

Guidelines for Healthy Eating Information for nutrition educators



health

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Information for nutrition educators

The South African Guidelines for Healthy Eating

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Preface

This book has been written for people who educate others about eating for good health.

This will include:

- Health professionals and health workers; nutritionists, dietitians, nurses, nutrition advisors and community care givers.
- Teachers in primary and high schools.
- Foundations, organisations and companies with a health education focus or component.

The book provides information needed to:

- Understand the rationale and process used to develop the *Guidelines for Healthy Eating and Food Guide*.
- Make best use of the *Guidelines for Healthy Eating and Food Guide*.

The scientific basis for the information given is published in a special supplement of the South African Journal of Clinical Nutrition.

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Department of Health. Directorate: Nutrition

Private Bag X828; Pretoria 0001.

Words we have used and their meanings

Absorb

The uptake of water and other substances (like nutrients and medicines) by tissues of the body. Digested food is absorbed from the intestine into the blood.

Active/Activity

This includes formal exercise and activities during the day, such as walking to the bus stop and climbing stairs

Anaemia

Too little haemoglobin in the blood cells, or too few red blood cells. Haemoglobin carries oxygen in the blood, to the body. A person with anaemia is tired, breathless, pale, and has poor resistance to infection. A pregnant woman is at risk of developing anaemia, as her body must make extra blood during pregnancy.

Body Mass Index

Body Mass Index (BMI) is a calculated value that is an indicator of healthy weight for height. In adults a healthy BMI range is 18.5 to 25. When BMI is calculated in children and adolescents the healthy range is determined on a table, as it is age dependent.

Chronic disease

Long term disease, developing over time; usually refers to chronic diseases of lifestyle such as diabetes and hypertension.

Convenience food

Food that has been completely or partially prepared for eating before the consumer buys it.

Diabetes

A medical condition where the body does not produce insulin, or the insulin does not work well, and as a result glucose (sugar) from the blood cannot enter the cells of the body.

Enriched foods

Foods that have extra nutrients added, on a voluntary basis, by the manufacturer.

Food based dietary guidelines

A set of nutrition messages used to teach nutrition, they are developed according to specific criteria that help improve effectiveness.

Fortified foods

Foods that have extra nutrients added to them, based on a public health need. In South Africa this is controlled by law.

Haeme iron

This is a kind of iron found in animal foods (except eggs). It is absorbed completely by the body. Approximately 40% of the iron in meat is haeme iron.

Healthy eating plan

A diet that provides the foods that supply the correct amount of nutrients needed for health. Some people call this a balanced diet; that term is difficult to evaluate and explain and the word diet is often associated with slimming diets.

Hypertension

High blood pressure.

Iodated salt

Table salt that has been fortified with iodine. This is required by law in South Africa.

Kilojoule / Kilocalorie

Unit of measure to measure the energy in foods. The metric unit is the kilojoule (kJ). One kilocalorie is equivalent to 4.18kJ. A kilocalorie is usually called a calorie.

Micronutrient

These are essential nutrients needed by the body in very small amounts. Vitamins and minerals are micronutrients.

Non-haeme iron

The iron found in eggs and plant foods, which is partially absorbed by the bodies.

Nutrient

Part of a food that is absorbed and used by the body for energy, growth, repair and protection from disease.

Nutrition

Study of foods, diets and how nutrients are used in the body; of food related behaviours and factors that impact on these.

Nutritional status

State of a person's body that results from nutrients taken in and nutrients used by the person.

Obesity

When the nutritional status of a person shows they have too much body fat.

Risk factor

A characteristic or behaviour that contributes to the chances of developing an illness.

1. Introduction

The *Guidelines for Healthy Eating* was developed by the Department of Health to help South Africans have healthy eating plans, using a variety of foods. Most people can use the advice in these guidelines, although some people who have special needs may have to adapt some messages. Different messages are available for feeding babies and children under the age of five.

The messages in the *Guidelines for Healthy Eating* are supported by the visual and messages in the *Food Guide*.

Food is a source of nutrients needed for life and health; it is part of the way people live. The way individuals and their families eat is shaped by many different factors. Some of these factors include:

- The foods eaten by their parents and the ways they prepared these foods.
- The foods that their own family prefer to eat because they like the taste.
- The traditional and cultural backgrounds of communities.
- The amount of money available to spend on food.
- Foods available in local shops and markets.
- Advertisements and promotions for foods.
- Knowledge about food choices for good health.

The *Guidelines for Healthy Eating* and *Food Guide* provide information to help people make healthy food choices. Eating in this way helps the body to stay healthy; it improves the ability to do everyday tasks, improves mental ability and overall sense of well being. A healthy eating plan provides the body with energy to function and helps prevent short and long-term illnesses.

2. The *Guidelines for Healthy Eating* and *Food Guide*

South African nutrition experts have developed these guidelines and food guide to help South Africans make food choices that promote good health.

Many South Africans are not as healthy as they could be. Many adults and children weigh more than they should, while some children weigh less than they should. Some children and adults do not get enough of all the vitamins and minerals that they need from food, even though they have enough to eat. Some people have special food needs to cope with infectious diseases or chronic diseases.

The information in these guidelines promotes understanding of eating patterns that help promote health. Making changes to food choices, cooking methods or meal patterns can be done on a gradual basis, so that over time the eating plan becomes healthier and healthier.

The *Guidelines for Healthy Eating* is illustrated by the *Food Guide*. This includes information on the suggested amounts of foods needed daily. Using the correct food quantities, from all the food groups, will help people to ensure that they get all the nutrients that the body needs.

The aim of the *Guidelines for Healthy Eating* and the *Food Guide* are to encourage people to:

- eat a variety of foods,
- from each of the food groups,
- in the correct amounts,
- according to their needs.

Foods are grouped together based on the way they are typically used by consumers, as well as the nutrients they contain. The grouping system is simplified to highlight the key nutrient typically supplied by the foods in that group. Many foods provide other nutrients and dietary components; some of these are mentioned in the text in each section.



2.1. Food Based Dietary Guidelines

The Guidelines for Healthy Eating are food based dietary guidelines (FBDG) for children 5 years and older and for adults. They teach people actions that contribute to a healthy eating pattern.

The World Declaration and Plan of Action for Nutrition were unanimously adopted at the International Conference on Nutrition in Rome in 1992. The Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO) convened this meeting; it had a number of goals aimed at eliminating or substantially reducing chronic malnutrition, micronutrient deficiencies, and nutrition-related communicable non-communicable diseases.

The resolutions adopted at the meeting highlighted the role of promoting appropriate diets and healthy lifestyles as one of the strategies to achieve these goals. The development and use of FBDG as an effective nutrition education tool to achieve this goal.

FBDG are messages that express dietary goals in terms of foods, rather than nutrients. Food based dietary guidelines is a technical term to explain the type of dietary advice being given, this term is not typically used in communication to the consumer.

The FBDG allows flexibility for nutrition educators to adapt the messages according to client needs. This could reinforce existing desirable food consumption patterns or alter undesirable ones.

