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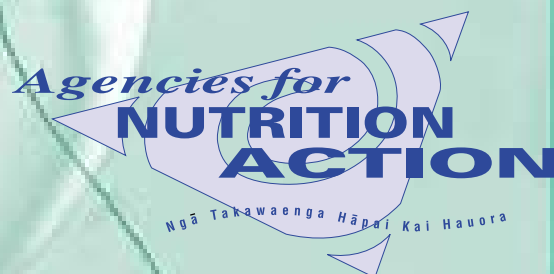
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2001

Healthy *Weight*

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New Zealand



Foreword

This report is supported by the members of ANA in providing an update of the current scientific understanding of weight as an index of health and health risk. ANA is proud to make this available as a reference to assist in public health promotion.

Disease is personal, debilitating and tangible. Its prevalence and management programmes are newsworthy. It is expensive to both the community and the nation. Body weight is a very visible and easily understood marker of a person's physical status. An optimal range can be defined and the further outside this range the greater the health risks. Obesity has well-defined risks for developing cardiovascular disease, diabetes etc. Malnutrition carries risk of infection and diseases of nutrient deficiencies.

Disease prevention is good news but intangible and rarely news catching. ANA is committed to the broader notions of positive health promotion championing a healthy diet and regular physical activity as key cornerstones of any public health policy aimed to improve and maintain the health of the community.

The primary authorship of Gillian Tustin and the assistance of Sue Zimmerman in the production of this report are gratefully acknowledged.



Dr Cliff Tasman-Jones

Chairman – Agencies for Nutrition Action

June 2001



*National
Diabetes
Forum*



Agencies for Nutrition Action

Agencies for Nutrition Action (ANA) is an incorporated society whose members include:

Cancer Society of New Zealand
Heart Foundation of New Zealand
New Zealand Nutrition Foundation
Te Hotu Manawa Maori
New Zealand Dietetic Association
National Diabetes Forum

ANA has worked as a group since 1996 to improve the health of all people in New Zealand through good nutrition as part of a healthy lifestyle. Health is defined as "the energy and enjoyment that comes from physical, mental and spiritual well-being".

ANA recognises that it is beyond the power of any single organisation to achieve the goals of Healthy Weight New Zealand but is prepared to act as an advocate to other sectors who will need to be involved and committed if these goals are to be successfully implemented.

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Contents

	Executive Summary	4
1.	Understanding the problem	5
1.1	Why obesity and overweight are important public health issues	5
1.2	Historical view of obesity	6
1.3	Factors influencing obesity	6
1.4	New Zealand nutrition and physical activity policies	7
1.5	Defining and classifying overweight and obesity	8
2.	Prevalence of overweight and obesity in New Zealand a matter for real concern	9
2.1	National Nutrition Survey 1997	9
2.2	Trends	9
2.3	Men and women	10
2.4	Older people	10
2.5	Maori	10
2.6	Pacific people	11
2.7	New Zealanders of other ethnicities	11
2.8	New Zealanders on low incomes	11
2.9	New Zealanders who live in rural/remote areas	12
2.10	Prevalence of obesity in children and adolescents	12
3.	Health risks and costs associated with obesity	13
3.1	Obesity as a risk factor for noncommunicable diseases	13
3.2	Relative risk of obesity-associated health problems	13
3.3	Cardiovascular disease	14
3.4	Diabetes mellitus	14
3.5	Social bias, discrimination and mental health	15
3.6	Economic cost of obesity	15
4.	Addressing the problem of obesity	16
4.1	Why a preventive approach?	16
4.2	An environmental model of obesity prevention	17
4.3	Enact healthy public policy	18
4.3.1	Nutrition policy	18
4.3.2	Physical activity policy	19
4.3.3	Treaty of Waitangi	19
4.3.4	Financial policy	19
4.3.5	Settings	19
4.3.6	Local government	20
4.3.7	Media	20
4.4	Prioritising partnerships	20
4.5	Education	20
4.6	Reorienting health services	21
5.	Obesity prevention recommendations	22
5.1	National policy recommendations	23
5.2	National strategy recommendations	23
5.3	District Health Boards – regional recommendations	23
5.4	Local recommendations	24
5.5	High Risk Groups	24
5.6	Partnerships	24
	Appendix 1 Defining and classifying overweight and obesity	25
	References	27
	Tables	
	Table 1 Healthy Weight Range	8
	Table 2 Obesity reported in NNZ97	9
	Table 3 NNS97 Report of BMI in different age groups	10
	Table 4 NNS97 Report of BMI for Maori	10
	Table 5 NNS97 Report of BMI for Pacific people	11
	Table 6 Relative risk of health problems associated with obesity	14

Executive Summary

In 1996 Agencies for Nutrition Action adapted an Australian document, "Healthy Weight Australia" to meet New Zealand conditions. As well, a summary version of Healthy Weight New Zealand was produced. These documents have been widely disseminated.

The reduction of obesity is one of the thirteen population health objectives in the New Zealand Health Strategy. It is timely to update Healthy Weight New Zealand. This gives ANA the opportunity for further consultation with food, nutrition and physical activity providers.

This document is intended to provide central and local government agencies, District Health Boards, NGOs, industry, media and consumers with background information and recommendations for action.

- Between 1989-1997 there has been an alarming 55% increase in obesity among New Zealanders.
- One in two adult New Zealanders are overweight or obese. The National Nutrition Survey in 1997 reported that 35% of the population were overweight and a further 17% were considered obese.
- Over 1000 New Zealanders die each year from obesity - double the annual road toll.
- More men than women in New Zealand are overweight or obese. Increased health risk is associated with abdominal (central) obesity which is most typical in men and post menopausal women.
- Maori and Pacific people have higher rates of obesity than other New Zealanders.
- Socioeconomic disadvantage leads to higher rates of overweight and obesity.
- While there are no national data on prevalence of obesity in children and adolescents, in countries similar to New Zealand, such as Australia, USA and UK there is increased prevalence in young people.
- Overweight and obesity are key risk factors for cardiovascular disease, Type 2 diabetes and some cancers.
- Modern life contributes to overweight and obesity through the increased use of motor vehicles and labour saving devices that have reduced the need to be physically active.
- Obesity is very debilitating and has a direct effect on a person's quality of life.
- There is a high degree of social stigma associated with overweight and obesity.

There is an urgent need to emphasise preventive action to reduce obesity prevalence.

