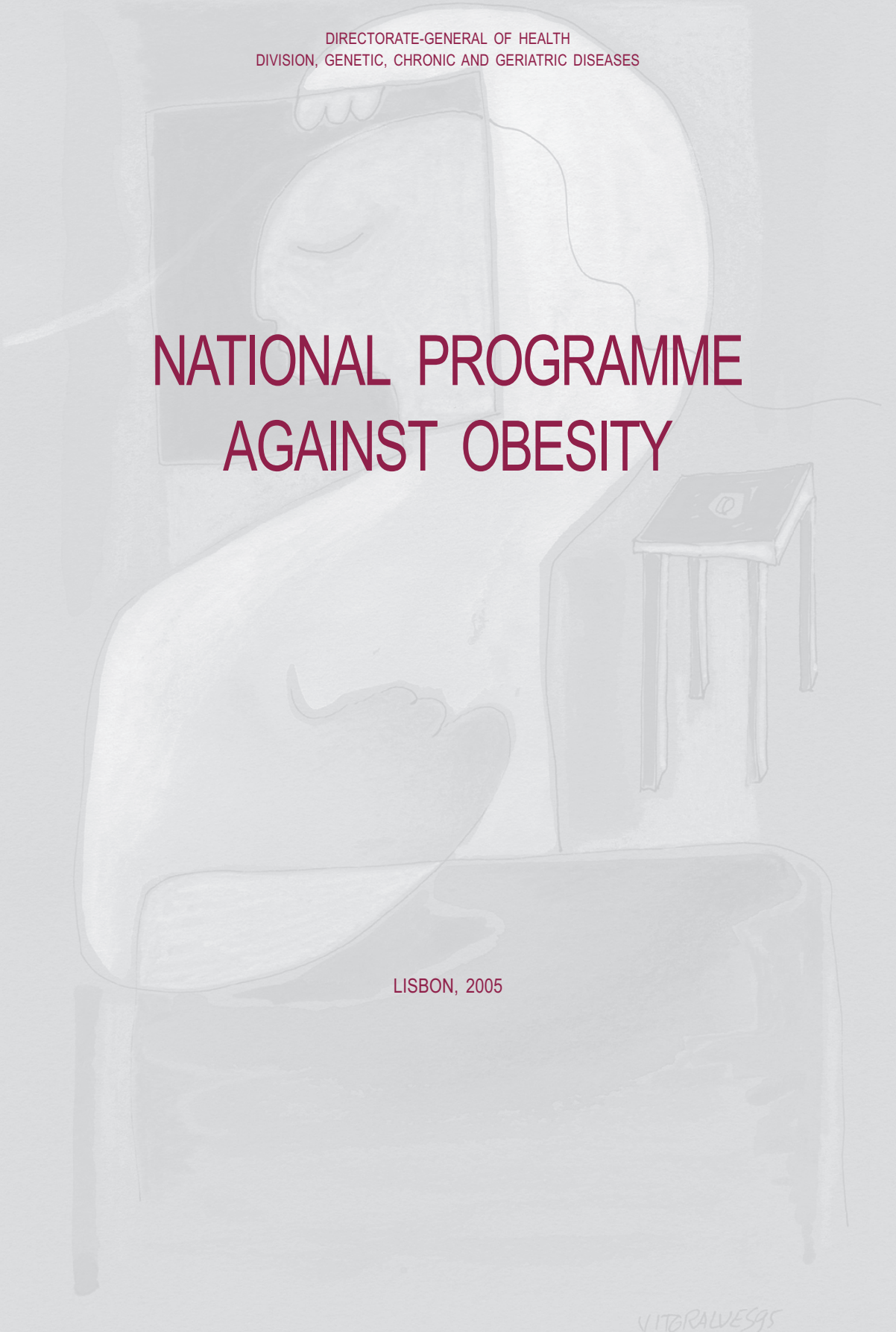
NATIONAL PROGRAMME AGAINST OBESITY

DIRECTORATE-GENERAL OF HEALTH

DIRECTORATE-GENERAL OF HEALTH
DIVISION, GENETIC, CHRONIC AND GERIATRIC DISEASES



NATIONAL PROGRAMME AGAINST OBESITY

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INTRODUCTION

According to the World Health Organisation (WHO), obesity[1] is a disease in which excess of accumulated body fat may reach proportions capable of affecting health.

The world-wide prevalence of obesity is so high that the WHO has considered this disease the global epidemic of the 21st century.