FBDG should address the major public health concerns that are diet-related in that country. They are based on an evaluation of food availability and compatibility with the cultural food intake patterns. The South African FBDG describes a food consumption pattern that South Africans older than five years should be following whether under, over or adequately nourished.

FBDG are messages that are action oriented, targeted at consumers. They:

- Are food-based, not nutrient based and are written in ordinary language.
- Have messages based on scientific research findings.
- Are confirmed through consumer research. Consumers are asked if they understand the statements, and think they can follow them.
- Are positive (unless a negative statement is really needed), explain what people must do, rather than what not to do.

- Indicate an action, hence give an idea of what should be done
- Are achievable, taking the customary dietary pattern into account.
- Are affordable, foods listed should be affordable to most people.
- Are sustainable, the action should not be so difficult that it is too hard to do for a long time.
- Are environmentally friendly, they should help protect the environment for long term food sustainability.

The South African FBDG was developed according to the process recommended by the FAO and WHO. They were adopted by the Department of Health in 2002. A process to revise and update the guidelines was started in March 2011. Working groups were formed to consider the scientific information that underpins each guideline; the working groups made recommendations to a group of nutrition specialists and the guidelines that should be updated were identified.

The testing of the understanding of the proposed revised messages was undertaken by the Department of Health and the working groups prepared updated technical support papers for each guideline.

2.2.The Food Guide

The *Food Guide* is a visual reminder, to support messages from the *Guidelines for Healthy Eating*.

The foods illustrated in the visual, and listed in the support text are chosen to represent foods, which are most commonly eaten in South Africa. There is a wide cultural diversity in South Africa; this influences the foods that are eaten. There is also a regional variation in food availability. The illustrations and text represent foods that are eaten by many people, in most parts of the country.

The proportion of foods illustrated in the *Food Guide* is intended to highlight the foods that should be eaten in larger amounts, compared to those eaten sparingly. The graphic is not a mathematically correct representation of this proportion; the number of units from each group is listed in quantitative tables in the support text.

It is recommended that most choices of foods should be ones that are the most nutritious choices from the food group. Most of these choices will be low in saturated and *trans* fats, low in added sugar and added sodium; and will provide essential nutrients.

The amount of energy that a person needs from their daily food intake is dependent on a number of factors, including:

- Gender
- Age
- Activity levels.

The food guide includes information on the number of units of food from each group needed each day; and it includes information on the size of each food group unit. A typical portion of some foods will be made of 1 unit of that food (e.g. one unit of fruit is one apple), while for others people typically eat many units at one time (e.g. a teenage boy may have 4 units of starchy food for breakfast, his portion of soft porridge will be 2 cups).

The food guide includes information on the number of units of food from each food group given at three different typical energy levels. This book includes information for nutrition educators to help people identify the amount of energy that they need to achieve and maintain a healthy body weight.

2.3. Terminology used in the Guidelines for Healthy Eating and the Food Guide

Healthy eating plan

A diet that provides foods that supply the correct amount of nutrients needed for health; it has enough food and a variety of clean, safe food. Some people call this a balanced diet. This term is difficult to evaluate and explain, and the word diet is often associated with slimming diets. A healthy eating plan can include some foods that have low nutritional value (some as sweets or chips) when most of the meals, most of the time, are made from foods from the food guide.

Food groups

Most foods contain many different nutrients; the foods in the food groups used for nutrition education contain similar amounts of the main nutrients. The foods in one group are usually used in a similar way in a mixed meal.

Mixed meals

An eating plan is likely to be healthy when it has three or more mixed meals each day. Most mixed meals will include a starchy food, and foods from different food groups. The daily eating plan should include food from most of the food groups, most days of the week. Chicken, fish, meat or eggs can be included when they can be afforded.

Portion

A portion is the amount of food that a person eats of one food at one time. Members of the same family may have different portion sizes of some foods, e.g. active men will have a bigger portion of starchy food than women, but they will all have the same portion size of vegetables. A single portion of food may have one or more units (food guide units) that are eaten at one time.

Unit / food guide unit

A unit of food within a food group is calculated based on the nutritional value of the food, and this amount is then stated. Thus a single unit of each food in a food group provides a similar amount of nutrients as other units in that same group. The unit sizes of different foods are described in different ways, for example 1 slice of bread (starchy food), 1 apple (vegetables and fruit) or 1 cup of milk (milk group).

3. Food guide unit serves

FOOD GROUP	FOODS	UNIT	WEIGHT ¹
Starchy foods	Bread, brown / white	1 slice	35g
	Porridge, soft,	½ cup	125g
	Maize meal, dry	3 heaped Tbsp	25g
	Potato	1 medium	100g
	Rice, cooked	½ cup	65g
	Pasta, cooked	½ cup	75g
	Samp, cooked	½ cup	75g
	Breakfast cereal	Varies	30g
	Cut corn, mealie	½ cup	75g
	Whole grains, cooked	½ cup	75g
	Popcorn, popped, no salt or oil added	2 cups	25g
	Vegetables and fruit	All fresh / frozen vegetables	½ cup cooked
Raw leafy green vegetables		1 cup raw	75g
All fresh fruit		1 piece medium sized fruit e.g. apple, banana. 2 pieces of small fruit e.g. apricots, plums ½ piece large fruit e.g. grapefruit. ½ cup chopped fruit ½ cup fruit juice 2 Tbsp raisins	150g
Dry beans, peas, lentils, soya	Dry beans, cooked	½ cup	75g
	Lentils, split peas	½ cup	75g
	Soya mince, dry	30g	
Chicken, fish, meat, eggs	Fish, white	1 large piece	150g
	Fish, high fat flesh	1 small piece	75g
	Chicken, no skin	1 medium breast	100g
	Meat, lean	Size palm, 10mm thick	80g
	Eggs, hens	2	100g
	Liver	3	100g
	Cheese, yellow	30mm ³	40g

¹ This information is included in the educators' manual, but household measures only are used in the consumer material.

FOOD GROUP	FOODS	UNIT	WEIGHT
Milk, maas, yoghurt	Milk, low fat or skim	1 cup	200ml
	Maas, low fat	1 cup	200ml
	Yoghurt, low fat or fat free	1 tub	100ml
Fat / oil	Oil; sunflower, canola, olive or other plant oil	1 tsp	5ml
	Tub margarine	1 tsp	5g
	Peanut butter	1 heaped tsp	10g
Sugar	Sugar, brown or white	1 tsp	6g
	Jam	1 heaped tsp	10g

4. Healthy eating plan patterns

The suggested energy intake for different people and two patterns of food intake for the three main levels of energy intake are given below. Nutritionists and dietitians can help people to adapt these suggested food patterns to meet their personal preferences.