- Effective obesity prevention and management makes sound economic sense - direct costs of obesity divert resources from other health services and intangible costs impact on the quality of life for individuals.
- \$130 million was the conservative estimate of directly attributable health cost of obesity in 1996.
- Adopting environmental approaches offers the opportunity to consider the driving forces of obesity and population-wide effects.
- The proposed national strategy for nutrition, physical activity and healthy weight, national nutrition guidelines and the new physical activity guidelines provide sound advice to prevent obesity.
- District Health Boards are in a unique position to invest in initiatives that offer long term population health gains.
- Physical activity and healthy eating guidelines offer the basis for obesity prevention programmes and always should be presented collectively and in a balanced way as prevention.

Recommendations for action

- Strengthen and develop workforce capacity – particularly for Maori and Pacific people.
- Obesity prevention programmes should be based on physical activity and healthy eating guidelines and policies.
- Particular effort is required to ensure that prevention strategies are tailored to meet high-risk population groups and are delivered in a culturally appropriate manner.
- An emphasis on improving environments and partnerships, within and beyond the health sector will be the key to success.

1

● Understanding the problem

- *Obesity is recognised as a major public health problem in New Zealand and worldwide.*
- *Effective obesity prevention and management makes sound economic sense.*
- *The ability to store fat was an essential survival mechanism in earlier times, but it has become a liability for many people in today's environment.*
- *Gender and culture, living and working conditions, social and community influences, individual lifestyles and metabolic factors contribute to obesity.*
- *National nutrition guidelines provide sound advice to prevent obesity.*
- *Body mass index has been widely used to define and classify overweight and obesity.*

1.1

Why obesity and overweight are important public health issues

In 1999 New Zealand adults were fitter than they were in 1996 but fatter. Over half of the adult population is overweight or obese.

Obesity is recognised as a major global public health problem. In developing as well as developed countries, weight gain and obesity are contributing to poor health in both adults and children .¹

Obesity is simply described as an excessive accumulation of fat in the body. The medical complications of overweight and obesity have been well documented^{2,3}

- Total body weight,
- the location of body fat,
- the magnitude of weight gain during adulthood, and
- a sedentary lifestyle

have been shown to be linked with development of overweight and obesity⁴ .

As the percentage of fat in the body in relation to muscle increases, adults are more likely to develop –

- Type 2 diabetes
- high blood pressure (hypertension)
- coronary heart disease
- osteoarthritis
- gout
- lower back pain
- sleep apnoea
- an increased risk for some types of cancer
- reproductive disorders
- psychological disorders

There is a high cost of obesity for individuals as well as for health care services. There is clearly potential for long term savings in health care costs through effective obesity prevention and management.

1.2

Historical view of obesity

In past centuries growing, harvesting and preparing

sufficient food was a major daily activity. Most people were thin, not only because they had erratic supplies of food, but also because they expended large amounts of energy in growing, gathering and preparing food.

In Western societies up until the mid 1800s gluttony was viewed as a sin⁵. There was no implication that body size or shape were connected with food intake. However in Victorian times, obesity became a moral issue when religious zealots pushed the link between gluttony and obesity.

From the early 1900s social stigma associated with obesity began to develop, exacerbated by rationing during world wars, and the cult of slimness by movie stars and fashion models.

During the last few decades, individuals have been bombarded with diets, books and messages urging them to 'take control' of their body shape. Research shows that 95% of 'dieters' regain their

lost weight. Tackling obesity through health education alone has met with limited success. A more comprehensive environmental approach is advocated, focusing on active living, healthy eating and a positive body image. This requires intersectoral collaboration as well as obesity management in clinical settings.

From the early 1900s social stigma associated with obesity began to develop, exacerbated by rationing during world wars, and the cult of slimness by movie stars and fashion models.

1.3

Factors influencing obesity

*"Unintended consequences of our post-industrial society are deeply-rooted cultural, social and economic factors that actively encourage over-eating and sedentary behaviour and discourage alteration in these patterns"*⁶.

Effective obesity prevention and management requires collaborative effort from many sectors, because it is the result of a wide range of influences. Gender and culture, living and working conditions, social and community characteristics as well as individual lifestyle factors and metabolic differences are all implicated.

Gender and culture

Obesity is more common in women than men. In general, women worry much more about their weight than men. However the typical pattern of male obesity is more of a health risk. Men tend to store fat around their trunk and this has been identified as a risk factor for cardiovascular disease. Abdominal obesity may also be an issue for post menopausal women.

Social and community influences

People with limited incomes are more likely to become overweight or obese than people in higher socio-economic groups. 'Healthier' food choices are often more expensive, for instance cheaper cuts of meat tend to be high in fat (for example mince, sausages, mutton flaps). Vegetables and fruit are often seen as expensive and perishable 'extras' and less popular than other staple foods. While many fast foods are cheap and filling, they are also high in fat. Cheap, readily available snack foods, such as crisps, are also high in fat and readily available.

Living and working conditions

Many jobs require less physical activity than ever before and more people have access to labour-saving devices. Fewer people walk, either for pleasure or necessity, than in the past. Cars are used even for short journeys under two kilometres⁷. Leisure activities such as watching television encourage a sedentary lifestyle.

1.4

New Zealand nutrition and physical activity policies

The New Zealand Health Strategy was released in December 2000 and included thirteen objectives for immediate action including improving

nutrition, increasing physical activity and decreasing obesity⁸.

The Ministry of Health promotes healthy eating and increased physical activity through the national nutrition guidelines⁹. These advise all New Zealanders to –

- *Eat a variety of foods each day including
Plenty of vegetables and fruits and breads and cereals
Some milk and milk products, and
Lean meat, chicken, seafood, eggs, nuts, seeds and cooked dry beans.*
- *Eat foods low in fat and salt.*
- *Keep in shape with regular exercise and healthy eating.*
- *Have plenty of water and other drinks every day.*
- *If you drink alcohol drink only a little.*

This advice is the basis of all nutrition advice including prevention of obesity. National nutrition guidelines have also been developed for specific target groups including pregnant women and breastfeeding mothers, infants, children, adolescents, older adults, vegetarians and those wishing to maintain a healthy weight.

In 1999 the Minister of Health and the Minister of Sport, Fitness and Leisure produced a joint policy statement on physical activity¹⁰. This endorsed 30 minutes of physical activity a day to improve the health of all New Zealanders, recognising the need for a collaborative approach to increasing participation in physical activity across a range of sectors and agencies (e.g. health, education, local government, transport). It also emphasised the importance of enabling less active New Zealanders to become more physically active. Among the benefits both for the population and individuals of increased physical activity levels are

- helps control healthy weight^{11,12,13}
- reduce feelings of depression and anxiety
- reduced disease risk for diabetes, cardiovascular disease, high blood pressure and colon cancer¹⁴
- reduces falls
- reduce risk of dying prematurely
- helps build and maintain healthy bones, muscles and joints
- promotes psychological wellbeing

Physical activity guidelines for health and physical activity professionals have been developed by the Hillary Commission. They emphasise a positive approach to promoting physical activity.