The WHO recognises that in this century, obesity has prevalence similar or higher than that of malnutrition and infectious diseases. For this reason, if drastic measures are not taken in order to prevent and treat obesity, more than 50% of the world population will be obese in 2025.

Obesity is, therefore, a chronic illness with enormous prevalence in developed countries, afflicting men and women of all races and ages.

Obesity is considered the second cause of preventable death, after tobacco abuse.

In developed countries there is an inverse relationship between socio-economic level and the prevalence of obesity. Its total costs represent 2 to 7% of total health costs. In Portugal, it is estimated that direct costs with obesity[2] consume 3.5% of these costs.

Pre-obesity[3] and obesity are therefore important public health concerns in Portugal, demanding a joint strategy that includes the promotion of healthy eating habits and a more active lifestyle.

Existing data based on representative samples of the population led to the identification of the main risk factors and groups at risk for obesity, making it possible to define action priorities.

The high prevalence of obesity in Portugal and its annual growth rate, the very high morbidity and mortality that directly or indirectly accompany it, the decrease in the quality of life and the high costs it determines, as well as the difficulty entailed in its treatment, are of such great concern to the Health Ministry that it justifies the need of a National Programme Against Obesity.

[1] Obesity (Index of Corporal Mass =30).
[2] The direct costs comprising expenses with prevention, diagnosis, treatment, rehabilitation, research, training and investment.
[3] Pre-obesity (Index of Corporal Mass 25-29,9).

The present Programme is based on a co-operative and partnership process between public, private and non governmental sectors related to the health area, with local and regional responsibilities. Other sectors such as education, municipalities and corporations are also asked to co-operate and take on responsibilities in the execution of the National Programme Against Obesity.

In the context of the current programme, interventions should be multidisciplinary and be felt at an individual level, in a shift in behaviours, among groups of influence, in institutions and in the community, in a supportive, non-stigmatising context, which takes into account social, cultural, economic and environmental influences.

The National Programme Against Obesity should be articulated with other national programmes integrated in the National Health Plan 2004-2010. Especially with the National Programme of Integrated Intervention on Health Determinants Related with Lifestyles, the National Programme of Diabetes Control, the National Programme of Prevention and Control of Cardiovascular Diseases and the National Programme Against Rheumatic Diseases.

In view of the above, and taking a prevention perspective, measures should be planned and strategies defined with great precision to the services that deliver health care, and advertised among the population, in order to block the progression of such a severe problem as obesity.

The National Programme Against Obesity will fundamentally apply to the development of actions at the National level, through the implementation of intervention, training, information-gathering and analysis strategies that should be replicated and adapted at the regional and local levels, in accordance with the existing specifications.

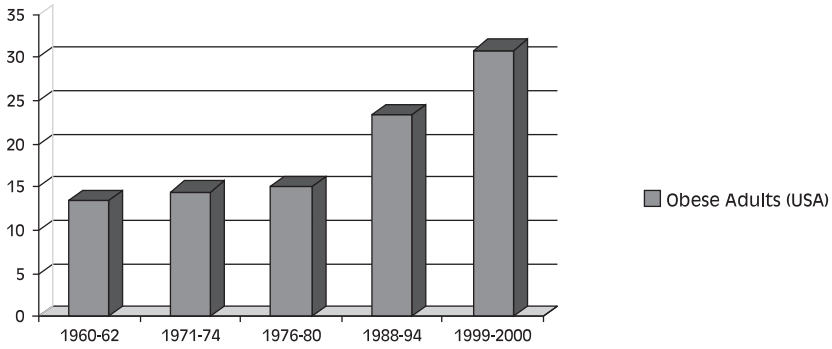
To implement such strategies, the Directorate-General of Health has elected the *Sociedade Portuguesa para o Estudo da Obesidade, Sociedade Portuguesa de Ciências da Nutrição e Alimentação, Sociedade Portuguesa de Diabetologia* and *Sociedade Portuguesa de Cirurgia da Obesidade,* as their permanent scientific advisers to the current programme. Moreover, it may also make use of technical and scientific collaboration of other societies, such as the *Associação Portuguesa dos Médicos de Clínica Geral,* other institutions: *Associação de*

Doentes Obesos e Ex-obesos de Portugal – ADEXO, as well of professionals' associations.

