

Acting on Australia's weight

A strategic plan
for the prevention of
overweight and obesity

Summary report

National Health and Medical Research Council

NHMRC

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Acting on Australia's weight: Summary report

NHMRC Working Party on the prevention of overweight and obesity

The Working Party is a joint activity between two standing committees of NHMRC—the Environmental Health and Nutrition Standing Committee and the Health Advancement Standing Committee. The Working Party has been supported in its work by a Reference Committee, comprising a range of organisations with an identified interest in the prevention of overweight and obesity.

Membership

Appointed members

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Acting on Australia's weight: Summary report

Michelle Norris, Health Advancement Section, Commonwealth Department of Health and Family Services, Canberra (from November 1995)

Terms of reference

With reference to the national *Health goals and targets*, the national *Food and nutrition policy*, the *Dietary guidelines for Australians*, the *Healthy weight for all Australians* strategy of the Australasian Society for the Study of Obesity and other relevant documents and strategies:

1. Review the prevalence and economic and health costs of overweight and obesity in Australia including the impact of these conditions on the health of population sub-groups.
2. Review the aetiology of overweight and obesity including the roles of recent trends in dietary practice, physical activity, smoking cessation and other possible determinants, including biological mechanisms, developmental influences and psychological stressors.
3. Review and evaluate the effectiveness, including the cost effectiveness, of recent programs in Australia and overseas aimed at the prevention of overweight and obesity.
4. Make recommendations on appropriate structural and educational strategies for the prevention of overweight and obesity in the general community and in at-risk groups and for the implementation of these strategies. In making these recommendations the working party should recognise the need to not inadvertently cause an increase in the prevalence of underweight in those susceptible to messages about body weight.
5. Liaise with the Reference Committee in the development of the strategies.
6. Make recommendations on appropriate measures to evaluate the effectiveness of the outcomes of the working party's deliberations.

7. Report to the Environmental Health and Nutrition and the Health Advancement Standing Committees of NHMRC before July 1996.

RESCINDED

Reference Committee to the Working Party

Membership

Chair of the Working Party (Chair)

The Aboriginal and Torres Strait Islander Commission

The Aboriginal and Torres Strait Islander Health Standing Committee of NHMRC

The Australian Cancer Society

The Australian College of Paediatrics

The Australasian Society for the Study of Obesity

The Australian Council for Health, Physical Education and Recreation

The Australian and New Zealand College of Psychiatrists

The Australian Fitness Accreditation Council

The Australian Food Council

Diabetes Australia

The Dietitian's Association of Australia

The Fitness Industry Association

The Fitness Industry Confederation of Australia

The Food Industry Council of Australia

Gloria Marshall

Jenny Craig

The National Food Authority

The National Heart Foundation of Australia

The Nutrition Society of Australia

The Royal Australian College of General Practitioners

State and Territory Health Departments (ACT, NSW, Qld, WA, SA)

Weight Watchers

Terms of reference

To liaise with and advise the Working Party on the Prevention of Overweight and Obesity in the development of strategies to prevent overweight and obesity in accordance with the Terms of Reference of the Working Party.

Acting on Australia's weight: Summary report

Acknowledgments

The Working Party acknowledges the contribution of the following people to the development of the draft background papers:

- Dr Kate Burns, Department of Endocrinology, Royal Prince Alfred Hospital
- Dr David Crawford, School of Human Movement Studies, Deakin University
- Dr David Cameron-Smith, School of Nutrition and Public Health, Deakin University
- Dr Phil Harvey, Nutrition Program, The University of Queensland
- A/Prof Joe Proietto, President, Australasian Society for the Study of Obesity
- Ms Anne-Marie Waters, Health Division, Australian Institute of Health and Welfare

The permission of Dr Garry Egger and Dr Boyd Swinburn to include their paper *A public health paradigm for understanding obesity* in the background papers is also gratefully acknowledged.

Contents

NHMRC Working Party on the prevention of overweight and obesity	iii
Membership	iii
Terms of reference	v
Reference Committee to the Working Party	vii
Membership	vii
Terms of reference	viii
Acknowledgments	ix
Introduction	1
Part I Strategic Plan	11
Overview	13
Goal	13
Time frame	13
Format	13
Strategies for implementation	19
1 Infrastructure and education	19
2 Workplaces	27
3 Schools	33
4 Community environments	37
5 Health care	43
6 Research	47
7 Monitoring and evaluation	51

8	Coordination of effort	57
Part II	Background papers	61
1	A public health paradigm for understanding obesity	63
2	The aetiology of overweight and obesity	65
3	The prevalence of overweight and obesity in Australia	67
4	Economic issues in the prevention and treatment of overweight and obesity	69
5	The role of physical activity in overweight and obesity	73
6	Understanding and influencing physical inactivity in Australia	77
7	The effects of community cardiovascular risk factor interventions on weight	81
8	Weight-loss beliefs and practices in the Australian community	85
	References	87

Introduction

This introduction summarises the key issues from each of the background papers that contributed to the development of the strategy for the prevention of overweight and obesity. These background papers describe the research in several areas that have not been previously covered by NHMRC in the public health context. The issues related to diet are not extensively covered because they have recently been reviewed by NHMRC in the *Dietary guidelines for Australians*¹ and the *Dietary guidelines for children and adolescents*.²

Who is getting fatter?

A national study in 1989 found that 48 per cent of men and 34 per cent of women were overweight or obese and other, more recent studies suggest that the prevalence is continuing to rise.

During the 1980s, there was a steady increase in the proportion of adults who were overweight or obese. Women were, on average, 3 kg heavier in 1989 than 1980 and men were 1.7 kg heavier. These increases equate to an average increase in weight of women of approximately one gram per day over the nine year period, with the average increase in men approximately half that of women, or approximately 0.5 gram per day. This trend of increasing levels of overweight and obesity in the population is likely to be the result of small decreases in physical activity and small changes in food intake by many, rather than extreme inactivity and excessive food intake among a few. Average weights have increased in men and women, in spite of the fact that many adults are concerned about their weight and have attempted to lose weight.

Which groups are of concern?

While the overall prevalence of overweight and obesity is of concern, certain groups within the Australian population have a greater prevalence of overweight and obesity:

- Adult men seem to rapidly increase their weight between the age of 25 and 40, while the weight of women changes most markedly during the menopausal years (45–55).
- Overweight and obesity affect 60 per cent of Aboriginal and Torres Strait Islander men and 58 per cent of women.³ There is additional epidemiological evidence of a relationship between poor foetal and infant nutrition and a tendency towards abdominal obesity and higher Body Mass Index (BMI) among Aboriginal and Torres Strait Islander people (Hoy W. Personal communication, Menzies School of Health Research, 1996).
- The prevalence of overweight and obesity amongst children and adolescents in Australia is of concern, with 5.3 per cent of children aged 12–15 years classified as overweight and a further 10 per cent as being 'at risk of overweight' in the 1985 Australian Health and Fitness Survey.
- It is also evident that workers who are involved in essentially sedentary occupations, such as office workers (including managers), drivers and heavy equipment operators are more likely to be overweight or obese. Unemployed and low-income groups also have higher rates of overweight and obesity.

Why are overweight and obesity of concern?

Overweight and obesity have been identified as key risk indicators of preventable morbidity and mortality due to many diseases, particularly hypertension, cardiovascular disease and non-insulin-dependent diabetes mellitus. The costs of

obesity associated with these diseases and others have been conservatively estimated at \$840 million (in 1992–93 dollar terms) per year, in care, 63 per cent of which were direct costs within the health system. It has been estimated that 300,000 consumers spend a further \$500 million for weight control programs.

BMI is commonly used as a measure of overweight and obesity. BMI is expressed as the ratio of weight (in kilograms) /height (in metres squared) and a strong association has been found between this index and morbidity and mortality. A BMI in the range 25 to 30 is used to define overweight and a BMI greater than 30 is classified as obesity. However, BMI does not give a direct measure of adiposity. Abdominal adiposity is of concern as it has been associated with dyslipidaemia, hypertension and non-insulin-dependent diabetes mellitus. The degree of abdominal adiposity is easily indicated by measuring the waist circumference.

What causes overweight and obesity?

Although overweight and obesity have become common in Australia, the causes are a complexity of inherited characteristics, aspects of lifestyle, such as diet and activity, and psychosocial factors. For this reason it is difficult, if not impossible, to ascertain or assign a single aetiological theory in all causes of overweight and obesity.

The changing nutritional composition of the diet, with fat providing a higher proportion of energy intake in recent decades, offers some explanation for the increasing prevalence of obesity. Modernisation of food production and the proliferation of convenience foods have altered and expanded the range of foods available. Many of these foods are high in fat. Nevertheless, the amount of fat consumed has decreased in some Western countries while obesity has not. Fat intake is not the only explanation for the aetiology of obesity or the only option for intervention.

Many epidemiological studies report a negative correlation between physical activity and weight gain. It is highly probable that the increase in overweight and

obesity in Australia and similar societies over the past few decades is associated with a reduction in physical activity during the same period. Evidence for this are the changes in incidental activity as a result of a preference for sedentary lifestyles, lower participation rates in active pastimes and the greater use of labour-saving devices in the home and the workplace. In Australia, a large proportion of the population is inactive, with only one-third engaged in low-energy or infrequent exercise. Many people are also employed in occupations that are likely to be sedentary. Access to daytime television and the growth in children's television programming may have had an effect on obesity among women and children. In addition to the periods of low activity, television viewing itself appears to reduce metabolic rate and the foods advertised are often energy dense varieties.

