



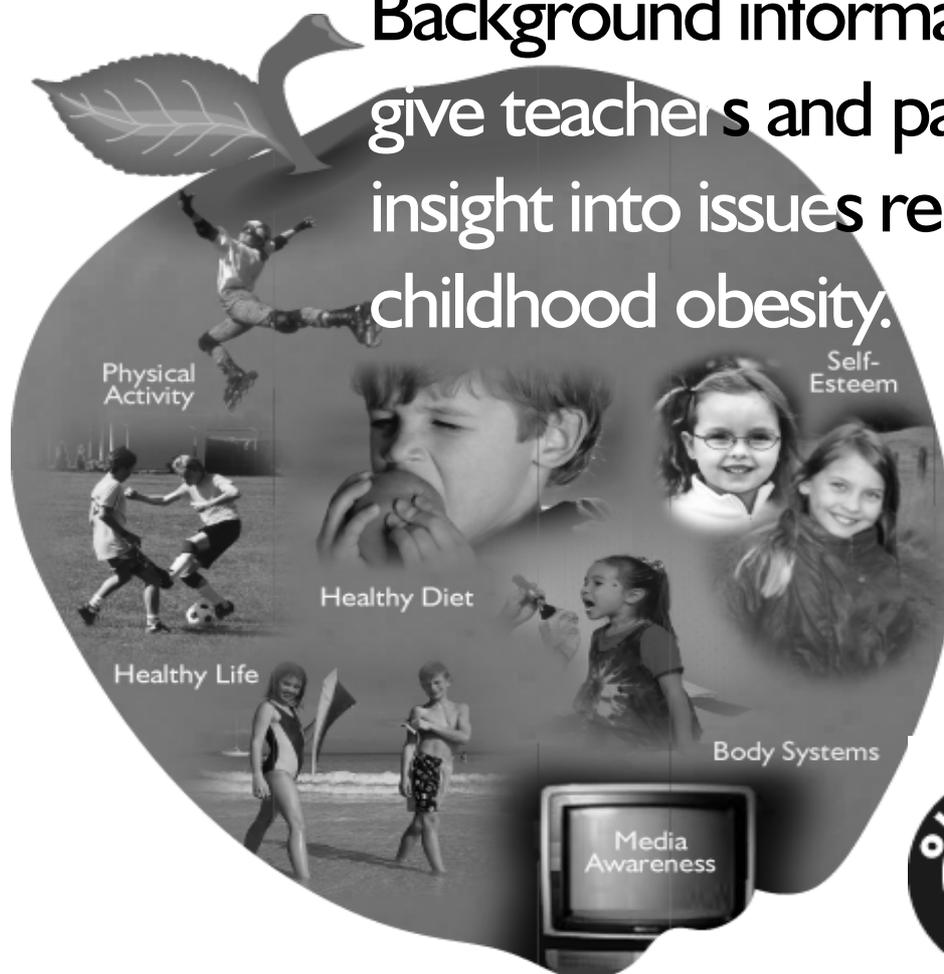
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# Resource Book

# Healthy Bodies

# Happy Kids

Background information to  
give teachers and parents  
insight into issues related to  
childhood obesity.



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# Information on the Series

## 1.1 Purpose

This series has been created for implementation in the classroom as part of the Health and Physical Education learning area in Australian schools for students aged 5 - 13.

Recent ongoing publicity has reflected Australian society's concern with obesity, as well as related health problems such as diabetes and cardiovascular disease. Statistics in this Resource Book will illustrate that unhealthy lifestyle choices in childhood are linked to serious health problems later in life, if these habits remain unaddressed. Obesity and associated diseases have a widespread effect on the community, draining public health resources as a result of behaviour and choices that can be modified during childhood.

There is a pressing need to intervene at an early age and to cover ALL of the areas that are linked to the lifestyle choices that can be made, including:

- Promoting healthy habits such as a nutritious, balanced diet and regular exercise.
- Developing a positive self-image so that children are able to respect their own
- Raising the awareness of the ways in which modern society influences choices through advertising, particularly about the availability of unhealthy convenience foods.
- Encouraging students to choose physical activity over sedentary alternatives such as television and computer games.

The challenge lies in the need to not only equip students with the information necessary to make healthy choices, but to provide the opportunities and resources for them to experience and practise these skills on an ongoing basis, in their real environments.