CONTEXT

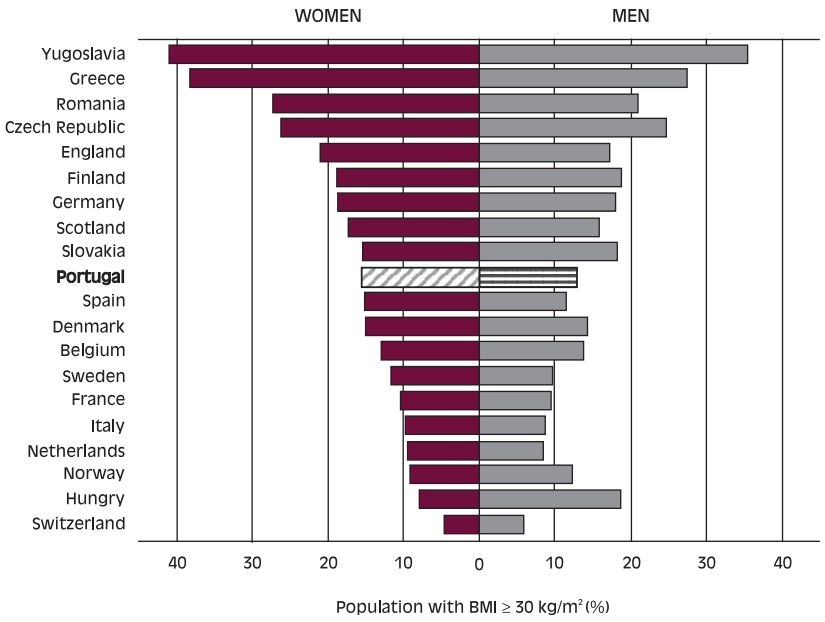
In the United States of America, the prevalence of obesity has increased over recent decades. Between 1960 and 1962, the prevalence of adult obesity was 13.4% having increased to 14.5% between 1971 and 1974, 15% between 1976 and 1980, 23.3% between 1988 and 1994 and 30.9% between 1999 and 2000. In fact, in that country, pre-obesity and obesity are responsible for deaths by cancer in 14% of men and 20% of women.

Figure 1 – Evolution of the prevalence of obesity in the USA (1971-2000)



In most European countries obesity is the fastest-growing epidemic, currently afflicting 10 to 40% of the adult population.

Figure 2 – Prevalence of obesity in Europe



(Adapted from International Obesity Task Force)

In 1999 among the European Union's population over 15 years of age, a 41% prevalence of pre-obesity was verified. Increasing obesity in children and adolescents has also become more worrying.

The prevalence of pre-obesity and obesity in the adult Portuguese population has been assessed through the Body Mass Index (BMI)[4], with an average prevalence of about 34% for pre-obesity and 12% for obesity. The greater proportion of men with pre-obesity and obesity, when compared to women should be underlined.

[4] BMI measures the corpulence and determines corpulence by dividing the weight in kilograms by the height in square meters (weight/height²).

Table I – Percentage of Portuguese Population with pre-obesity and obesity by gender

BMI (Kg/m2)				
	Men		Women	
Study	Pre-obesity BMI 25-29,9	Obesity BMI ≥ 30	Pre-obesity BMI 25-29,9	Obesity BMI ≥ 30
C. Afonso, %	38,8	7,3	28,1	10,8
ONSA, %	37,6	10,9	30,5	10,7
SPEO, 1999, %	41,1	12,9	30,8	15,4
SPEO, 2004, % [5]	44,1	14,5	31,9	14,6

ONSA: National Health Observatory; SPEO: Portuguese Society for the Study of Obesity

In the Portuguese population over the age of 55, the prevalence of pre-obesity and obesity is higher, 1.9 and 7.2 respectively.

On the other hand, the more educated Portuguese have half the prevalence of pre-obesity and a quarter of the prevalence of obesity in comparison with those less schooled. The prevalence of obesity is also higher among less the socially favoured classes.

Table II – Percentage of the Portuguese Population with pre-obesity and obesity by educational level

	Education level		
	Junior school	Senior school	University
Pre-obesity BMI 25-29,9	38,2 %	27,2 %	17,8 %
Obesity BMI ≥ 30	12,5 %	3,7 %	3 %

Among children ranging from 7 to 9 years of age, the prevalence of pre-obesity and obesity in Portugal is around 31.56%. Children of the female sex show higher figures in comparison to those of the male sex.

