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OBESITY: PREVENTING AND MANAGING THE GLOBAL EPIDEMIC

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WHO Consultation



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Geneva, 3–5 June 1997

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Abbreviations

The following abbreviations are used in this report:

AIHW	Australian Institute of Health and Welfare
ALCO	Anonymous Fighters Against Obesity (Argentina)
BMI	body mass index
BMR	basal metabolic rate
CHD	coronary heart disease
CHNS	China Health and Nutrition Survey
CHO	carbohydrate
CINDI	community interventions in noncommunicable diseases
CVD	cardiovascular disease
DALY	disability-adjusted life-year
DEXA	dual-energy X-ray absorptiometry
ENDEF	National Study of Family Expenditure (Brazil)
EPI	Expanded Programme on Immunization
EPOC	excess post-exercise oxygen consumption
FDA	Food and Drug Administration (USA)
HCG	human chorionic gonadotropin
HDL	high-density lipoprotein
HMR	health management resources
HPA	hypothalamic–pituitary axis
IGT	impaired glucose tolerance
INTERHEALTH	Integrated Programme for Community Health in Noncommunicable Diseases
INTERSALT	International Cooperative Study on the Relation of Blood Pressure to Electrolyte Excretion in Populations
IOTF	International Obesity Task Force
LDL	low-density lipoprotein
LDL-apoB	low-density lipoprotein apolipoprotein B
LMS	least mean square
LPL	lipoprotein lipase
MONICA	Monitoring of trends and determinants in cardiovascular diseases (WHO MONICA study)
NCD	noncommunicable disease
NCHS	National Center for Health Statistics (USA)
NEFA	non-esterified fatty acid
NHANES	National Health and Nutrition Examination Survey (USA)
NHES	National Health Examination Survey (USA)
NHMRC	National Health and Medical Research Council
NIDDM	non-insulin-dependent diabetes mellitus
NNS III	Third Nationwide Nutritional Survey in China (1992)
OA	Overeaters Anonymous
PAF	population-attributable fraction

PAL	physical activity level
PNSN	National Survey on Health and Nutrition (Brazil)
POP	Pound of Prevention
REDP	reduced-energy diet programme
RMR	resting metabolic rate
RR	relative risk
SBW	standard body weight
SHBG	sex hormone-binding globulin
SOS	Swedish Obese Subjects
SSRI	selective serotonin reuptake inhibitor
STD	sexually transmitted disease
TEF	thermic effect of food
TOPS	Taking Off Pounds Sensibly
VLCD	very-low-calorie diet
WHR	waist : hip circumference ratio or waist : hip ratio

1. Introduction

The WHO Consultation on Obesity met in Geneva from 3 to 5 June 1997. Dr F.S. Antezana, Deputy-Director General *ad interim*, opened the meeting on behalf of the Director-General. This consultation was the culmination of a two-year preparatory process, involving more than 100 experts worldwide, undertaken in close collaboration with the Rowett Research Institute (a WHO collaborating centre for nutrition) in Aberdeen, Scotland, and the International Obesity Task Force (IOTF) chaired by Professor Philip James, Director of the Rowett Research Institute.

The overall aim of the Consultation was to review current epidemiological information on obesity, and draw up recommendations for developing public health policies and programmes for improving the prevention and management of obesity. The specific objectives of the Consultation were:

- to review global prevalence and trends of obesity among children and adults, factors contributing to the problem of obesity, and associated consequences of obesity, such as chronic noncommunicable diseases;
- to examine health and economic consequences of obesity and their impact on development;
- to develop recommendations to assist countries in developing comprehensive public health policies and strategies for improving the prevention and management of obesity;
- to identify the issues requiring further research.

In order to achieve these objectives, six peer-reviewed background documents were prepared by experts in related fields. WHO takes pleasure in drawing attention to these contributions, in the absence of which many preparatory activities would not have been possible. The individuals and institutions that contributed are mentioned in the Acknowledgements section (page 251).

Throughout most of human history, weight gain and fat storage have been viewed as signs of health and prosperity. In times of hard labour and frequent food shortages, securing an adequate energy intake to meet requirements has been the major nutritional concern.

Today, however, as standards of living continue to rise, weight gain and obesity are posing a growing threat to health in countries all over the world. Obesity is a chronic disease, prevalent in both developed and developing countries, and affecting children as well as adults. Indeed, it is now so common that it is replacing the more traditional public health concerns, including undernutrition and

infectious disease, as one of the most significant contributors to ill health. Furthermore, as obesity is a key risk factor in the natural history of other chronic and noncommunicable diseases (NCDs), it is only a matter of time before the same high mortality rates for such diseases will be seen in developing countries as those prevailing 30 years ago in industrialized countries with well established market economies.

