

 eat well be active.

Healthy Weight Introductory Course

Participant's Manual



Government of South Australia
SA Health

Healthy Weight Introductory Course

Participant's Manual



Government of South Australia

SA Health

Copyright

© MINISTER FOR HEALTH
Government of South Australia 2008

All rights reserved. No part of this publication may be reproduced or transmitted, in any form or by any means, electrical, mechanical, photocopying, recording or otherwise, or stored in any retrieval system of any nature other than pursuant to the terms of the Copyright Act 1968 (Cwth) or with the written permission of the Minister for Health, Government of South Australia.

Acknowledgements

This manual has been developed by SA Health in partnership with TAFE SA to support training funded under the Australian Better Health Initiative: A joint Australian, State and Territory government initiative.

Development has been supported by the Healthy Weight Course Steering Committee, 2006–2008:

- Patricia Carter, Chief Project Officer
- Vanessa Gaston, Healthy Weight Coordinator
- Kirsty Hammet, Chief Project Officer Healthy Weight
- Louise Jarman, Chief Project Officer, Physical Activity
- Agnes Maddock, Chief Project Officer Healthy Weight
- Louisa Matwieczyk, Chief Dietitian-Nutritionist
- Michelle Powers, Senior Community Dietitian
- Melanie Smith, Program Manager, Healthy Weight
- Chantal Corrie, Senior Project Officer

SA Health acknowledges the valuable contribution of the TAFE project team, Jill Hadley, Thea Pruul and Nancy Hermsen to the production of this manual.

Contents

Introduction	1
Target audience	1
Aim	1
Objectives	1
Learning outcomes	2
Section 1: What is healthy weight?	3
South Australia’s Strategic Plan T2.2 Healthy Weight	4
Healthy weight – individual and population benefits	4
Healthy eating	4
Physical activity	6
Breastfeeding	6
Measures of weight for adults	7
Body Mass Index	7
Waist hip ratio/waist circumference	7
When should weight be measured?	8
Principles of a health promoting approach to healthy weight	9
What is population health?	9
A focus on prevention	9
A focus on equity	10
Multiple strategies across settings	11
Summary	11
Section 2: Guidelines for nutrition and physical activity	13
Healthy eating guidelines	13
Dietary guidelines for children and adolescents in Australia	14
Dietary guidelines for Australian adults	14
Physical activity – definitions and guidelines	15
Preventing weight gain and achieving weight loss	16
Breastfeeding	17
Breastfeeding and infant feeding guidelines	17
Summary of key messages	18
Section 3: The big picture	19
Overweight and obesity: facts and figures	19
Distribution	21
The cost of overweight and obesity	21
Summary	22
Factors contributing to overweight and obesity	23
Patterns of food consumption	23
Extras or ‘sometimes’ foods	24
Soft drinks, fruit juices, sport and energy drinks	24
Physical activity levels	25
Breastfeeding below recommended rates	26
Wider influences on overweight and obesity	27
Food availability and consumption	27

Marketing	27
Food insecurity	28
Rise in sedentariness	28
Screen time	28
Urban environment	29
Influences on breastfeeding	30
Parenting beliefs, knowledge and practices	31
Opportunities for intervention	34
Targeting behaviours, setting and sectors that matter	34
Section 4: Healthy weight resources	37
Health programs	37
Building capacity and networks	38
Supportive policy	38
Further reading	41
References	43

Introduction

Target audience

This course has been developed for workers in primary health care and community care settings who:

- work with families and children
- have limited or no prior training or background in nutrition or physical activity or their relationship with body weight; or
- would gain value from updating existing knowledge; and
- have opportunities to address these issues in their work.

Aim

The training program provides an introduction to concepts, guidelines and issues underpinning a health promoting approach to healthy weight.

Objectives

The course will:

- introduce a healthy weight framework that includes:
 - a. nutrition, physical activity and breastfeeding as the three domains for action
 - b. accepted measures of weight status
 - c. principles of a health promoting approach to healthy weight
- summarise the benefits of healthy weight
- introduce South Australia's Strategic Plan (SASP) healthy weight target
- promote understanding of the recommendations for nutrition, physical activity and breastfeeding by:
 - a. introducing the guidelines for nutrition, physical activity and breastfeeding
 - b. providing a summary of healthy weight 'key messages'
- give an overview of the state and national 'healthy weight' picture, including:
 - a. levels of overweight and obesity
 - b. trends in physical activity, eating patterns and breastfeeding rates (compared to the recommended rates/levels)

- c. the behavioural, socio-economic and environmental factors influencing these rates
- d. the individual and population effects of overweight and obesity
- e. an overview of programs, policies and resources that promote healthy eating, physical activity, and breastfeeding.

Learning outcomes

By the end of the course, participants will:

- understand the recognised guidelines, recommendations and key messages for healthy eating, physical activity and breastfeeding
- have greater knowledge of the relationship between physical activity, healthy eating and breastfeeding and good health, the prevention of overweight and obesity, and chronic disease
- understand a population health approach to promoting healthy weight
- have greater knowledge of the complex issues associated with overweight and obesity
- understand the factors that influence the uptake of recommended guidelines for healthy eating, breastfeeding and physical activity in the community
- have begun thinking beyond individual client contact to environments, resources and settings that can make a difference.

Section 1: What is healthy weight?

For adults, weight is measured at the population level using the body mass index (BMI), with the healthy weight range corresponding to BMI between 18.5 and less than 25. Defined narrowly, the promotion of healthy weight usually relates to the avoidance of underweight, overweight or obesity.

In South Australia we recognise the relationship between healthy weight, good health and the prevention of chronic disease. Promoting healthy weight means promoting behaviours and environments for optimal levels of nutrition and physical activity – making the healthy choice the easy choice. The promotion of healthy weight should span the life course from pregnancy, through childhood, adolescence, adulthood and old age. Healthy eating and physical activity should be the key focus in promoting healthy weight. They are fundamental to good health, disease prevention, and managing overweight and chronic diseases such as Type 2 diabetes and heart disease.

All health professionals can and do have a role in promoting healthy weight. Opportunities to promote healthy eating and physical activity may occur directly in one-on-one work with individuals, be integrated into normal duties, as a specific aim in health programs or occur at a higher strategic level (for example at the level of developing organisational policy or in partnership with other agencies).

South Australia's Strategic Plan T2.2 Healthy Weight

Many countries are grappling with the problem of arresting rising rates of overweight and obesity and the associated health problems. In South Australia, the government has shown it is serious about this issue. South Australia's Strategic Plan 2004–2014 has targets for healthy weight and physical activity under Objective 2 'Improving Wellbeing'.

Target 2.2 Healthy Weight aims to increase the proportion of South Australians 18 years and over with healthy weight by 10 percentage points by 2014. The healthy weight target is very ambitious – in most countries rates of people in the healthy weight range are falling.

The Department of Health has lead responsibility for achieving the SA healthy weight target, but cannot do this alone. Other sectors – education, agriculture, planning, health, sport, industry, local government, environment, business, private and community organisations – are needed, in joint action for change. The Department of Health Eat Well Be Active Healthy Weight Strategy for South Australia is the framework for action across multiple settings and environments. <http://www.dh.sa.gov.au/pehs/branches/health-promotion/hw-strategy-sa-06-10.pdf>.¹ Our approach actively fosters partnerships across agencies and the community in order to achieve our healthy weight target.

Healthy weight – individual and population benefits

Healthy eating

Eating a wide variety of nutritious foods is essential to growth, development and good health and to protect against chronic diseases such as cardiovascular disease (CVD), obesity, Type 2 diabetes, some cancers, overweight and obesity, dental caries and osteoporosis. Reduction in chronic disease burden reduces the social, economic and health system costs of poor health to individuals, families, communities and society.

The World Health Organisation (WHO) report on diet, nutrition and the prevention of disease¹ provides a good summary of the strength of the evidence for diet and physical activity as protective against a range of chronic diseases. In the following table selected examples are provided.

¹A comprehensive list of electronic links, including web pages and pdf's is included in the final section this manual.

	Obesity	Type 2 Diabetes	CVD	Cancer	Dental Disease	Osteoporosis
High intake of energy-dense foods	C↑					
Saturated fatty acids		P↑	C↑			
Trans fatty acids			C↑			
High intake of non-starch polysaccharides (dietary fibre)	C↓	P↓	P↓			
Free sugars (frequency and amount)					C↑	
Wholegrain cereals			P↓			
Calcium						C↓
Fruits (including berries) and vegetables	C↓	P↓	C↓	P↓		
Sugars – sweetened soft drinks and fruit juices	P↑				P↑	
Abdominal obesity	C↑					
Overweight and obesity	C↑	C↑	C↑			
Voluntary weight loss in overweight and obese people			C↓			
Physical activity, regular	C↓	C↓	C↓	C↓		C↓
Physical inactivity/sedentary lifestyle	C↑	C↑				
Home and school environments that support healthy food choices for children	P↓					
Heavy marketing of energy dense foods, and fast-food outlets	P↑					
Adverse socio-economic conditions	P↑					

Key

- C↑: Convincing increasing risk
- C↓: Convincing decreasing risk
- P↑: Probable increasing risk
- P↓: Probable decreasing risk

Physical activity

The health benefits of physical activity are well established. Regular physical activity provides immediate and long-term physical and social benefits across the lifespan and these benefits are independent of body mass index (BMI).

Convincing evidence² indicates that physical activity:

- reduces feelings of anxiety and depression
- assists with healthy weight management
- helps build and maintain healthy bones, muscles and joints
- helps older adults become stronger and better able to move without falling
- promotes/enhances psychological wellbeing
- reduces the risk of premature death.

Physical activity helps to maintain lean body mass (muscle and bone), and increases resting (basal) metabolic rate, so that more energy is used, even at rest. Good evidence exists for the relationship between physical activity and the primary prevention of coronary heart disease, the reduction of other cardiovascular risk factors and conditions (such as high blood pressure), the prevention of Type 2 diabetes, reduction in risk for stroke and some cancers.

Breastfeeding

Breastfeeding is one of the most important contributors to infant health.³ Most women can successfully breastfeed. Breastfeeding is the best method of feeding for infants, is linked closely to positive health outcomes for baby and mother and is vital for the development of bonds between mother and child. Breastmilk is the sole food needed for infants until six months of age. It contains immune and growth factors and other components, which cannot be replicated in infant formula⁴. Breastfed babies are exposed to a range of flavours through the food their mothers eat and this is beneficial to their later acceptance of a range of foods.

Breastmilk provides a range of benefits for an infant's growth, immunity and development. It protects against infections (such as middle ear infection), protects the development of the immature immune system and protects against other childhood illnesses including eczema, food allergy and respiratory illness. Breastfed babies are less likely than formula fed babies to be hospitalised.⁴

Breastfeeding mothers recover more quickly from childbirth, including weight loss and bone remineralisation, and may have lower risk of pre-menopausal breast-cancer and cervical cancer.⁵ Breastfeeding has definite economic benefits to parents, with the cost of infant formula being a significant expense for many families.⁴

Measures of weight for adults

Body Mass Index

At the population level, weight is measured using the Body Mass Index (BMI). BMI is calculated by dividing weight in kilograms by height in metres squared.