1. *View movement as an opportunity, not an inconvenience.*
2. *Be active every day in as many ways as possible.*
3. *Put together at least 30 minutes of moderate-intensity physical activity on most, if not all days of the week.*
4. *If possible, add some regular, vigorous exercise for extra health and fitness.*

The Hillary Commission's Push Play programme is an example of using a population approach to improve community awareness of the value of increasing physical activity. Television and print media promotions have been successful in raising awareness.

The Green Prescription is a physical activity treatment strategy for obesity prevention. This uses a partnership between general practitioners, their patients and local Sports Trusts to encourage inactive people to become more physically active.

1.5

Defining and classifying overweight and obesity

Obesity is defined as an excessive amount of body fat relative to lean body mass.

Defining and classifying overweight and obesity provides valuable information to

- identify individuals and groups at increased risk of morbidity and mortality
- identify criteria for intervention at individual and community levels
- measure changes and trends in individuals and across populations
- provide a basis for evaluation of public health strategies.

Body mass index, waist to hip ratio and waist circumference are all measures used to classify overweight and obesity. Detailed descriptions of these measures are given in Appendix 1. Bioelectrical impedance is a promising development that is portable and reproducible for a wide range of body fatness.

Body mass index (BMI) measures weight in relation to height. Table 1 gives the healthy weight range and identifies weights that are considered overweight or obese for New Zealanders of European origin. Different BMI classifications for Maori, Pacific, Asian and Indian people recognise ethnicity variables.

Waist to hip ratio (WHR) and waist circumference identify fat distribution. When weight is stored around the trunk (abdominal obesity) it is considered more of a health risk than when fat is stored around hips and thighs. It is more usual for men and some post menopausal women, to store fat around the trunk and for younger women to store fat around hips and thighs.

Healthy weight range

Table 1 Acceptable weights for height based on an ethnic-specific healthy BMI range

People	New Zealand/ European	Maori and Pacific Island	Asian/Indian
Healthy BMI Range			
	18.5-25	18.5-26	18.5-23
Height (m)	Body Weight (kg)		
1.50	42-56	42-59	42-52
1.52	43-58	43-60	43-53
1.54	44-59	44-62	44-55
1.56	45-61	45-63	45-56
1.58	46-62	46-65	46-57
1.60	47-64	47-67	47-59
1.62	49-66	49-68	49-60
1.64	50-67	50-70	50-62
1.66	51-69	51-72	51-63
1.68	52-71	52-73	52-65
1.70	53-72	53-75	53-66
1.72	55-74	55-77	55-68
1.74	56-76	56-79	56-70
1.76	57-77	57-81	57-71
1.78	59-79	59-82	59-73
1.80	60-81	60-84	60-75
1.82	61-83	61-86	61-76
1.84	63-85	63-88	63-78
1.86	64-86	64-90	64-80
1.88	65-88	65-92	65-81
1.90	67-90	67-94	67-83

Healthy Weight New Zealand

2. Prevalence of overweight and obesity in New Zealand a matter for real concern

- Between 1989-1997 there has been an alarming 55% increase in obesity among New Zealanders.
- National Nutrition Survey in 1997 reported that 35% of the population were overweight and a further 17% were considered obese.
- Overweight and obesity combined is greater for men than for women and their fat distribution is more of a health risk.
- Maori and Pacific people have higher rates of obesity than other New Zealanders.
- Socioeconomic disadvantage leads to higher rates of obesity.
- There are no national data on prevalence of obesity in children and adolescents.

2.1

National Nutrition Survey 1997

New Zealand is fortunate to have high quality information about obesity prevalence. The most recent New Zealand data on overweight and

obesity comes from National Nutrition Survey in 1997 (NNS97) which reported that 35% of the population was overweight and a further 17% were considered obese¹⁵. This means that almost half the population is overweight or obese. Maori and Pacific people have considerably higher levels of obesity than New Zealand Europeans.

Table 2

Obesity reported in NNS97

	Men	Women
NZ European	12.6%	16.7%
Maori	27.0%	27.9%
Pacific people	26.2%	47.2%

2.2 Trends

Obesity is rapidly increasing in prevalence worldwide with both developing and developed countries being affected. The proportion of adult New Zealanders who are overweight or obese is also increasing. According to NNS97 survey results there was a 6% absolute increase in obesity between 1989 (11%) and 1997 (17%). These figures represent increase of 9% per year over the decade.

This is an alarming trend, with major health consequences for New Zealanders. One in five New Zealanders is now obese.

Trends in prevention and treatment of obesity are moving in the wrong direction. Proportions of schools offering physical education, overweight people who report dieting and exercising to lose weight and primary care physicians who counsel patients about risk factors for obesity and other conditions have all declined⁸.

2.3 Men and Women

There are fundamental differences in the proportion and distribution of body fat in males and females.

In NNS97 obesity alone was more prevalent among women (16.7%) than men (12.6%), particularly in older age groups. However, it should be noted that obesity in men is nearly always abdominal, while women may have either abdominal or gynecoid obesity (fat stored around hips and thighs). At all ages the prevalence of overweight and obesity combined is greater for men than for women and their fat distribution is more of a health risk.

For young women particularly, being overweight may be a lesser problem than being underweight. The prevalence of eating disorders is a major concern that should be considered when designing community-wide preventive programmes.

2.4

Older people

The likelihood of becoming overweight or obese increases up until people are in their mid-60s. This increasing obesity is associated with a reduced life expectancy.

NNS97 Report of BMI in different age groups

Table 3

Age	Men	Women
19-24 years	24.8	25.0
25-44 years	26.1	25.7
45-65 years	27.6	27.9
66-74 years	26.6	27.2
75 + years	25.3	25.5

2.5

Maori

NNS97 Report of BMI for Maori

Table 4

	Men	Women
Overweight	30.0	32.7
Obesity	27.0	27.9

NNS97 reported that 27% of Maori men and 27.9% of Maori women were obese compared to 12.6% for other New Zealand men and 16.7% of other New Zealand women respectively.

Obesity is a major contributing factor to increasing numbers of Maori developing diabetes. From the South Auckland Diabetes Plan, Simmons reported extreme obesity to be present in 59% of Maori with diabetes¹⁶.