Clinical evidence of obesity can be dated as far back as Graeco-Roman times, but little scientific progress was made towards understanding the condition until the 20th century. In the 19th century, the work of Lavoisier and others indicated that metabolism was similar to slow combustion, and that obese and lean humans obeyed the laws of thermodynamics. Also, the discovery that fat is stored in “cells”, the basic units of biology, led to the idea that obesity could be caused by the presence of too many fat cells. Interestingly, the 19th century also saw the publication of the first diet book, entitled *Letter on corpulence addressed to the public*, by a Mr W. Banting.

In the early 20th century, analysis of life insurance data indicated that obesity was associated with an increased death rate. A familial basis for obesity was suggested in the 1920s, and Cushing disease and hypothalamic obesity were described. Later, the introduction of thyroid hormone, dinitrophenol and amphetamine as pharmacological treatments for obesity opened the door to the use of drugs, and genetics improved the understanding of several specific forms of obesity resulting from genetic defects.

Considerable advances have been made in diet, exercise and behavioural approaches to treatment for obesity since their advent in the first half of the 20th century, and new drugs with ever-better profiles of pharmacological activity continue to be introduced on a regular basis. Gastric surgery has had the most effective long-term success in treating the severely obese. Despite this progress, however, obesity prevalence continues to increase sharply, and the challenge to public health workers and scientists has never been greater.

This report provides an assessment of current data on the prevalence of obesity, its health consequences and its economic costs. Strategies for implementing a systematic approach to the prevention and management of obesity in different health service systems are described, and recommendations by leading international obesity experts are also given. It is hoped that these recommendations will be used in the development of new policies to address the escalating public health problem of obesity.

1.1 Structure of the report

The report is divided into five parts, the first four of which deal with different aspects of the global epidemic of obesity. The final part outlines the conclusions and recommendations of the WHO Consultation on Obesity.

Part I examines the definition and classification of obesity, and sets out the most recent data on the global prevalence and secular trends in all regions of the world. Defining and identifying the extent of the problem of obesity is a critical first step in a coherent approach to its prevention and management.

Part II covers the true costs of obesity in terms of physical and mental ill health, and the human and financial resources diverted to deal with the problem. The amount of suffering that obesity causes, and the money spent by health agencies in dealing with it, are enormous and reinforce the need for urgent action.

Part III examines what is known about this complex, multifactorial disease and identifies the major factors implicated in its development. Most of the information about risk factors for weight gain and obesity comes from studies in developed countries because developing countries have only recently seen a rise in chronic diseases and therefore have little experience in carrying out research in this area. Examination of the factors involved in weight gain and obesity in developed countries, however, is of worldwide relevance in predicting the future impact in countries in the early stages of frequently dramatic socio-economic change and provides a unique opportunity for taking preventive action. It is also important that these factors should be taken into account in any coordinated strategy designed to tackle the problem of obesity.

Part IV takes account of the matters considered in the preceding three parts and presents the foundations of a comprehensive strategy for the prevention and management of obesity through health care services and public health policy. Policy-makers, health professionals and the community at large need to join forces in tackling this major global public health problem.

Part V outlines the final conclusions and recommendations of the WHO Consultation on Obesity. Priority areas for further research are identified, and recommendations on strategies and actions for the effective prevention and management of the global epidemic of obesity are made.

1.2 Themes of the report

Obesity is a complex and incompletely understood disease. This report highlights key issues central to the development of a coherent strategy for the effective prevention and management of obesity on a worldwide basis. A number of important themes have dictated the content and style of the report, including the following:

- Obesity is a serious disease, but its development is not inevitable. It is largely preventable through lifestyle changes.
- The health risks of excessive body fat are associated with a relatively small increase in body weight, not only with marked obesity. Effective management of obesity cannot be separated from prevention.
- Obesity is not just an individual problem. It is a population problem and should be tackled as such. Effective prevention and management of obesity will require an integrated approach, involving actions in all sectors of society.
- Obesity is a chronic disease that requires long-term strategies for its effective prevention and management.
- Obesity affects all age groups. The effective prevention of adult obesity will require the prevention and management of childhood obesity.
- Obesity is a global problem. Prevention and management strategies applicable to all regions of the world should be developed.
- Obesity can be seen as just one of a defined cluster of noncommunicable diseases (NCDs) now observed in both developed and developing countries. The global epidemic of obesity is a reflection of the massive social, economic and cultural problems currently facing developing and newly industrialized countries, as well as the ethnic minorities and the disadvantaged in developed countries.
- Examination of the factors involved in weight gain and obesity in developed countries is crucial for predictions about the future impact in countries in the early stages of frequently dramatic socio-economic change and provides a unique opportunity for taking preventive action.
- In countries with developing economies, the problem of obesity is emerging at a time when undernutrition remains a significant problem. Strategies that take account of both these important nutritional problems will need to be developed, particularly when dealing with children whose growth may be stunted.