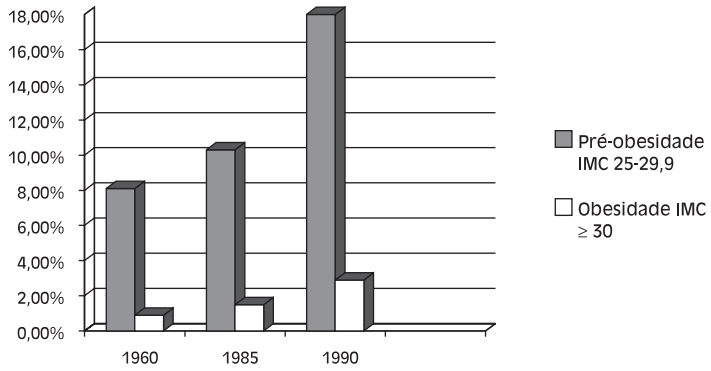
Nevertheless, there are disparities at the regional level as far as obesity and pre-obesity are concerned. It should be stressed that the northern interior and centre of the country register the highest prevalence of pre-obesity and that *Setúbal* and *Alentejo* have the highest prevalence of obesity.

In relation to the prevalence of pre-obesity and obesity observed in other races and ethnic groups, namely in women from Cape Verde living in Portugal, the figures are estimated in 43% and 26.5% respectively.

[5] The two studies of SPEO are the only ones carried out with representatives samples and direct measurement by the observer (weight and size).

Another point of concern derived from the only follow up study on obesity in the Portuguese population, in order to assess its development trend, was the one carried out in army inspections between 1960 and 1990 on cohorts of 20 year-old males. It showed evidence of a constant increase in pre-obesity and obesity.

Figure 3 – Evolution of the Prevalence of Pre-obesity and obesity in applicants to military service



On the other hand, the parents' educational level, sedentary activities and degree of urbanisation of the residential area also influence the prevalence of obesity. This means that:

a) the higher the educational level of the parents, the lower the prevalence of obesity;
b) the more hours watching television, playing electronic or computer games, the higher the prevalence of obesity;
c) the more urbanised the residential area, the higher the prevalence of obesity.

Pre-obesity and obesity are therefore directly related to a positive energy balance, which is the result of excessive intake compared to output.

As far as physical activity is concerned, it is worrying to see that as age advances, its practice decreases. If we divide the majority of the population into two groups:

those who do not practise any type of physical activity and those who practise 3 and a half hours per week, at least, we notice that more than half of the Portuguese population does not exercise regularly. This, contributes to pre-obesity and obesity.

Table III – Weekly hours of physical activity by sex and age group

	Sex		Chronological age		
Hours	Male	Female	15-34	35-54	> 55
0	49,5 %	70 %	47,8 %	65 %	70,7 %
≤ 1,5	2,7 %	2,7 %	1 %	5,1 %	2,3 %
1,5-3,5	7,5 %	6,5 %	8,8 %	6,8 %	4,8 %
≥ 3,5	40,4 %	20,8 %	42,3 %	23,2 %	22,2 %

The role of genetic factors in the origin of obesity is also important. It is considered that genes involved in weight gain increase the risk of developing obesity, when the individual is exposed to favourable environmental conditions. Thus, there are family trends in obesity. One often sees obese children who are the offspring of obese parents.

Pregnancy and menopause may, on the other hand, contribute to an increase of stored fat in overweight women, which may be connected with the necessary guarantee to ensure reproductive ability.

GUIDING PRINCIPLES

DEFINITION, DIAGNOSIS AND OBESITY CLASSIFICATION

The WHO defines obesity as a disease in which the excess of accumulated body fat may attain degrees capable of affecting health.

Excess fat results from successive positive energy balances, in which the quantity of energy intake is higher than the quantity of energy spent. The factors that determine this imbalance are complex and include genetic, metabolic and environmental factors. This imbalance tends to perpetuate itself and obesity is therefore considered a chronic disease.

A hyper-energising diet including lipid, carbohydrate and alcohol excess and a sedentary lifestyle lead to excessive storage of body fat. Therefore, if the modern lifestyle is not changed, it will predispose people to excess weight.

Pre-obesity and obesity are diagnosed by determining BMI. It measures corpulence and is determined by dividing the weight in kilograms by the height in square meters (weight / height^2). There is a good correlation between this index and the body fat mass.

According to the WHO, a BMI of ≥ 25 is considered overweight, and a BMI of ≥ 30 is considered clinically obese. Nevertheless, in certain cases, especially in athletes and individuals with oedema or ascitis, BMI is not a reliable indicator of obesity because it does not allow us to identify the cause of excess weight.