2.6

Pacific people

Data from NNS97 showed high rates of obesity among Pacific women especially.

Table 5 NNS97 Report of BMI for Pacific people

	Men	Women
Overweight	59.2	28.8
Obesity	26.2	47.2

These rates are reflected in results reported by WHO¹. Pacific populations of Melanesia, Polynesia and Micronesia all show a very high age-standardised prevalence of obesity. In urban Samoa, for example, the prevalence of obesity was estimated at over 75% of adult women and almost 60% of adult men.

Research has shown that Polynesians seem leaner than Caucasians at any given body size¹⁷. Swinburn recommends that BMI definitions for Polynesians be raised to –
 overweight BMI > 26 and <32 kg/m²
 obesity BMI >32 kg/m².

These definitions were used in NNS97 to classify overweight and obesity for Maori and Pacific people.

In 1992 Simmons reported that in Pacific people with diabetes in South Auckland, 69% were extremely obese¹⁶.

2.7

New Zealanders of other ethnicities

There are substantial differences in BMI among immigrant ethnic groups besides people from the Pacific. For instance, Asian groups appear to have lower mean BMIs relative to Europeans, but some of this may be related to differences in body composition. (See Table 1)

2.8

New Zealanders on low incomes

Socioeconomic disadvantage exacerbates the likelihood of overweight and obesity¹. NZDep96 is an index of deprivation based on the residential address of an individual. The index considers income, access to a car, living space, home ownership, employment, qualifications, support and access to a telephone. Four categories (quartiles) have been created, with Quartile I defined as individuals living in the least deprived areas and Quartile IV as individuals living in the most deprived areas.

NNS97 reported that women in New Zealand showed a strong relationship between obesity and NZDep96. There is the least obesity among women in Quartile I (13.1%), compared to Quartile IV where a quarter of women (25.1%) were obese.

It may be that families from lower socio-economic groups are less likely to be physically active than those from professional groups¹⁸. It is also likely that their food intake tends to be energy-dense, with a high-fat intake and less fruit, vegetables and wholegrain cereals eaten. NNS97 showed that more people in the lowest socio-economic group could eat properly 'only sometimes' and that 'variety of foods limited' was also considered an issue by this group¹⁵.

More Maori and Pacific people are represented in the lowest socio-economic group and this is a further factor in their higher rates of obesity.

"In 1996, about 28% of all Maori and about 26% of all children lived in households in the bottom fifth of income distribution (Statistics New Zealand '99). The combination of higher malnutrition associated with low income is a serious threat to the health of Maori and Pacific people". Hidden Hunger 1999¹⁹

2.9

New Zealanders who live in rural/remote areas

Rural men and women showed a small increased likelihood of being overweight or obese according to NNS97. Socioeconomic and ethnic differences could account for this. Also the characteristics of the rural food supply may be different.

2.10

Prevalence of obesity in children and adolescents

Currently there is no national data on prevalence of obesity in children and adolescents, although there is much anecdotal evidence that levels are increasing.

Preliminary data from the methods development and validation phase of the Child Nutrition Survey shows that there is a high sugar consumption among children and reduced levels of physical activity, particularly through high levels of television viewing. There is increasing international interest in understanding the relationship between overweight in childhood as a predictor of adult obesity.

3

Health risks and costs associated with obesity

- Overweight and obesity are key risk factors for cardiovascular disease , Type 2 diabetes and some cancers.
- Obesity has an effect on immediate quality of life and can be very debilitating.
- There is a high degree of social stigma associated with obesity.
- Direct costs of obesity divert resources from other health services and intangible costs impact on the quality of life for individuals.
- \$130 million was the conservative estimate of directly attributable health cost of obesity in 1996
- Over 1000 New Zealanders die each year from their obesity - double the annual road toll.

Individuals who have a BMI above 30 are likely to be severely affected by their weight and find that there are high personal and social costs associated with their obesity.

3.1

Obesity as a risk factor for noncommunicable diseases

"Noncommunicable diseases represent roughly half of the global disease burden today, but are expected to rise to over 70% by 2020. Increase in tobacco use, lack of physical activity, rising prevalence of obesity and unhealthy diet contribute to the increasing NCD burden in developing countries". Dr GH Brundtland, Director-General, WHO, 2000

As well as overweight and obesity are key risk factors for noncommunicable diseases, there are a number of other conditions that are not life-threatening but affect immediate quality of life and can be very debilitating. These include respiratory difficulties, chronic musculo-skeletal problems, skin problems and infertility^{1,20,21}.

3.2

Relative risk of obesity-associated health problems

risk of any particular disease for an obese person compared to a lean one. The relative risk of health problems associated with obesity has been shown to be fairly consistent throughout the world.

Relative risk is a tool that can be used to compare

The following table is provided by WHO¹

Table 6 Relative risk of health problems associated with obesity

Greatly increased (relative risk much greater than 3) *	Moderately increased (relative risk 2-3) *	Slightly increased (relative risk 1-2) *
NIDDM	CHD	Cancer (breast cancer in postmenopausal women, endometrial cancer, colon cancer)
Gallbladder disease	Hypertension	Reproductive hormone abnormalities
Dyslipidaemia	Osteoarthritis (knees)	Polycystic ovary syndrome
Insulin resistance	Hyperuricaemia and gout	Impaired fertility
Breathlessness		Low back pain due to obesity
Sleep apnoea		Increased anaesthetic risk
		Foetal defects associated with maternal obesity

* All relative-risk estimates are approximate.

3.3

Cardiovascular disease

Cardiovascular disease (CVD) encompasses coronary heart disease, hypertension and stroke. Obesity has been well documented as a predisposing factor for a number of other CVD risk factors such as hypertension, raised cholesterol and impaired glucose tolerance. Data is also available that suggests obesity is an independent risk factor^{22,23}.

When younger people are overweight or obese, there is a substantial increase in their CVD risk. CVD risk is also higher in people with abdominal obesity, usually men, than in those with excess weight around hips and thighs, more typically women.

New Zealanders have made changes to their diet with NNS97 reporting that total fat, saturated fat and cholesterol intakes have all fallen since 1989. But CVD is still the leading cause of death in New Zealand, especially for older adults. Increasing obesity and a less active lifestyle are contributing factors.

3.4

Diabetes mellitus

Diabetes is a serious disease that is increasing in prevalence. Obesity is a consistent risk factor in the development of Type 2 diabetes mellitus (formerly known as non-insulin dependent diabetes or NIDDM).

