lower than 25 kg/m²
 1 p. 25–30 kg/m²
 3 p. Higher than 30 kg/m²

3. Waist circumference measured below the ribs (usually at the level of the navel)

- | | MEN | WOMEN |
|------|------------------|-----------------|
| 0 p. | Less than 94 cm | Less than 80 cm |
| 3 p. | 94–102 cm | 80–88 cm |
| 4 p. | More than 102 cm | More than 88 cm |



4. Do you usually have daily at least 30 minutes of physical activity at work and/or during leisure time (including normal daily activity)?

- 0 p. Yes
 2 p. No

5. How often do you eat vegetables, fruit or berries?

- 0 p. Every day
 1 p. Not every day

6. Have you ever taken antihypertensive medication regularly?

- 0 p. No
 2 p. Yes

7. Have you ever been found to have high blood glucose (eg in a health examination, during an illness, during pregnancy)?

- 0 p. No
 5 p. Yes

8. Have any of the members of your immediate family or other relatives been diagnosed with diabetes (type 1 or type 2)?

- 0 p. No
 3 p. Yes: grandparent, aunt, uncle or first cousin (but no own parent, brother, sister or child)
 5 p. Yes: parent, brother, sister or own child

Total Risk Score

The risk of developing type 2 diabetes within 10 years is

Lower than 7 **Low:** estimated 1 in 100 will develop disease

7–11 **Slightly elevated:** estimated 1 in 25 will develop disease

12–14 **Moderate:** estimated 1 in 6 will develop disease

15–20 **High:** estimated 1 in 3 will develop disease

Higher than 20 **Very high:** estimated 1 in 2 will develop disease

Please turn over



WHAT CAN YOU DO TO LOWER YOUR RISK OF DEVELOPING TYPE 2 DIABETES?

You can't do anything about your age or your genetic predisposition. On the other hand, the rest of the factors predisposing to diabetes, such as overweight, abdominal obesity, sedentary lifestyle, eating habits and smoking, are up to you. Your lifestyle choices can completely prevent type 2 diabetes or at least delay its onset until a much greater age.

If there is diabetes in your family, you should be careful not to put on weight over the years. Growth of the waistline, in particular, increases the risk of diabetes, whereas regular moderate physical activity will lower the risk. You should also pay attention to your diet: take care to eat plenty of fibre-rich cereal products and vegetables every day. Omit excess hard fats from your diet and favour soft vegetable fats.

Early stages of type 2 diabetes seldom cause any symptoms. If you scored 12–14 points in the Risk Test, you would be well advised to seriously consider your physical activity and eating habits and pay attention to your weight, to prevent yourself from developing diabetes. Please contact a public-health nurse or your own doctor for further guidance and tests.

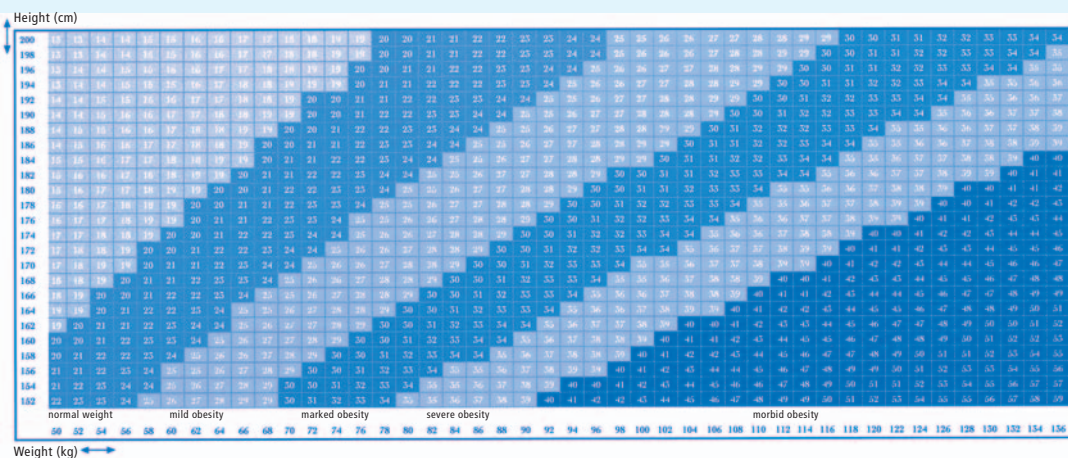
If you scored 15 points or more in the Risk Test, you should have your blood glucose measured (both fasting value and value after a dose of glucose or a meal) to determine if you have diabetes without symptoms.