## 1.2 Books in the Series

This health series will provide comprehensive, up-to-date information, as well as a range of ideas that support a "whole school" approach to health promotion. There are specific activity suggestions and "hands-on" investigations contained in the following books of the series:

### The Resource Manual

- Factual and statistical information on:
  - diet** – requirements, recent food trends, labelling requirements, allergies and eating disorders;
  - body systems** – digestion, cardiovascular responses, health problems;
  - exercise** – benefits, programming, variety and alternatives in exercise for students;
  - self-esteem** – peer pressure, eating habits, body image, facilitating positive perceptions;
  - media** – guidelines, viewing strategies, analysis, use of positive media exposure;
- Indoor and outdoor games with a "health" theme;
- Curriculum integration ideas;
- Whole school projects and parent involvement;
- Tips on how to work with the school canteen to promote healthy food choices;
- Recipes for healthy meals and snacks;
- Web sites, addresses and contact details of nationwide health organizations.

### BLM Activity Books

Adopting an integrated approach, activity ideas provided will draw on and cultivate skills in language, numeracy, science, society and environment and the arts. The focus of the workbooks will be practical learning experiences using resources from students' existing surroundings.

The age ranges covered are: Junior (Years 1 – 3), Middle (Years 4 – 5), Upper (Years 6 – 7). The activity books are theme-based books with age-appropriate mascot characters that enhance visual appeal and student motivation.

**Books contain content related to:**

- *Healthy eating – Raising conceptual understanding of the value of a balanced diet, with opportunities for students to analyse their own diets and experience alternative options.*
- *The healthy body/body systems – Coverage of the digestive and cardiovascular systems with a focus on how looking after these parts of the body contributes to overall health.*
- *Exercise and physical fitness – A range of learning experiences that encourage students to expand their understanding of “what is exercise” and to seek new practical strategies to increase the level of physical activity in their daily lives.*
- *Self-esteem – Exploring ways to foster a positive body image and develop constructive self-management skills.*
- *The Media and a Healthy Lifestyle – Facilitating a critical awareness of the strategies employed by the media to advertise fast foods and using the same techniques to promote positive ideals.*
- *Practical, inquiry-style activities based around relevant, real-life situations and using easily obtained resources such as junk mail and the newspaper.*
- *“Take Me Home” activity sheets that can be used as homework and as a means of eliciting parental support and awareness of health issues.*
- *Internet links that are “student-friendly”.*

### Curriculum Links

The BLM Activity Books have been linked to Strands from various state curriculum documents as indicated on the next page. These documents are as follows:

**1. Health and Physical Education - a curriculum profile for Australian schools.**

The Health and PE curriculum profile is published by:

Curriculum Corporation, PO Box 177, Carlton South, Victoria, 3053

▶ [www.curriculum.edu.au](http://www.curriculum.edu.au) (Document is © Curriculum Corporation, 1994)

**2. Personal Development, Health and Physical Education K - 6 (ISBN 0 7313 4241 0).**

PDHPE is one of the six key learning areas in the NSW curriculum and the Syllabus is published by the Board of Studies NSW, GPO Box 5300, Sydney, 2001

(▶ [www.boardofstudies.nsw.edu.au](http://www.boardofstudies.nsw.edu.au))

**3. Health and Physical Education - Years 1 to 10 Syllabus (ISBN 0 7242 8236 X).**

The syllabus is published by:

Queensland School Curriculum Council, PO Box 317, Albert St, Brisbane, Queensland, 4002 (The Syllabus Document is © The State of Queensland 1999)

**4. Curriculum and Standards Framework II (ISBN 1 74010 045 X).**

The Draft Framework book is published by:

Victorian Board of Studies, 15 Pelham Street, Carlton, Victoria, 3053  
(Document is © Board of Studies 1999)

**5. Health and Physical Education - Student Outcome Statements (ISBN 0 7309 8668 3).**

The Health and PE Outcomes and Standards Framework book is published by the Department of Education of Western Australia, Royal Street, East Perth, WA, 6000

▶ [www.eddept.wa.edu.au/centoff/outcomes/](http://www.eddept.wa.edu.au/centoff/outcomes/)



# What is Obesity?

## 2.1 Facts and Figures

Obesity can be measured using the Body Mass Index (BMI), which is calculated by dividing a person's weight in kilograms by their height in metres squared. For example, a person who weighs 67 kg and is 1.7 metres tall would calculate as follows:

$$\begin{aligned} &= 67 \div 1.7^2 \\ &= 67 \div 2.89 \\ &= \text{BMI of } 23.18 \text{ (healthy)} \end{aligned}$$

A BMI between 18.5 and 25 is considered "healthy" for adults, 25 to 30 is "overweight" and more than 30 is "obese". This should be used as a guide only as age, gender, muscular proportion and ethnic background have not been taken into consideration. Additional calculations need to be conducted for children as age and gender impact upon growth rates.