This association is seen across all populations despite different measures of fatness and criteria for diagnosing Type 2 diabetes. Abdominal obesity further increases the risk of pre-diabetic conditions such as impaired glucose tolerance and insulin resistance.

Type 2 diabetes is widespread throughout New Zealand, with an estimate that about 3% of the population are affected. Prevalence is much higher in Maori and Pacific communities, estimated to affect 8-9% of the adult population.

Type 2 diabetes can be difficult to diagnose and in some cases there are no early symptoms. It may be diagnosed several years after its onset when complications are already present. Complications include diabetic retinopathy, a leading cause of

visual disability or blindness, renal failure, heart disease and diabetic neuropathy. Treatment of these complications has a very high economic and resource impact on all health services.

Healthy eating and increased physical activity are accepted as the most appropriate prevention strategy for Type 2 diabetes.

3.5

Social bias, discrimination and mental health

There is a high degree of stigma associated with obesity. Obesity is stigmatised as being socially as well as physically undesirable. There is also an implied observation that obese people are lazy and lacking in will power²⁴.

Obese individuals often experience poor mental health associated with depression, exacerbated by further failed attempts at weight loss. In many ways, the psychosocial perils of obesity may be as serious as its medical complications²⁵.

Socio-economic position has been shown to influence levels of physical activity²⁶. Research suggests that people give 'external' barriers such as lack of money and access to transport are more likely to change exercise behaviour than people who give 'internal' barriers such as lack of motivation and time. Interventions to promote physical activity in poorer populations may require different strategies from those targeting more affluent groups.

Feeling too fat to exercise is another common barrier among the overweight, particularly for women²⁷.

3.6 Economic cost of obesity

Health care providers as well as policy-makers are concerned about the economic costs of overweight and obesity. The economic costs of a condition such as obesity has been summarised by WHO as¹:

- direct costs – the cost to the *community* through the diversion of resources to the diagnosis and treatment of diseases directly related to obesity. Obesity treatments such as drug therapy are costly and widespread advertising increases the pressure on health professionals to prescribe drug treatments for obesity.
- intangible costs – the cost to the *individual* because the impact of obesity on quality of life generally, and on health specifically.
- indirect costs – the impact of the reduced quality of life on the productive potential available to the rest of society. Usually these costs are measured as lost production due to work-related absenteeism and premature death.
- the anticipated rise in health care costs associated with increasing prevalence of Type 2 diabetes in both an ageing population and in Maori, Pacific and Asian populations provide cogent justification for national obesity prevention strategies.

In New Zealand the cost of obesity in 1996 was estimated to be around \$130 million per year based on obesity attributable costs of coronary heart disease, Type 2 diabetes, gallstone disease, colon cancer and post-menopausal breast cancer²⁸. It is acknowledged that this is a conservative estimate.

In 1996 obesity was estimated to account for at least 15,000 discounted years of life lost from approximately 1070 deaths. Obesity is of greatest significance in relation to diabetes: at least one third of all diabetes related deaths are attributable to obesity, although this proportion is much higher for young Maori. Other major causes of death associated with obesity are heart disease and stroke. For all-cause mortality, approximately 11% of all Maori deaths in the 45-64 age group are attributable to obesity compared with 6-7% for non-Maori.

4 ● Addressing the problem of obesity

- The need to reduce obesity prevalence is now urgent.
- Environmental approaches offer the best opportunities to influence the driving forces of obesity.
- The important relationships between biology, behaviour and environment must be recognised.
- Healthy public policy will lead positive change.
- The environment must support healthy lifestyles in eating and physical activity.
- Partnerships with Maori and Pacific people have high priority.
- Education strategies must be simple, consistent and clearly targeted to specific groups.
- District Health Boards will have a critical leadership and partnership role.
- Research is needed to provide evidence about effective interventions.

4.1

Why a preventive approach?

- The call to action is not new but it is now urgent.

Recommendations for prevention strategies have been advocated in New Zealand for years. Recent evidence describing New Zealand's alarming rise in the prevalence of obesity show that different and more robust action is required to combat the epidemic of obesity.

- Prevention strategies make economic sense.

Under strategies for preventing diabetes in 'Progress on Health Outcome Targets 1998' the point is made that "control of obesity through a population approach" is the strategy most likely to succeed.

The huge future treatment costs associated with diabetes alone can be clearly identified as a very negative outcome of obesity.

The Strategy for the Prevention and control of Diabetes in New Zealand (Ministry of Health 1997) is currently being redeveloped. Morbidity and mortality from diabetes is growing away from all projected targets, Type 2 diabetes will take its toll increasingly from Maori, Pacific and Asian people as their population numbers increase.

- Focusing on prevention can promote collaboration.

Focusing on prevention allows health workers to include wellness and wellbeing as an integral part of management practice in the treatment of non-communicable diseases such as diabetes and heart disease.

- Prevention strategies can also be inclusive so that people and organisations from different sectors which influence public health outcomes can work together.

Partnerships between health promoters and primary care practitioners are needed for effective healthy weight management. Key sectors that have a major influence on environments include physical activity, food industry, education, community and the media.

- Prevention is an essential focus for reducing social inequalities in health status.
WHO¹ suggest that prevention strategies to combat the epidemic of obesity can either
 - aim to improve the knowledge and skills of individuals in the community or
 - aim to reduce the exposure of populations to the underlying environmental causes of obesity.

They suggest that strategies aimed at improving knowledge and skills of the community have not produced impressive results in dealing with obesity.

"Communities are generally well aware of the problems associated with obesity and many individuals are actively attempting to control their weight. Participation rates are also usually high and many succeed in reducing their weight in the short-term. Nevertheless, there is generally little impact on the overall average BMI of the community and a negligible effect on obesity prevalence, which points to the importance of preventive strategies".

4.2

An environmental model for obesity prevention

Swinburn and others have described an ecological model of obesity³⁰. It shows three influences on obesity – biology, behaviour and environment.



Biology

Genetic factors may determine an individual's susceptibility to gaining excess weight, but an imbalance between energy intake and energy expenditure is the immediate precursor to weight gain.

The global epidemic of obesity is relatively recent, and human genes do not rapidly change. This suggests that there are other factors causing this global epidemic.

Much research attention has focused on finding a biological breakthrough for obesity. To date, these continue to be elusive.

Behaviour

We have already learned that health education alone will not prevent obesity.

Both individual and community-wide projects have attempted to change food and physical activity patterns through increased educational opportunities. Most projects are successful while there is intensive monitoring but people return to their original weights two to five years after the education ceases.