	Energy intake kilojoules per day²	
	BOYS / MEN	GIRLS / WOMEN
5 – 9	6 600 – 7 700	6 200 – 7 200
10 – 13	8 500 – 10 100	8 100 – 9 300
14 – 18	11 000 – 13 200	9 800 – 10 300
All Adults	10 900	8 700
19 – 64 YEARS	10 800 - 11 600	8 700 – 9 100
65+ YEARS	9 600 – 9 800	7 700 – 8 000

² Taken from the Dietary recommendations for energy. Scientific Advisory Committee on Nutrition UK. 2010.

There are many ways of creating a healthy eating plan. Two different patterns are given in the tables below. These are based on the *Guidelines for Healthy Eating* and allow individual preferences to be taken into account. These recommended eating plans are based on all the food groups, and provide the energy and nutrients needed by children, teenagers and adults of average height and moderate activity levels.

Additional units from the food groups will be needed by people who are taller than average and / or who are very active. Discretionary foods (foods with little nutritional value) may be eaten on occasion instead of some of the units of starchy foods.

These eating plans are based on the consumption of plant and animal foods (omnivores). People who prefer vegetarian or vegan eating plans will need additional advice to help them meet their intake of all nutrients.

A simplified version of the energy requirements is given below; this is also provided in the material for consumers.

	Energy intake kilojoules per day	
	BOYS / MEN	GIRLS / WOMEN
6 – 9 years old	6 500	6 500
10 – 13 years old	8 500	8 500
14 – 18 years old	10 500	8 500 / 10 500
ALL ADULTS	10 500	8 500
Sedentary adults	8 500	6 500
Older adults		

Food intake pattern A

Age group Energy level	Starchy foods	Vegetables	Fruit	Dry beans, split peas, lentils, soya	Fish, chicken, lean meat, eggs	Milk, maas, yoghurt	Fat, oil	Sugar
6 – 9 years 6 500 kJ	8	3	1	1	1	1	4	2
10 – 13 y 8 500 kJ	11	3	1	1	1	1	6	6
14 – 18 y 10 500 kJ	15	3	1	1	1	1	8	6
Adult men 10 500 kJ	15	3	1	1	1	1	8	6
Adult Women 8 500 kJ	11	3	1	1	1	1	6	6

Food intake pattern B

Age group Energy level kJ	Starchy foods	Vegetables	Fruit	Dry beans, split peas, lentils, soya	Fish, chicken, lean meat, eggs	Milk, maas, yoghurt	Fat, oil	Sugar
6 – 9 years 6 500	5	3	2	1	2	1	4	2
10 – 13 y 8 400	7	3	2	1	2	2	6	6
14 – 18 y 10 500	10	5	2	1	2	2	8	6
Adult men 10 500	10	5	2	1	2	2	8	6
Adult Women 8 500	7	3	2	1	2	2	6	6

Pattern A includes more units of starchy foods than pattern B; this is similar to the way many people in South Africa eat. Pattern A does include more vegetables and fruit than most people are eating, as this is a food group that many people do not include in their meals often enough.

Pattern B has more units from all the food groups, except starchy foods. This pattern has more of the foods from animals (chicken, fish, meat, eggs and milk), but still includes foods from all the plant food groups. People must recognise that all the groups make a unique contribution to the eating plan, and they should not skip out any e.g., they may typically not worry to include vegetables, or may eat meat instead of beans. Skipping out food groups will result in the eating plan not having all the nutrients.

Many people eat many foods that are not included in the food group lists. These people should be encouraged to choose the foods listed most often, as these provide more nutrients than highly processed food options that are not listed. Examples of changes that they could make are:

- Use brown bread instead of bread rolls, the flour used to make bread rolls is not fortified.
- Use fresh fruit instead of fruit juice, it is more filling and has more fibre.
- Cook meals using fresh ingredients instead of buying readymade meals; these are likely to be cheaper, more nutritious and have a lower fat and salt content.
- Eat fruit or yoghurt as a snack between meals instead of a packet of chips; these options contribute to the day's nutrient intake and do not contain excess fat and salt.
- Make soup from fresh vegetables instead of using packet soup; this will be nutritious and low in salt.

Some people have eating plans that should be adjusted to take into account the messages in the guidelines and the recommended quantities from the food guide.

Examples are:

- Replacing large servings of starch with smaller servings and including vegetables in the meal.
- Replacing large servings of fatty meat with smaller servings of lean meat, and including vegetables and beans in the meal.
- Taking a food box to school / work with sandwiches, fruit and water; instead of buying fried potato chips and a cold drink.
- Using low fat milk in tea and coffee instead of tea / coffee whitener.

5. Macronutrient composition of sample food intake patterns.

The amounts of nutrients that should be obtained from foods are called nutrient intake goals. The purpose of these goals is to specify quantities of nutrients that meet nutritional needs and at the same time prevent development of chronic disease and support optimal health and well-being. These goals should be achievable from the national food supply.

National studies have indicated that both under- and overnutrition is a problem in South Africa.

Nutrient goals are used by professionals and policy makers. They are not intended as a primary nutrition education method for consumers.

The amount of energy needed is measured in kilojoules (kJ) and is usually expressed as the amount needed in 24 hours. It is influenced by age, gender, weight and activity levels. This energy is supplied by the carbohydrates, fats and proteins in foods and drinks (and alcohol if it is used).

The amount of protein needed to supply the minimum amount of protein needed is described in grams.

The essential fats that must be supplied are stated in grams (g), and minimum amounts of total fat and total carbohydrates that are needed are stated in grams.

The balance between the amounts of these three macronutrients is described by the percentage of energy that they supply in the eating plan.

The recommend amount of energy to be supplied by each of them is:

- Protein: 12–20% (Some sources suggest that the lower limit can be 10% and others that the upper limit can be 25%).
- Carbohydrate: 45–60% (can be higher when protein and fat are low).
- Fat: 25–30% (with some sources allowing a maximum of 35%).

Food intake pattern	Energy kJ	Protein g	Carbohydrate g	Fat g	% energy protein	% energy carbohydrate	% energy fat
6 500 A	6 550	68	214	45	17.7	55.5	25.4
6 500 B	6 550	86	181	52	22.3	47	30
8 500 A	8 550	77	292	58	15.3	58.1	25.1
8 500 B	8 600	99	251	69	19.6	49.6	29.7
10 500 A	10 550	89	364	72	14.3	58.7	25.3
10 500 B	10 400	110	315	82	18	51.5	29.2
Dietary goal ranges ³					10 – 25	45 - 65	25 - 35

Note: the guidelines state that foods from the 'fish, chicken, meat, eggs' group could be eaten daily. When people do not use a unit from this group the amount of protein will be decreased, but the overall plan still meets protein requirements.

³ As agreed by Technical Working Group for Food Guide Development. March 2011.

6. THE GUIDELINES FOR HEALTHY EATING

The first group of guidelines provide general messages to promote a healthy lifestyle:

- Enjoy a variety of foods.
- Be active!
- Drink lots of clean, safe water.