The impact of social and cultural change on obesity has been shown in anthropological studies. Traditional hunting and gathering societies, such as Aboriginal and Torres Strait Islanders and Pacific Island populations showed no obesity in the past. In contrast, rapid increases in the prevalence of obesity have been observed in the same societies undergoing rapid urbanisation. The traditionally high-protein, high-fibre, low-fat diet has been substituted with the higher-fat and energy diet of the wider Australian population. Activity associated with traditional food provision has also been dramatically reduced in an environment of ready-to-eat foods.

Why focus on prevention?

The health, economic and psychological costs of overweight and obesity are very high. Overweight and obese people experience greater morbidity and mortality in addition to other social problems, such as discrimination. The economic and emotional costs of treating obesity are also high, and a significant proportion of those who attempt weight loss regain the lost weight, and sometimes gain further weight, within a few years. Therefore, while the treatment of people who are currently overweight and obese should continue, we believe that the current trend

of an increasing prevalence of overweight and obesity will be reversed only if urgent steps are taken to prevent people becoming overweight and obese.

What needs to be done to prevent overweight and obesity?

Despite extensive research into the aetiology of obesity and numerous exercise or dietary treatment studies for overweight and obesity, very few successful public health models for the prevention of overweight and obesity exist. These previous population-based intervention studies might have been unsuccessful because they did not attempt to bring about changes in environments that make it easier for people to incorporate physical activity and healthy eating into their everyday lives.

The model that we adopted for this strategy describes an ecological basis for the changes in fat and energy balance which occur continuously in humans. The model proposes that the three main influences on body fat equilibrium are biological, environmental and behavioural, and that these factors are mediated through fat–energy expenditure and fat–energy intake.

Biological and inherited influences are important, but they cannot explain the increasing prevalence of overweight and obesity in the population and are largely unmodifiable. Most overweight and obesity in humans develops from lifestyle or environmental factors and this is where the scope for prevention lies.

We believe that a focus on changing the macro-environment of food supply and opportunities for physical activity determines the prevalence of obesity in a population and the micro-environment of knowledge, beliefs, social attitudes and behaviour determine the presence of obesity in an individual. The model proposes a supportive macro-environment as the main public health strategy and the development of programs that aim to influence behaviour and the micro-environment of target groups.

Will a focus on prevention lead to an increase in eating disorders?

While there is a need to be aware that a small percentage of adolescents are susceptible to messages about weight, the prevalence of eating disorders amongst people in this age group is small.^{4,5} Children and adolescents are a target group for prevention but concerns about eating disorders need to be considered in the context of the strategy's goal, which is to ensure the healthy growth of children (including adolescents). The focus of our recommendations for children in the strategic plan encourages children to:

- be physically active;
- enjoy a wide range of physical activities;
- continue to be physically active as they get older;
- consume a healthy diet; and
- develop skills that will enable them to select, prepare and consume a healthy diet as they get older.

We believe that through this process the second part of the strategic plan's goal—to eventually reduce the proportion of the adult population that is overweight or obese—will be achieved.

What is the strategic plan about?

We concluded that action to reduce the weight and waist measurements of Australians has to focus on changing the macro-environment to make it easier for people to undertake physical activity and to make healthier food choices. Because no data are available from randomised controlled trials, we extrapolated data from ecological studies, to develop the strategy. In implementing this strategic plan, with

its focus on the population as a whole, we are attempting to take the focus away from the individual and reduce some of the social blame that has tended to be levelled at overweight or obese people.

The goal of the strategic plan is *to prevent further weight gain in adults, and eventually reduce the proportion of the adult population that is overweight or obese; and to ensure the healthy growth of children* by combined approaches to physical activity and diet, through public health action occurring at the level of the macro-environment.

We have identified the need for national guidelines for physical activity to clarify appropriate types and amounts of physical activity needed for the general population to maintain or reduce weight. These guidelines will acknowledge the needs of the target groups (men 25–40 years of age; women of menopausal age (45–55 years of age); Aboriginal and Torres Strait Islander peoples; and children and adolescents). Through the implementation of this strategy we aim to increase physical activity associated with daily living amongst the general population and raise awareness that the levels of activity associated with elite athletes or those wishing to increase aerobic fitness are not necessary for the prevention of overweight or obesity.

The national *Dietary guidelines for Australians*¹ and the *Dietary guidelines for children and adolescents*² provide advice for the general population consistent with reducing and maintaining body weight. While there is an association between high fat intakes and overweight and obesity, we believe that dietary recommendations need to be framed in positive terms and therefore we have emphasised the guidelines relating to increasing the variety of foods consumed and increasing the consumption of breads, cereals, vegetables and fruits. We also believe that Australians need to eat less fat from high-fat and fried foods to reduce and control weight. NHMRC recommends that low fat diets are not suitable for young children, and that growth, rather than weight, be the focus for children and adolescents.²

This strategic plan combines the approaches to physical activity, fat and weight control in some key settings, such as workplaces, schools and the community environment. Recognition of physical activity and diet as part of occupational health and safety policies and practices is considered to be an important part of action to reduce the current levels of overweight and obesity amongst Australians. Schools have a special responsibility for the prevention of overweight and obesity amongst future generations of adults by ensuring that physical activity programs are offered to children and that healthy food choices are available in school canteens. Environmental planners need to find ways to increase physical activity through the design of towns, transport systems and public recreational facilities.

The successful implementation of this strategic plan will rely on two factors: 1. identified agencies in the plan taking action to implement the individual strategies within their areas of influence and expertise; and 2. people in positions of influence within the community becoming familiar with the contents of the plan and acting as advocates for its adoption. This will include health professionals, educators, fitness and weight-loss leaders advising those with whom they consult or provide services within their industry or profession, as well as providing advice and influencing others in the wider community in their roles as members of local government councils or committees, child care management committees, school councils and other groups.

We encourage research, particularly in the development of standardised methods for measuring and defining overweight and obesity and physical activity. Progress in these areas will help ensure that the results from studies conducted by different researchers will be comparable. The development and validation of population-based interventions to alter food intake and physical activity is also urgently needed.

The monitoring and evaluation of this strategic plan will be a critical element in determining its success. We have attempted to identify existing data-collection activities that can be used for this purpose, rather than propose the establishment of costly new collections.

Acting on Australia's weight: Summary report

We also tried to make the strategies complement other related public health initiatives as a means of enhancing the plan's implementation. The prevention of overweight and obesity is a key element of several National Health Priority Areas, particularly diabetes and cardiovascular disease, and also is linked with cancer, mental health and injury. There also are integral links with the implementation of the national *Food and nutrition policy*, and many State and Territory nutrition policies.

As this strategic plan is implemented, we will need to recognise and acknowledge the multicultural nature of Australian society and the potential cultural differences in relation to attitudes to foods and eating and body shape and size.

Part I

Strategic plan

Overview

Goal

To prevent further weight gain in adults and eventually reduce the proportion of the adult population that is overweight or obese; and to ensure the healthy growth of children.

Time frame

The time frame for the implementation of the strategy is 10 years from January 1997, with an interim evaluation to take place after five years.

Format

The categories used in the strategic plan are based on those used in the *National action plan—to the year 2000 and beyond*, which was prepared for the Australian Diabetes Society by D Nutbeam, M Thomas and M Wise in 1993. We based our categorisation on information in the scientific literature, or on our own assessment of each criterion if no other information was available. The categories used to denote estimated costs, achievability etc are indicative only.

Time frame: The time frame indicated in the indicator for each strategy assumes a date for general implementation of the overall strategy

of January 1997. An interim evaluation is recommended to take place five years after implementation, hence the time frame for many strategies is until December 2002.

- Lead agency or agencies:* The lead agency or agencies will be expected to play a major part in implementing the strategy in agencies and other relevant groups. Where more than one agency is included they are listed in alphabetical order, not in order of priority.
- Collaborating agencies:* The collaborating agencies listed are key groups only—this list is not meant to be exhaustive. Where more than one agency is included they are listed in alphabetical order, not in order of priority.
- Cost:* For some one-off activities, the total cost has been estimated; for longer-term activities, the annual cost has been estimated. The groupings are: H—>\$250,000; M—between \$50,000 and \$250,000; L—<\$50 000.
- Potential impact:* The impact is expressed as estimated potential to prevent overweight and obesity: H— the strategy is expected to have great potential to prevent overweight and obesity; M—the strategy is expected to have moderate potential to prevent overweight and obesity; the success or otherwise of this strategy may be dependent on the successful implementation of other strategies; L—the strategy is expected to have low potential to prevent overweight and obesity.

Achievability: The achievability indicates the potential ease or difficulty of implementing the strategy: **H**—the strategy is expected to be implemented with minimal difficulty; **M**—the strategy is expected to be implemented with some minor difficulties; **L**—the strategy is expected to be difficult to implement.