For adults, BMI is used to classify weight status.

Healthy weight range: BMI 18.5 to less than 25

Overweight: BMI 25 to less than 30

Obese: BMI 30 or more

These BMI cut-off points are based on associations between chronic disease and mortality and have been adopted for use internationally by WHO. BMI does not necessarily describe the same degree of fatness in different populations, partly because of differences in body proportions. Cut-off points for degrees of overweight in individuals should not be interpreted in isolation, but in combination with other determinants of morbidity and mortality, such as risk factors, disease, and fat distribution.⁶

Although BMI is widely used to assess obesity in populations, the fact that it can be influenced by age, gender and ethnicity makes it a less useful measure when used alone in individuals, at least where BMI is less than 30. Combining BMI with a measure of fat distribution may help overcome some of the problems of using BMI alone in the clinical situation.

Waist hip ratio/waist circumference

Adults

Initially waist-hip ratio was proposed as a measure of fat distribution, but recent evidence suggests that waist circumference alone may be a sufficient measure. The table below shows waist circumference for people of Caucasian background and the levels at which risk is increased and the importance of action to reduce waist size.⁷

Table 3.2 Waist circumference and risk of metabolic complications associated with obesity in Caucasian men and women

Risk of metabolic complications	Waist circumference (cm)		Action level
	Men	Women	
Increased	≥94	≥80	1
Substantially increased	≥102	≥88	2

Note: 'Action level' refers to the importance of taking action to reduce waist size, 1 being less important than 2.

Children

For children and adolescents, a separate classification of overweight and obesity, based on age and sex, is recommended as height and body composition are continually changing. At the population level, overweight and obesity in children and adolescents is determined by comparing calculated BMI (weight in kilograms divided by height in metres squared) against the relevant age and sex of the child or adolescent.

In health care settings such as hospitals, clinics and in general practice, it is recommended that assessment of weight status of children and adolescents incorporate a suitable growth reference such as the US Centers for Disease Control (2000): for age chart (see <http://www.cdc.gov/growthcharts/>.)⁷ BMI may not be as sensitive a measure of body fatness in children and adolescents who are particularly short or tall for their age or have an unusual body-fat distribution. It may also misclassify children and adolescents who have highly developed muscles. Further, there are racial differences in the relationship between the true proportion of body fat and BMI, and appropriate cut-off points may vary as a result.

When should weight be measured?

Population weight status is an important public health indicator and regular monitoring at population level is essential as one aspect of monitoring the population's health. This is usually undertaken as part of well-planned national and state surveys. Weight measurement is most appropriate in public health, research, clinical treatment and other settings conducted by a suitably qualified health professional who can provide advice and referral if needed.

Where community-based programs involve weight measurement this needs to be conducted as a part of a well planned program with well trained leaders. The focus should be on healthy eating and physical activity and not solely on the weight status of the individual. Weight-centred approaches that focus on ideal weight and weight loss at the expense of health enhancement and positive body image may have negative impact upon health and wellbeing and undermine strategies to promote lasting behavioural change.

The media is a powerful tool for promoting ideas about weight and body image. Media focus on obesity has increased dramatically in the last decade.⁸ A critical and negative effect of this is the circulation of individualistic, victim blaming approaches and neglect of attention to the environments that promote unhealthy weight. Internalisation of media images of acceptable body size has also been identified as a risk factor for disordered eating.

Adopting a healthy lifestyle will benefit everyone, regardless of their weight. This is an important and encouraging message for a health promoting approach.

Principles of a health promoting approach to healthy weight

A health promoting approach to healthy weight involves implementing strategies to improve nutrition and physical activity across the population. Adopting this approach means understanding and utilising population health principles.

What is population health?

‘Population health refers to the health of a population as measured by health status indicators (such as weight) and as influenced by social, economic and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development, and health services.’

Public Health Agency of Canada (2007)⁹

A population health approach focuses on the interrelated factors that influence the health of populations over the life course. It identifies systematic variations in their patterns of occurrence, and applies that knowledge to policies and actions to improve the health and well-being of those populations. Addressing population health means investing ‘upstream’; directing action toward promoting and protecting the health of an entire population or sub-population, rather than focussing upon individuals and treating disease.

The complex environment we live in supports behaviours which result in overweight and obesity (ie poor nutrition and lack of activity), to encourage people to be active and eat well (ie change their behaviour) multiple strategies and intersectoral collaboration are required at a range of levels – national, state and local. Focusing on the health of populations also aims to reduce unfair differences in health status between population groups.

A focus on prevention

Adopting population-based strategies for healthy weight means adopting a:

1. **primary prevention** approach to keep those who are in the healthy weight range within that range, and
2. **secondary prevention** approach to ensure that those who are in the overweight range do not gain weight and move into the obese range, and with it, be at increased risk of chronic disease.

Eating patterns in childhood track into adulthood as does relative body weight. Once a child or adolescent is on an overweight or obese percentile, spontaneous track-down is unlikely. Growing rates of adult obesity and falling rates in the healthy weight range across the population suggest that very few adults lose weight and keep it off. Preventable chronic diseases associated with overweight and obesity impose huge costs to the community; reducing the quality and length of life for those affected by the disease and adding pressure to the lives of carers and families. It is thus very important to focus on the prevention of overweight and obesity in children, recognising the links between primary and secondary prevention in improving the health of the population.

A key approach in SA and elsewhere is to focus on childhood and the adoption of breastfeeding, healthy eating and activity habits and appropriate growth and weight gain, keeping children healthy as they grow and develop.

Providing support to families when they have young children is important and this includes supporting them to gain the knowledge and skills to help their children to eat well and be active. It is also possible to reach adults through children – preventing weight gain is a realistic secondary prevention message for adults regardless of current weight.

In the long term, preventing overweight and obesity will mean slowing, then stopping and only then reversing the current increasing rates, and supporting South Australians in achieving healthy weight.

A focus on equity

Equity in health is the absence of socially unjust or unfair health disparities between social groups who have different levels of underlying social advantage or disadvantage. As well as individual behaviours and characteristics, the health of individuals and populations are shaped by broad factors that lie outside the influence of the health sector. These are usually referred to as social determinants of health.¹⁰ Unequal distribution of the social and economic determinants of health such as income, employment, education, housing and environment result in health inequities whereby the poorer and more disadvantaged have poorer health outcomes. These are reported within and between societies.¹¹

While levels of overweight and obesity are increasing across the community, the prevalence and risk of obesity, and thus the consequent chronic disease burden, is greatest among those who are most disadvantaged.¹² There is also a clear social gradient in preventable hospital admissions for CVD-related conditions and diabetes complications.¹³ People of low socio-economic status (SES) are more likely to experience worse health and to die younger than people of high SES.

Increasing health equity for disadvantaged people means closing the gap between the health outcomes of the lowest quintiles of the population and those of the highest quintiles. In order to close these gaps it is necessary to focus upon the determinants that make it more difficult for disadvantaged people to maintain a healthy weight and put them at risk of poorer health outcomes. Major gains in population health, and the subsequent reduction in the health service costs, can be achieved through working to close the gap in health outcomes between the poorest and richest members of our society.

Programs and policies that work 'upstream', for example policies to support breastfeeding friendly workplaces, improved nutrition (eg healthy catering for meetings, vending machines etc), and promoting physical activity.

Multiple strategies across settings

A population health approach to healthy weight recognises the complex interplay between the determinants of health. It uses a variety of strategies and settings to act on health determinants in partnership with sectors outside the traditional health system. Settings that influence eating and physical activity patterns among children and families include home, child care, schools and preschools, health services and hospitals and places of work. Workplace and community environments are also settings where protective factors for healthy weight – breastfeeding, healthy eating and physical activity levels – can be promoted. This requires working collaboratively with organisations outside the health sector.

No single strategy has been shown to prevent overweight and obesity in the population. The factors that contribute to overweight and obesity are broader than those the health sector can act upon. Industry, institutions, social and built environments significantly influence food access and choice and participation in physical activity. From a statewide perspective, it is important to identify and engage with sectors and partners that can play a role in promoting healthy weight, such as local government, the food industry, transport and urban planning and infrastructure, parks and housing and employers. Multiple coordinated strategies that address a variety of risk factors for overweight, both behavioural and environmental, must run concurrently and work across government, non-government and community sectors.

Summary

Interventions to prevent overweight and obesity and promote healthy weight are more effective if they:

- are population-based
- focus on prevention
- work to close the gap
- use multiple strategies to target behaviours and environments.

Within this broad approach, we recognise that individual workers may be working on one or two of the strategies. Health workers may consider social, behavioural and environmental health determinants as outside either their influence, or that of the health system. This thinking decreases our chances of impacting on chronic disease ‘upstream’ and our opportunities for action. Alone, health workers and health services cannot solve poverty or unemployment, but working with individuals and communities places health professionals in an ideal position to identify where health inequalities are contributing to poor health outcomes.

Section 2: Guidelines for nutrition and physical activity

At an individual level, overweight and obesity result from an imbalance between the energy consumed in food and beverages and the energy expended. About 45–70% of daily energy expenditure, depending upon age, gender, body size and composition is also required by the body for metabolic processes (called basal metabolic rate [BMR]) such as physiological functions, muscular activity, heat production, growth and the synthesis of new tissues. Physical activity is the most variable determinant of energy need and is the second largest user of energy after BMR. Energy is also needed to process food in the body, for growth until around 20 years of age and for pregnancy.

Government recommendations provide advice to the public about healthy eating (including breastfeeding) and physical activity.

The guidelines are about getting the balance of energy in and energy out right so that people can maintain good health. They are for health professionals, those working in settings such as schools and individuals including parents and carers.



Brown, Ball et al (2007)¹⁴

Healthy eating guidelines

Recommendations for healthy eating for Australians are made by the NHMRC¹⁵ and documented as Dietary Guidelines. Three sets of dietary guidelines have been developed; for children and adolescents (including the infant feeding guidelines), adults and older people. These recommendations are currently awaiting revision. The dietary guidelines for children, adolescents and adults are listed on the following page.

Dietary guidelines for children and adolescents in Australia

- Encourage and support breastfeeding.
- Children and adolescents need sufficient nutritious foods to grow and develop normally:
 - growth should be checked regularly for young children
 - physical activity is important for children and adolescents.
- Enjoy a wide variety of nutritious foods.
- Children and adolescents should be encouraged to:
 - eat plenty of vegetables, legumes and fruits
 - eat plenty of cereals (including breads, rice, pasta and noodles), preferably wholegrain
 - include lean meat, fish, poultry and/or alternatives
 - include milks, yoghurts, cheeses and/or alternatives. Reduced-fat milks are not suitable for young children under the age of 2 years, because of their high energy needs, but reduced-fat varieties should be encouraged for older children and adolescents
 - choose water as a drink.
- Care should be taken to:
 - limit saturated fat and moderate total fat intake. Low-fat diets are not suitable for infants
 - choose foods low in salt
 - consume only moderate amounts of sugars and foods containing added sugars
 - prepare and store food safely.