NNS97 found that New Zealanders are aware of the importance of eating well.

- One third of adult New Zealanders were currently trying to make dietary changes, with more women (39%) than men (28%) attempting change.
- Reducing consumption of high fat foods and increasing fruit consumption were the most popular changes.
- Percentage energy from fat consumption amongst New Zealanders has decreased from 37.5% to 35%. National guidelines recommend 30% energy intake from fat.

There is substantial evidence that a strong relationship exists between dietary fat intake and obesity^{31,32}. The type of fat consumed may also alter the development of insulin resistance and thus influence the development of obesity^{33,34}.

Increasing the intake of complex carbohydrate may aid in weight control³⁵. NNS97 found that only one in five New Zealanders ate the recommended six servings of bread and cereal a day.

Alcohol adds significantly to energy intake without producing satiety and also promotes abdominal fat storage³⁶. A reduction in alcohol intake is particularly pertinent for overweight and obese men with an abdominal fat distribution.

Environment

Swinburn and others have described four types of environment to be considered –

physical	what is available?
economic	what are the financial factors?
policy	what are the 'rules'?
socio-cultural	what are the attitudes, perceptions and beliefs?

An environmental approach to obesity offers the opportunity to consider the driving forces of obesity and to consider population-wide effects. Strategies to address environmental factors are significant because

- they recognise the multiple determinants of nutritional health status
- they emphasise that prevention of obesity involves more than personal behaviour change
- they build and strengthen partnerships between treatment, management and prevention professionals and organisations within different sectors.

4.3

Enact Healthy Public Policy (see also Section 1.4)

4.3.1 Nutrition policy

New Zealand Health Strategy

New Zealand Health Strategy, released in December 2000, outlines thirteen objectives for immediate implementation. Objectives include improving nutrition, increasing physical activity and reducing obesity. This policy framework gives a clear indication that Government views the epidemic of obesity seriously. It is essential that obesity prevention is led by the Ministry of Health and funded appropriately.

The related Primary Health Care Strategy also includes a notable shift to emphasise disease prevention.

National Plan of Nutrition Action

Currently the national nutrition guidelines are being reviewed and a strategy for Nutrition, Physical Activity and Obesity is being developed incorporating revision of the National Plan of Action for Nutrition. This should provide an up-to-date cohesive national nutrition policy that includes the revised nutrition guidelines.

International Charters

The Ottawa Charter, Jakarta Declaration and the Mexico Declaration are models of health promotion that have successfully used an environmental approach.

The five strands of the Ottawa Charter form the basis of ANA's framework to address obesity prevention, by

- building healthy public policy
- creating supportive environments
- strengthening community action
- developing personal skills and knowledge
- reorientating the health services.

4.3.2 Physical activity policy

Government policy on physical activity has been developed by the Hillary Commission in conjunction with the Ministry of Health. National physical activity guidelines have been developed and have been promoted to health and physical activity professionals. It is important that these guidelines are widely disseminated and incorporated into all health promotion programmes. Healthy eating information should be closely linked with physical activity guidelines. The Ministry of Health is currently developing a national plan of action/national strategy.

4.3.3 Physical activity policy

The partnership advocated in the Treaty of Waitangi between Maori as tangata whenua and the Crown and the implementation of the Treaty principles in relation to addressing healthy weight for Maori means Maori should be able to define and provide for strategies and services to their communities.

The key principles of Maori participation at all levels, partnership in service delivery and protection and improvement of Maori health status should underlie the implementation of a Healthy Weight New Zealand strategy.

4.3.4 Financial policy

There has been international discussion on the value of taxing foods of low nutritional value, especially those containing high levels of sugar or fat. In the United States 18 states and one major city currently levy special small taxes on soft drinks, candy and sweet foods.

The suggestion of a tax on foods high in fat or sugar has been proposed in both New Zealand³⁷ and Australia³⁸. Revenue gained from any tax change could be used to fund obesity prevention initiatives.

Pro's for financial/taxation measures	Cons
Healthy choices would become more affordable	Food prices would increase, more adversely affecting people on low incomes
Incentives for food industry to lower fat/sugar content of food products	Complex to administer and implement – who would make the decisions on cut-off points?
A potentially effective environmental intervention to modify our food supply.	Essentially a 'negative' measure. Would it be better to remove GST on some foods e.g. fruit and vegetables?

Other options include:

- Providing incentives for food manufacturers to support public health nutrition policy.
- Advocacy for strategies to improve availability of healthy food for people on low incomes.

4.3.5 Settings

Meals away from home

Meals eaten away from home make a substantial contribution to fat intake. Food available at restaurants, take-away food outlets as well as food provided by caterers at schools, workplaces, hospitals, rest homes, prisons and other institutions will be critical in ensuring provision of healthy food choices wherever people choose to eat. Sports clubs also need encouragement to provide healthy food and beverage choices.

4.3.6 Local government

The Hillary Commission has been active in developing strategies to increase the proportion of New Zealanders who participate in regular, moderate physical activity. As the recent Pedestrian Survey notes, walking is an excellent moderate intensity activity that is possible for most individuals to participate in without risk⁵. Physical activities need to be easily accessible, affordable and easily incorporated into everyday routines. Local authorities have responsibility to provide a safe and accessible environment for residents to participate in physical activity – for instance safe bicycle tracks, pricing at swimming pools to make them accessible to all residents, well-lit streets and well-maintained footpaths.

4.3.7 Media

Large food companies and retail outlets spend millions of dollars successfully promoting their products, without necessarily improving the nutritional status of populations. The content of food advertising on New Zealand television aimed at 9-17 year olds shows that over 60% are for sweet snacks (biscuits, chocolate, confectionary, sweet milk products), drinks including soft drinks and cordials and fast food/takeaways and restaurants³⁹. The authors of this research conclude that regulation of food advertising may be needed to address this in order to improve future health.

4.4 Prioritising partnerships

Maori, Pacific people and people on low incomes are over-represented in New Zealand's obesity and other health statistics.

Maori

The keys to success will be to –

- increase support for existing collaborative initiatives, for example Maori programmes like He Oranga Poutama and those administered by independent Maori service providers.
- focus on environmental interventions, for example reducing barriers to access, affordability, safety and acceptability rather than individual behaviour.

Pacific people

Pacific churches have been used as venues for successful health promotion programmes. There are a number of Pacific providers who can tailor healthy eating and physical activity messages appropriately.

Other groups

There are opportunities to enhance settings where food and physical activity are combined to include healthy options and make healthy choices the easy choices. Settings include worksites, gyms, social and cultural events, catering venues and community group meetings. As an example there are walking groups throughout the country who foster excellent community action for physical activity. Healthy eating messages could be further extended with these groups.