### Evidence published from the 2002 Childhood Obesity Summit held by the NSW government indicates that:

- Almost one quarter of Australian children between 2 and 17, and over half the adult population, are considered overweight or obese.
- The 1995/6 estimated national cost of addressing obesity-related issues was between \$680 - \$1239 million in Australia.
- Gastro-intestinal, endocrine and orthopaedic (postural and weight bearing) problems are possible short-term consequences of obesity, and long-term risks include cardiovascular disease.
- Obesity is linked to disrupted insulin levels, leading to diabetes and associated afflictions such as stroke, limb amputation, kidney failure and blindness.
- Low self-esteem and childhood depression can result from social intolerance towards individuals affected by obesity.
- Societal trends, such as increased use of cars for transport, television and computers for entertainment, and high fat foods for meals are amongst potential causes of the rise in childhood obesity.
- A 2001 NSW Child Health Survey discovered that 40% of 5–12 year olds were watching 2 hours or more of television or videos each day and playing 1 hour or more of computer games.
- Addressing the issue of obesity requires involvement from the family, educators, community organisations, the media and food industries with governmental support.
- A key source of support is from the parents, and issues such as education, access – both physically and financially – to healthy foods and exercise opportunities for the whole family, must be addressed on an ongoing basis.
- Social barriers, such as safety concerns in walking or riding as a form of transport, cultural beliefs that contradict current health ideas, the difficulties faced by ethnic groups seeking health education in an English-speaking environment, and the reduced availability of resources in rural and remote communities must be considered when offering solutions to the obesity problem.
- Children who have more confidence in their fundamental movement skills are more likely to pursue physical activities in the playground and out of school.
- Solutions will have the most impact and success if they address the whole population (hence a whole school approach is most appropriate), are long-term (such as implementation of educational activities throughout the school year and practised at each year level), and are well resourced.

Source: ▶ [www.health.nsw.gov.au](http://www.health.nsw.gov.au)

## 2.2 Cultural and Indigenous Health Issues

Cultural issues that restrict access to education and health resources can further impact on current community health issues. Families that speak limited English may miss out on information that would otherwise assist in the maintenance of a healthy lifestyle. Certain cultures may also favour diets that do not reflect the commonly accepted ideas of a “balanced diet” in Australia.

Of particular concern is the health of the Aboriginal and Torres Strait Islander population in Australia. Having had to adjust rapidly from a hunter-gatherer lifestyle when European people settled, indigenous peoples are now known to experience a high incidence of cardiovascular disease, diabetes and obesity. Health problems in some indigenous populations are compounded by socio-economic disadvantages and remote living conditions, reducing access to fresh foods and health services. Poor living conditions increase the risk of infectious disease, with gastro-intestinal illnesses increasing the likelihood of poor nutritional intake. Substance abuse, which has been identified as a problem in some indigenous communities, has also been identified as a risk factor, in that long-term, excessive use of alcohol is linked to nutritional deficiencies and less money is consequently spent on healthy food.

The high incidence of low birth weight in Aboriginal infants has been linked to dietary problems later in life, if followed by ongoing nutritional deficiencies. This problem is said to be improving slowly but still needs to be acknowledged as an area of concern.

Solutions for the health problems experienced by indigenous groups are in many ways similar to that of the general population, although specific issues such as those outlined above need to be taken into consideration.

Initiatives towards improving the health of these individuals need to be community-based with a focus on specific, local needs. The problems that may exist for a group living in a remote outback setting will differ from the needs of indigenous families in an inner-city dwelling. Approaches that cater for early intervention are best, as healthy habits can be established from an early age, and childhood health problems can be prevented rather than needing to be addressed later on. Instead of focusing simply on education for a healthy lifestyle, concrete measures to address the other risk factors mentioned above must also be incorporated through community policy and practice.

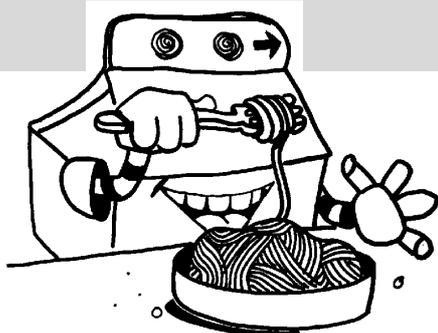
Cultural traditions and beliefs, languages spoken and learning styles of indigenous groups need to be considered when planning new programmes, with realistic expectations of outcomes. The groups themselves would also benefit from being involved in making decisions at every stage of the process as a sense of ownership enhances motivation.