Dietary guidelines for Australian adults

- Enjoy a wide variety of nutritious foods:
 - eat plenty of vegetables, legumes and fruits
 - eat plenty of cereals (including breads, rice, pasta and noodles), preferably wholegrain
 - include lean meat, fish, poultry and/or alternatives
 - include milks, yoghurts, cheeses and/or alternatives. Reduced-fat varieties should be chosen where possible
 - drink plenty of water.
- Take care to:
 - limit saturated fat and moderate total fat intake
 - choose foods low in salt
 - limit alcohol intake if choosing to drink
 - consume only moderate amounts of sugars and foods containing added sugars.

- Prevent weight gain: be physically active and eat according to energy needs.
- Care for food: prepare and store it safely.
- Encourage and support breastfeeding.

Some foods do not fit into the five food groups. They do not provide essential nutrients the body needs and some, like hot chips and soft drinks, contain too much added fat, salt and sugars. They are likely to contribute large amounts of energy. However, they can in small amounts add to the enjoyment of eating a healthy diet. These foods are sometimes called ‘sometimes foods’ or ‘extras’.

Physical activity – definitions and guidelines

Physical activity levels are classified as either:

- **‘Sufficient’** – enough physical activity to confer a health benefit equating to at least 150 minutes of moderate activity per week. The level equates to approx 30 minutes per day for adults (see definition 1 and 2 below)
- **‘Insufficient’** – some activity but may not be frequent enough or at a high enough intensity to confer a health benefit. Describes people who are doing some activity but below the ‘sufficient’ level
- **‘Inactive’** – no physical activity or sedentary.

A distinction is also made between:

Moderate-intensity physical activities – those that cause a slight but noticeable increase in your breathing and heart rate such as brisk walking.

Vigorous-intensity – activity that makes you ‘huff and puff’, for example where talking in full sentences between breaths is difficult. Examples include running or playing sports such as football or squash.

Two definitions of ‘sufficient physical activity’ are used in Australia.

Sufficient physical activity	Definition
Definition 1:	Achieving a minimum of 150 minutes of moderate or vigorous physical activity in the past week. Vigorous activity is weighted by a factor of 2 to account for the greater intensity required.
Definition 2:	As above; however, the 150 minutes of activity must be accumulated over at least five sessions in a week.

Source: 2004 SA Physical Activity Survey¹⁶

When data on physical activity is reported, *Definition 1* is most often used. For example, using *Definition 1*, the 2004 SA Physical Activity Survey reported that 53.9% of adults undertook sufficient physical activity. By using *Definition 2*, levels of sufficient physical activity drop to 42.9% because of the need to accumulate activity over five separate occasions in a seven day period.

Adults

The *Australian National Physical Activity Guidelines for Adults*¹⁷ recommend at least 30 minutes of moderate or vigorous activity on most, preferably all days, to achieve the necessary minimum level of 150 minutes in a seven day period. They also encourage incidental activity, such as taking the stairs instead of the lift.

The physical activity guidelines for adults recommend that we:

- think of movement as an opportunity, not an inconvenience
- be active every day in as many ways as possible
- put together at least 30 minutes of moderate-intensity physical activity on most, preferably all, days
- if possible, also enjoy some regular, vigorous activity for extra health and fitness.

The physical activity guidelines are about recommended levels to achieve cardiovascular benefit rather than healthy weight. This doesn't mean that they are not relevant to healthy weight. Physical activity is a key strategy for preventing weight gain as well as for weight maintenance and weight loss.

While not guidelines as such, a recent publication on physical activity and energy balance by Brown and Ball gives direction on levels of physical activity required to prevent weight gain and assist with weight loss.¹⁴

Preventing weight gain and achieving weight loss

'If energy intake is not excessive, 30 minutes of moderate-intensity physical activity every day is probably sufficient to prevent weight gain, providing sitting time is less than 4.5 hours/day. For people who sit for long hours in transport, at work or at home, energy balance can only be maintained if energy intake is reduced to match the low energy expenditure associated with long periods of sitting, or if activity levels are increased ...

... Negative energy balance, where energy expenditure exceeds energy intake, results in weight loss. To achieve negative energy balance, it is recommended that energy intake is reduced AND energy expenditure is increased. Again, while the amount of physical activity necessary for weight loss (along with an energy-controlled diet) varies from one individual to another, research suggests that at least 60 minutes of moderate-intensity physical activity (such as brisk walking) every day over a number of months may be required in order to achieve measurable weight loss.'

Brown & Ball (2007) pp 2-3¹⁴

Children

The *National Physical Activity Guidelines for 5–12 year olds and 12–18 year olds*¹⁸ are provided within the context of healthy growth and development and not within the context of weight/fat loss. They recommend that:

1. children and adolescents undertake at least 60 minutes (and up to several hours) of moderate to vigorous physical activity every day.
2. that children and adolescents should not spend more than two hours a day using electronic media for entertainment (eg computer games, TV, internet), particularly during daylight hours.

National Physical Activity Guidelines for children under 5 years will be available in mid-2008.

Breastfeeding

Breastfeeding and infant feeding guidelines

The NHMRC has set national targets for breastfeeding initiation rates of 90% and then 80% of infants being breastfed at the age of six months. As exclusive breastfeeding to around six months of age gives the best nutritional start to infants, the *Dietary Guidelines for Children and Adolescents in Australia* (incorporating the infant feeding guidelines for health workers) recommend that as many infants as possible be exclusively breastfed until around six months of age⁴.

The Guidelines also recommend that:

- mothers then continue breastfeeding until 12 months of age and beyond, if both mother and infant wish
- Infants should be introduced to solids at around 6 months of age but not before 4 months.

The Guidelines reflect the focus upon improving breastfeeding:

- **initiation** – the first intake of breastmilk
- **duration** – the total length of time that an infant receives any breastmilk at all from initiation until weaning is complete
- **intensity** – the ‘dose’ or the ‘degree of exclusiveness’ of breastmilk as the infant’s source of nourishment.¹⁹

The term ‘breastfeeding’ encompasses different descriptions of infant feeding. This contributes to confusion in interpretation and to inconsistent data collection. For these reasons, in Australia and internationally, steps have been taken to standardise breastfeeding definitions in line with WHO definitions.

An exclusively breastfed infant receives only breastmilk from his/her mother or wet nurse, or expressed breastmilk, and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines.

A fully breastfed infant receives breastmilk as the main source of nourishment. That is, the infant is exclusively breastfed and receives only breastmilk with no other liquids or solids (except vitamins, mineral supplements, or medicines) OR is **predominantly breastfed**. The infant is predominantly breastfed, but many also receive breastmilk and water, water-based drinks, fruit juice, or oral rehydration salts, drop and syrup forms of vitamins, minerals and medicines, but not breastmilk substitutes or solids. The fully breastfed rate is thus the combined rate of exclusively breastfed and predominantly breastfed.⁵

Summary of key messages

It is important to be clear and consistent in communicating the guidelines for breastfeeding, nutrition and physical activity. The core messages can be summarised as follows:

Nutrition

- Eat more fruit and vegetables.
- Eat less meals and snacks that are high in sugar and/or fat.
- Drink more water.
- Drink less sugar-sweetened drinks.

Physical activity

- Adults need 30 minutes of moderate to vigorous intensity physical activity on most if not all days.
- Increase regular physical activity.
- Reduce sedentary activity.
- Increase and support active play in children.

Breastfeeding

- Exclusive breastfeeding up to six months of age.

Section 3: The big picture

Overweight and obesity: facts and figures

Adults

In Australia, more than half of adults are overweight or obese.²⁰

- Men: 41% overweight, 19% obese.
- Women: 25% overweight, 17% obese.

In South Australia, rates are similar, with over half of adults being overweight or obese.²¹

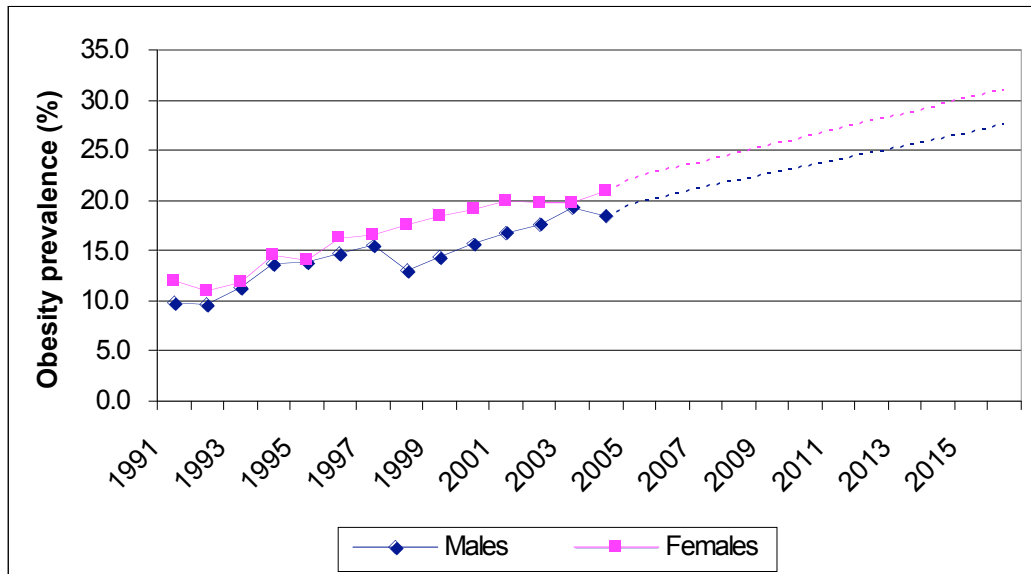
- Men: 45% overweight, 17% obese.
- Women: 30% overweight, 18% obese.

In South Australia the problem is acute for men, with 34.5% in the healthy weight range (n = 96700) compared with 48% (n = 289200) women.²²

Figure 1 on the following page, shows how the level of obesity in South Australia has changed over time. Note that:

- prevalence is increasing over time
- by year 2020 it is predicted that close to 30% of the population will be obese compared to 10% in 1990 (a generation ago)
- at the same time the proportion of people in the healthy weight range is expected to continue to decrease.

Figure 1: Projected prevalence of obesity in SA by gender, ages 18 and over



Source: A Department of Health, Health Omnibus Surveys, 18 years and over, 2004

Young adults

25% of young people aged 15–24 years were overweight or obese. An estimated 1 in 4 males (24%) and 1 in 7 females (15%) aged 15–24 years were overweight. A further 6% of males and 7% of females in the same age group were considered obese.²³ It is estimated that by 2025, half of young Australians will be overweight.²⁴

Children

From 1985 to 1995 overweight and obesity in Australian children more than doubled, and rates of obesity tripled. In Australia, a quarter of children are overweight or obese. In South Australia, from 1995 to 2006 the prevalence of overweight and obese 4 year olds rose.