Sustainability: The sustainability indicates the longevity of the strategy implementation: **H**—the strategy should be relatively easy to sustain; **M**—the strategy may require some effort and, or, funds to ensure it is sustained; **L**—the strategy will require a large amount of effort and, or funds to sustain.

Performance indicators: The performance indicators have been developed to indicate how progress towards meeting individual strategies may be measured. No baseline information has been included. Lead and collaborating agencies will need to develop a process for determining baseline information for relevant strategies, and a methodology for measuring the indicator.

Target groups: The target groups for this strategic plan are Aboriginal and Torres Strait Islander peoples, men aged 25–40 years, women of menopausal age, and children and adolescents.

The model that we adopted for this strategy proposes that the three main influences on body fat equilibrium are environmental, biological and behavioural, and that these are mediated through fat-energy expenditure and fat-energy intake. The macro-environment of food supply and opportunities for physical activity determine the prevalence of overweight and obesity in a population, while the

micro-environment of knowledge, beliefs and social attitudes and behaviour determine the presence of overweight and obesity in an individual.

Our strategic plan therefore focuses on changes to the macro-environment to make it easier for people to undertake physical activity and make healthier food choices. Figure 1 illustrates how the individual strategies that make up the strategic plan fit into our model, and how the plan focuses on shaping the macro-environment of food supply and opportunities for physical activity to prevent overweight and obesity in the population. The implementation of the plan will need to be accompanied by complementary activities focusing on shaping the micro-environment of knowledge, beliefs, social attitudes and behaviour to influence the presence of overweight and obesity in individuals.

	Type of environment			
	7.1 (monitoring overweight and obesity) 7.2 (monitoring activity) 7.3 (monitoring food intake) 8.1 (establishment of implementation committee) 8.2 (reporting on evaluation)			
Size of environment	Physical		Socio-cultural	
	2.1 (workplace policies)		1.1 (physical activity guidelines) 1.6 (healthy weight promotion) 6.1 (standardised measures for overweight)	
	Energy/fat intake	Energy/fat expenditure	Energy/fat intake	Energy/fat expenditure
Macro-	1.3 (nutrition promotion) 1.5 (foodlabelling) 2.3 (workplace food) 3.2 (school food) 4.2 (community food)	1.2 (activity promotion) 2.2 (workplace activity) 3.1 (school activity) 4.1 (community activity)	1.3 (nutrition promotion) 1.4 (food production) 6.3 (food-related interventions)	1.2 (activity promotion) 4.2 (standardised measures for activity)
	5.1 (update knowledge of health professionals) 5.2 (leadership of health professionals)			
	Energy/fat intake	Energy/fat expenditure	Energy/fat intake	Energy/fat expenditure
Micro-				

Figure 1. Placement of individual strategies in the model used for the development of the strategic plan.

The plan focuses on shaping the macro-environment of food supply and opportunities for physical activity to prevent overweight and obesity in the population. The implementation of the plan will need to be accompanied by complementary activities focusing on shaping the micro-environment of knowledge, beliefs, social attitudes and behaviour to influence the presence of overweight and obesity in individuals

Strategies for implementation

1 Infrastructure and education

- 1.1 Develop national guidelines for physical activity which recognise the importance of incidental activity and low to moderate intensity activity.

Lead agency: National Health and Medical Research Council

Collaborating

agencies: Australian Association for Exercise and Sports Science; Australian Cancer Society; Australian Council for Health, Physical Education and Recreation; Commonwealth Department of Health and Family Services; Diabetes Australia; National Heart Foundation of Australia; State-based Aboriginal and Torres Strait Islander health services; State health departments; State-based physical activity organisations (eg Vicfit)

Performance

indicators: That the national physical activity guidelines are endorsed by NHMRC by November 1998.

That the national physical activity guidelines acknowledge the importance of incidental and low to moderate intensity activity.

Cost M Potential impact M Achievability H
Sustainability H

1.2 When developed, promote and implement the physical activity guidelines.

Lead agencies: State education departments; State health departments; State sport and recreation departments

Collaborating

agencies: Australian Association for Exercise and Sports Science; Australian Cancer Society; Australian Council for Health, Physical Education and Research; Diabetes Australia; Dietitians' Association of Australia; Commonwealth Department of Health and Family Services; National Heart Foundation of Australia; State-based Aboriginal and Torres Strait Islander health services

Performance

indicator: That the national physical activity guidelines are incorporated into the corporate policies and plans of State and Territory education, health and sport and recreation departments by January 2000.

Cost H Potential impact M Achievability H
Sustainability H

- 1.3 Promote and implement the *Dietary guidelines for Australians*,¹ the *Dietary guidelines for children and adolescents*² and the *Core food groups*,³ particularly the guidelines relating to variety; breads, cereals, vegetables and fruit; and fat.

Lead agencies: State health departments

Collaborating agencies: Australian Cancer Society; Australian Nutrition Foundation; Diabetes Australia; Commonwealth Department of Health and Family Services; Dietitians' Association of Australia; National Heart Foundation of Australia; State-based Aboriginal and Torres Strait Islander health services

Performance indicator: That all States and Territories develop food and nutrition policies which explicitly identify action to promote and implement the *Dietary guidelines for Australians*,¹ the *Dietary guidelines for children and adolescents*² and the *Core food groups*³ by January 2000.

Cost H Potential impact M Achievability M
Sustainability L

1.4 The Australian food industry (primary, processed and fast food) to continue to increase the proportion of foods on the market with low or reduced fat levels.

Lead agencies: Australian Food Council; Australia New Zealand Food Authority; Food Industry Council of Australia

Collaborating agencies: Australian Cancer Society; Commonwealth Department of Health and Family Services; Commonwealth Department of Primary Industries and Energy; Diabetes Australia; Dietitians' Association of Australia; National Heart Foundation of Australia

Performance indicator: The proportion of foods with low or reduced fat levels on the market by December 2002.

Cost H Potential impact M Achievability H
Sustainability H

1.5 Develop a food labelling system that clearly informs about the total amount of fat in foods and the proportion of energy provided by fat.

Lead agency: Australia New Zealand Food Authority

Collaborating agencies: Australian Food Council; consumer groups, Commonwealth Department of Health and Family Services; Food Industry Council of Australia

Performance

indicator: That a food labelling system which clearly informs about the total amount of fat in foods and the proportion of energy provided by fat is endorsed by the Australia New Zealand Food Standards Council by November 1998.

Cost H Potential impact M Achievability H
Sustainability H

1.6 Promote the importance of healthy weight control (with a focus on body mass index (BMI) and waist measurements).

This particular strategy is not appropriate for children and adolescents and this group therefore has not been included here.

Lead agencies: State health departments; peak health professional bodies (eg Royal Australian College of General Practitioners, Dietitians' Association of Australia); Australasian Society for the Study of Obesity

Collaborating

agencies: Australian Nutrition Foundation, Diabetes Australia; fitness groups; National Heart Foundation of Australia; State-based Aboriginal and Torres Strait Islander health services

Performance

indicator: To be developed in negotiation between lead and collaborating agencies by December 2002.

Cost M Potential impact H Achievability M
Sustainability M

Rationale for strategy 1—Infrastructure and education

The information available from the background papers, the Reference Committee, and received submissions suggested that the general thrust of the strategy should be to develop infrastructure and education regarding the role of physical activity and diet in the development and prevention of overweight and obesity.

Currently there are various viewpoints on the amount, frequency and type of activity required in the general population. The widely known recommendations for aerobic fitness are clearly not achievable by many Australians. This may be related to time, cost, intensity of the exercise and access to suitable venues for moderate to high intensity exercise. Evidence viewed showed that lower-intensity exercise for shorter periods will provide equal benefits and will be more widely achievable by the majority of the population. Similarly, the opportunities for increasing incidental activity within work and leisure time should not be underestimated.

The guidelines for physical activity for the population are intended to offer guidance and options that are both achievable and sustainable across all age, gender and occupations groups (strategies 1.1 and 1.2). It is likely that special guidelines will be required to embrace the needs of the target groups in consideration of their age, ethnicity and certain biological factors.

The *Dietary guidelines for Australians*¹ and the *Dietary guidelines for children and adolescents*² have already been developed to inform the population about the types of foods and preparation methods consistent with best health outcomes. The *Core food groups*³ describe the quantities of minimally processed foods, with minimal amounts of added fats and sugars, required for an adequate intake of nutrients at relatively low energy intake. These three references form the basis for the new national food selection guide, which is currently being developed by the

Commonwealth Department of Health and Family Services. The new food guide will be a key tool in promoting healthy eating to Australians (strategy 1.3).

Submissions from food industry groups and information from other sources (eg apparent consumption data, dietary surveys) indicate that the increasing number of low- and reduced-fat foods available in the marketplace is consistent with consumer preference, technological expertise and scientific nutrition knowledge. We applaud the initiatives of the Australian food industry in this regard and support its efforts to continue increasing the options available to consumers (strategy 1.4).

Food labelling was the subject several of submissions from the food industry, dietitians and other educators. We recognise that, while labelling of the type and quantity of fat alone may not have any significant impact (unless it is part of a more broadly based consumer information program) food labelling does provide consumer information at the time of purchase (strategy 1.5). The Australia New Zealand Food Authority has already initiated action to achieve a more satisfactory food and nutrient labelling system that will meet consumer requirements and be achievable by the food industry.