The BMI tells us, in a quick and simple manner, whether an adult has low weight, normal weight or is overweight. For this reason it was internationally adopted to classify obesity.

Obesity is classified in three classes:

Class I (BMI 30.0 – 34.9)
Class II (BMI 35.0 – 39.9)
Class III (BMI ≥ 40.0)

There is a relation between obesity classes and the risk of co-morbidities, which may be affected by several factors, including nutrition and the degree of physical activity.

Table IV – Classification of obesity in adults according to BMI and risk of co-morbidities

Classification	BMI (Kg/m2)	Risk of Co-morbidities
Low weight	< 18.5	Low (increased risk of other clinical problems)
Normal variation	18.5 – 24.9	Medium
Pre-obesity	25.0 – 29.9	Increased
Obesity Class I	30.0 – 34.9	Moderate
Obesity Class II	35.0 – 39.9	Severe
Obesity Class III	≥ 40.0	Very high

WHO 2000

The dynamic characteristics of growing and maturing processes, which take place during the paediatric period, make the diagnosis of overweight in children and adolescents difficult. There is no consensual criterion.

Contrary to the adult, in which it is possible to establish cut-off points for pre--obesity and obesity, in the child and adolescent, with growth speeds registering in both sexes considerable inter and intra-individual variability, such intent is not possible and no association has been proven so far.

Thus, similarly to the anthropometric variables that serve as the basis for calculation, the BMI in paediatric age should be percentillated, using referral tables as a basis. Therefore:

a) BMI equal or above percentile 85 and below percentile 95 may be diagnosed as pre-obesity;
b) BMI equal or above percentile 95 may be diagnosed as obesity.

MORPHOLOGIC TYPOLOGY AND CO-MORBIDITIES

An important aspect in the assessment of the obese adult is the distribution of body fat. This means that:

a) when the adipose tissue is stored in the upper half of the body, especially in the abdomen, one says that obesity is android, abdominal or visceral, being typical of the obese man;
b) when fat is distributed especially in the lower half of the body, particularly in the gluteal and thigh areas, one says that it is of the gynoid type, being typical of the obese woman.

The identification of these morphological types has great importance. This is due to the fact that nowadays, it has been demonstrated that visceral obesity is associated with metabolic complications, such as type 2 diabetes and dyslipidemia and cardiovascular diseases, i.e., hypertension, coronary artery disease and cerebrovascular disease.

There is scientific evidence suggesting that there is a genetic predisposition which determines, in certain individuals, a higher storage of fat in the abdominal region

in response to excessive energy intake and/or decrease in physical activity. This visceral fat, present inside the abdomen, is directly related to the development of insulin-resistance, which is responsible for the metabolic syndrome associated with obesity.

In clinical practice, measuring the waist perimeter using a tape measure placed in the middle point between the lower rib cage border and the iliac crest makes the assessment of abdominal obesity.

One admits, with clinical and epidemiological value, the classification of two risk levels of complications associated with obesity, based on the determination of the waist perimeter. This means that an indicator of very increased risk requiring medical intervention is present when:

a) the waist perimeter is ≥ 88 cm in women;
b) the waist perimeter is ≥ 102 cm in men.

Table V – Waist perimeter and risk of metabolic complications

	Waist perimeter (cm)	
Risk of metabolic complications	Man	Woman
Increased	≥ 94	≥ 80
Very increased	≥ 102	≥ 88

In the elderly the abdominal perimeter is a more important anthropometric measure than BMI in the assessment of the mortality risk.

Thus, co-morbidities associated with obesity determine the severity of this disease. Android or visceral obesity is associated with type 2 diabetes, dyslipidemia, hypertension, endothelial dysfunction, polycystic ovarian syndrome, coronary and cerebrovascular disease and death. The association with these diseases depends on intra-abdominal fat and not on total body fat.

The increase of subcutaneous fat, though not associated with additional risk of metabolic syndrome is, nevertheless, associated with orthopaedic diseases and serious psychosocial problems.