- Girls: 12.8% in 1995 to 22.2% in 2006
- Boys: 10.6% in 1995 to 17.1% in 2006.²⁵

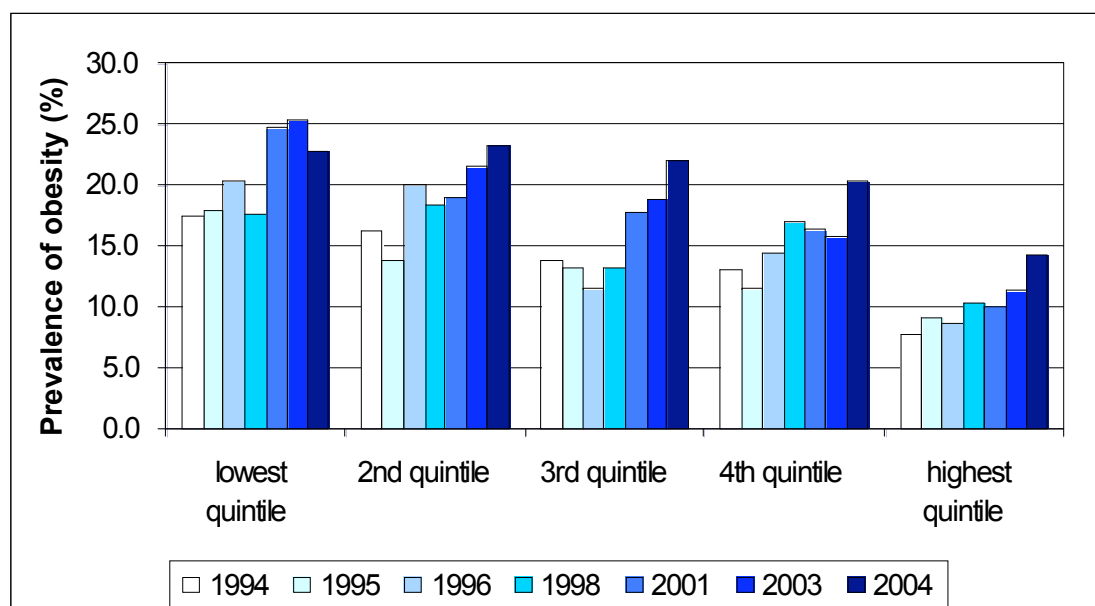
High rates of childhood obesity are also likely to track into adulthood. The relative risk (RR) of becoming an obese adult is greater (3 to 7 times for boys and 7 to 12 times for girls) for those who had been obese as children compared with those who had been a healthy weight.

Obese boys have 3 to 7 times greater risk of becoming obese adults than boys who are at a healthy weight and obese girls are 7 to 12 times more likely to become obese adults than those who are at a healthy weight.²⁶

Unfair distribution

The most disadvantaged people, or those of low socio-economic status (SES), are more likely to be obese than the most advantaged people. This is especially true for women.²⁷

Figure 2: Prevalence of obesity in SA, by SEIFA² quintile



Source: SA Department of Health, Health Omnibus Surveys, 18 years and over (2004)

Figure 2 shows that the lowest 20%, or quintile, of Socio Economic Indexes for Areas (SEIFA) has the highest prevalence of obesity. The middle and highest quintiles are experiencing the most rapid increase in prevalence over time. In promoting healthy weight (rather than treating obesity) interventions need to occur across the socio-economic spectrum.

The cost of overweight and obesity

In 2005, 3.24 million Australians were estimated to be obese – 1.52 million males (15.1% of all males) and 1.72 million females (16.8% of all females).²⁷ Overweight and obesity result in enormous costs – to the health system, to society, and to individuals.

Individual and population health costs

Overweight and obesity are associated with ill health and decreased quality of life. Obesity decreases life expectancy by seven years at the age of 40.²⁸ Overweight and obesity are risk factors for:

- type 2 diabetes
- cardiovascular disease and stroke
- hypertension

²Socio Economic Indexes for Areas

- some forms of cancer
- back problems
- osteoarthritis
- gall bladder disease.

Financial costs

The financial costs of obesity in Australia have recently been estimated.

In total, the cost of obesity in 2005 was \$21 billion²⁹ The net cost of lost wellbeing was valued at \$17 billion. Other costs were estimated at \$3.767 billion nationally.²⁷ Of this:

- \$1.7 billion (or 45%) was related to productivity
- \$873 million (or 23%) was related to the health system
- \$804 million (or 21%) as carer costs
- \$358 million (10%) went to payments such as welfare
- \$40 million (1%) as other costs.

Basing its calculations on national data^{27 29} the Department of Health estimates that for SA:

- the health care cost of obesity alone is approximately \$68m per annum
- the net cost per annum of lost wellbeing in SA is approximately \$1.5b
- obesity was associated with 304,000 work days lost from the workplace in 2001³.

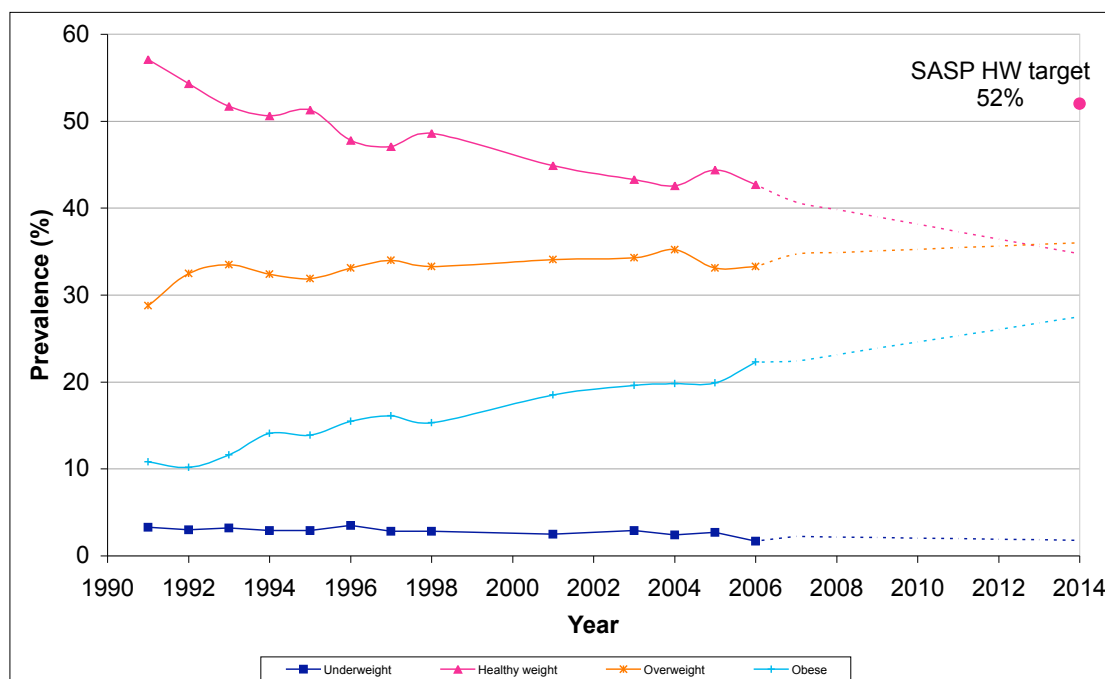
Research on the economic costs of overweight and obesity has been commissioned by the Department of Health, to commence in 2007–08.

Summary

- Rates of overweight and obesity are trending up over time.
- Their causes are complex and multifactorial.
- South Australia's healthy weight target of increased proportion of people in the healthy weight range from 42% in 2004 to 52% in 2014 is ambitious.

³The figure was arrived at by multiplying national figures by SA population as a percentage of national population.

Figure 3: Prevalence of underweight, healthy weight, overweight and obese categories of BMI (unstandardised), age 18 years and over projected to 2014



Source: Population Research & Outcomes Studies Unit SA Department of Health (2007)

Factors contributing to overweight and obesity

Patterns of food consumption

National data on Australian eating patterns is collected through surveys. The most recent, conducted in 1995, told us much about the eating patterns of Australians.³⁰ In 2007 the Commonwealth Government committed \$10.6 million over four years for national surveys of adult and children's nutrition and physical activity levels.

Ongoing collection of South Australian data by the *South Australian Monitoring and Surveillance System (SAMSS)* monitors aspects of food intake across the South Australian population. This includes self-reported fruit and vegetable consumption, fried potato intake, type of milk consumed and consumption of take-away foods.²¹

The South Australian and national data consistently tell us that we are not meeting recommended guidelines for a healthy diet.

Adults

- One fifth of Australian adults eat enough vegetables.
- Half of Australian adults eat enough fruit.
- In South Australia, 92% of adults eat less than the recommended 5 serves of vegetables.

- 60% ate less than the recommended 2 serves of fruit each day.
- Only 6% of South Australians eat the recommended 5 serves of vegetables and 2 serves of fruit each day.
- People who eat no fruit are more likely to be from low SES.

In contrast to the protective benefits of fruit, vegetables and wholegrains, 'extra' foods high intakes of salt, sugar and fats, especially saturated fats, have been shown to increase risk factors for cardiovascular disease, obesity, type 2 diabetes, some cancers and dental disease. In place of fruits, vegetables, and wholegrains, which are low in energy density, too many people are eating too much of the foods that are high in energy density and of poor nutrient content, for example cakes, potato chips, pastries, soft drinks and deep fried foods.

Children

- In South Australia, as children grow older, they eat less fruit. Only 31.5% of 12–18 year olds eat the recommended amount.
- In Australia, 30% of children eat enough vegetables. In South Australia only 15% of 12–18 year olds eat the recommended amount.

Extras or 'sometimes' foods

'Extra' or 'sometimes' foods are those foods the AGHE recommend should be eaten occasionally and in small amounts. All Australian adults eat too much 'extras' food. According to the 1995 National Nutrition Survey, adults aged 19–25 got more than one third of their daily energy from 'extras' food. This pattern is even more marked in Australian children, especially 5–18 year olds. The survey found that 41% of children's total energy came from 'extra' food and drink.