### **Reference:**

Electronic version of the publication:

Nutrition in Aboriginal and Torres Strait Islander Peoples from the National Health and Medical Research Council (2000) at

▶ [www.health.nsw.gov.au/obesity](http://www.health.nsw.gov.au/obesity) (Go to the Obesity Summit page and check out the links page.)



### Note:

Ideas for “Cultural Issues” activities can be found in  
Junior Book - Activity 5  
Middle Book - Activity 2



# A Healthy Diet

## 3.1 Diet Recommendations

The recommendations for a healthy diet can vary slightly depending on the source and age of the documentation. However, most Australian health references agree on these basic principles on dietary guidelines for children:

- A complete diet can be divided up into “Food Groups”, namely 1) Grains, 2) Fruit and Vegetables, 3) Dairy, 4) Meat and Proteins and 5) Fats and Oils. There are slight variations of this model found throughout the available literature.
- Eat mostly foods from the grain group (bread, cereals, rice, pasta; up to 7 serves daily) and fruit and vegetable groups (7 serves daily, e.g. 2 pieces of fruit and 5 serves of vegetables).
- Eat moderate amounts of foods from the dairy group (2 – 3 serves of milk, cheese, yoghurt) and meats/proteins group (1 – 2 serves of red meat, poultry, fish, eggs).
- Eat moderate to smaller amounts of polyunsaturated or monounsaturated fats.
- Choose foods that are low in saturated fats, sugars and salt.
- Choose foods that support the RDI (Recommended Dietary Intake) of essential nutrients, such as calcium, iron and vitamins.
- A variety of different foods will increase the likelihood of achieving a healthy balance of foods from these groups.
- Drinking about 8 glasses of water each day will help to keep the body hydrated and functioning smoothly.

### How Much Should You Eat?

#### ● Eat Most

### Food Groups

- Cereals, breads
- Rice, pasta
- Vegetables, legumes
- Fruit

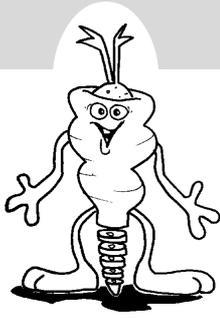
#### ● Eat Some

- Milk, yoghurt, cheese
- Lean meat, fish, poultry
- Eggs, nuts

#### ● Eat Least

- Butter, margarine
- Fats, oils, sugar

A balanced diet can be introduced to students by having them consider guidelines like those detailed by the *Australian Guide to Healthy Eating*. These guidelines recommend that we eat foods from the five food groups every day as in the diagram on the left. Variations of this approach are seen throughout Australian and overseas references. Sometimes the healthy food pyramid is used to educate on the correct balance of foods. There are many other ways to remind students of the recommended balance, such as through characters in the BLM Activity Books of this series.



## Note:

**Ideas for "Healthy Diet" activities can be found in:**

**Junior Book - Activities 1, 2, 3, 4, 6**

**Middle Book - Activities 1, 2, 4, 5, 6, 7**

**Upper Book - Activities 1, 2, 4, 5**

There are many different healthy food choices for each food group. Below are just a few:

- Grains: rice, risotto, sandwiches, rolls, foccacia, Turkish breads, pitta bread used for dipping, flat bread used as wraps or as a pizza base, healthy breakfast cereals, muesli bars, pasta dishes, noodles in stir fry.
- Fruit: fresh fruit, tinned fruit, fruit rollups, fruit kebabs, fruit salad or platters, juice or smoothies, dried fruit, fruit served on cereals, frozen fruit juice ice blocks.
- Vegetables: fresh, frozen, tinned, stir-fried, served with healthy dips, in sandwiches, with pastas, juiced, in vegetable pies, lasagne or stuffed baked potatoes, soups, salads, tacos.
- Meat and Protein: lean meat, baked, roasted, stir-fried, cold meats, fish fillets, grilled, barbecued, kebabs, quiche, boiled eggs, in sandwiches or rolls, small amounts to top pizza.
- Dairy: low-fat cheese and milk, yoghurt, sour cream, light cream, low-fat ice cream, dips made with cottage cheese or ricotta, fruit milkshakes, fondue with raw vegetables.