Equally important in the area of consumer education and infrastructure is to ensure that there is a common understanding of the importance of achieving and maintaining a healthy body weight and the risks of fat distribution in the abdominal area. Traditionally, both weight and height have been used to calculate BMI and waist and hip measurements have been used to determine the degree of abdominal fat deposition. Recent overseas research suggests that BMI and waist measurements alone may be sufficient indicators of health risk. We believe that general practitioners, dietitians and the States' and Territories' health departments should be key groups in promoting this information to the public.

2 Workplaces

2.1 Encourage the inclusion of physical activity and healthy food choices in occupational health and safety policies and workplace health policies.

Lead agencies: State occupational health and safety authorities; Union bodies; Employer groups

Collaborating agencies: Australian Association for Exercise and Sports Science; Australian Cancer Society; Diabetes Australia; Dietitians' Association of Australia; Commonwealth Department of Health and Family Services; National Heart Foundation of Australia

Performance indicator: The proportion of State-level occupational health and safety policies that recognise the importance of physical activity and healthy food choices by December 2002.

Cost H Potential impact H Achievability M
Sustainability M

2.2 Encourage negotiation between employers and employees to develop opportunities for increased physical activity within work patterns and practices as well as workplace design.

Lead agencies: Employer groups; Union bodies; State planning authorities

Collaborating agencies: Australian Association for Exercise and Sports Science; Diabetes Australia; National Heart Foundation of Australia; State health departments and sport and recreation departments

Performance indicator: To be developed in negotiation between lead and collaborating agencies by December 2002.

Cost M Potential impact M Achievability M
Sustainability M

2.3 Encourage workplace food services to offer a variety of food choices consistent with the *Dietary guidelines for Australians*¹ and the *Core food groups*.³

Lead agencies: Commonwealth Department of Health and Family Services and State health departments; employer groups; Union bodies

Collaborating agencies: Australian Cancer Society; Australian Nutrition Foundation; Diabetes Australia; Dietitians' Association of Australia; National Heart Foundation of Australia

Performance

indicator: The proportion of workplaces that offer a variety of food choices consistent with the *Dietary guidelines for Australians*¹ and the *Core food groups*³ by December 2002.

Cost M Potential impact M Achievability M
Sustainability M

Rationale for strategy 2—Workplaces

The workplace is a potentially important area for health promotion through legislation, workplace health policy and worker-driven health promotion activity. The legislative component of occupational health and safety aims to ensure that core elements are achieved in each workplace. Workplace health policy and health promotion activity—when negotiated between employers and workers—has the potential to achieve healthier workplaces and workforces (strategy 2.1).

Changes to work environments in recent years have seen the introduction of labour-saving equipment and consequent reductions in physical activity in many occupations. Obvious changes have occurred in the labouring occupations with the development of heavy machinery and earth-moving equipment. In office environments, many workers are now tied to computer screens without the need to move to place mail in an out tray or collect printing from the printer. Office buildings in towns and cities provide lifts between floors and have ready access to nearby off-street parking. These advances have had the effect of limiting physical activity, particularly incidental activity, during the working day.

The suggested workplace health policies for physical activity can apply to any workplace regardless of function or size (strategy 2.2). There are numerous examples of workplace health policies negotiated between workers and employers. Some of these include the provision of smoke-free environments, the use of ergonomically sound equipment and practices, and the implementation of guidelines for computer users. A capital city bus service has initiated a weight reduction program for its drivers and the National Road Transport Forum has introduced fitness and low-fat food choice programs to improve the health of drivers. These strategies are all aimed at better worker health and are likely to enhance productivity. A fitter, less fat workforce has the same potential.

Changes in workplace practices and design can include positively encouraging employees to increase activity through the provision of shower and change

facilities and secure bicycle parking facilities, and making areas available for lunchtime sporting and recreational activities.

Opportunities for increasing the variety of food choices are not limited to workplaces with a full-scale food service or canteen. Many industries and businesses utilise contractors for snack and lunch services, which include vending machines for drinks and snacks and mobile services with a range of hot and cold foods and beverages. All of these services can provide an opportunity for local policies to provide more options and meet the needs of workers (strategy 2.3).

3 Schools

3.1 Incorporate daily physical activity into school programs.

Lead agencies: State education authorities; local school councils

Collaborating agencies: Australian Association for Exercise and Sports Science; Australian Council for Health, Physical Education and Recreation; Commonwealth Department of Employment, Education, Training and Youth Affairs; Commonwealth Department of Health and Family Services; Diabetes Australia; National Heart Foundation of Australia; State sport and recreation departments

Performance indicator: The proportion of State education authorities that incorporate physical activity into school programs by December 2002.

Cost H Potential impact H Achievability H
Sustainability H

3.2 Encourage school councils to develop school canteen policies consistent with the *Dietary guidelines for children and adolescents*² and the *Core food groups*³.

Lead agencies: State education authorities; local school councils; school canteen associations

Collaborating agencies: Australian Cancer Society; Australian Nutrition Foundation; Diabetes Australia; Dietitians' Association of Australia; National Heart Foundation of Australia; State health departments

Performance indicator: The proportion of schools with canteen policies consistent with the *Dietary guidelines for children and adolescents*² and the *Core food groups*³ by December 2002.

Cost M Potential impact M Achievability M
Sustainability M

Rationale for strategy 3 — Schools

The development of this strategic plan has generated considerable interest among those individuals and organisations involved with the health and development of young children. We recognise that, while recent literature indicates that some Australian children are becoming more overweight and less physically active during their school years, other children—albeit a much smaller proportion—experience eating disorders that lead to severe underweight.

In this strategy we recommend the involvement in physical activity for all children in the context of the school program, without any emphasis on weight control (strategy 3.1). We agree that children who grow up enjoying both non-competitive and, or competitive activity, and who learn to be active in many ways, are less likely to become overweight and obese as adults.

By improving the quality of food available through school canteens, we recommend focusing on the development of good eating habits rather than weight control (strategy 3.2). We also agree that children who enjoy a wide variety of foods—especially breads, cereals, vegetables and fruits, rather than higher fat-energy convenience foods—are more likely to make better food choices as adults and thus reduce the risk of becoming overweight or obese.

The National Statement and Profiles for Health and Physical Education provide the basis for integrating physical activity into many aspects of education, rather than specifically identifying physical activity as a subject undertaken once a week or for one term and then forgotten. The Health Promoting Schools initiative, which has been adopted by some schools, provides a framework in which strategies aimed at improving health are coordinated through the curriculum, school organisation and policies, the social and physical environments, school health services and schools' links with the community. There are many opportunities for this strategic plan to be implemented.

Health promotion in schools not only involves students in the context of the curriculum, but can include providing incentives for children to use physically active means of getting to and from school. Several submissions suggested that the current system of children being driven to school by parents is a result of concerns for child safety. These concerns include the potential for injury and accident and for becoming victims of violence. Some schools with proactive health promotion programs are actively lobbying local authorities for safe cycle paths and walking routes within existing infrastructure, such as the child safety house schemes.

School councils have the opportunity to develop food policies which are consistent with the *Dietary guidelines for children and adolescents*.² We are aware of the current system of school canteens being required to provide funds for other school facilities and equipment. School canteens also depend on voluntary labour, and the increasing range of pre-prepared foods (designed to meet the cost and taste preferences of school age children) assist with the provision of a service with good profit margins. Some State school canteen associations have developed guidelines on food policies in which the key purpose is to offer healthy food choices to children while still maintaining profitability for school councils.

4 Community environments

4.1 Create opportunities for increasing both planned and incidental activity through the planning of the physical environment.

Lead agencies: Commonwealth Department of Environment, Sports and Territories; State and local government planning authorities, Commonwealth and State transport departments

Collaborating agencies: Australian Association for Exercise and Sports Science; Australian Council for Health, Physical Education and Recreation; Australian Local Government Association; town planning associations; State sport and recreation departments

Performance indicator: To be developed in negotiation between lead and collaborating agencies by December 2002.

Cost H Potential impact M Achievability M
Sustainability M

- 4.2 Encourage public and private sector food services (child care centres, nursing homes, hospitals, lunch bars, takeaway food outlets) to offer a variety of food choices consistent with the *Dietary guidelines for Australians*¹, the *Dietary guidelines for children and adolescents*² and the *Core food groups*.³

Lead agencies: Australian Local Government Association; State health departments

Collaborating agencies: Australian Cancer Society; Australian Nutrition Foundation; Commonwealth Department of Health and Family Services; Diabetes Australia; Dietitians' Association of Australia; National Heart Foundation of Australia; school canteen associations

Performance

indicator: The proportion of local councils that uses nutritional standards in the registration and licensing criteria for premises serving food by December 2002.

Cost M Potential impact M Achievability M
Sustainability M

Rationale for strategy 4—Community environments

The earlier sections of this strategic plan have identified the need for activity guidelines for the general population and the need to promote both food and physical activity guidelines. At the community level this will require long-term planning to enable individuals to put such knowledge into practice relatively easily and in safety.