Soft drinks, fruit juices, sport and energy drinks

Evidence is emerging that high intakes of soft drinks and fruit juice in particular are associated with a greater risk of weight gain and obesity^{31 32} dental caries, dental erosion and periodontal disease. There is also evidence that we are drinking more of them. According to ABS and industry data, soft drink intake increased from 47 litres per person in 1969 to 113 litres per person in 1999.³¹ The 1995 National Nutrition Survey found that 45% of 12 to 15 year olds, 57% of 16 to 18 year olds and 26% of 2 to 3 year olds had consumed soft drink in the previous 24 hours.³¹

The consumption of soft drinks and other sugary drinks (ie fruit juice, fruit juice drinks, soft drinks, diet soft drinks, energy drinks and sports drinks) by young Australians instead of tap water and milk may be compromising children's intake of protective nutrients such as calcium and fluoride. This may account for the recent rise in dental caries observed in children from the mid-1990s to the 2000s. Aboriginal children have more than double the caries rate of non-Aboriginal children.³³

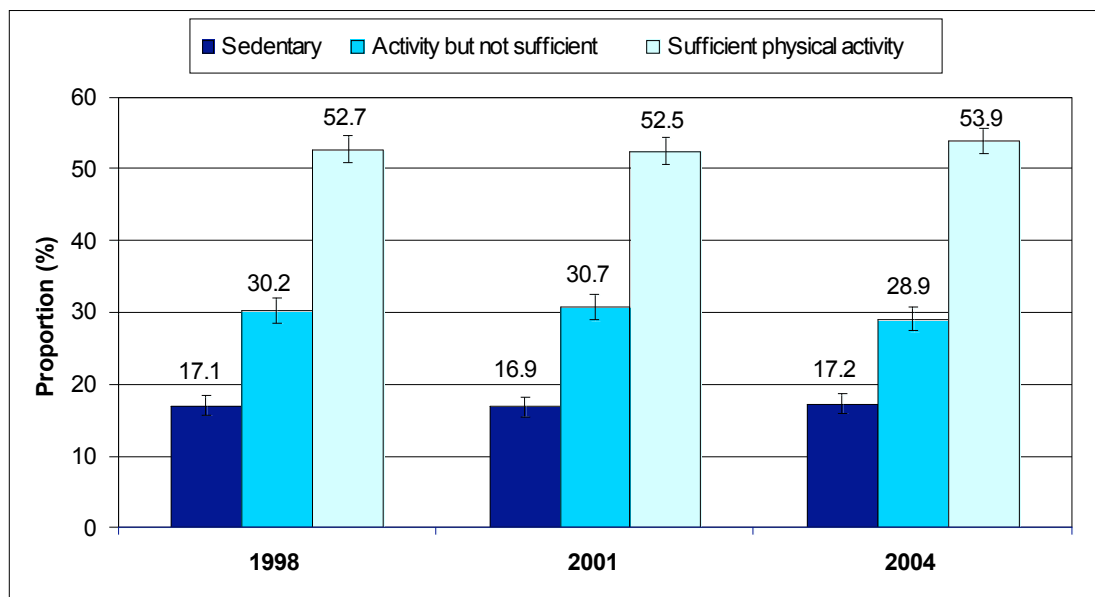
Physical activity levels

Adults

In Australia, 44% of adults (18–75 years) do not do enough physical activity for health benefits. 15% of adults report doing none at all.³⁴ These Australian figures use *Definition 2* whereas most SA data often uses *Definition 1*.

In South Australia, physical activity levels have remained relatively constant over the three SA Physical Activity Surveys undertaken in 1998, 2001 and 2004. Despite this our levels of physical activity are among the lowest in Australia.

Figure 4: Physical activity rates in SA



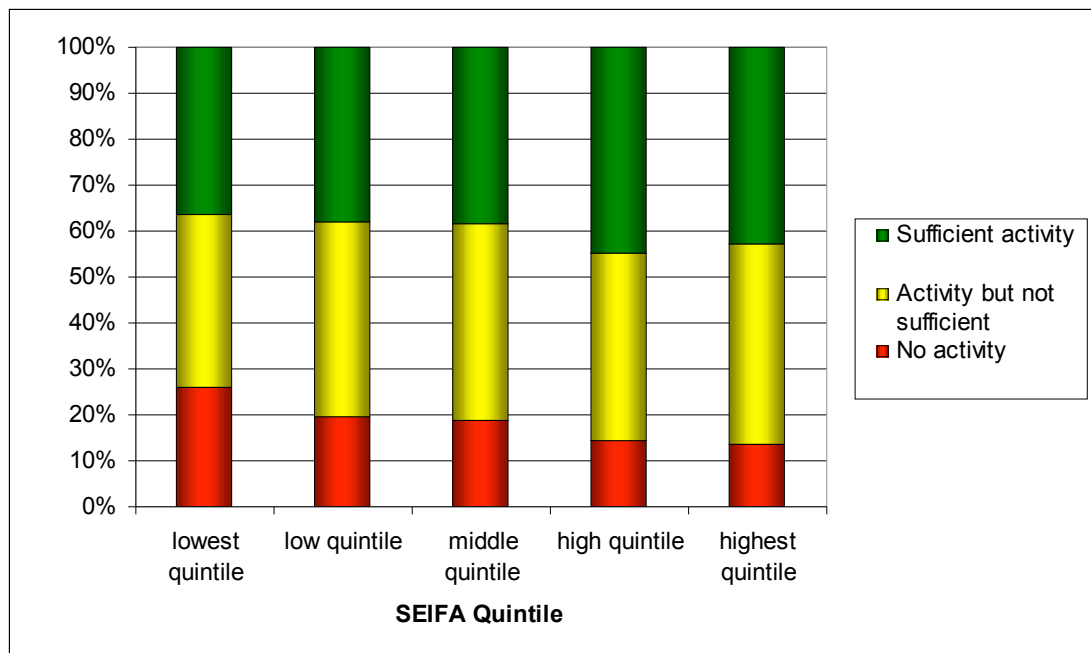
Source: *Physical Activity in South Australian Adults. (2004 Report)*

The *South Australian Monitoring and Surveillance System (SAMSS)* also monitors levels of physical activity. The levels reported are consistent with those reported in the SA Physical Activity Surveys.

Figure 4⁴ shows levels of physical activity across the population according to disadvantage, showing that those who are least disadvantaged are most likely to undertake sufficient levels of physical activity.

⁴The prevalence figures reported use definition 2, ie sufficient physical activity is a total of 150 minutes of walking, moderate or vigorous activity (vigorous weighted by a factor of 2) over at least 5 sessions at week.

Figure 5: Physical activity prevalence by SEIFA



Source: South Australian Monitoring and Surveillance System (SAMSS), (2006, 18+ years)

Children

Measuring children's activity levels is problematic due to the array of available methods (eg pedometers, accelerometers, diaries, self-report etc) and that it is difficult to capture children's activity across the entire day, in the home, school and other domains.

The national children's nutrition and physical activity survey '*Kids Eat Kids Play*' will provide comprehensive data about South Australian children's physical activity levels. This data should be available in mid-2008.

Breastfeeding below recommended rates

In 2000, 83% of Australian infants were being breastfed at discharge from hospital. This was below the NHMRC national targets of 90%. According to the 1995 and 2001 national health surveys, the proportion of children receiving any breastmilk declines steadily with age, with the rate of infants being breastfed at six months well below the NHMRC goal of 80%.

According to 2001 Australian data, 83% of infants were breastfeeding at discharge from hospital. At 13 weeks post partum, 64% were breastfeeding, falling to 49% at 25 weeks. Breastfeeding rates have not changed from estimates in the 1995 *National Health Survey* (NHS).³⁵

Many women cease breastfeeding in the first few weeks after delivery. Common individual factors influencing the decision to cease breastfeeding include difficulties such as:

- sore or cracked nipples

- problems attaching the baby
- a perception of insufficient milk supply.

These can often be addressed by lactation advice and support.

The dramatic fall-off in breastfeeding rates post-partum suggest that more support following discharge is required to support breastfeeding and extend the period of exclusive breastfeeding.

Wider influences on overweight and obesity

Overweight and obesity in the Australian population is not a simple matter of individual over-indulgence in food and drink and lack of physical activity.

There are many other environmental and social factors that combine to generate an obesogenic, or obesity promoting, environment. While this list is not exhaustive, it does discuss key changes in our environment, changes to food supply and living design that have been identified as important factors contributing to an obesity promoting environment.

Food availability and consumption

Over time our diet has changed substantially. Changes to family structure and longer working hours have resulted in increased demand for convenience foods that are generally of poorer nutritional quality than foods prepared in the home. Changes in patterns of family eating and declining cooking skills are coinciding with greater availability of high energy convenience foods.

People are losing control over the composition of the foods they eat, with this often left in the hands of the food manufacturer. The expansion of the food production industry has contributed to dietary change – now energy dense foods (high in energy, protein, fat and low in complex carbohydrates) are abundant.

Australian children consume energy dense foods and drinks, as part of everyday family life and in the school environment. Yet individual energy demands are considerably less than in previous decades.

Marketing

Marketing and advertising are contributing to this change in dietary patterns. There is more money being spent on promoting nutrient-poor, energy dense foods than on healthy nutritious foods.

Larger portion sizes have also emerged as a popular marketing strategy of commercial food manufacturers by giving the consumer the impression of 'better value' for money (eg upgrades of fast foods, king-size confectionery bars). Other strategies include sponsorship of sport and other children's activities by food and beverage companies, provision of give-aways and use of the internet to market their products.^{36 37}

Food insecurity

Food insecurity exists when an individual's food intake falls below the necessary calorie (energy) requirements for a full productive life. Research suggests a strong relationship between poverty, food insecurity, and obesity. While links between food insecurity and poor quality diet might be expected, the link between food insecurity and obesity at first seems contradictory. However individuals who are food insecure have a risk of obesity 20 to 40% higher than those who feel secure about their access to food.³⁸

There are a number of likely explanations for the link between low socio-economic status, food insecurity and obesity.

- Cheap foods are high in fat and sugar, are very palatable and filling.
- In many cases, healthy food may be more expensive and less readily available to people on low income.
- Lower health literacy among people of low SES.
- Perceived efficacy in making dietary change.
- Being situated in environments that do not support healthy eating (eg lack of shops and public transport, more availability of fast food).
- 'Feast and famine' eating patterns associated with income cycles.

Rise in sedentariness

Significant technological advances have brought about a reduction in energy expenditure through a more sedentary lifestyle. Less incidental activity is associated with advances in technology, modernisation of day-to-day tasks and the growth in private transport.

Increased reliance upon private transport, computerised equipment and labour-saving devices both at home and at work have diminished the need for individuals to undertake many physically demanding tasks.

Workplaces and work practices have also changed – increasingly more adults have sedentary occupations with the introduction of computers and automation technology.

Screen time

Television seems to be an important contributor to increased sedentary behaviour among children. Leisure time activity has shifted from active to sedentary, specifically screen-based activities dominated by electronic media. Screen-based entertainment (computers, TV etc) located in a child's bedroom increases sedentary behaviour in that child. Studies have found a higher prevalence of overweight and obesity in children who watch more television although there are problems in establishing causality.^{39 40}

Many children don't meet the physical activity guidelines because they have more than two hours of screen-based activity each day. For example, 24% of South Australian children spend more than 2 hours doing screen-based activities each day.⁴¹

It has been hypothesised that increased television viewing increases food intake while reducing the general activity level. Another theory is that television increases children's exposure to advertised items – energy-dense, nutrient-poor foods.

Urban environment

The urban environment is becoming gradually less conducive to supporting active leisure for adults and children. Planning trends have changed, resulting in smaller residential blocks yet larger houses, therefore less space to be outdoors.

Important factors that negatively influence active play in childhood and adolescents include:

- diminishing play spaces
- fewer opportunities for spontaneous active play
- safety concerns
- competing demands on parents' time.

Parent's fears for children's safety significantly impacts upon children's activity levels. This is particularly evident on transport patterns to and from school.⁴²

Active transportation requires thoughtful infrastructure such as cycling lanes and pedestrian access points. 'Gridlock' street planning in older suburbs supports active transport, and incidental activity because people can get from A to B quickly. Cul de sac residential developments tend to make it harder to do this.