The next group of guidelines help to plan good mixed meals:

- Make starchy food part of most meals.
- Eat plenty of vegetables and fruit every day.
- Eat dry beans, split peas, lentils and soya regularly.
- Fish, chicken, lean meat or eggs could be eaten daily.
- Have milk, maas or yoghurt every day.
- Use fat sparingly; choose vegetables oils rather than hard fats

The following guidelines give messages about the use of foods that are commonly used but can be harmful when too much is used.

- Use salt and foods high in salt sparingly.
- Use sugar and food and drinks high in sugar sparingly.

6.1. Enjoy a variety of foods

The enjoyment of food is one of life's pleasures. Eating is about more than satisfying hunger, it is also a part of family life, social events and celebrations.

Having a variety makes meals more interesting and helps to ensure that an eating plan supplies all nutrients.

Mixed meals are usually eaten three times a day (breakfast, lunch and supper). Eating regular mixed meals, of a similar size, is key to having a healthy eating plan.

Key messages

- Healthy eating plans include a variety of foods from each of the food groups.
- Variety also means including foods from two or more food groups at each meal; these are called mixed meals.
- Variety also means preparing foods in different ways.
- People eat because they enjoy food; recommended eating patterns must be tasty and acceptable.
- The overall nutritional value of an eating plan will depend on the choice of foods and the amounts eaten. When foods with a poor nutrient content are used frequently the eating plan may be deficient in some nutrients and have excess amounts energy, fat and / or sugar.

Why do some people find this guideline difficult to follow?

Many people in South Africa make poor food choices that put them at risk for nutrition-related health problems. Some of the reasons for not eating a variety of foods include:

- Food may be limited in variety and amount when people have lower incomes. Affordability is a reason given by many people who do not often eat vegetables and fruit, chicken, fish, meat, eggs and milk.
- Changing lifelong habits to establish healthy eating patterns can be difficult.
- After urbanisation, people are exposed to many more types of highly processed and ready to eat foods. These are often easily available and people may choose these instead of foods that are nutritionally beneficial.

Possible tips

- The message to include a variety of foods does not mean that the more expensive foods are recommended. The household budget can be allocated to plan meals with a variety of foods that will be the best choices, within that budget.
- Food that is prepared at home is usually cheaper than highly processed food and ready to eat foods. Encourage people to take a food box to school / work with homemade meals.
- Give people a chance to taste foods that they have not eaten in the past.
- Demonstrate cooking methods and distribute recipes for new dishes.
- Help people to plan a week's menu, including regular good mixed meals.
- Encourage communities to request local shop keepers to stock different food items.
- Highlight food items that should be included in eating plans to provide micronutrients that many people lack (vitamin A, iron, zinc). This includes fortified foods, enriched foods, and plant foods that are good sources of vitamin A.

Food intake and body weight.

Reaching and maintaining a healthy weight requires an eating plan that supplies all the nutrients needed; including the right amount of food energy.

The most common forms of overnutrition are overweight and obesity. These are usually caused by:

- Eating more than the body needs, especially food rich in energy (often with a lot of fat and /or sugar and / or alcohol).
- An inactive lifestyle, where one does not get enough exercise from activities such as sport, walking or physical work.

Overweight and obese people should decrease the amount of food energy that they take in, and increase energy expenditure. This is done by eating the correct types of foods, in the correct amounts, and being physically active.

Overweight people have a higher risk for many diseases as opposed to people who have a healthy body weight; this includes heart disease, high blood pressure, stroke, diabetes, infertility and some forms of cancer.

The body mass index (BMI) is a measurement used to find out weight relative to height. The number will show if a person is underweight, normal weight, overweight or obese. The BMI uses weight and height when it is calculated, so it not a direct measure of body fat. It does provide a useful approximation of body fat for most people; the measurement should only be used as a general indication of body fat.

The BMI values for children and adolescents are dependent on age, so should be interpreted from tables which show the age related BMI ranges.

6.2.Be active!

Information on physical activity is just as important as information on healthy eating; both are essential parts of a healthy lifestyle. They are linked in that the way a person eats will influence their ability to be active and their activity levels will influence how much they can eat. The human body is designed to be active, yet many people spend a lot of time sitting in chairs. This type of sedentary lifestyle is a risk factor for many chronic diseases; inactivity is harmful to health.

Being active means moving parts of the body and using the muscles. This should increase the heart rate and rate of breathing. It can be from activities that are part of daily living or work, from sport or from doing exercises.

Key messages

Regular physical activity has many benefits, including the following:

- It increases blood supply to the heart, lungs and the muscles.
- It reduces the risk of developing cardiovascular disease (CVD), high blood pressure and diabetes.
- Burns up energy and builds muscle, which helps with body weight management.
- Strengthens bones, reduces the risk of developing osteoporosis.
- Increases strength and flexibility of joints and muscles.

- Aids relaxation, sleeping patterns and relieves anxiety.
- Improves mood.
- Helps regulate appetite.

People who are active for long periods in hot weather must have enough water to drink. Children who are doing sports or playing games may need to be reminded to have something to drink. Teachers and parents must ensure that drinking water is readily available.

Why do some people find this guideline difficult to follow?

People give many reasons as to why they are not active. Some of these are:

- Lack of awareness of the importance of activity for children and adults.
- Perceived lack of time to allocate to a leisure activity.
- Perceptions of high costs associated with exercise.
- A lifestyle that favours sedentary activities such as watching TV.
- A perception that exercise is difficult.
- A local environment that does not provide space for exercise, or that is not secure.
- The difficulty of exercising in hot weather.
- Family and cultural habits that do not usually include activity.

Possible tips

- Choose an activity that fits into your lifestyle, like walking to work or school.
- Dance to music on the radio instead of watching TV.
- Find activities that families can do together.
- Encourage children to play active games and to participate in school sport activities.

6.3. Drink lots of clean, safe water

Water is essential for life. Water is lost via the kidneys, the bowels, the skin and the lungs. Most of these losses occur without our conscious knowledge. Water that is lost must be replaced by liquids from food and drinks.

Children and adults need about 6 - 8 glasses of liquid a day; most of that should be from water and drinks made with tap water. There are no health benefits to 'binge drinking' water; when excess water is consumed it will be excreted as urine.

Drinking water is not always readily available, or may not be the beverage of choice; education to achieve the message in the guideline reminds people of the need to plan their fluid intake, just as they plan their food intake. People may wish to drink tea or coffee, they must be reminded to have it with little or no sugar.

Regular consumption of sugary drinks is not recommended, they can damage the teeth and contribute to excess energy intake; this leads to weight gain. Many commercial drinks are high in sugar including fruit juice, sports drinks and flavoured, water type drinks.

Key messages

- Drink clean, safe water every day as recommended.
- Water is the most abundant and the most important nutrient in the body.
- Blood is made mostly of water, as are the lungs, muscles and brain.
- The body uses water to regulate body temperature, carry digested foods, remove waste and cushion the organs and joints.

Why do some people find this guideline difficult to follow?

People will subconsciously drink enough fluid to maintain life; the fluids that they choose may not be good choices, or they may rely on their thirst to remind them to drink. Few people disagree with the message in the guideline, but many need to be convinced that water is a good choice and that they must plan how they will achieve their fluid intake when water is not easily available.