Much of the physical activity in people's daily lives is not as a result of planned exercise programs or training for sporting events but is acquired in the course of occupation and leisure time. Experts in planning, designing and engineering the physical environment of towns, buildings, worksites, schools, shopping centres and parks and gardens will need to consider what they may have to offer in terms of opportunity and safety for members of the public to increase their levels of activity (strategy 4.1).

Several received submissions highlighted the need to have lighting to improve public safety in existing and future gardens and walking or bike paths. The safety issue for children also included the need to have facilities that reduce danger from injury, accidents and violence. For women and older members of society, concern for personal safety and risk of violence in isolated and unfit areas were raised as inhibiting factors.

Recent studies in the United Kingdom and the Netherlands have shown that obesity is increasing in the British population and decreasing among the Dutch, despite a similar decrease in total fat and energy consumed.⁶ The main difference was that while 60 per cent of Dutch people cycle to work each day only 5 per cent of the British use the same form of transport. There are clearly opportunities for reducing overweight and obesity afforded by increased efforts to provide a comprehensive system of bike paths in all major cities and towns in Australia.

In the long term, the private sector may be able to provide increased incidental activity opportunities in areas such as shopping malls and centres. There are already many examples of centres with space for recreational use by community groups. The provision of ramps, in addition to elevators and escalators, in public buildings for disabled people is a positive factor in efforts to increase incidental activity. These can be used by many different population groups, from people with young children to the elderly, for whom steps may pose potential hazards. More extensive and secure bicycle parking facilities within shopping centres will be required to complement existing and planned cycle paths in towns.

The fitness industry, while having an identified client group, has suggested that it could develop programs to meet the needs of specific groups, such as older women, the elderly, young mothers, children and adolescents. These initiatives have already been undertaken by some sectors of the industry centres in their communities.

Health outcomes generally are improved in Aboriginal and Torres Strait Islander communities which revive or enhance cultural activities such as traditional dancing and traditional bush food collection. Regular events that involve all age groups in the community can promote increased exercise.

The *Dietary guidelines for Australians*¹ and the *Dietary guidelines for children and adolescents*² can be used as the basis of menu planning in a wide variety of institutional food service menus to guide the quality of foods chosen and food preparation method (strategy 4.2). The quantities recommended in the *Core food groups*³ can further guide food service managers to ensure that all essential nutrients are available to consumers. This is particularly important in food services where consumers have little access to other foods, such as young children in long-day care and the elderly in nursing homes.

Lunch bars and takeaway food establishments are usually licensed by local governments on the basis of meeting food hygiene and safety regulations. There are examples of local governments in Australia taking a proactive role to include

nutritional quality, as well as safety issues, through the cooperative endeavours of environmental health officers and public health nutritionists.

Aboriginal and Torres Strait Islander community councils have a special responsibility for nutrition education within their communities. There should be adequate controls on the quality of food sold at takeaway stores and a sufficient quantity of core foods available through community stores for the benefit of community members. This is particularly so in remote areas of Australia where there is little competition between retailers and food choices may be limited to high-fat and high-energy varieties and minimal supplies of fresh fruits and vegetables.

5 Health care

- 5.1 Update the knowledge and practices of health professionals and other such influential people, particularly those who work with the target groups, by familiarising them with this strategic plan.

Lead agencies: Health professionals' organisations (eg Royal Australian College of General Practitioners, Dietitians' Association of Australia); fitness industry associations; weight loss industry

Collaborating agencies: Australasian Society for the Study of Obesity; Australian Association for Exercise and Sports Science; Australian Cancer Society; Australian Nutrition Foundation; Diabetes Australia; National Heart Foundation of Australia

Performance indicator: To be developed in negotiation between lead and collaborating agencies by December 2002.

Cost H Potential impact H Achievability H
Sustainability M

5.2 Encourage health professionals and other such influential people to provide leadership in the prevention of overweight and obesity in their communities

Lead agencies: Health professionals' organisations (eg Royal Australian College of General Practitioners, Dietitians' Association of Australia); Australasian Society for the Study of Obesity; fitness industry associations; weight loss industry

Collaborating agencies: Australian Association for Exercise and Sports Science; Australian Cancer Society; Australian Nutrition Foundation; Diabetes Australia; National Heart Foundation of Australia

Performance indicator(s): To be developed in negotiation between lead and collaborating agencies by December 2002.

Cost H Potential impact H Achievability H
Sustainability M

Rationale for strategy 5—Health care

This strategic plan is an intersectoral approach to long-term prevention of further increases in, and eventual reductions in, the prevalence of overweight and obesity in the population. It addresses many aspects of the environment in which we live. The responsibility for implementation is therefore spread across several levels and areas of government activity, the private sector and community organisations with an interest in the issues related to overweight and obesity.

Successful implementation of the plan, however, will rely on people in positions of influence within the community becoming familiar with its contents and acting as advocates for its adoption. This document should be used as the basis of continuing education for a wide range of health professionals and other persons of influence in the community, such as educators, leaders and coaches of sport and recreational groups, and those in the private sector fitness and weight-loss industries (strategy 5.1).

Within the health care system, general practitioners are seen as key influencers of individuals, not to monitor their patients' weights or to provide advice on diet or activity, but to create awareness of the likelihood and dangers of obesity in the same way that they deal with smoking. The role of dietitians in the dietary management of overweight and obesity is well known, but in the context of this strategic plan, their groups should also be taking a lead role as educators of other health professionals and the community in relation to the prevention of overweight and obesity (strategy 5.2).

In the wider community and private sector, familiarisation with this document should enable educators, leaders and coaches of sport and recreational groups, and those in the private sector fitness and weight loss industries to expand their roles and activities in an informed manner to address some of the needs of the target groups identified in the background papers.

Health professionals and other influential people have two roles in implementing this strategic plan. First, as advisers to individuals and other groups with whom they consult or provide services within their industry, profession or area of activity. Second, many of these community leaders will have the opportunity to influence and advocate for the implementation of other aspects of the strategic plan through varying roles in the community, for example, as members of local government council and committees, as participants in child care management committees or school councils, as members of community service groups and of the boards of hospitals, nursing homes and other health services.

6 Research

6.1 Develop standard methods for measuring and defining overweight and obesity.

Lead agencies: Australasian Society for the Study of Obesity; Australian Institute of Health and Welfare

Collaborating agencies: Academic institutions; National Health and Medical Research Council; research institutions

Performance

indicator: That appropriate measures of overweight and obesity are developed and agreed by December 1999.

Cost L Potential impact M Achievability H
Sustainability N/A

6.2 Develop standard methods for measuring and defining activity (energy expenditure).

Lead agency: Australian Institute of Health and Welfare

Collaborating

agencies: Academic institutions; Australian Association for Exercise and Sports Science; Australian Council for Health, Physical Education and Recreation; NSW Health; research institutions

Performance

indicator: That measures of physical activity are developed and agreed by December 1999.

Cost L Potential impact M Achievability M
Sustainability N/A

6.3 Develop population-based interventions to alter fat-energy intake and, or physical activity.

Lead agency: Australian Cancer Society; Diabetes Australia; National Heart Foundation of Australia; State health departments

Collaborating

agencies: Academic institutions; Australian Association for Exercise and Sports Science; research institutions

Performance

indicator: That the results from population-based interventions to alter fat-energy intake and, or physical activity are available by December 2002.

Cost H Potential impact H Achievability M
Sustainability M

Rationale for strategy 6—Research

Research is needed to identify successful public health interventions aimed at reducing the mean weight of the population and to identify ways in which to promote weight loss among those who are already overweight. The research questions should be considered at the individual level, as well as at environmental levels in line with other parts of this report. The list of research areas outlined here is not exhaustive, nor is it intended to be so. This is a population-based strategy and there are many other research questions that need to be addressed, for example, on the genetics of obesity, energy expenditure and metabolism. Our hope is that this simplified list will have the effect of stimulating progress in this area.

Proxies for fatness have been traditionally based on weight and, as described in the background papers, weight is an unsatisfactory measure for several reasons. Alternatives include BMI, waist-hip ratios, and waist measurement. Research in this area (strategy 6.1) should consider the relationship between measures of fatness and health outcomes in terms of morbidity, health-related quality of life and mortality, particularly for the target groups.

In relation to energy expenditure (strategy 6.2), the following areas are priorities for research:

- validation of the use of self-reported data for different population groups;
- development of accurate methods for measuring incidental activity, occupational activity, and low to moderate levels of physical activity; and
- development, and promotion of the use of standardised methods and definitions.

There are no nationally accepted procedures for the collection and analysis of data on physical activity in Australia. This means that trend analyses and comparisons between surveys undertaken by different researchers are confounded by differences in measurement and analytical procedures. The Australian Institute of Health and

Welfare (AIHW), in collaboration with other relevant organisations, is proposing to develop national standards and definitions for the collection of physical activity data under the umbrella of the National Health Information Agreement for inclusion in the *National health data dictionary*. Methods of rapidly assessing and defining physical activity would be very useful tools for the development of community-based guidelines and intervention trials in the future. Levels of activity need to be graded and related to health variables and outcomes.