Intentional activity, that is, exercise including sport and recreation (eg bike riding, gym), is influenced by a number of factors such as:

- availability
- access
- cost
- skill
- personal choice
- social support.

Unstructured activities such as walking, jogging are popular as people are able to undertake these at suitable times and at no or very little cost. Lack of, or poorly maintained footpaths, safety concerns and poor lighting impact on walking. Lighting, signage, water fountains and amenities also influence the desirability of these and other physical activities.

Having an active lifestyle has become more difficult than ever before. People have to consciously choose the active option rather than having physical activity built into their everyday life.

Influences on breastfeeding

Actions in two main areas – developing personal skills and reorienting health services – increase rates of initiation, breastfeeding duration and the length of time that a baby is exclusively breastfed.

Education of mothers before and immediately after birth positively influences initiation and increases duration of breastfeeding. Timing of education interventions is important. There is strong evidence that prenatal education increases levels of exclusive breastfeeding. Providing information on:

- breastfeeding benefits
- lactation advice
- myths
- problem solving, and
- skills

has the greatest impact on initiation and short-term duration.

The following evidence suggests that three hospital practices are especially effective in increasing initiation and duration of breastfeeding.

1. Ensuring skin-to-skin contact between babies and mothers immediately following birth and then encouraging/assisting the first feed.
2. Keeping mother and baby together in the same room, or 'rooming-in' post-birth.
3. Non-use of commercial discharge packs (which promote use of supplements, artificial teats and pacifiers).

Hector and King's summary of systematic reviews⁴³ concludes that a combination of pre-natal and postnatal interventions linked with in-hospital support is probably the most effective in influencing breastfeeding initiation and duration. That summary also suggests that the use of written educational materials in isolation from other education methods is ineffective.

Peer and professional support appear to impact significantly on short-term (ie 1–3 months) duration and exclusivity of breastfeeding. There is evidence to suggest that social support strategies that involve face-to-face contact also increase longer-term breastfeeding duration (ie up to six months).

This review found that peer support may be effective in encouraging low income and disadvantaged women to initiate breastfeeding and sustain exclusive breastfeeding for longer. Important factors that were identified in decisions to initiate and continue breastfeeding among women of low SES⁴³, include:

- exposure to other women who breastfeed
- trust
- proximity
- frequency of contact with peers.

Partner attitudes and degree of support and the home environment directly influence mothers' decisions to continue or cease breastfeeding. Degree of flexibility around working hours and access to facilities for breastfeeding, expressing and storage of breastmilk strongly shape women's capacity to combine the demands of work and breastfeeding. Community norms about breastfeeding are reflected in the availability (or otherwise) of adequate facilities in public transport, eateries and public spaces.

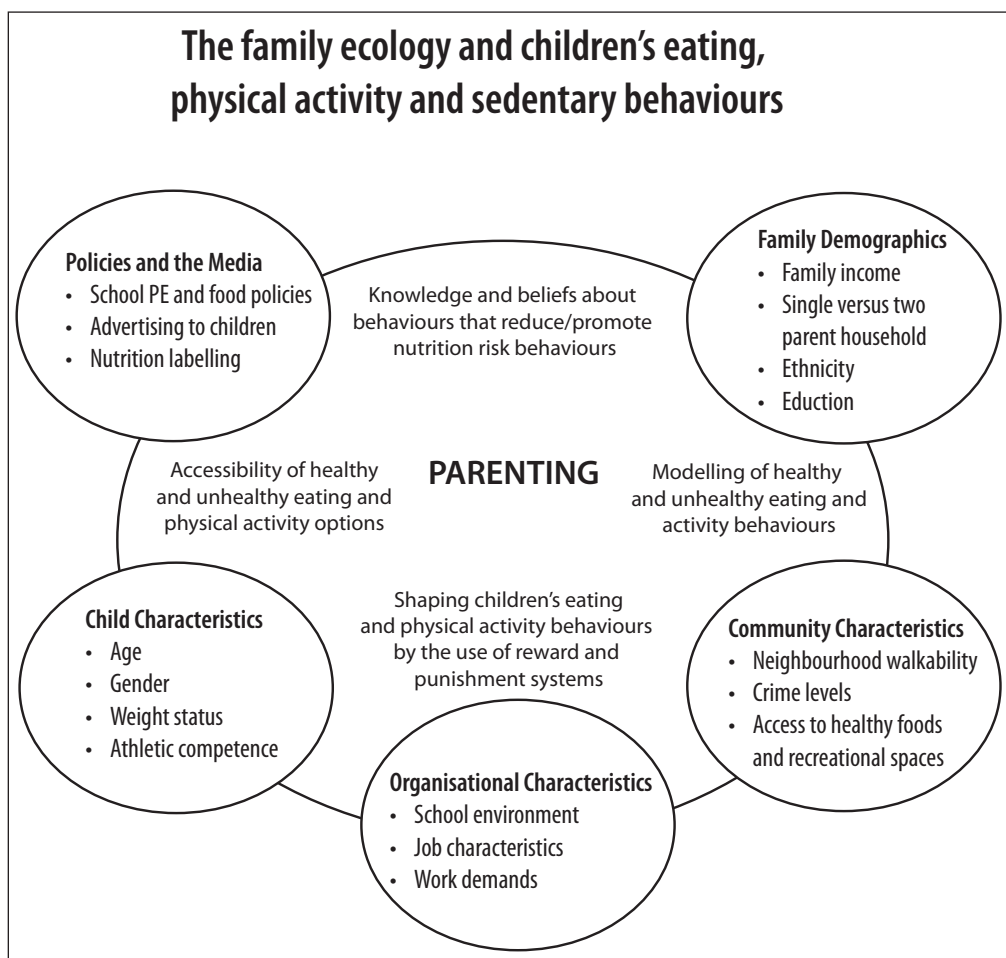
The public policy environment also signals the degree to which breastfeeding is supported – through paid maternity leave that allows women to breastfeed exclusively for longer, and adequate childcare and health insurance provisions. Cultural norms about gender and sexuality also influence wider community values about breastfeeding.⁴⁴

Parenting beliefs, knowledge and practices

In developing programs and services, we must consider the individual characteristics placing children at risk of overweight and obesity (including dietary intake, physical activity, and sedentary behaviour) in the context of their family environment, childcare, the school environment, community and wider social environments.

*Ecological systems theory (EST)*⁴⁵ highlights the importance of considering the context(s), or ecological niche, in which a person is located in order to understand the emergence of a particular characteristic. In the case of a child, the ecological niche includes the family and the school, which are in turn embedded in larger social contexts including the community and society at large. Davison and Campbell⁴⁶ describe these using the '*Ecological Systems Theory Model*'.

Figure 6: The Ecological Systems Theory Model



Source: David and Campbell (2005). Public health approaches to the prevention of obesity. Oxford University Press

Davison and Campbell used EST as a framework to summarise research assessing predictors of childhood overweight in the family environment.

Beliefs and knowledge

Parents' beliefs and knowledge about food and physical activity and the importance parents assign to a healthy diet and physically active lifestyle influence nutrition and physical activity in the home:

- Parents with greater nutrition knowledge have children with healthier dietary behaviours (ref). On the other hand, there is evidence to show that parents may have different dietary 'rules' for themselves and their children.
- Some research suggests that the values parents have regarding physical activity, as well as their belief in their children's abilities, are indirect predictors of children's physical activity.

Modelling

The learning that occurs through child observation and child-parent co-participation in activities:

- Eating together provides an opportunity for children to learn through observation. Studies suggest that there are additional nutritional and social benefits to sharing meals, as children who often eat in a family unit have higher intakes of fruit and vegetables.
- It is also likely that when children are involved with an important role model in activities such as growing and preparing foods, along with increased exposure to healthy foods, is likely to increase preference for that food.
- The research summary indicated that active parents have active children. Active parents are more likely to support their children's activities and include them in their own. Parents who organise physically active pastimes for their families have more active children. The same behaviour patterns are true for sedentary behaviours.

Accessibility

The extent to which parents help or impede opportunities for physical activity and healthy food:

- The research summary shows that children increase their consumption of fruit and vegetables as availability and accessibility in the home increases. Practically speaking, children are more likely to eat a healthy food if it is available, already prepared in easy-to-eat ways, and within reach.
- The research summary suggests that there are many positive actions a parent can take to increase their child's participation in active pastimes. They can provide activity-related equipment (balls etc), and facilitate their child's involvement in activities (for example, enrol them in a class).
- Parents can reduce their child's sedentary behaviour by removing, or disallowing, screen-based entertainment in their children's bedroom.

Shaping

The ways in which parents use positive and negative outcomes and rewards to shape children's behaviour:

- Parents use a wide range of strategies to shape their children's food intake. There is growing evidence that many feeding strategies have negative impacts on children's eating.
- In general, parents do not use shaping behaviours such as using physical activity as a reward, or reward physical activity. However, parents should be encouraged to support children to be active as this has been shown to increase physical activity. Salmon⁴⁷ argues that practitioners should recommend parents/families:

- set rules regarding sedentary time
- model physical activity directly and indirectly
- support children’s physical activity
- no tvs in children’s bedrooms.

Opportunities for intervention

The reviews suggest the following opportunities to support parents and families in healthy eating and physical activity in the home include:

- provide information but ensure that it is supported by strategies;
- provide tailored advice, ie relevant to individuals or groups;
- target parents at crucial times
 - breastfeeding decisions (pregnancy and birth)
 - introducing solids
 - developmental milestones (eg crawling, walking, then running etc)
 - fussy eating
 - starting school.

Practical strategies for health professionals include:

- providing parents with knowledge about nutrition, and why it is also important for their children;
- encouraging families to make time to eat healthy family dinners together with the television turned off and support parents in developing skills to do this if needed;
- encouraging parents to examine their beliefs about physical activity. Encouraging families to be active together;
- providing education to parents about the relationship between time of TV viewing and their child’s weight and health;
- encouraging parents to influence children’s TV viewing habits by watching TV with them and making it a family pastime.