4.5 Education Labour-saving devices

The technical revolution has increased the number of labour-saving devices available both in the home and workplace. Vacuum cleaners, washing machines, computers, lifts and remote controls are examples of readily accessible labour-saving devices available to many New Zealanders. These devices have decreased energy expenditure significantly and many leisure activities require little physically activity, for example television viewing.

The high use of motor vehicles in New Zealand has reduced our levels of incidental activity significantly.

Increasing incidental as well as intentional physical activity should be a strategic priority.

Understanding food labels

Food regulations will in future require all packaged food to have nutrition labelling. Consumers, who are already struggling to understand food labels need assistance to interpret this information and greater public education is required. Nutrition labelling information should be supported by activities and environments which make it easier for consumers to make healthy food choices.

Cooking skills and eating habits

Many people lack food preparation and cooking skills. This means that they are reliant on food produced by others. This leaves them vulnerable to the skill and knowledge of food manufacturers to produce high quality food that meets nutrition guidelines.

Anecdotal evidence shows that individual portion sizes have increased dramatically. Chocolate bars are often advertised as 'more for the same price'. Education focussed on 'less is more' in terms of portion size and changes in eating habits is necessary.

4.6

Reorienting the health services

District Health Boards

It is vital that District Health Boards invest in obesity prevention strategies. Health care costs associated with obesity will soar if steps are not taken urgently to curb this nation-wide epidemic. A well co-ordinated and resourced national implementation process for a healthy weight strategy is required at regional and local levels.

Commitment to obesity prevention has great potential for District Health Boards to strengthen and develop partnerships with community groups, non-government organisations and other sectors.

Research

The NNS97 provides valuable information against which health strategies can be evaluated in the mid to longer term. It is crucial that further regular national nutrition surveys are conducted.

Food balance data can provide valuable food trends data. Collection stopped in 1997 – we recommend it is recommenced.

In 1999 the Foresight Project hosted a Food, Nutrition and Health Workshop. This advocated for stronger integration between the health and food sectors through communication and alliances. Research priorities related to the following key themes were identified:

- informed consumer choice
- a preventive focus in health care
- a smart profitable food industry
- New Zealand knowledge base in food, nutrition and health.

Plans for on-going consumer research into attitudes about food and activity should be developed. Research that explores the links between low income and obesity prevalence is also required.

Evaluation of interventions in a variety of settings is needed to assess their effectiveness.

5 ● Obesity Prevention Recommendations

- Implement a robust national strategy supported by regional and local activities.
- Physical activity and healthy eating guidelines offer the basis for obesity prevention programmes.
- Particular effort is required to ensure that prevention strategies are tailored to meet high-risk population groups and are delivered in a culturally appropriate manner.
- Agencies for Nutrition Action has a commitment to partnerships with other sectors to plan, monitor and evaluate strategies for obesity prevention.

A collaborative preventive approach

Obesity prevention is likely to be more successful if the obesity-promoting environment is tackled. This means that strategies beyond an individual, educational level need to be developed. Changes in the environment (such as reduced exposure to high-fat foods) and changes in societal attitudes (such as reduced dependence on a sedentary lifestyle) may offer better long-term results to lower the mean population BMI, than focussing on changing individuals' behaviour.

Considerable progress has already been made in increasing awareness in the health sector and with other stakeholders about the benefits of collaborative health promotion activities at community level. There is real potential to further develop this collaborative health promotion approach by strengthening obesity prevention strategies in existing networks and partnerships.

A national blueprint could include:

National Policies

Minister's Statement	Nutrition Policy/guidelines	Economic Policy	Nutrition labelling	TV advertising
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National Strategies

Media campaign	Workforce Devpt	Healthy environments	Benefit entitlements	Advocacy	Research evaluation
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Regional Strategies – District Health Boards and others

Support existing programmes – policy & funding	Foster new alliances	Monitor & evaluate programmes	Support Maori & Pacific providers	Support national media campaign
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Local Strategies – Service Providers

Local media activities	Nutrition & activity partnerships	Safe, accessible physical environment	Foster action in communities
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5.1

National policy recommendations

- Develop a Ministerial Statement on Obesity Prevention.
- Complete revision of National Plan of Action for Nutrition (NPAN) including food and nutrition guidelines for New Zealanders. NPAN should be recognised as national nutrition policy
- Consider research on impact and effectiveness of economic policies to provide consumption incentives for healthy eating and physical activity and to generate funds to support obesity prevention activities. Options include tax on high sugar/ high fat foods, cars, televisions; removal of GST or incentives to food manufacturers.
- Consider extending nutrition information provided on food labels to include foods purchased outside the home, for example cafeterias and restaurants.
- Investigate with the Broadcasting Standards Authority avenues for providing equal television advertising time or messages promoting healthy eating and physical activity, especially during children's peak viewing times.

5.2

National strategy recommendations

- As a priority develop a workforce at all levels competent to promote nutrition, physical activity and healthy weight. Providers have expressed an urgent need to strengthen grass roots capacity.
- Develop and fund a national healthy eating media campaign compatible with 'Push Play' which emphasises positive body image and healthy eating rather than weight loss.
- Encourage organisations to implement policies that include healthy eating and physical activity components – for instance daily physical education in primary schools, physical activity opportunities for secondary school students of at least 30 minutes per day and nutrition policies for schools and other institutions.
- Ensure health professionals and health promotion agencies are equipped to provide accurate information about benefit entitlements.
- Support income advocacy organisations such as the Food Poverty Network and Peoples' Centres to advocate for incentives and subsidies for people on low incomes to increase their access to healthy food and physical activity opportunities.
- Research must continue in health, food and physical activity sectors. There needs to be a commitment to repeat the national nutrition survey in 2007, re-instate the collection of food balance statistics and research consumer attitudes and needs.
- Monitor and evaluate all food and nutrition and physical activity policies and programmes so that quality standards and consistency are maintained.

5.3

District Health Boards – regional recommendations

- Continue to support and encourage providers and programmes to work together to promote and implement obesity prevention programmes.
- Foster new alliances between health, physical activity and education providers, especially in low-income settings.
- Monitor and evaluate the effectiveness of current nutrition and physical activity programmes.
- Pay special attention to the needs of Maori and Pacific people, using acceptable providers with experienced and qualified workers.
- Fund evidence-based strategies that support national healthy eating and physical activity campaigns.
- Fund community action programmes which enable communities to take responsibility for their own health.