In relation to energy intake (strategy 6.3), the following areas are priorities for research:

- Can dietary interventions be shown to be effective in the long term?
- How effective are reductions in fat intake as opposed to changes to other dietary components?
- Can interventions be targeted to specific high-risk groups in Australia?
- Can interventions be established by addressing structural and environmental factors?
- What is the prevalence and what are the determinants of physical inactivity and sedentary behaviours within the context of Australian children's and adults' school, domestic, working and recreational lifestyles?
- What is the long-term efficacy, effectiveness and cost-effectiveness of different weight-loss interventions?

Diets of many different kinds can result in reduced energy intake and, if followed long term, may result in a reduction of the increase in fatness or even a reduction in fatness. However, there is a surprising paucity of data to show that any of these dietary changes can be sustained and, therefore, that any weight loss can be maintained.

7 Monitoring and evaluation

7.1 Monitor changes in weight and waist measurements of the Australian population using standardised methods (see strategy 6.1).

Lead agency: Australian Institute of Health and Welfare

Collaborating agencies: Australian Bureau of Statistics; State health departments

Performance indicator: That changes in weight and waist measurements are monitored at regular intervals throughout the implementation of the strategic plan as data become available, with a particular focus on the target groups.

Cost M Potential impact H Achievability H
Sustainability H

7.2 Monitor physical activity patterns by using ongoing surveys and using standardised methods of measuring activity (see strategy 6.2).

Lead agency: Australian Institute of Health and Welfare

Collaborating agencies: Australian Association for Exercise and Sports Science; Australian Bureau of Statistics; Australian Council for Health, Physical Education and Recreation; State health and sport and recreation departments

Performance

indicator: That physical activity patterns are monitored at regular intervals throughout the implementation of the strategic plan as data become available, with a particular focus on the target groups.
That new methods of measuring activity are used to monitor physical activity when they become available.

Cost M Potential impact H Achievability M
Sustainability M

7.3 Monitor dietary intake (with a particular focus on fat–energy intake) and diet- related community weight control practices.

Lead agencies: Australian Institute of Health and Welfare; Commonwealth Department of Health and Family Services

Collaborating agencies: Australian Bureau of Statistics; State health departments

Performance indicator: That dietary intake is monitored at regular intervals throughout the implementation of the strategic plan as data becomes available, with a particular focus on the target groups.

Cost M Potential impact H Achievability M
Sustainability M

Rationale for strategy 7—Monitoring and evaluation

We propose monitoring strategies for overweight and obesity, physical activity and dietary intake. Implementation of the strategies will be complementary to current developments in the relevant monitoring components of the National Health Priority Areas process (eg cardiovascular disease and diabetes) and in national food and nutrition monitoring. The strategies suggested in this plan can be monitored by the refinement of existing or planned data collections.

We recommend that anthropometric measurements, data on physical activity and dietary intakes be collected at the one time on the same individuals so that the close association between the three factors can be taken into account, thereby increasing the value of the data for monitoring purposes. To be meaningful, new data collected should be comparable to those collected in the past to establish trends.

In relation to monitoring changes in weight and waist measurements (strategy 7.1), the following areas are priorities for monitoring:

- measurement of height, weight and waist and hip circumferences in five-yearly national population surveys (eg the National Health Survey);
- supplementation of these data with more frequent collection of self-reported data in population surveys (eg the Population Survey Monitor); and
- promotion of the use of standardised methods and definitions developed under strategy 6.1.

There is no regular and accurate system for the collection of physical measurements on representative samples of Australian adults or children. The best trend estimates of overweight and obesity are provided by the National Heart

Foundation risk factor surveys conducted in 1980,⁷ 1983⁸ and 1989,⁹ which measured the weight and height of adults living in capital cities. There are no equivalent data for children, adolescents or the elderly; however, these population groups were covered by the 1995 National Nutrition Survey, which measured the weight, height and waist and hip circumferences of persons aged two years or older. The National Aboriginal and Torres Strait Islander Survey, which collected measured height and weight on persons aged five years and older, covered another important population group.

The use of self-reported weight and height data as surrogates for measures of height and weight has been validated in adults¹⁰ and provides a cost-effective method of monitoring the prevalence of overweight and obesity. Self-reported data from the 1995 National Health Survey, combined with measured data from the 1995 National Nutrition Survey, can be used to extend this validation to other population groups.

In relation to physical activity (strategy 7.2), the following areas are priorities for monitoring:

- collection of self-reported physical activity data in the National Health Survey;
- supplementation of these data with more frequent collection of data in the Population Survey Monitor; and
- promotion of the use of standardised methods and definitions developed under strategy 6.2.

With the exception of the 1985 Health and Fitness Survey of Schoolchildren, national surveys have relied on self-reported data. Time-series data are available from the 1980,⁷ 1983⁸ and 1989⁹ National Heart Foundation risk factor surveys of urban adults and the 1989–90 and 1995 National Health Surveys of persons aged 18 years or older. Very little is known about current physical activity levels, or trends in activity participation, among Australian children.

In relation to dietary intake (strategy 7.3), the following areas are priorities for monitoring:

- implementation of a program of standardised data collection of food intake with periodic oversampling of priority groups; and
- supplementation of these data as necessary with more frequent collection of self-reported data in the Population Survey Monitor.

Data from the 1995 National Nutrition Survey will become available progressively from mid-1997 onwards and comparison will be possible with the 1983 National Dietary Survey of Adults¹¹ and the 1985 National Dietary Survey of Schoolchildren.¹²

Some aspects of diet, such as the use of fats in food preparation, the trimming of meats, the frequency of use of low-fat products and the frequency of consumption of specific food groups, may be monitored by using standard questionnaire modules in population health surveys. The need is for standardisation and for validation of standard modules as indicators of actual dietary habits. Validated modules can then be included in population surveys such as the Population Survey Monitor. This activity is important in Australia where, unlike in other countries, there is no ongoing data collection program to monitor food intake. However, in addition to these standard modules, there is also a need to collect more comprehensive data on food intake and biomedical status.

8 Coordination of effort

8.1 Establish a Strategic Plan Implementation Committee to coordinate the implementation of the strategic plan.

Lead agency: Commonwealth Department of Health and Family Services

Collaborating agencies: To be determined

Performance indicator: To be determined

Cost L Potential impact H Achievability H
Sustainability H

8.2 Report on the evaluation of processes and outcomes related to the implementation of the strategic plan.

Lead agency: Commonwealth Department of Health and Family Services

Collaborating agencies: To be determined

Performance

indicator: To be determined

Cost M Potential impact H Achievability H
Sustainability H

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Rationale for strategy 8—Coordination of effort

The formation of a Strategic Plan Implementation Committee is important to ensure that the activities undertaken in response to the plan are coordinated and to avoid duplication of effort (strategy 8.1). The composition of the committee will therefore need to be carefully selected to achieve this.

The committee's activities would encompass the development of a prioritised work plan, the allocation of primary responsibility with respect to different aspects of the work plan, and advocacy to engage the commitment of other key organisations to the implementation of the plan.

Ideally, the committee would meet at least once a year and agencies selected to be on the committee should be committed to it for the life of the strategic plan.

Another important activity for this committee will be in the area of performance indicators. Baseline information needs to be determined for all performance indicators, as well as a methodology for determining progress.

Reporting on the progress in achieving the goals in terms of both processes and outcomes should take place every 5 years, coinciding with the release of the results from the National Health Survey (strategy 8.2). Data from other sources, eg the Population Survey Monitor and ad-hoc studies, should also be considered at this time. Results from the evaluation should be consolidated into the design of the work plan to ensure that they are enacted.

Descriptive papers and scientific reports on the strategic plan should be published in a peer-reviewed journal or journals to demonstrate the progress towards achieving the overall goal and sub-goals using appropriate objective indicators and quantitative data. Such reporting and attendant publicity will be necessary to keep the important issues embodied in the strategic plan on the public agenda.

Part II

Background papers

We adopted a paper written by Dr Egger and Dr Swinburn¹³ as the framework for the strategy development, and developed seven other papers on key aspects of overweight and obesity, including aetiology, prevalence, prevention, treatment, and beliefs and practices. In part II, the important public health implications associated with the framework and these key aspects are presented with summaries of the papers. Readers who seek references and more information may consult the full report.

1 A public health paradigm for understanding obesity

Summary

The prevalence of overweight or obesity in many countries is over 50 per cent, and it is increasing. One estimate from Australia suggests that the average adult has been adding one gram per day to body weight over the last decade. This has significant health consequence, which cost countries around 3 to 5 per cent of their total health budgets. To counter this, major advances have been made in the understanding of the physiology, psychology and genetics of obesity and public education programs and the popular press continually publicise the value of healthy eating and exercise. However, the net effect has been the introduction of a wide range of individual treatment programs, the published success rate of which is low, and a few population-based programs also with disappointing results.

The driving forces behind the increasing prevalence of obesity in recent decades are likely to be found in environmental changes inherent in modernising societies. Hence, the strategies needed to control the obesity epidemic must be broad-based, with a strong emphasis on the environment. However, strategies for action are often limited by the paradigms used to conceptualise the problem, so a 'paradigm shift' may therefore be necessary before further progress can be made. This background paper traces the paradigms used in the understanding of obesity and evolves a broader 'ecological' model which can accommodate both individual

treatment and public health approaches to the problem. This model is compared to the traditional epidemiological triad (host, vehicle, environment), which has proven valuable in controlling a wide range of epidemics from malaria to car crashes.