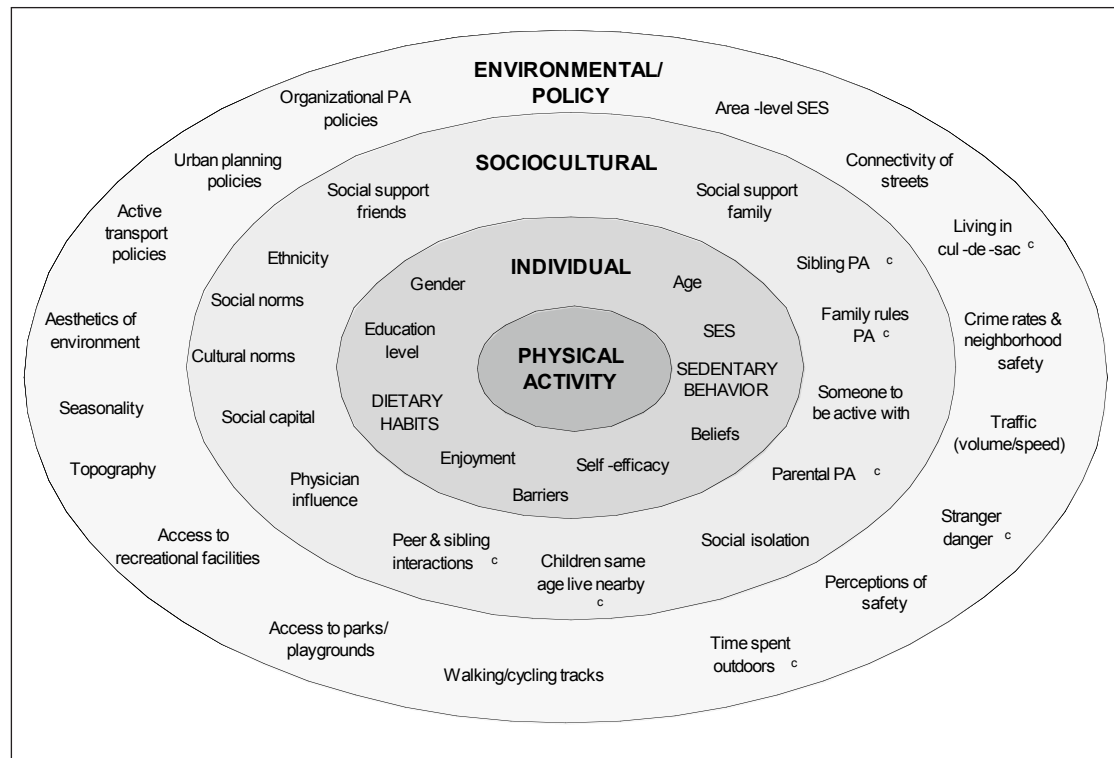
Targeting behaviours, settings and sectors that matter

Family practices exist in broader contexts that promote or act as a barrier to healthy weight, including:

- family demographics
- characteristics of the care/educational facilities for children
- the broader community environment
- influence of the media and the policy environment.

Salmon and King⁴⁸ have developed a social ecological model for physical activity that includes a wide variety of factors influencing physical activity patterns in families. This model can also be used to think about the wider influences upon nutrition practices in families.

Figure 7: Social ecological model for considering influences on physical activity. Factors marked 'c' indicate factors that are relevant to children.



The following table gives examples of actions that can be taken to promote healthy eating and physical activity among children and families across different settings – home, childcare and school, public facilities and health services. These ideas for action draw upon Ottawa Charter principles:⁴⁹

1. build healthy public policy
2. create supportive environments for health
3. develop personal skills
4. strengthen community action for health, and
5. re-orient health services.

Behaviour	Desired outcome	Children & Families	Vulnerable Groups	Actions
Breastfeeding	Greater initiation, duration and intensity of breastfeeding.	Encourage & support antenatal and post-natal education. Individual referral. Establish breastfeeding-friendly environments.	Establish peer support.	Policy & workforce training. Peer and mentor training.
Healthy eating	Increased fruit & veg consumption. Decreased energy-dense nutrient-poor snacks. Increased water consumption/ promotion of water as drink of choice.	Encourage family mealtimes. Increase fruit & veg. Decrease sugary drinks. Increase access to (fluoridated) water.	Address food insecurity. Increase fruit & veg. consumption. Increase healthy food purchasing and cooking skills.	Develop policy for schools, childcare and workplaces. Promote fruit and vegetable consumption through social marketing. Workforce training Develop/advocate infrastructure (eg drinking fountains).
Physical activity	Reduction in sedentary behaviour eg, TV viewing. Increase in population levels of 'sufficient' physical activity. Increase opportunities for incidental and intentional physical activity.	Encourage active family pastimes. Encourage and support active play. Promote indoor, outdoor games and resources.	Encourage/support involvement in low or no-cost programs and activities. Address location-specific issues eg, transport, safety concerns.	Work with local government and agencies. Develop policy. Workforce training. Develop/advocate infrastructure (eg drinking fountains, shade, bike racks, park facilities).

Section 4: Healthy weight resources

Health programs

In preventing overweight and obesity and promoting healthy weight in the community we focus on:

- promoting breastfeeding
- promoting healthy eating
- promoting physical activity.

We need to focus on prevention and on children and families, as this is where the preventive effort can have most success. Interventions should have an emphasis on equity, as the prevalence of obesity, and thus the consequent chronic disease burden, is greatest among those who are most disadvantaged.

Many existing programs can be accessed by health services and others around South Australia. There are a number of benefits to this.

- It allows those who wish to run the programs the ability to focus their efforts on implementation rather than planning.
- It gives access to strategies have already been evaluated and found to be effective.
- As more services adopt and support the programs, South Australia will begin to foster a coordinated approach, backed up with good practice, to the promotion of healthy weight.

Building capacity and networks

There are significant benefits in developing a coordinated approach across SA with regions through adoption of common programs in priority settings with priority target groups. Each health region has appointed Healthy Weight Coordinators to coordinate services and programs for physical activity, breastfeeding and healthy eating across their regions. For more information on programs and services contact your regional Healthy Weight Coordinator or the Health Promotion Branch at the Department of Health.

Supportive policy

While overweight and obesity are complex and multi-factorial, there are specific behaviours and settings that can be effectively targeted. Importantly for health professionals, the crucial behaviours to target – the promotion of breastfeeding, healthy eating and physical activity are supported by policies in key services and settings. For example:

- Eat Well SA schools and preschools Healthy Eating Guidelines <http://www.decs.sa.gov.au/eatwellsa/>
- Better Health, Better Learning <http://www.chdf.org.au/hpg/images/HPguidelines.pdf>
- Baby Friendly Health initiative <http://www.bfhi.org.au/>
- Start Right Eat Right <http://www.dh.sa.gov.au/pehs/srer-award/startrighteatright-training.htm>
- *Right Bite* healthy food and drink supply strategy for SA schools and preschools
- Healthy Food in SA Health Facilities (currently being developed).

For change to be sustained over time, wider policy and strategy must also play their part. The Department of Health *Eat Well Be Active Healthy Weight Strategy for South Australia* is the framework for action across multiple settings and environments. <http://www.dh.sa.gov.au/pehs/branches/health-promotion/hw-strategy-sa-06-10.pdf> The *Eat Well Be Active* Strategy is a whole of government strategy, led by Health, that supports other strategic frameworks:

- Eat Well South Australia Public Health Nutrition Strategy 2006–2008
- SA Physical Activity Strategy
- South Australia's Strategic Plan
- The National Chronic Disease Strategy.

A comprehensive list of strategies supporting healthy weight is provided in the *Eat Well Be Active Healthy Weight Strategy for South Australia*. This strategy actively fosters partnerships across agencies and the community in order to achieve our healthy weight target.

Figure 8: Joining up the Strategies: A model for healthy weight thinking



Source: Health Promotion Branch, SA Department of Health, 2007.

Further resources

Healthy weight

SA Health

<http://www.health.sa.gov.au/pehs/branches/health-promotion/hp-healthy-weight.htm>

Eat Well Be Active Healthy Weight Strategy for South Australia

<http://www.dh.sa.gov.au/pehs/branches/health-promotion/hw-strategy-sa-06-10.pdf>

Healthy Weight 2008: National Action Agenda for children, young people and their families

[http://www.health.gov.au/internet/healthyactive/publishing.nsf/content/healthy_weight08.pdf/\\$File/healthy_weight08.pdf](http://www.health.gov.au/internet/healthyactive/publishing.nsf/content/healthy_weight08.pdf/$File/healthy_weight08.pdf)

Healthy Weight for Adults and Older Australians: The National Action Agenda to Address Overweight and Obesity in Adults and Older Australians 2006–2010

[http://www.healthyactive.gov.au/internet/healthyactive/publishing.nsf/Content/healthy_weight06_10.pdf/\\$File/healthy_weight06_10.pdf](http://www.healthyactive.gov.au/internet/healthyactive/publishing.nsf/Content/healthy_weight06_10.pdf/$File/healthy_weight06_10.pdf)

Building a healthy and active Australia website

The site provides access to practical information and updates, news for families, parents, teenagers, children and their carers and older Australians on healthy eating, regular physical activity, overweight and obesity, particularly for children and adolescents and active living.

<http://www.healthyactive.gov.au/>

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/pq-ncds>

Australian Government: Dept of Health and Ageing: healthy weight

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-hlthwt-index.htm>

Australian Government Dept of Health and Ageing: about overweight and obesity

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-hlthwt-obesity.htm>

Physical activity

SA Physical Activity Strategy

The SA Physical Activity Strategy is a key part of the Government's commitment to address the insufficient activity levels of many South Australians. The Strategy provides a framework, which will result in a more coordinated and collaborative cross-sectoral approach to addressing this trend.

<http://www.beactive.com.au/downloads/StatePhysicalActivityStrategy04.pdf>

Be active website

<http://www.beactive.com.au>

be active is a South Australian message established by the State Government to get more South Australians more active, more often. With such a fantastic state in which to be active, there are many opportunities for all of us.

The 2004 SA Physical Activity Survey

Following on from the 1998 and 2001 surveys the SA Physical Activity Survey of adults was again conducted in 2004 and provides physical activity trend data.

<http://www.beactive.com.au/research.htm>

Office for Recreation and Sport (ORS)

The ORS website has information on various aspects of sport, recreation and physical activity including programs for targeted populations and grant programs such as 'Move It! Making Communities Active'.

<http://www.recsport.sa.gov.au/>

SA Trails

SA has some fantastic walking, cycling and canoeing trails which provide a great opportunity to be active.

<http://www.southaustraliantrails.com/>

Heart Foundation

The Heart Foundation website provides a range of useful healthy eating and physical activity resources for professionals, schools and the community.

<http://www.heartfoundation.com.au/>

To find your nearest Heart Foundation walking group go to http://www.heartfoundation.org.au/Healthy_Living/Physical_Activity/Walking/Find_a_Group/SA.htm

Active transportation

To find out information on cycling including Bike direct maps, the State Bicycle Fund, State and National Cycling Strategies, access the Department of Transport, Energy and Infrastructure website:

http://www.transport.sa.gov.au/personal_transport/bike_direct/index.asp

National physical activity guidelines and recommendations

<http://www.health.gov.au/internet/wcms/publishing.nsf/content/physical%20activity-6>

This link to the Department of Health and Ageing physical activity section of the website provides information and resources on physical activity.

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-active-index.htm>

[http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-physical-activity-kids-pdf-cnt.htm/\\$FILE/kids_phys.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-physical-activity-kids-pdf-cnt.htm/$FILE/kids_phys.pdf) and [http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-physical-activity-youth-pdf-cnt.htm/\\$FILE/youth_phys.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-physical-activity-youth-pdf-cnt.htm/$FILE/youth_phys.pdf)

Be Active Australia. A Framework for Health Sector Action for Physical Activity 2005–2010

http://www.nphp.gov.au/publications/documents/nphp_baa_aug_05_no_cover.pdf

Nutrition

Eat Well Australia. An agenda for action for public health nutrition

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-food-nphp.htm>

The strategy focuses on 4 key nutrition priority areas, the first of which is the prevention of overweight and obesity.