Table VI – Relative risk (RR) of health problems associated with obesity (WHO)

INCREASE		
GREATLY INCREASED (RR>3)	MODERATELY INCREASED (RR 2-3)	SLIGHTLY INCREASED (RR 1-2)
Type 2 diabetes	CHD	Cancer (breast cancer in postmenopausal women, endometrial cancer, colon cancer)
Gallbladder disease	Hypertension	Reproductive hormone abnormalities
Dyslipidaemia Insulin resistance Breathlessness Sleep apnoea	Osteoarthritis (knees) Hyperuricaemia and gout	Polycystic ovary syndrome Impaired fertility Low back pain due to obesity Increased risk of anaesthesia complications Fetal defects associated with maternal obesity

WEIGHT LOSS BENEFITS

The benefits obtained with intentional weight loss by an obese person, in the long run, may manifest in:

a) improvement of health in general;
b) improvement of the quality of life;
c) decreased mortality;
d) improvement of associated chronic diseases.

Modest weight losses

Modest weight losses, defined as losses of 5 to 10% of initial weight, improve glycaemia control and reduce blood pressure and cholesterol levels. There are also benefits in respiratory distress, sleep apnoea and in diurnal sleepiness, as well as in osteoarticular problems, variable in this case, according to the degree of lesion. It is important to bear in mind that these health gains may vary according to the degree of evolution of the existing co--morbidities.

Considerable weight losses

The paradigm of this type of loss is the one achieved by bariatric surgery. Patients with Class III obesity (BMI ≥ 40) manage to lose 20 to 30kg (average 4.5 kg / month

in the first 6 months). The benefits achieved are substantial, with reductions of blood pressure of up to 43% in the hypertense obese and improving the levels of glycaemia by 69% in type 2 diabetics.

Impact of weight loss in associated co-morbidities

a) Cardiovascular disease and blood hypertension
Nowadays, it is clear that weight loss decreases the risk of cardiovascular disease due to positive effects on the decrease of blood pressure and on hyper-coagulating processes. Each reduction of 1% in body weight represents a fall of 1 mmHg in the systolic blood pressure and of 2 mmHg in the diastolic. The type of dietary regimen has great influence on this improvement (restriction of salt and saturated fats) as well as physical activity and giving up smoking.

b) Type 2 Diabetes and Insulin-resistance Syndrome
Weight decrease in obese people with type 2 diabetes improves glycaemic control between 10 to 20%. These benefits may persist for 1 to 3 years even if the weight has a tendency to increase. If the relation of weight loss and reduction of mortality in the obese population with diabetes is considered, one verifies that in 75% of newly diagnosed patients, a weight reduction of 15 to 20% in the first year of disease represents a significant reduction of that risk. Also, in this type of pathology, the association of an adequate dietary regimen with increased physical activity seems to enhance the beneficial effect in terms of health gains.

c) Dyslipidemia
In the obese, mixed dyslipidemia[6] easily improves with weight loss, even if this improvement is modest. The loss of 1kg of weight reduces the level of LDL cholesterol by 1%. If weight loss is 10kg, the reductions are 10% in total cholesterol, 15% in LDL cholesterol and 30% in triglycerides, with an increase of 8% in HDL cholesterol.

d) Ovarian function
Improved sensitivity to insulin, achieved with the loss of 5% of weight, reflects favourably in obese women with polycystic ovarian syndrome and hirsutism, expressed in the recovery of menstrual cycles and sometimes in ovulation itself and consequent fertility.

[6] Mixed dislipidemia consists in the increase of total HDL cholesterol, cholesterol LDL and triglycerides and reduction of cholesterol HDL in the obese.

e) Cancer
Although obesity is a recognised risk factor for all types of cancer, so far there is no evidence that shows that weight loss has favourable effects on the development of certain types of carcinoma in the obese. Nevertheless, as far as breast carcinoma is concerned, it is possible to conclude that such a relation seems to exist, associating weight loss with a more favourable clinical outcome of the oncological process.

f) Weight loss and psychosocial behaviour
There is an improvement in anxiety, depression and self-esteem in the obese who lose a lot of weight after obesity surgery. Small weight losses, obtained in a conservative manner, also contribute to improve quality of life.

g) Weight loss and mortality reduction
Intentional weight loss reduces mortality in associated type 2 diabetes and cardiovascular disease. The same is verified in the obese with previous myocardium infarction.

h) Weight loss in obese children and adolescents
The loss of 3% of body weight decreases the obese adolescents' blood pressure significantly. If the weight loss programme includes physical exercise, the improvement of blood pressure levels increases. Also, it is evident that weight loss causes a decrease in the plasmatic levels of triglycerides and insulin and an increase in HDL cholesterol, which are proportional to the percentage of loss. In type 2 diabetes in children and adolescents, although it is more difficult to lose weight, the weight loss is more efficient in improving glycaemic control when the dietary regimen is low on carbohydrates. In hepatic steatites, the improvement is also evident, the result of a reduction of hyperinsulinism and of an increase in sensitivity to insulin.