Public health implications

Obesity presents us with two challenges: 1. to treat the currently obese and 2. to prevent obesity in those who are still lean. However, both strategies (individual and population) are doomed if our understanding of the condition is inadequate, because from this knowledge flows the paradigms upon which clinicians and public health practitioners base their programs and action. Given the limited success of treatment and public health programs, it is important to reexamine the paradigms upon which these programs are based.

A model that shifts the intra-individual emphasis away from metabolic defects and genetic mutations, and towards a normal variation in physiological responses, identifies environmental change as the driving force for the increasing prevalence of obesity in populations. The thesis of the model is that the paradigm shift to obesity as 'normal physiology within a pathological environment' signposts the directions for a wider public health approach to the obesity pandemic.

2 The aetiology of overweight and obesity

Summary

Overweight and obesity are exceedingly common disorders in our society; some people are genetically predisposed to these conditions and several genes are involved. It is possible that genetic change alone may produce a gain in adiposity but most obesity in humans requires an environmental or lifestyle change. Some of these factors include energy (food) intake, food composition and activity, and psychosocial factors play a major role. Different combinations of genetic effect, food intake and energy output, modulated by psychosocial factors, interact in different populations, ethnic groups and families to produce overweight and obesity—no single or simple cause has been isolated.

Although the factors of genetic predisposition, nutrition (in all its aspects) and activity are concerned equally in the aetiology of overweight and obesity, this background paper focuses primarily on nutritional factors.

Public health implications

The tendency to overweight and obesity is inherited, but obesity appears when lifestyle factors activate this tendency. Both increased total energy intake (diet) and/or a diet high in fat are implicated in the development of overweight and obesity. Recently there has been a significant decrease in daily activity which has compounded the effects of inappropriate diet.

Although many individuals are aware of the importance of diet, it is difficult to maintain a restricted intake. There is evidence that the consumption of a low-fat ad libitum diet may be as effective as caloric restriction and may provide better maintenance, but long-term studies are required to confirm this.

It is important to increase the activity levels of the general population; exercise programs are useful but incidental activity should be increased. Increasing this type of activity should have a major impact on the prevention of overweight and obesity.

3 The prevalence of overweight and obesity in Australia

Summary

The prevalence of overweight and obesity, and in particular, abdominal obesity, in Australia is described using results from various population studies undertaken since 1980. Trends are reported and the extent of the problem among adults, school students, Aboriginal and Torres Strait Islander peoples, and immigrants to Australia, is emphasised. Since the early 1980s, there has been a steady increase in the proportion of men and women who are overweight or obese. Women were 3kg heavier on average in 1989 than in 1980, and men were 1.7kg heavier. Recent data suggest that the trend towards increased weight has continued into the 1990s.

The lack of consensus concerning the classification of overweight and obesity amongst children in Australia makes it difficult to determine the prevalence of these conditions but estimates from a 1985 study indicated that 5.3 per cent of children were 'overweight' and a further 10 per cent were 'at risk of overweight'.

The prevalences of overweight and obesity among Aboriginal and Torres Strait Islander peoples from a 1994 survey, were 60 per cent of men and 58 per cent of women, whereas the corresponding figures for the Australian population from a 1989 study were 48 per cent of men and 34 per cent of women.

A national survey in 1989 showed that, among 20- to 69-year-olds, the likelihoods of being overweight or obese were two to three times greater for men and women born in Southern Europe than for their Australian-born counterparts. In contrast, the likelihood was lower for Asian-born migrants to Australia, particularly men.

The background paper also presents results from regional studies and estimates based on socioeconomic variables.

Public health implications

There is evidence that the prevalence of overweight or obesity among Australian men and women has been increasing since the early 1980s; it is greatest among men, post-menopausal women, Aboriginal and Torres Strait Islander women. The little information available on the prevalence of overweight and obesity among children and adolescents suggests that the prevalence is relatively high in this group.

Strategies that target these groups, coupled with strategies that target the general population, probably offer the greatest potential for the prevention of overweight and obesity in Australia, but there is also an urgent need to obtain more consistent, comparable and regularly collected data on the prevalence of overweight and obesity.

4 Economic issues in the prevention and treatment of overweight and obesity

Summary

This background paper summarises evidence on the economic cost of obesity in Australia and reviews the evidence on the cost-effectiveness of alternative interventions (either diet or physical activity) in reducing the prevalence of overweight and obesity and, thus, improving the health of the community.

The Australian Institute of Health and Welfare and the Centre for Health Program Evaluation have estimated that the direct cost of obesity in Australia in 1989 to 90 was \$464 million (\$510 in 1992–93 dollars). If indirect costs are included, the 1989–90 total cost of obesity was \$736 million (\$840 million in 1992–93 dollars). This is a conservative estimate because not all obesity-related conditions were included in the analysis. The consumer costs of attending weight-control centres—estimated at more than \$500 million a year—were not included. Studies in other countries have shown that obese persons attain lower levels of occupational prestige (and lower incomes) than non-obese persons. In addition, other studies have found that, as a group, obese persons receive more sickness and unemployment benefits than persons within a normal weight range.

The Australian Institute of Health and Welfare has estimated that reducing the prevalence of obesity in Australia by 20 per cent by the year 2000, in line with the National Health Goals and Targets, would save \$59 million in healthcare expenditure and 2,300 years of life.

Cost-of-illness studies have limited use in public policy decision making. Although they can indicate where the greatest potential healthcare savings could be made, their scope does not include the effectiveness of alternatives for prevention and treatment alternatives, or value for money invested. Resource allocation to prevention or treatment programs should be based on the relative cost-effectiveness of alternative interventions and not on the cost of disease alone.

Few studies internationally have examined the cost-effectiveness of alternative interventions for the prevention and treatment of overweight and obesity. Interventions aimed at increasing exercise participation rates in the population have focused on cardiovascular health rather than overweight and obesity, and have found better cost-effectiveness ratios for physical activity than other cardiovascular risk factor interventions.

The most comprehensive study available on the potential cost saving due to prevention of overweight and obesity evaluated the cost-effectiveness of a range of interventions for the prevention of non-insulin-dependent diabetes. A mass media program aimed at modifying lifestyle factors (eg diet and exercise levels) in the population and a program targeting overweight men ('GutBusters') both produced a net savings: that is, the program cost was outweighed by the potential healthcare saving due to the reduced incidence of diabetes resulting from the interventions. The results of the study provide a strong argument for government to invest in specific programs aimed at preventing weight gain in the population.

Public health implications

Overweight and obesity represent significant economic costs in Australia and substantial savings can be made to healthcare expenditure if the prevalence of these conditions can be reduced.

The few studies that have looked at the cost-effectiveness of preventing overweight and obesity have provided a strong argument for increased investment in the prevention of weight gain in the population.

Studies have shown that exercise may offer a cost-effective option compared to other cardiovascular prevention and treatment programs but more empirical studies are needed before any firm conclusions can be drawn; studies that focus on the effect of exercise on specific diseases tend to underestimate the true economic benefit of an intervention. Future studies should address the impact of various forms of intervention on increasing physical activity participation rates, and the effect of participation rates on the weight of the population and its subsequent effect on health outcomes.

Systematic reviews are required of both the potential cost and effectiveness of alternative interventions for the prevention and treatment of overweight and obesity in the Australian context. Such analyses should be undertaken on a wide range of possible interventions and target groups.

5 The role of physical activity in overweight and obesity

Summary

The predominant effect of exercise is not substantial weight loss, although the general consensus of recent studies is that small losses can be obtained and maintained with regular exercise programs. Most importantly, physical activity can increase energy expenditure to various extents, depending on the type, duration and intensity of activity. Physical activity has other major effects, particularly those metabolic changes that result in both an increased resting metabolic rate (RMR) and reliance on fat oxidation at rest. Exercise is most effective when it is combined with caloric restriction, and it protects against excessive loss of fat-free mass (FFM) in any weight-control therapy. It has further beneficial effects on hypertension and HDL cholesterol levels and may preferentially reduce visceral adipose tissue deposits. By increasing total energy expenditure, while preserving FFM and maintaining RMR, physical activity is central to the long-term successful management of overweight and obesity.

Our understanding of the physiological response to increased physical activity and caloric restriction in obesity has grown enormously since 1985. Changes in the body's energy balance and fat composition with increased energy expenditure can now be predicted and measured. Although many physiological questions remain

unanswered, the knowledge available today provides clear evidence for the need to incorporate physical activity into any treatment of obesity.

However, successful weight loss and its maintenance in overweight and obese persons cannot rely solely on our knowledge of physiology. The successful treatment of obesity will always be multidisciplinary, and knowledge of the physiological responses to physical activity and caloric restriction must be integrated with what is known of the complex behavioural traits that are at the root of human obesity. Also, for population-based messages to be spread effectively and for programs that promote and encourage healthier lifestyles to be successful, people need to become more aware of obesity as an important public health issue. In western society, both activity and energy intake have fallen in recent decades, so increased regular activity at work, at home and during leisure time must be instituted, to prevent further population weight gain.

Public health implications

There is evidence that reduction in physical activity since 1980 has contributed to marked increases in overweight and obesity in the Australian population.