Eat Well Australia, including the National Aboriginal & Torres Strait Islander Nutrition Strategy and Action Plan <http://www.nphp.gov.au/workprog/signal/nutstrat.htm>

Australian Guide to Healthy Eating (AGHE)

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-food-guide-index.htm>

The AGHE translates dietary guidelines into practical recommendations about specific foods to eat for good health.

Dietary Guidelines for all Australians

<http://www.nhmrc.gov.au/publications/synopses/dietsyn.htm>

http://www.nhmrc.gov.au/publications/synopses/_files/n35.pdf

<http://www.nhmrc.gov.au/publications/subjects/nutrition.htm>

The group of publications on NHMRC website provide information on dietary guidelines for all Australians. Based on the best available scientific evidence. Provide information for health professionals and the general population about healthy food choices.

South Australia Dept of Health: diabetes website <http://www.diabetes.sa.gov.au/>

Baby Friendly Health Initiative

<http://www.bfhi.org.au/>

The 'ten steps to successful breastfeeding' outlined by the Baby Friendly Health Initiative (BFHI) advocates a multifaceted approach to building supportive environments and promoting breastfeeding, beginning with health policies outlining appropriate breastfeeding practice, education of pregnant women about the benefits of breastfeeding and appropriate training of health staff.

Recommendations for healthy eating

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-food-recommend.htm>

Australian government Dept of Health and Ageing: breastfeeding

<http://www.healthconnect.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-brfeed-index.htm>

Food Standards Australia New Zealand: food composition tables

<http://www.foodstandards.gov.au/monitoringandsurveillance/nuttab2006/>

Other Resources

WHO Obesity Fact Sheet

http://www.who.int/hpr/NPH/docs/gs_obesity.pdf

Kids Eat Kids Play national children's survey website

<http://www.kidseatkidsplay.com.au/>

Best options for promoting healthy weight and preventing weight gain in NSW

<http://www.health.nsw.gov.au/pubs/2005/healthyweight.html>

This report focuses on prevention and applies a structured planning framework as the basis for proposing the adoption of multi-faceted interventions at the local level, and a broad portfolio of actions at a state level.

Centre for Disease Control & Prevention, USA

The Centres for Disease Control and Prevention (CDC) provides information on a wide range of public health issues and is at the forefront of public health efforts to prevent and control infectious and chronic diseases, injuries, workplace hazards, disabilities, and environmental health threats.

<http://www.cdc.gov/nccdphp/dnpa/obesity/index.htm>

CDC's Increasing physical activity: a report on recommendations of the Task Force on Community Preventive Services is at:

www.thecommunityguide.org

BMI tables/calculators

www.health.nsw.gov.au/obesity/youth/bmi.html

<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-publth-strateg-hlthwt-obesity.htm-copy2#defined>

References

- ¹WHO, FAO. Diet, nutrition and the prevention of chronic diseases. Report of the joint WHO/FAO expert consultation. Geneva: World Health Organisation, UN Food and Agriculture Organisation, 2003:160.
- ²DHHS U. A Report of the Surgeon General: Physical Activity and Health At-A-Glance: US Department of Health and Human Services, 1996.
- ³Binns C. Encourage and Support Breastfeeding, Dietary Guidelines for Australian Adults. Canberra: NHMRC, 2003.
- ⁴NHMRC. Dietary Guidelines for Children and Adolescents in Australia incorporating the Infant Feeding Guidelines for Health Workers. Canberra: Commonwealth of Australia, 2003a:444.
- ⁵Allen J, Hector D. Benefits of Breastfeeding. *NSW Public Health Bulletin* 2005;16(3–4):41–44.
- ⁶DH. Health Omnibus Surveys, 18 years and over (Acting on Australia's Weight). Adelaide: SA Department of Health, 2004.
- ⁷NHMRC. Clinical Practice Guidelines for the Management of Overweight and Obesity in Children and Adolescents. Canberra: National Health & Medical Research Council, 2003:161.
- ⁸O'Hara L, Gregg J. The War on Obesity: a social determinant of health. *Health Promotion Journal of Australia* 2006;17(3):260–263.
- ⁹PHAC. What is the population health approach: Public Health Agency of Canada, 1997.
- ¹⁰WHO. Commission on the Social Determinants of Health: A conceptual framework for action on the Social Determinants of Health (draft) Geneva: World Health Organisation, 2007:77.
- ¹¹CSDH. A Conceptual Framework for Action on the Social Determinants of Health (draft). Geneva: Commission on Social Determinants of Health, WHO 2007:77.
- ¹²Duffy J, Williams C, James K. Review of the Research on Interventions to Reduce Inequities in Health. draft report prepared for the Health Equity Action Plan Working Group. Adelaide: SA Department of Health, 2006:65.
- ¹³Banham D. Health System Performance Indicators Preventable_SEIFADisadvantage_2005pop Adelaide: SA Department of health, 2006.
- ¹⁴Brown W, Ball K, Bauman A, Salmon J, Bellew B, Olsen B, et al. Physical activity and energy balance: National Physical Activity Program Committee, National Heart Foundation of Australia, 2007:4.

¹⁵NHMRC. Nutrient Reference Values for Australia and New Zealand Including Recommended Dietary Intakes. Canberra: Commonwealth of Australia, 2006:116.

¹⁶Gill T, Taylor AW. Physical Activity in South Australian Adults. Adelaide: Physical Activity Council, SA Department of Health, 2004:134.

¹⁷DoHA. An active way to better health. National Physical Activity Guidelines for Adults. In: Care DoHA, editor. Reprinted 2005.ed. Canberra: Commonwealth of Australia 1999.

¹⁸DHA. Active kids are healthy kids. Australia's physical activity recommendations for 5–2 year olds.: Commonwealth of Australia, 2004.

¹⁹Webb KL, Marks GC, Lund–Adams M, Rutishauser I, Abraham B. Towards a national system for monitoring breastfeeding in Australia. Canberra: National Food and Nutrition Monitoring and Surveillance Project, 2001:110.

²⁰Dal Grande E, Gill T, Taylor AW, Chittleborough C, Carter P. Obesity in South Australian adults – prevalence, projections and generational assessment over 13 years. *Australian and New Zealand Journal of Public Health* 2005;29(4):343–348.

²¹DH. Healthy Weight fact sheet 1. What does the data say about weight, nutrition and physical activity? *Healthy Weight fact sheet 1*. Adelaide: SA Department of Health, 2006.

²²SAMSS. get report plug in.

²³ABS. National Health Survey: summary of results: Australian Bureau of statistics, 2006:92.

²⁴ASSO. Obesity in Australian Children: Australian Society for the Study of Obesity, 2006.

²⁵CYWHS. Unpublished data, CYWHS Routine Data Collection. Adelaide: Children, Youth and Women's Health Service, 2007.

²⁶Venn A, Thomson R, Schmidt M, Cleland V, Curry B, Gennat H, et al. Overweight and obesity from childhood to adulthood: a follow-up of participants in the 1985 Australian Schools Health and Fitness Survey. *Medical Journal of Australia* 2007;186(9):458–460.

²⁷AE. The economic costs of obesity: Access Economics Pty Limited, 2006.

²⁸Teetters A, Barendregt JJ, Willekens FM, J.P., Al Mamun A, Bonneux L. Obesity in Adulthood and Its Consequences for Life Expectancy: A Life – Table Analysis. *Annals of Internal Medicine* 2003;138(1):24–33.

²⁹AIHW. Obesity and workplace absenteeism among older Australians. Canberra.: Australian Institute of Health & Wellbeing, 2005.

- ³⁰McLennan W, Podger A. National Nutrition Survey, Foods Eaten, Australia 1995. Canberra: Australian Bureau of Statistics, 1999:137.
- ³¹Gill T, Rangan AM, Webb KL. The weight of evidence suggests that soft drinks are a major issue in childhood and adolescent obesity. *Medical Journal of Australia* 2006;184(6):263–264.
- ³²DU. Fruit juice not so friendly for school kids: (Deakin University author) Science Alert – Australia & NZ, 2007.
- ³³Roberts–Thomson K. Oral health of Aboriginal Australians. *Australian Dental Journal* 2004;49(3).
- ³⁴Bauman A, Ford I, Armstrong T. Trends in population levels of reported physical activity in Australia, 1997, 1999 and 2000. Canberra.: Australian Sports Commission, 2001:44.
- ³⁵Donath SM, Amir L. Breastfeeding and the introduction of solids in Australian infants: data from the 2001 National Health Survey. *Australian and New Zealand Journal of Public Health* 2005;29(2):171–175.
- ³⁶Australian Consumers' Association. Food marketing: child's play? We take a look at how food is marketed to children, and what the problems are (Report:Food promos to kids). *Choice Magazine*, 2006:12–14.
- ³⁷CFAC. Children's health or corporate wealth? The case for banning television food advertising to children: Coalition on Food Advertising to Children, 2006.
- ³⁸Burns C. A review of the literature describing the link between poverty, food insecurity and obesity with specific reference to Australia. Melbourne: Physical Activity Unit, Food insecurity Program, Victorian Health Promotion Program VicHealth, 2004:26.
- ³⁹Salmon J, Campbell KJ, Crawford D. Television viewing habits associated with obesity risk factors: a survey of Melbourne schoolchildren. *Medical Journal of Australia* 2006;184(2):64–67.
- ⁴⁰Lumeng JC, Rahnema S, Appugliese D, Kaciroti N, Bradley RH. Television Exposure and Overweight Risk in Preschoolers 10.1001/archpedi.160.4.417. *Arch Pediatric Adolescent Medicine* 2006;160(4):417–422.
- ⁴¹SAMSS. Report on children's activities: January 2004 – December 2006. Adelaide: PROS, SA Department of Health, 2006.
- ⁴²Dollman J, Lewis N, Dale M. Trends in physical activity behaviours and attitudes among South Australian youth between 1985 and 2004. *Journal of Science and Medicine in Sport* 2007.
- ⁴³Hector D, King L, Webb K. Overview of recent reviews of interventions to promote and support breastfeeding. Sydney: Centre for Public Health Nutrition, Sydney University, 2004:88.

⁴⁴Hector D, King L, Webb KL, Heyward P. Factors affecting breastfeeding practices: applying a conceptual framework. *NSW Public health Bulletin* 2005;16(3–4):52–55.

⁴⁵Davison KK, Birch LL. Childhood overweight: a contextual model and recommendations for future research. *Obesity Reviews* 2001;2:159–171.

⁴⁶Davison K, Campbell K. Opportunities to prevent obesity in children within families: an ecological approach. *Public Health Approaches to the Prevention of Obesity*: Oxford University Press, 2005.

⁴⁷Salmon J. Families and children's physical activity & sedentary behaviour. *Centre for Physical Activity and Nutrition Research*, 2005.

⁴⁸Salmon J, King A. Population approaches to increasing physical activity among children and adults. in press.

⁴⁹CPHA, HWC, WHO. Ottawa Charter for Health Promotion. Ottawa: Canadian Public Health Association, Health and Welfare Canada, and the World Health Organization, 1986.