- Some people complain that water is a boring drink.
- Some people do not include opportunities to drink water in their daily routine, such as by not having drinking water available at meals.

- Some people do not realise the consequences of taking most of their water as energy containing beverages; which increase their total energy intake without providing other nutrients.
- Some people report that they do not have opportunities to go to the toilet during the day, so prefer not to drink too much.
- There are people in South Africa who do not have access to clean tap water.

Possible tips

- The message to drink water should be accompanied by a discussion on how to make sure that drinking water is readily available during the day. This includes children taking a water bottle to school and adults keeping a water bottle near at hand when they are working.

Water and exercise

Unless you are an elite athlete, water is the best way to replace the fluid lost during exercise. Sports drinks contain electrolytes and carbohydrates that are needed by athletes after prolonged, vigorous exercise. Thirty minutes before you start playing sport drink one to two cups of water. When you are finished slowly drink extra water for the next few hours.

Perspiration is the body's natural cooling system. Sweat on the skin cools the overall body temperature as it evaporates. Respiration releases moisture with every breath that is exhaled. Exercising increases this type of water loss, as breathing becomes heavier and more frequent. In general people who are active need more water than sedentary people do.

Dehydration

Water is the most abundant and most important nutrient in your body. A lack of water can cause mental and physical problems. If water that is lost from the body is not replaced signs of dehydration will be noted.

Fatigue, irritability and headaches are some of the symptoms of dehydration. Thirst is a later symptom; this is usually a sign that the body is already dehydrated. When a person is dehydrated for a long time they may have pain in the joints, lower back, be constipated and their urine is a dark colour.

Bottled water

South African bottled water has been regulated since 2007. This ensures that bottled water that is available commercially meets standards for safety. Products that appear to be water, but are sweetened and flavoured may not be called water; their composition resembles that of cold drinks, not water.

Some people believe that bottled water is a better choice than tap water; but there is no scientific evidence for this. In some places where tap water has an undesirable taste bottled water may provide a useful alternative.

There is concern about the impact of the use of bottled water on the environment, due to the plastic waste that is generated.

Tea, coffee and caffeine

Tea and coffee are two of the most widely drunk beverages in the world. They provide the body with water in a popular drink, without containing extra energy (unless they have excess sugar added). These drinks can be enjoyed in healthy eating plans, and contribute to the total fluid intake.

Traditionally concern was expressed about the health impact of caffeine, especially from coffee. The amount of caffeine that individuals can tolerate differs, 400mg of caffeine (about 6 – 8 cups of instant coffee), taken over 24 hours, day after day, by regular users shows no adverse effects. Caffeine may give some people a sense of urgency to pass urine, however it is not a significant diuretic.

Some people are caffeine sensitive and may report tension, rapid heartbeat and a temporary mild rise in blood pressure. Other negative effects of caffeine intake are reported to be that it causes anxiety, irregularities in heartbeat and it affects the onset and depth of sleep. These effects may be noted, but usually only when very large amounts of caffeine are consumed, especially by people who are not regular caffeine users.

Many South Africans enjoy rooibos tea; this beverage does not contain any caffeine. As with other beverages, users should not add excess sugar when preparing their tea.

6.4. Make starchy food part of most meals

Worldwide, but especially in developing countries, starchy foods, (cereals, grains and some root vegetables), are the main source of dietary energy. They also contribute micronutrients and dietary fibre especially when eaten in minimally processed forms (unrefined products). The types of starchy foods eaten in South Africa also contribute plant protein to the diet.

These foods cost less than many other foods, when used as part of most meals they help to satisfy the appetite, without costing too much.

Refined maize meal and bread are the most commonly eaten starchy foods in South Africa. Other examples of foods commonly eaten are rice, pasta, oats, sorghum, maize on the cob and breakfast cereals.

Key messages

- This is the way that most people eat; they do not have to change their eating plan to achieve this guideline. They may have to change the starchy foods that they choose, or the amounts that they eat.
- Fortified maize and bread are good choices of starchy foods, especially for people whose diet has a minimal variety; these people will benefit from the extra vitamins and minerals added to fortified foods.
- Add foods from other food groups to the starchy food to make good mixed meals.

Why do some people find this guideline difficult to follow?

- Many people prefer highly refined starchy foods, rather than minimally processed types.
- There is a general perception that starchy foods are uniquely fattening, without taking into account the quantities of all foods eaten and the amount of activity done.
- Many people are not aware of the reasons for fortification of maize and bread in South Africa, and hence they do not realise the potential contribution to their own nutrient intake that these foods can make.

Tips for consumers

- The total daily energy intake and foods that supply the energy are important aspects of an eating plan; they determine whether it will be health promoting or not. Foods from all food groups make an important contribution to the nutrients needed by the body.

Starchy foods do not uniquely contribute to weight gain; all foods with a high-energy intake will lead to weight gain when too much is eaten.

- Encourage people to eat good mixed meals; foods from other food groups must be eaten with the starchy foods.
- Prepare starchy food with little added fat, sugar and / or salt.

Food fortification

Research in South Africa showed that many people do not get enough of some key nutrients from their food intake. Some of the nutrients that were missing were ones that are not found in foods that are affordable and readily available. Mandatory food fortification is a way to increase the intake of these nutrients, without people having to change their eating plans. Maize meal and bread were identified as food vehicles for the food fortification programme in South Africa as many of the people who needed to increase their intake of vitamins and minerals eat these foods, on a regular basis.



Information on different starchy foods

The glycaemic index (GI) describes the way that carbohydrate-containing foods are absorbed by the body. Foods with a higher glycaemic index are absorbed to the blood stream, as glucose, faster than those with a lower glycaemic index. Although a GI can be determined for any foods with carbohydrate it's use is only important for rating those foods that supply larger amounts of carbohydrate in the diet.

The GI of a food depends on many factors; one of these factors is the type of starch or sugar. For example, the GI of rice depends on its amylose content, a kind of starch that resists gelatinisation. When you cook rice, millions of microscopic cracks in the grains let water penetrate right to the middle of the grain, allowing the starch granules to swell and become fully 'gelatinised', thus very easy to digest. Greater gelatinisation of starch means a higher GI. The more amylose in the rice, the less gelatinisation and the lower the GI. But you still need to keep portions moderate, even when you choose low GI rice as eating too much can have a marked effect on your blood glucose.

Whole grains are grains, mainly from cereal crops, which have all the grain components i.e. endosperm, bran and germ. Whole grains can be eaten as a single food, or as an

ingredient in a food product. Examples are whole grain breakfast cereal, mealies on the cob and cut corn, popcorn, rolled oats, barley, brown rice, cracked wheat, and sorghum.

- The bran is rich in fibre, vitamins (mostly B vitamins) and minerals.
- The large endosperm is made of carbohydrate, protein and a smaller amount of vitamin B.
- The germ contains vitamin B, vitamin E, trace minerals, antioxidants and healthy unsaturated fats.