Regular physical activity can increase daily energy expenditure but the resulting loss of body weight is generally small. The true benefit of regular physical activity, in the absence of marked dietary change, is the likelihood of slight sustained weight loss, with the loss of body fat, particularly abdominal fat, and the maintenance of lean tissue.

In combination with caloric restriction, physical activity is most effective in preventing lean tissue loss, thereby maintaining metabolic rate.

Public health strategies that aim to prevent further weight gain in the Australian population should be based on the need to increase physical activity as an integral component of our daily routine. Recent estimates of the role of incidental activity have suggested that with the rapid introduction of new technologies, both in the

home and in the workplace, the energy needed to be expended on daily tasks has fallen dramatically.

Multisectoral public health initiatives are needed to increase the level of incidental activity across the Australian population.

The physical activities that are most beneficial for body weight maintenance and regulation need not be intensive and rigorous. The most effective change in leisure-time physical activities would be the regular incorporation of low- to moderate-intensity physical activities, which are sustainable, varied and enjoyable.

6 Understanding and influencing physical inactivity in Australia

Summary

The recommendations of *Acting on Australia's weight* and the scientific literature cited in the other background papers make a strong case for the central role of a likely 'epidemic' of physical inactivity in the aetiology of overweight and obesity in Australia.

Increasing the population-wide levels of 'incidental' physical activity and low- to moderate-intensity activity is seen to be crucial to preventing further average weight gains in the population. Incidental activity encompasses many forms of physical activity in which people can take part as they go about their day-to-day lives. It can, for example, involve using stairs instead of lifts or escalators, riding a bicycle rather than driving a car to do minor errands, or choosing not to use energy saving implements for domestic tasks.

A major gap in knowledge relevant to understanding and influencing 'incidental' activity is the lack of valid, reliable data to document occupational, domestic physical activity levels. Such data would provide insights into the physical activity levels of lower-skilled workers, and of women who are engaged primarily in child rearing and domestic work.

Incidental activity is fundamental, but also important are the deliberate choices that people can make to engage in exercise for preventing weight gain, for general health benefits. Simple, convenient activities such as walking and swimming have the best chance of being adopted by inactive Australians over the next decade.

This background paper reviews what is known about levels of physical activity and inactivity in the Australian population, discusses some of the implications for public policy of that knowledge, and describes the evaluations of initial efforts at conducting large-scale national campaigns. It examines some of the lessons from research and from experience in other, more developed, areas of public health intervention, and identifies the challenge of how best to understand and influence what may be a growing Australian epidemic of 'sedentary behaviour' or 'incidental inactivity'. Principles to guide large-scale, systematic approaches to physical activity promotion are also suggested.

There is an urgent need to better understand the nature and the determinants of physical inactivity among Australian children and adults, and identify ways to address what appears to be a increasing prevalence of sedentary lifestyles among Australians, which seem to be linked to rapidly evolving changes in domestic, work and community environments.

Public health implications

Public policy innovations, community-based campaigns and programs to address the problem of overweight and obesity in Australia should benefit the least physically active—the greatest contribution to preventing further weight gain across the whole population is likely to be achieved by activating the sedentary, not by increasing the activity levels of those already exercising.

Increasing people's opportunities for simple and convenient 'incidental' activities, such as stair climbing, walking or cycling for transport (instead of using a motor vehicle) have considerable potential to increase the average level of energy

expenditure of the whole Australian population. Valid and reliable information about occupational and domestic physical activity would provide insights into the physical activity levels of lower-skilled workers, and of women who are engaged primarily in child rearing and domestic work, which are key public health concerns. Currently, this information is not available.

Incidental activity is important but so are the choices that people can make to engage in deliberate exercise for preventing weight gain and for general health benefits. In campaigns and other social and environmental innovations to promote exercise, planners should be aware that simple and convenient activities such as walking and swimming have the best chance of being adopted by inactive Australians over the next decade.

Support for research is crucial if we are to identify more clearly the prevalence and the determinants of physical inactivity and sedentary behaviour within the texture of people's domestic, working and recreational lifestyles. How can both incidental activity and sedentary behaviour and their links to different settings be measured in ways that are valid and reliable, and can appropriately inform public health policy? How are economic, social and environmental factors driving an apparent 'epidemic of sedentary lifestyles', which we believe to be associated with the epidemic of overweight and obesity in Australia? What are the most effective ways to change what seem to be highly prevalent patterns of 'incidental inactivity'?

If research can provide new insights into the determinants of physical inactivity in Australian children and adults, and public health strategies can begin to deal with this mass phenomenon in a systematic and broad-based fashion, there are likely to be considerable public health benefits, particularly in reducing the overall population health risks related to overweight and obesity over the next two decades.

7 The effects of community cardiovascular risk factor interventions on weight

Summary

Relatively few studies have attempted to prevent weight gain in the population. Although not focusing specifically on obesity, several large community-based cardiovascular risk-factor intervention trials have been conducted during the past two decades. Four of these studies were examined to assess their impact on weight: the North Karelia Project, the Stanford Three Community Study, the Stanford Five City Project, and the Minnesota Heart Health Program. Overall, the results were disappointing—the interventions had little or no effect and average weights actually increasing in some of the intervention communities.

These findings suggest that, in addition to encouraging individuals to take steps to control their weight, future efforts to prevent overweight and obesity should place a much greater emphasis on promoting and supporting changes to physical and social environments that would increase opportunities for people to participate in regular physical activity and to make healthy food choices.

Public health implications

The community cardiovascular risk-factor interventions reviewed in this background paper had little or no effect on weight, but it would be wrong to conclude that public health strategies to control weight are ineffective.

The North Karelia, Stanford Three Community and Stanford Five City intervention studies were designed and conducted during the 1970s and early 1980s, when there was an emphasis on promoting behaviour change by providing individuals with information. This is an important strategy but changing the environmental context of weight-control behaviours is also now widely recognised as a key element of policies aimed at reducing the prevalence of overweight and obesity. Apart from the Minnesota Heart Health program, the reviewed interventions placed little emphasis on promoting environmental change and, not surprisingly, had no impact on weight.

The disappointing results of the Minnesota Heart Health Program may have been a consequence of the intervention efforts having been overwhelmed by environmental influences, which illustrates that individual health behaviours occur within a broader social and physical environment. In industrialised countries like Australia, energy-dense foods are heavily promoted and labour-saving devices are common. Encouraging individuals to control their weight and providing them with information about how to do this is unlikely to be effective in reducing overweight and obesity unless steps are taken to modify the environmental influences that contribute to these problems. For example, a program that promotes the consumption of low-fat foods is likely to meet with limited success if few low-fat products are available in supermarkets, if they are poorly labelled, cannot be readily identified by consumers, or if low-fat foods are not competitively priced. Similarly, a strategy that encourages people to make physical activity a part of their routine is unlikely to succeed if destinations like shops and workplaces are out of

easy walking distance, or if there are limited facilities for physical activity outdoors.

As well as encouraging individuals to take steps to control their weight, public health strategies should be developed which promote environmental changes that support healthy weight-control behaviours. A variety of strategies is available, ranging from encouraging schools to provide programs that emphasise healthy dietary and physical activity behaviour, to increasing opportunities for people to be physically active through better town planning or the provision of facilities at worksites. A major challenge for future research will be to identify the role that environmental variables play in modifying behaviour. A better understanding of the impact of the social and physical environment on obesity and on weight-control behaviour may allow us to develop interventions that supplement behavioural and educational programs, and help to maximise their effectiveness.

8 Weight-loss beliefs and practices in the Australian community

Summary

Although obesity is a significant and growing public health problem in Australia, and health authorities are concerned with promoting healthy weight control, there is a paucity of data regarding population-wide weight-control behaviours. Much of the previous research has focused specifically on weight loss and few studies have examined weight-maintenance behaviours.

In adolescents, the available research indicates girls tend to be preoccupied with their weight. Most girls use a range of healthy strategies to control their weight but a minority use potentially health-damaging weight-control strategies. Boys, though frequently overweight, are less concerned about weight issues.

Studies in adults indicate similar trends: women are more likely than men to perceive themselves to be overweight, to desire to weigh less, and to take action to reduce their weight, including many women whose weight is within the medically acceptable range; and while many overweight men wish to lose weight, one-third have no intention of taking action for their weight.

Although weight-loss attempts are common in the community, we have little understanding of the determinants of weight-control behaviour and there is no research to indicate the success of these attempts. Overseas studies indicate

modest success for community weight-loss efforts but given the extent of overweight and obesity in Australian adults, it can only be assumed that efforts to lose weight are typically unsuccessful.

Public health implications

The available limited data suggest that weight control is a major phenomenon—many Australians are concerned about their weight and many actively trying to lose weight. In the development of strategies to prevent a further increase in overweight and obesity in the community, it will be important to promote healthy weight-control behaviours and healthy weight goals. However, further research is required to elucidate more clearly the specific nature of the weight-loss and weight-maintenance behaviours practised within the Australian community. Cross-sectional and prospective population studies are required, to examine the relationship between specific weight-control practices (dietary habits, physical activity and other weight-control strategies), psychosocial factors, and changes in weight.

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