OBJECTIVES

The National Programme Against Obesity aims to contribute to weight loss in the obese and in those particularly at risk of developing obesity, namely people with type 2 diabetes and cardiovascular disease, and aims to fight habits leading to overweight. In global terms, it aims to contribute to the development of a culture

of healthy weight promotion in the Portuguese population, bearing in mind intersectorial co-operation.

The present Programme aims, as a general objective, to invert the increase in the growth rate of the prevalence of pre-obesity and obesity in Portugal.

In order to achieve this general objective, it is essential that the National Programme Against Obesity accomplishes the following specific objectives:

1. Reduce the proportion of individuals with BMI between 25 and 30.
2. Reduce the proportion of individuals with BMI ≥ 30.

TARGET POPULATION

In the context of the National Programme Against Obesity, the target population should be considered as the one consisting of individuals of both sexes, pre-obese, obese, ex-obese and also, of those included in the following risk groups:

1. Low or high weight at birth.
2. Family history of obesity.
3. Prior history of dietary behaviour disorder.
4. Women with multiple pregnancies.
5. Women in the peri and post menopause phases.
6. Recent ex-smokers.

TEMPORAL HORIZON

The National Programme Against Obesity will be put into practice by the services providing health care, bearing in mind the National Health Plan. Until 2010, without prejudice to future corrections that interim assessment of the programme's development may suggest.

INTERVENING STRATEGIES

The intervening strategies are based on the secondary prevention of overweight and of co-morbidities that it entails. The strategies to develop, namely in organisational terms and in terms of professional practice, aim not only to improve all procedures to identify and follow up bearers of risk factors, but also to improve the diagnosis, treatment, recovery, and control of patients, quantified in terms of health gains.

The main intervention strategies considered in the current Programme are the following:

E1.

To produce and advertise technical guidelines on prevention and treatment of pre-obesity and obesity directed at health professionals.

E2.

To draw up technical guidelines for the measurement and systematic recording of Body Mass Index and Abdominal Perimeter in the Periodic Health Exam – PHE.

E3.

To plan, set up and develop hospital obesity outpatient clinics for patients with Class II obesity and co-morbidities and with Class III obesity.

E4.

To produce and advertise quality and functioning criteria for hospital obesity outpatient clinics.

E5.

To produce and advertise referral criteria concerning the Class II obesity patients with co-morbidities and with Class III obesity, for obesity outpatients clinics in the hospital.

E6.

To plan, create and develop hospital departments for bariatric surgery.

E7.

To produce and advertise quality and functioning criteria of the hospital departments for bariatric surgery.

E8.

To propose a National Commission for the assessment of surgical treatment of obesity, of the proposed cases for surgery and their follow up.

E9.

To advertise, periodically, among health professionals, the location of the hospital obesity outpatient clinics and of the hospital departments for bariatric surgery.

E10.

To draw up a proposal for the development of multi-disciplinary support to the obese, namely in the nutritional area and in primary health care.

E11.

To draw up a proposal for a list comprising pharmaceutical and nutritional supplements, which will be subject to a special co-participation regime concerning the treatment of pre-obesity with co-morbidities and of obesity.

E12.

To promote at the Ministry of Social Security and Labour, with employers and labour unions, the availability of nutritionally balanced meals, according to energetic needs, at work places.

E13.

To promote at the Ministry of Education, the availability of nutritionally balanced meals, according to energetic needs, at schools.

TRAINING STRATEGIES

The training strategies comprise information, education and training initiatives directed at health professionals and the public, whether general, or pre-obese,

obese and ex-obese. These initiatives will be targeted at specific groups, and aim to develop their own knowledge and skills in managing their own health.

To achieve the objectives of the National Programme Against Obesity, the following are considered main training strategies:

E14.

To produce and advertise, through school health teams, the technical guidelines on the approach of pre-obesity and obesity.

E15.

To produce and advertise, through school health teams, technical guidelines on the identification of children with obesity risk factors.

E16.

To produce and advertise a handbook on self-care for the pre-obese, obese and ex-obese population.

E17.

To promote, at the University of Medicine, an increase in the number of hours for pre and post-graduate training on obesity.

E18.

To promote, at the National Commission of Medical Residencies and among Hospital Administrations, an increase in the number of vacancies for Endocrinology residents.

E19.