During the process of refining, the bran and germ are separated from the starchy endosperm, which is ground to flour. When the bran is removed, many of the beneficial nutrients are removed; this is why minimally processed starchy foods are recommended.

Eating whole grains regularly reduces the risk of CVD, some types of cancer, type 2 diabetes, insulin resistance, stroke and high blood cholesterol.

Many countries recommend that most of the starchy foods eaten should be whole grains. This advice is not given to the public as a whole in South Africa, as the starchy foods that are readily available are not wholegrain. The advice may be useful to people who have been identified as being at risk for, or who have, the conditions listed above. They may need individual advice to learn where the wholegrain foods can be bought, how they are cooked, how they can be used in an eating plan and how they can be included in the family food budget.

6.5. Eat plenty of vegetables and fruit everyday

Vegetables come from many different parts of plants, including the leaves, roots, tubers, flowers, stems, seeds and shoots. Some vegetables (pumpkin and tomatoes) are the fruit of the plant, but are called vegetables as they are used in this way. Vegetables contain small amounts of carbohydrates as sugars, and many contain fibre. The vegetables that are high in starchy carbohydrates (potatoes, sweet potatoes) are listed in the starchy food group; this is because most people should not be encouraged to eat plenty of these vegetables, especially at the expense of eating a variety of vegetables.

Fruit forms from the flower on the plant and contains the seeds of the plant. There are many types of fruit available in South Africa, with some being in season at all times of the year. Fruit is sweet tasting because it contains sugar; this is in the form of glucose, fructose and / or sucrose. Fruit also contains fibre, especially in the edible skins. Pure fruit juices also belong to this group, but have less fibre than fresh fruit.

Vegetables and fruit are rich sources of vitamins and minerals, and have many health benefits. It is likely that the nutrients and other components of vegetables and fruit work together to provide the overall health benefits. Some of the health benefits of an eating plan that contains recommended amounts of these foods include:

- Lower risk of heart disease and stroke
- Lower risk of high blood pressure
- Protection against some types of cancer
- Preventing and relieving constipation
- Help promote eye health (prevent cataract and macular degeneration)
- They are filling, but low in energy; so help control total energy intake from meals.

Information on recommended quantities

The World Health Organisation⁴ recommends that people aim to eat at least 400g of vegetables and fruit a day, this will provide a variety of nutrients, including fibre, vitamins and non-nutritive beneficial compounds. Food intake studies show that South Africans fall far short of this target.

The unit size vegetables in the food guide are ½ cup cooked vegetables, which is usually about 80g. The unit size of fruit is based on a typical portion size, which is usually about 150g. South Africans who have one unit of fruit and 3 units of vegetables, based on the unit sizes in the food guide will meet the WHO intake target.

People who are currently eating only 1 or 2 units of vegetables a day may find it daunting to be given a target that is much higher than their current intake. A stepwise approach to changing their food choices may be a better option for sustainable behaviour change.

Key messages

- Encourage people to eat vegetables in at least one or two mixed meals a day. Fruit can be eaten with meals, or as a snack between meals. Portion sizes of two or three vegetables can be generous (more than one unit at a time) when a variety of vegetables are not available. People should enjoy a variety of vegetables and fruit.
- Vegetables should be eaten every day, and not only on weekends.
- Everyone should have one vegetable or fruit a day that provides beta carotene (the precursor of vitamin A.) Examples are carrots, pumpkin, butternut, spinach,

⁴ WHO technical report series 916. 2003. Diet, nutrition and the prevention of chronic disease.

imifino, mango, pawpaw, yellow peaches and nectarines. (Note: oranges and cabbage do not contain beta carotene).

- Prepare vegetables and fruit with little (if any) added fat, sugar and salt. Vegetables with beta carotene should be lightly boiled and served in meal that has fat, or else have a little oil added. This will enable to body to absorb the beta carotene.
- Children are more likely to enjoy eating vegetables when they have eaten a variety from an early age (i.e. from 6 months) and when they see their parents enjoying vegetables.
- There are many health benefits from eating at least the recommended amount of vegetables and fruit.
- Vegetable and fruit juice are not recommended as a regular replacement for fresh vegetables and fruit. They do not have much fibre, and are high in sugar.

Why do some people find this guideline difficult to follow?

The majority of South Africans do not achieve the recommended daily intake of 400g vegetables and fruits a day. Some of the reasons people give include:

- Affordability is often cited as a barrier to buying vegetables and fruit.
- Lack of availability of affordable produce in local communities is also given as a reason.
- Women may explain that they do not prepare these foods as their families do not want to eat them, and so they are wasted.

Possible tips

- Try cooking different recipes that include vegetables.
- Use pumpkin or butternut to make soup.
- Eat extra vegetables at times when fruit is expensive or not available.
- Establish a home food garden with vegetables, beans and fruit trees.
- Serve a salad as a starter to a family meal, when people are still very hungry.

6.6. Eat dry beans, split peas, lentils and soya regularly

Dry beans, peas, lentils and soya beans are the seeds of plants from the 'leguminosae family'. These can be eaten in the mature form as dry beans, split peas, lentils and chickpeas. Soya beans and products made from soya are classified as oil seeds; while beans, peas and lentils are also known as pulses.

Adding dry beans, split peas, lentils and soya to the diet increases the nutrient content of the meal. Legumes are rich and economical dietary sources of good quality plant protein, carbohydrates, minerals, vitamins and phytonutrients and soluble and insoluble dietary fibre. Eating foods from this group decrease the risk of a wide variety of degenerative diseases such as heart disease, diabetes, and different types of cancer. Eating these foods even helps to combat weight gain because they enhance satiety. They contain low GI starch, so when used they help to maintain healthy blood sugar levels.

For many decades these foods were viewed nutritionally as a protein replacement; for use when protein rich foods from animals were not available or not affordable. They are placed in their own food group in South Africa in recognition of the contribution they make to health, far beyond their protein content. All South Africans should be encouraged to eat these foods regularly, whether or not they are eating chicken, fish and meat.

Key messages

- Every week plan to include meals that use dry beans or soya instead of meat or chicken.
- Use dry beans, lentils, peas and soya as an ingredient in mixed dishes, such as samp and beans, rice and lentils, beans in vegetable sauce with pasta.
- Including dry beans, split peas, lentils and soya to the diet increases the nutrient content of the meal. They are a good source of plant protein, energy and fibre.
- Dry beans or soya can be cooked with meat or chicken dishes, this will improve the overall nutritional value of the dish (less fat, more fibre) and reduce the cost of each serving.
- Foods in this food group have a valuable role to play in improving the nutritional quality of the eating plan of many people in South Africa.
- Regular consumption of foods in this group makes a big contribution to the reduction of risk of developing some chronic diseases, and the nutritional management of the diseases when they have developed.

Why do some people find this guideline difficult to follow?