BODY-MASS INDEX

The body-mass index is used to assess whether a person is normal weight or not. The index is calculated by dividing body weight (kg) by the square of body height (m). For example, if your height is 165 cm and your weight 70 kg, your body-mass index will be $70/(1.65 \times 1.65)$, or 25.7.

If your body-mass index is 25–30, you will benefit from losing weight; at least you should take care that your weight doesn't increase beyond this. If your body-mass index is higher than 30, the adverse health effects of obesity will start to show, and it will be essential to lose weight.

BODY-MASS INDEX CHART



12.5 Physical Activity Prescription

The Physical Activity Prescription has been developed to augment physical activity counselling by health-care providers. It is aimed at encouraging physicians to undertake more active patient counselling and enable them to supply patients with written practical instructions. The initiative is administered by the Finnish Rheumatism Association, and the other partners are the Finnish Medical Association, the Finnish Heart Association, the UKK Institute for Health Promotion Research, the Fit for Life Programme and the University of Jyväskylä. The Physical Activity Prescription was tested at health-care centres in a two-phase piloting process. The Physical Activity Prescription and its associated counselling and procedural guidelines were published in February 2002.

■ Why a Prescription?

Regular physical activity, be it in the form of normal daily activity or exercise for getting fit or pleasure, has a significant role in preventing illness, managing certain diseases and maintaining functional capacity in the elderly. There is compelling research evidence for these effects of physical activity, which also makes increasing and maintaining regular physical activity among the population justified from the health care point of view.

Promotion of exercise and physical activity calls for wide-ranging efforts and multi-party cooperation (National Recommendations for the Local Promotion of Health-Enhancing Physical Activity, Ministry of Social Affairs and Health, 2000). Finnish people have high regard for physicians' knowledge, and in their daily practice physicians frequently meet individuals for

whom an increase in or maintenance of their physical activity level would be well justified. It is therefore important that physicians deal with their patients' physical activity needs and levels.

Any physician will have experiences of failure to achieve desired lifestyle changes in patients in spite of providing them with thorough lifestyle advice. Indeed, the basic feasibility of effective counselling on such a multifaceted lifestyle item as physical activity within the brief space of an appointment with a physician is open to doubt.

Nevertheless, controlled studies carried out in the USA (Calfas et al 1996), New Zealand (Swinburn et al 1998) and Australia (Smith et al 2000) show that methodical physical activity counselling, even of short duration, will at least to some degree increase the weekly physical activity of previously sedentary patients. In these studies, the advice given by physicians was accompanied by a written exercise prescription, in the use of which the physicians had received training.

■ The Physical Activity Prescription Is Clear and Easy to Use

The formulation of the Finnish Physical Activity Prescription was based, besides the aforementioned overseas studies, on a set of principles derived from a wider range of research on lifestyle modification and health education, as well as studies of the physical activity advice given by Finnish physicians. The prescription was to be individual, easy to use, clear and comprehensible in its instructions and contribute to a sustained counselling relationship.

To facilitate the adoption of the prescription, the Physical Activity Prescription

Initiative has produced training materials on how to use the prescription, arranged training and issued a brief user's guide. Experience from the development of the Physical Activity Prescription indicates that interested physicians will absorb the information required for its use through one to three hours of training and by studying the supplementary materials.

Each primary-care physician should rehearse writing out the Physical Activity Prescription a couple of times. Once that has been done, he/she is ready to use it as a natural element in his/her daily primary-care practice. Physical Activity Prescription forms are available from the Finnish Medical Association.

PHYSICAL ACTIVITY PRESCRIPTION

Name: _____ Identity code: _____

Current regular physical activity of at least 30 minutes' duration per day:

Hardly any

Light physical activity _____ days a week

Brisk physical activity _____ days a week

Strenuous physical activity _____ days a week

From a health point of view: Adequate

Inadequate

Health basis or objective for physical activity: _____

INSTRUCTION:

Form of physical activity and/or sport	Days per week	Duration per day	Intensity	
Eg walking to place of work or hobby, mowing the lawn, shovelling snow, cycling to work, walking for fitness, home gymnastics, instructed exercise, ball games, dancing, gym training		minutes	light • hardly out of breath brisk • somewhat out of breath strenuous • very out of breath	heart-rate range

Additional advice:

Leaflet _____

Appointment with _____ Tel. _____

Other _____

Assessment and monitoring of physical-activity and health targets:

At next appointment _____

After _____ months at _____ Tel. _____

Other _____

Date: _____

Physician's signature

12.6 Heart Symbol



Implementation of the numerous recommendations included in the Action Plan for Promoting Finnish Heart Health got underway in 1998. This also marked the beginning of work on the Heart Symbol System for food products, resulting in introduction of the system by the Finnish Heart Association and the Finnish Diabetes Association at the start of 2000. When a consumer sees the Heart Symbol, he/she will immediately know that the product marked with it is a nutritionally better choice with regard to fat and salt in its product group. The Heart Symbol System is primarily aimed at enhancing the health of the Finnish population. For the food manufacturer, the Heart Symbol provides a powerful tool for marketing food products meeting the symbol criteria.