To promote compulsive training in the approach of obesity, during speciality residencies of general and family Medicine and surgery.

E20.

To promote specific training on the approach of obesity among non-medical health professionals and to increase the number of vacancies for speciality training in the career of Advanced Health Professional.

E21.

To draw up educational tools on the approach of obesity aimed at health professionals.

INFORMATION-GATHERING AND ANALYSIS STRATEGIES

Information-gathering and analysis strategies aim to improve epidemiological knowledge of obesity, as well as to obtain information on its impact on the health of individuals.

In order to achieve the objectives of The National Programme Against Obesity, the following collecting and analysis of information strategies are considered of major importance:

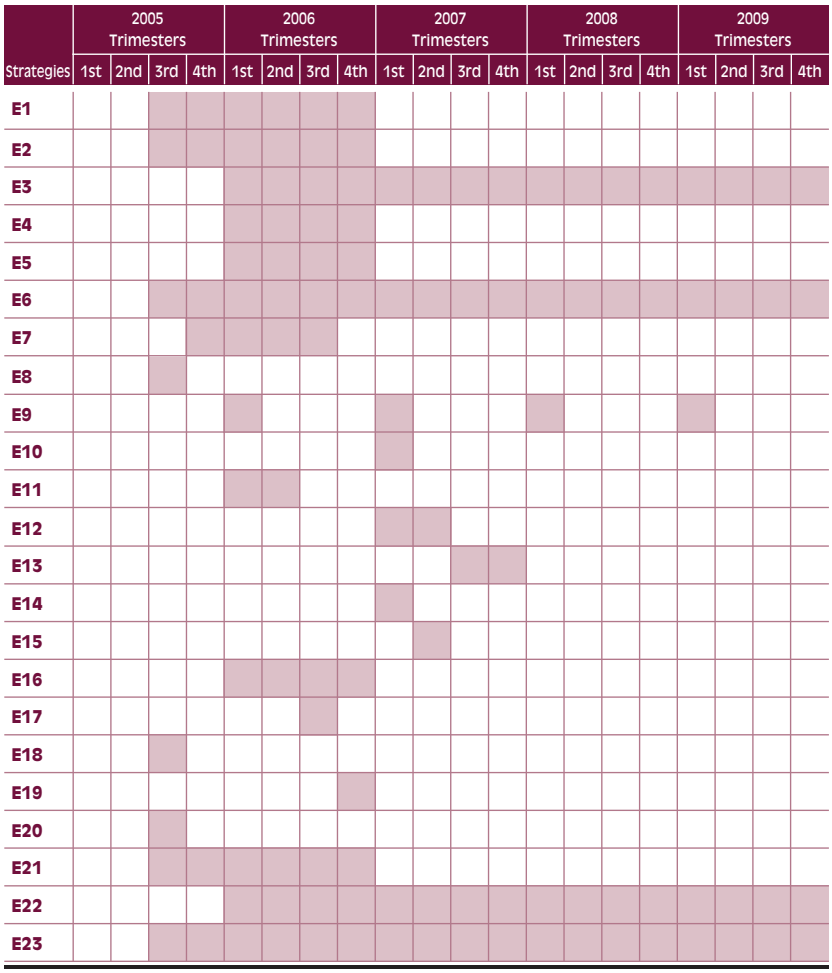
E22.

To develop multiple-sector partnerships with the aim of creating an observatory for pre-obesity and obesity. They will comprise information collecting systems that may make possible the analysis of data regarding the prevalence and incidence of pre-obesity and obesity, associated co-morbidities and their evolution in relation with the developed actions, as well as the data concerning patients proposed and submitted to bariatric surgery.

E23.

To monitor the health gains that result from the action of the National Programme Against Obesity.

CHRONOGRAM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FOLLOW UP AND ASSESSMENT

The National co-ordination of the National Programme Against Obesity, as well as the follow up of its implementation and annual assessment is the responsibility of the Directorate-general of Health, through a National Co-ordinating Commission to be created by dispatch of the Minister of Health.

The periodic monitoring of the National Programme Against Obesity is carried out based on the following indicators differentiated by gender:

Obesity prevalence at 12 and 24 months
Obesity prevalence at 5, 11, 15 and 18 years
Pre-obesity prevalence from 19 to 64 years
Obesity prevalence from 19 to 64 years
Proportion of individuals with BMI between 25 and 30
Proportion of individuals with BMI **≥** *30*

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Saúde XXI

Programa Operacional da Saúde

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