- Some people feel that the time that dry beans take to cook makes them uneconomical or difficult to use.
- Dry beans, split peas, lentils and soya are sometimes not well liked because they have a distinctive taste and are unfamiliar to many people.
- Dry beans can cause gas and a feeling of discomfort (bloating), if you are not used to eating it regularly.

Tips for consumers

- Plan ahead when using dry beans, to allow time for them to be soaked overnight before being cooked.
- The moisture lost during the ripening and drying of beans must be regained during the cooking process. During cooking the protein and starch becomes more readily available, the taste improves and the product becomes more digestible.
- With little planning consumers can ensure that they have beans ready when needed. Dry beans can be cooked in a wonder box (hay box) to save cooking costs.
- Cooking beans in a pressure cooker reduces cooking times markedly. Cooked beans can be frozen: cover the cooked beans with water and freeze in a sealed container for up to six months.
- When using canned beans rinse them after they have been drained, to reduce the sodium content.
- When cooking dry beans, lentils and peas only add salt and acid ingredients (such as tomatoes) at the end of the cooking time.

Information on carbohydrates: fibre, starch and sugars

Carbohydrates are produced in green plants through photosynthesis (in the presence of air, water and sun). The carbohydrates are grouped for nutritional purposes on the length of the chain of sugars.

- Sugars have one or two units. Glucose, fructose and sucrose are commonly found.
- Starches have long chains of glucose units.
- Dietary fibre has long complex chains and are found in plant cell walls. There are two types of dietary fibre (soluble and insoluble); a healthy eating plan with a variety of foods from all the food groups will include recommended amounts of both types of fibre.

Most dietary carbohydrates are broken down in the small intestine into sugars (mostly sugars), absorbed into the blood stream and used in the cells of the body to provide energy. If more energy is available than is needed at that time the glucose will be stored as body fat.

Some carbohydrates are not digested and absorbed; these are fibre and resistant starch.

6.7. Fish, chicken, lean meat, or eggs could be eaten daily

These foods are popular food choices for many people in South Africa, and they often need little encouragement to eat them. However these foods do cost more than foods in the other food groups, and should not be used often when the family has a limited budget for food. The guideline explains that foods from this group could be eaten daily – not that they should be eaten daily. The food guide unit serves show that only one option from the list could be included each day.

The foods in this group come from animals, with their main nutritional contribution usually recognised as protein. This protein is bundled with other important nutrients such as iron, zinc, niacin (a B vitamin), and vitamin B₁₂.

Cheese is included in this group, but should not be the food type chosen most often. This is because it is high in fat and salt. Organ products from animals, such as liver and kidneys are also part of this food group.

The iron in animal foods is more easily absorbed by the body than the iron in plant foods (except for the iron in eggs).

Fish with fatty flesh (pilchards, mackerel, and salmon) provide omega 3 fatty acids, a nutrient this is found in very few food sources. These foods are good choices.

Many of these foods also have a high content of fat, most of which is saturated fat. Saturated fat has a negative influence on health, so people are advised to use lean types of meat and to remove fat and skin from chicken. However the fat in fatty fish also has essential fats, so it is the exception to this rule.

Processed meat (sausages, salami, and polony) is high in salt and fat. These types of products should not be used often.

Key messages

- Encourage people to eat these foods in the recommended quantities, not very large portions.
- Cost is not necessarily an indication of the nutritional value of the foods in this group.

Why do some people find this guideline difficult to follow?

- Many of these foods are expensive. When the family buys meat on a limited budget it is inevitable that there will not be enough money to buy important foods like vegetables and fruit, leading to an insufficient intake of vitamins, minerals and fibre.
- People like to eat large portions of these foods, and like the fatty parts.

Possible tips

- Cheaper cuts and grades of meat and chicken are not necessarily inferior to expensive cuts with regard to nutritional value; they may have extra fat which should be trimmed before cooking.
- Good choices include liver (chicken and ox liver), kidneys, offal, heart, chicken feet, heads, necks, giblets and hearts.
- Local sources of animal-derived foods are also sources of protein, such as mopani worms, locusts and other insects.

About dietary iron

Foods containing haeme iron are the best for increasing or maintaining healthy blood iron levels. Such foods include organ meats, beef, pork, poultry and fish.

Non-haeme iron is less well absorbed. About 60% of iron in meat is non-haeme (although meat itself helps absorb non-haeme iron). Eggs, dairy products, and iron-containing vegetables have only the non-haeme form. Such vegetable products include dried beans and peas, iron enriched cereals, fortified maize and bread, dark green leafy vegetables (chard, spinach), nuts and seeds.

Including vitamin C rich foods at the same meal can enhance absorption of non-haeme iron.

Tea and milk inhibit the absorption of iron, so should not be taken for two hours before or after a meal with iron containing foods.

6.8. Have milk, maas or yoghurt every day

Milk, maas and yoghurt are the three types of milk products that are important in this food group. There are a wide variety of products available; milk can be fresh, long life or dried and they are available in many pack types and flavours. The best choices are those types that are low in fat or fat free (skim), and if sweetened have sugar added sparingly.

Cheese may also be included in this group, but should not be the food type chosen most often. This is because it is high in fat and salt.

The foods in this group are recognised as being the main food contributor of calcium (a mineral). They also supply protein, riboflavin (a B vitamin), vitamin B₁₂, and the mineral potassium.

Key messages

- Use low fat or skim milk and milk products; this is to lower the amount of saturated fat in the eating plan.
- Use milk and milk products with little or no added sugar.
- Enriched soya milk drink can be used as an alternate to milk.
- Some dairy products are high in fat, and low in the essential nutrients supplied by low fat milk and are not listed in the food guide (e.g. ice cream, milk based frozen dessert).

Why do some people find this guideline difficult to follow?

- Some people may have a real or perceived intolerance to the sugar in milk, lactose. This occurs when the digestive tract does not secrete enough of the digestive enzyme lactase. People with real lactose intolerance can usually have small amounts of milk at one time (e.g. in tea) and can tolerate fermented milk products like maas and yoghurt.

Information on protein

Protein is made of amino acids; there are about 20 amino acids that join together in different ways to make different proteins. When a meal is digested the proteins will be broken to amino acids in the intestine, they will be absorbed to the blood stream, and pass to the cells where they join together to make human tissues.

There are nine essential amino acids that are required from food.

The other amino acids can be made by the body, so are called non essential.

Complete proteins have all nine essential amino acids in about the same proportion as needed by the body; they are found in milk, eggs, meat and soya beans. Other than soya beans the proteins from plant foods do not have all the essential amino acids in one food type, but different plant foods have different combinations of essential amino acids. For example the protein in rice has different amounts of each of the essential amino acids than the proteins in lentils have. When different plant foods are eaten in the same meal all the essential amino acids may be provided.

6.9. Use fat sparingly; choose vegetable oils rather than hard fats

The body needs some fats and oils. Fats and oils can be found naturally in plant foods (like peanut butter and avocado) or animal-derived foods (like meat and chicken). They can also be added to foods and meals by spreading tub margarine on bread or using sunflower oil to brown onions for a stew.