The Heart Symbol assists consumers in putting together a healthy diet. As an easily understood complement to the nutrient information on packages, it helps consumers make wiser choices in terms of the amounts of fat and salt and the quality of fats.

The Heart Symbol can at present (2003) be granted to a product in the following six groups of food products:

- * Milk, other dairy products and products resembling dairy products
- * Edible fats and oils
- * Meat products
- * Bread and cereal products
- * Prepared foods, meal ingredients and semi-prepared foods
- * Spices, mustards, sauces and seasonings.

Foods that are irrelevant as sources of fats or salt are not included in the marking sys-

tem (eg fruits and vegetables). Moreover, the system so far only applies to packaged food products. The Heart Symbol is granted on the basis of:

- * total fat content and fat composition (ratio between hard and soft fat)
- * sodium (sodium from salt, raw materials and additives)
- * cholesterol (for some product groups)
- * fibre (high-fibre products in the bread and cereal products group may use the Heart Symbol + Fibre Mark).

Food manufacturers' applications for the Heart Symbol are considered by a panel of experts appointed by the administering organizations. The right to use the symbol is granted for a fixed period of time. There is a fee for the right of use, but the system is not intended to make a profit, and the income from the fees is used to cover the expenses of operating the system. By the beginning of 2003, the Heart Symbol had been granted to 131 products from 19 companies.

The administering organizations are working hard to increase public awareness of the Heart Symbol. Heart Symbol materials are available from the Finnish Heart Association and the Finnish Diabetes Association, and extensive additional information about the system and the general subject area can be accessed through the internet at www.sydanmerkki.fi. According to a survey of the awareness and utilization of the Heart Symbol in March 2002, 42 per cent of adults recognized the symbol and a quarter of adults often or occasionally selected food products according to the symbol.

QUALITY CRITERIA FOR INTENSIVE LIFESTYLE MANAGEMENT OF TYPE 2 DIABETES

ACCOMPLISHMENT OF LIFESTYLE MANAGEMENT

Aim	Quality criteria	Quality indicator or method of assessment
<p>I DIAGNOSIS</p> <p>Early diagnosis of diabetes.</p>	<ul style="list-style-type: none"> • Diagnosis is recorded immediately when the diagnostic criteria are met. • The person with diabetes receives clear instructions on further appointments. 	<ul style="list-style-type: none"> • Entry in patient data system. • The provision of instructions according plan is assessed by periodic questionnaires to those receiving counselling.
<p>II HISTORY PHASE</p> <p>The person with diabetes will know his/her chances of influencing his/her illness.</p>	<ul style="list-style-type: none"> • Diagnosis and self-responsibility of care are explained to the person with diabetes. • Staff consider the total life situation of the person with diabetes. He/she is asked about modifications he/she has already made. • The person with diabetes has a chance to discuss his/her emotions with regard to his/her disease. 	<ul style="list-style-type: none"> • Entry in patient data system. • Entry in patient data system on life situation, eating and physical activity habits and lifestyle modifications already made. • Agreed duration of procedure has been completed.
<p>III TARGETS AND COUNSELLING PLAN</p> <p>Counselling will begin without delay.</p> <p>Counselling will have a plan.</p>	<ul style="list-style-type: none"> • Counselling is started immediately after diabetes is diagnosed. • Counselling is carried out according to the discussion on targets with the person with diabetes. • Targets and counselling plan are recorded in the patient data system and given in writing to the person with diabetes. • The person with diabetes signs or otherwise approves the targets and counselling plan. • All those involved in counselling are familiar with the targets and plan. Recording procedures are agreed upon and described in the Internal Quality Manual. 	<ul style="list-style-type: none"> • Time from diagnosis to first counselling visit. • Time from diagnosis to discussion on targets. • Discussion on targets has taken place. • Targets and counselling plan have been recorded. • The person with diabetes has signed or otherwise approved the plan. • Recording has been accomplished according to plan.