5.4 Local recommendations

- Develop local activities, in partnership with local communities, to support national healthy eating and physical activity campaigns.
- Develop and implement safe, accessible and innovative nutrition and physical activity programmes using a wide range of partnerships.
- Local authorities to develop and maintain safe and accessible opportunities for moderate physical activity at regional and community levels.
- Strengthen community action using initiatives such as School Walking Buses.

5.5

High Risk Groups

Interventions and strategies are required which target several known indicators of increased risk for the development of overweight and obesity, including

- having both parents overweight or obese
- being Maori, especially associated with geographical isolation and economic disadvantage
- being of Pacific origin and also associated with economic deprivation
- being overweight in childhood
- being an older male, especially with abdominal obesity
- being physically inactive

5.6

Partnerships

No one sector can be responsible for creating the environmental and societal changes necessary to reduce the prevalence of overweight and obesity.

- Health workers at every level in the workforce (for instance, health promotion, public health, primary care) have complementary roles.
- Central government agencies, District Health Boards, local government, non-government agencies, food industry, media and consumers all have an impact on the success of all New Zealanders in achieving healthy lifestyles.
- Education, physical activity, community (including Maori and Pacific people) are key sectors. Partnerships between these groups are vital.
- Agencies for Nutrition Action is one group which has played a coordinating role in the prevention of obesity by fostering linkages between people working in the nutrition, physical activity and other sectors.
- Commitment to partnerships with other sectors must involve joint planning, monitoring and evaluation of preventive strategies for obesity prevention.

In 2001 New Zealand has a great opportunity to link words with action. There is no better time to seriously tackle the challenge of effective obesity prevention.

Defining and classifying overweight and obesity

1. Measuring body fatness: body mass index

Body Mass Index (BMI) measures individuals' weight in relation to their height and is calculated as weight in kg/height in metres squared². It is widely accepted as the most practical and useful measure of total body fatness for epidemiological studies in adults between 20 and 69 years, although age, sex, muscularity and ethnicity must also be taken into account⁴⁰.

There is substantial evidence of a strong association between BMI and morbidity and mortality^{41,42}. International studies have suggested that a BMI of 20-25kg/m² for both men and women is the 'ideal' weight range in terms of subsequent mortality⁴³. National Heart Foundation's Nutrition Advisory Committee has recently determined a healthy BMI to be between 18.5kg/m², and 25kg/m²⁴⁴. People with BMI >30kg/m² have a marked increase in mortality compared with people whose BMI is 20-25 kg/m². The results of some studies have indicated that the probability of death begins to rise steeply at BMIs between about 29 and 34 in different populations.

Data from the USA Nurses Study showed that the incidence of diabetes increased among women with BMIs of 22 kg/m² or more⁴⁵. This suggests that the cut-off points for BMI cannot be rigid and must be subject to risk factor evaluation for the specific population in question. It is noteworthy that the Canadian classification system defines obesity as BMI >27kg/m²⁴¹.

2. Variation in the relationship between BMI and body fatness

There is also considerable ethnic variability in the range of BMI that represents a healthy weight. A study comparing body fat and BMI suggests that both Polynesian men and women have less body fat at any BMI than Caucasian men and women¹⁶. It has also been noted that the percentage of body fat mass increases with age up to 60-65 in both sexes^{46,47}, and is higher in women than in men of equivalent BMI⁴⁸.

3. The use of BMI to classify obesity

BMI is considered a satisfactory and useful population-level measure of obesity. Weights and heights are routinely collected in clinical and population health surveys allowing BMI to give primary data to estimate the prevalence within a population and the risks associated with it. BMI does not account for the wide variation in the nature of obesity between individuals or populations.

4. Recommended measurement and level for BMI

BMI, together with WHR and waist circumference, are satisfactory measures to define obesity and its associated risks. Measurements need to be standardised. For BMI weight and height should be measured without shoes, socks or heavy outer clothing. BMI should be expressed in whole numbers.

New Zealand prevalence data for overweight and obesity for men and women aged over 18 years uses the criteria –

overweight	BMI > 25 and <30 kg/m ²
obesity	BMI >30 kg/m ² .

While a BMI above 30 is most likely to be associated with an excess of body fat content, individuals with BMIs in the range 25-30 require further assessment depending on age, ethnicity, muscularity and activity.

5.

Measuring fat distribution: waist circumference and waist-to-hip ratio

Extra criteria or descriptors are required to take into account the distribution of body fat. Central obesity (accumulation of abdominal fat) can vary dramatically within a narrow range of total body fat or BMI. It is now recognised that abdominal obesity conveys much higher risks of cardiovascular diseases and NIDDM than peripheral obesity (also known as gynoid obesity)⁴⁹.

Over the past decade, a high waist-to-hip ratio (WHR >1.0 in men and >0.85 in women) has been the clinical method of identifying people with central obesity⁵⁰.

Data additional to BMI, such as WHR or skinfolds is valuable in identifying individuals at increased risk from obesity-related illnesses. There is convincing evidence for the association between WHR and NIDDM^{51,52,53}, hypertension^{54,55}, and associated ill health.

Recent evidence suggests that waist circumference provides a practical correlate of abdominal fat distribution⁵⁶. Waist circumference is a convenient and simple measure which is unrelated to height⁵⁷, closely correlates with BMI and WHR⁴⁹ and is an approximate index of total body fat⁵⁸. As well, changes in waist circumference reflect changes in risk factors for cardiovascular diseases and other forms of chronic disease, even though the risks seem to vary in different populations⁵⁹.

6. Recommended measurements for waist circumference

Waist circumference is measured horizontally at the mid point between the lower border of the rib cage and the iliac crest, with the subject standing with feet 25-30 cm apart. See Table 2.

Table 2: Proposed Waist Circumference in different adult ethnic groups

	Men	Women
New Zealand European people	< 102 cm	< 88 cm
Maori and Pacific Islands people	< 102 cm	< 88 cm
Asian and Indian people	< 90 cm	< 80 cm

From: 2001 Clinical Handbook NZDA Inc. 6th Edition, p 11.

7. Measuring overweight and obesity among children and adolescents

There is not the same international agreement over the classification of overweight and obesity in children and adolescents as there has been for adults. The BMI ranges for adults are not appropriate for children and adolescents, as age and sex specific values have yet to be defined⁶⁰.

BMI-for-age charts have been developed for Swedish, British and Italian children^{61,62,63}. WHO is currently undertaking the development of new growth reference for infants and children from birth to 5 years¹. A similar reference will also be required for older children and adolescents.

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