A varied diet including some of the choices above will provide an adequate intake of fats, salts and sugars without the need for additional foods that contain excesses of these ingredients.

## 3.2 Nutrients and Their Role

The primary role of food is to supply *nutrients* to the body for maintenance, repair, immunity and energy. These nutrients include: protein, carbohydrates, minerals, vitamins, fats and water.

### Protein

*Protein* gives the body the materials to build up, maintain and repair the muscles and organs. It also assists in the production of haemoglobin, the substance in red blood cells that carries oxygen around the body. Protein also creates antibodies, cells that fight off infection and disease. Protein is found in meat, fish, eggs, dairy foods, beans and nuts.

### Carbohydrates

*Carbohydrates* supply energy to the body. There are two different types of carbohydrates: sugars and starches. Sugars (also known as simple carbohydrates) can be found in many fruits, as well as in high-fat foods such as chocolate. Sugars are absorbed into the bloodstream very quickly to provide a fast energy boost. Starches (complex carbohydrates) take longer to be digested, so they release energy over a longer period of time, resulting in increased stamina. They are found in bread, cereals, pasta and vegetables.

### Minerals

*Minerals* account for a range of functions, from building bones to transmitting nerve impulses. Minerals are found in small amounts in a wide range of foods, from meat to fruit to dairy products. For children, teenagers and women, it is especially important to receive enough calcium, the mineral that strengthens bones. Calcium can be found in dairy products, leafy green vegetables and some fish such as sardines and tuna.

## Vitamins

*Vitamins* also perform a range of functions such as aiding growth and development, boosting immunity and energy, and supporting vital organs in the body such as the eyes. Vitamins are found in a range of foods, especially fruits, vegetables and dairy products.

## Fats

*Fats* are stored energy. Aside from this function, they help to make hormones that are needed for a range of tasks, such as keeping the body at the right temperature and maintaining blood pressure. Fats are also helpful in moving vitamins around the body – they help vitamins A, D, E and K to be absorbed by our system. Too many fats, though, are a cause of health problems, such as obesity, clogged arteries and diabetes. Fats are usually supplied by the foods eaten every day, such as meat, milk, cheese, fish, and some plants.

## Water

*Water* is the main ingredient in the fluids of the body's circulatory system, lymphatic system, digestive system and urinary system. It is the agent used in perspiration, to keep the body cool. It also acts as a lubricant for joints and organs. The body loses between 2 and 3 litres of water a day from all of these activities and more following exercise or during hot weather. As all foods contain water, a certain amount can be replaced each day just by eating. However, approximately 8 glasses of water will meet the needs for this essential nutrient more adequately.

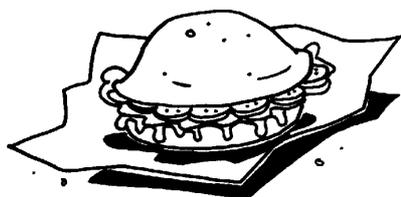
## Fibre

*Fibre* is a substance found in plants such as fruits, vegetables, and grains. It helps the digestive system work properly to eliminate wastes. It has also been found to be good for the body as a whole, by reducing the chances of cancer, heart disease and diabetes.

## 3.3 Kilojoules and Calories

As outlined in the passage above on nutrients, the main sources of energy are *carbohydrates*, *proteins* and *fats*, which are converted by the body into their simplest components of *simple sugars*, *amino acids* and *fatty acids*. The energy supplied by these nutrients is measured in *kilojoules* (a metric measure used in Australia and NZ). This measure is used to explain how much energy can be derived from certain foods, as well as how much can be "burned" by physical activity. Kilojoules are also called *calories*, and 1 calorie is equivalent to 4.186 kilojoules. (In the USA, which uses the Imperial measure rather than metric, products such as "Lo-Cal" are available.) To give an idea of the "power" of one calorie, this is the amount of energy required to increase 1 gram of water by 1 degree Celsius in temperature.

The following shows how many kilojoules are found in one gram of:



- Fat** - 37 kJ
- Carbohydrates** - 16 kJ
- Protein** - 17 kJ
- Dietary fibre** - 13 kJ
- Water** - 0 kJ

This indicates that the best way to acquire energy without oversupplying the body with fats is to eat foods higher in carbohydrates and fibre than in fats. Research also shows that the body finds it easier to convert fat from foods into body fat than to re-form carbohydrates as fat – therefore, foods high in fat will more likely be stored in the body if consumed in excess. Additional stores of fat will continue to "pile on", as evidenced by the extreme sizes that people with obesity can reach.