	<ul style="list-style-type: none"> • Counselling plan is drawn up for the following six months. • Counselling plan is drawn up jointly by the person with diabetes and health-care staff. • Depending on the needs of the person with diabetes, counselling is implemented as group and/or personal counselling, utilizing services locally available. • A physician, diabetes nurse and, as agreed, other staff in addition to the person with diabetes take part in formulating targets and counselling plan. 	<ul style="list-style-type: none"> • The following have been defined in the counselling plan: <ul style="list-style-type: none"> - focal points for counselling - plan of implementation of counselling - counselling schedule and time for assessment discussion. • List of persons participating in formulating the plan.
<p>IV SUBJECT MATTER OF THE COUNSELLING</p>	<p>Counselling will be arranged according to the needs of the person with diabetes.</p>	<ul style="list-style-type: none"> • Entries on accomplishment of counselling and amendments to plan.
<p>V ASSESSMENT, NEW TARGETS AND COUNSELLING PLAN</p>	<p>The person with diabetes will assess the outcome of his/her own process of lifestyle modification and the adequacy of the counselling and support he/she has received and, with staff support, plan any subsequent counselling or monitoring.</p>	<ul style="list-style-type: none"> • The oral assessment by the person with diabetes has been recorded. • Written feedback by the person with diabetes (feedback form). • Clinical and biochemical measures.
	<ul style="list-style-type: none"> • New targets are set and a counselling plan is drawn up for the next period (eg 12 months). 	<ul style="list-style-type: none"> • Targets and counselling plan have been agreed upon and recorded as previously.

ARRANGEMENTS FOR LIFESTYLE MANAGEMENT

Aim	Quality criteria	Quality indicator or method of assessment
<p>Arrangements and resources for counselling will be methodical and sustained.</p>	<ul style="list-style-type: none"> • Planning and implementation of the counselling model is backed by those in charge. • Arrangements and resources to be reserved for counselling (number and capability of staff, duration, premises) are planned and recorded in the Internal Quality Manual. • The criteria for consulting specialists are defined. 	<ul style="list-style-type: none"> • Start up, resources and requisite authorization for planning and implementation. • Monitoring of implementation.
	<ul style="list-style-type: none"> • Arrangements and resources to be reserved for counselling (number and capability of staff, duration, premises) are planned and recorded in the Internal Quality Manual. • The criteria for consulting specialists are defined. 	<ul style="list-style-type: none"> • Acquisition of resources. • Use of specialists has been accomplished according to criteria.
	<ul style="list-style-type: none"> • Staff engage to implement the counselling model. • Work to ensure staff commitment is an on-going process. 	<ul style="list-style-type: none"> • Practical staff have participated in planning and in monitoring fulfilment. • Staff satisfaction.
	<ul style="list-style-type: none"> • New staff are given guidance on the work of the team, the counselling model and the practical working procedures. • Job guidance of new staff and the associated responsibilities are described in the Internal Quality Manual. 	<ul style="list-style-type: none"> • Guidance has been given according to plan.
<p>Cooperation with other players and provision of peer support.</p>	<ul style="list-style-type: none"> • Information is available about other local providers, programmes and schedules of groups for nutritional education, weight management, physical activity and tobacco withdrawal. • Presentation of local branch of the Finnish Diabetes Association. 	<ul style="list-style-type: none"> • A compilation of the various local groups has been available. • Person responsible and updating have been agreed upon. • Person liaising with the local branch of the Finnish Diabetes Association has been agreed upon.

<p>Counselling will be professional.</p>	<ul style="list-style-type: none"> • Multiprofessional work and team work is accomplished in practice. • Collaboration procedures are set out in the Internal Quality Manual. • Contacts and meetings among various staff can be flexibly arranged as required. 	<ul style="list-style-type: none"> • Periodic evaluation by staff of the achievement of collaboration. • Agreed meetings have taken place.
	<ul style="list-style-type: none"> • Staff receive the requisite training. • Staff are able to obtain consultation and supervision. Physicians responsible for diabetes care and diabetes nurses supervise other staff. • Consultation with specialists is available to the team and the person with diabetes. • Contact procedures are agreed upon and are described in the Internal Quality Manual. 	<ul style="list-style-type: none"> • Joint training has taken place. • Time has been reserved for staff supervision. • Accomplishment is periodically monitored.
<p>Arrangements for and accomplishment of counselling will be monitored and assessed. Activities will be methodically amended on the basis of the assessment.</p>	<ul style="list-style-type: none"> • Counselling is assessed from the point of view of the counsellor and the organization. • Continuing quality assessment of the organization. • Assessment of group counselling. • Assessment of the performance of the team. • Planning of any amendments needed on the basis of the feedback. 	<ul style="list-style-type: none"> • The procedure and timing of assessments has been planned. • Monitoring of accomplishment of assessment. • Records of assessment meetings. • Division of responsibilities for planning changes and initiation of the planning.

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