The total amount of fat and oil in the diet should not be too high, because too much fat increases the risk for weight gain and the development of high blood fat levels.

Fried foods are always high in fat, so deep frying food is not recommended as a regular cooking method. Many foods from restaurants and takeaway shops are cooked with a lot of fat and therefore are not healthy choices.

Saturated fat is found in foods from animals (like meat and chicken) and some processed foods (like biscuits, pies and chips). Only small servings of these foods should be eaten, and then only seldom, as too much saturated fat is unhealthy.

People who need extra energy can add extra oil or high-fat plant foods to their diets. These can be combined with other foods, for example using more margarine on bread or adding peanut butter to porridge; or served alone, such as eating some avocado for a snack.

Key messages

- Fat is an essential nutrient in the eating plan; the type of fat, and the amount eaten are important.
- Many people have to decrease the amount of fat in their eating plan from animal foods (full cream milk, fatty meat, skin of the chicken, high fat processed foods) and replace it with oils (sunflower, canola, olive) and plant foods with oils (avocado, peanut butter).
- Fats play a role in the absorption of the fat soluble vitamins A, D, E and K.

Why do some people find this guideline difficult to follow?

- Soft tub margarines are more expensive than hard margarines.
- Many people use fat obtained from the preparation of fatty meats and chicken to prepare or add to other dishes.
- Fried foods are very popular.
- Many people are not aware that there are health risks attached to the high intake of saturated fats.
- Oil may be abused for deep frying by reusing it beyond its safety limit; consumer may not be aware of the added health risk this causes.
- Ignorance about the quantity of hidden fats in foods may result in people eating more fat than they realise (high fat food does not always taste fatty or oily).

Possible tips

- Help consumers to find new ways to cook foods instead of deep frying food.
- Help consumers to read the nutrition information on food labels to learn how much fat is in some processed foods e.g. ready to eat meals, chips, biscuits.
- Wise choices from the recommended good sources can be made, e.g. sunflower oil, peanut butter, home grown peanuts.
- Spread soft tub margarines thinly on bread.
- Show consumers how to remove visible fat from meat and chicken, before cooking.

Information about the types of fats

- Fats and oils contain different 'fat nutrients'. These include unsaturated fatty acids, saturated fatty acids, *trans* fatty acids and cholesterol.
- Foods rich in unsaturated fatty acids are good choices for a healthy eating plan; eating too many foods with a lot of saturated or trans fatty acids will result in an unhealthy eating plan.
- Fats and oils provide a concentrated source of energy and the essential fatty acids needed for growth and development.
- There are two unsaturated fatty acids (omega-3 and omega-6 fatty acids) that are essential fatty acids because the body cannot make them. They must be obtained from food. These fatty acids are needed to build cells, especially those of the brain and nervous system. Omega-3 and omega-6 fatty acids also help to keep the heart healthy.

- Foods that contain mainly unsaturated fatty acids are tub margarine, plant oils, peanuts, avocado and oily fish. Foods rich in omega-3 and omega-6 fatty acids are some tub margarines, oily sea fish and some seeds and nuts (e.g. flax seed and walnuts).
- Saturated fats are found in meat and chicken, cheese, and animal-derived foods such as polony and meat pies. Some processed foods contain saturated fats.
- Cholesterol is a type of fat found in animal food from animals, and it is made in the body from other types of fats. We need some cholesterol in our bodies for growth and function.
- Although it is important to limit the amount of cholesterol you eat, new research shows us that for most people dietary cholesterol isn't as harmful as was previously thought. Cholesterol in the bloodstream, specifically the bad LDL cholesterol, is what should be monitored. The biggest influence on blood cholesterol level is the mix of fats and carbohydrates in your diet, not the amount of cholesterol you eat from food.

6.10. Use salt and food high in salt sparingly

It is believed that a high salt intake leads to an increase in blood pressure in genetically susceptible persons; if the high salt intake is maintained over the long-term it will lead to hypertension.

The total daily intake of salt should be less than 5g of salt (sodium chloride); this equates to a recommended maximum intake of 2500mg of sodium. Some of salt in the eating plan comes from salt added during cooking and at table, but most comes from salt added when processed foods are produced and when salt based seasonings and sauces are used in home food preparation.

Sodium from any food ingredient contributes to the total sodium intake; this is why sodium is listed on the nutritional table in food labels rather than salt.

Key messages

- We only need a small amount of salt from our food to maintain health.
- In South Africa salt must be iodated according to law to prevent Iodine Deficiency Disorder.
- A high salt (sodium) intake is a risk factor for the development of high blood pressure.

Why do some people find this guideline difficult to follow?

- People get used to the taste of salty foods.
- People habitually add extra salt or salt based seasoning without tasting their food.
- People do not realise how much salt is added to processed foods.

- Salt is used in the preparation of some foods where it has a preservative function, such as biltong and snoek

Possible tips

- Gradually reduce the amount of salt and high salt foods when cooking for the family.
- Flavour home cooked food with spices, herbs, garlic, ginger or curry, and use plenty of vegetables for the preparation of stews and bean dishes.
- Read food labels to learn how much salt (sodium) is in processed foods; choose types with less sodium and to increase awareness of how much salt is found in some processed foods.
- Do not put a salt cellar on the table; this will stop you adding extra salt just because it is a habit.

Examples of higher and lower salt food choices from the food groups.		
FOOD GROUP	LOWER SALT FOODS	HIGHER SALT FOODS
Starchy foods	Some breakfast cereals Some savoury crackers Dry maize, rice, pasta	Some breakfast cereals Some savoury crackers Maize, rice, pasta cooked with a lot of salt Some types of bread
Vegetables and fruit	All fresh vegetables and fruit Frozen vegetables with no seasoning or sauce	Canned vegetables Vegetables with sauces / seasoning Some vegetable juice
Dry beans, split peas, lentils, soya	All dry beans, split peas, lentils. Plain soya mince.	Canned beans. Some flavoured soya mince.
Fish, chicken, lean meat, eggs	All fresh types.	Processed meat (ham, bacon, polony, sausages, biltong) Frozen chicken that has brine added. Canned fish in brine (undrained). Cheese.
Milk	Cheese.	Milk, maas, yoghurt.

High Blood Pressure

Blood pressure is the force of the blood pushing against the walls of the arteries (a blood vessel that carries blood away from the heart). It is at its highest when the heart muscle contracts, pumping the blood to the body. It is lower when the heart is at rest.

A person has high blood pressure (hypertension) when their blood pressure is higher than the normal range. High blood pressure can be managed when a person has a healthy lifestyle and, if needed, medication. High blood pressure that is not managed by treatment is a silent killer because it usually has no symptoms. Some people may not know that they have high blood pressure until they have trouble with their heart, brain or kidneys.

There are some aspects of food intake and lifestyle that can protect against high blood pressure and others that may make it worse.

Factors that increase blood pressure:

- An eating plan that includes a lot of salt and foods high in salt. The chemical name for salt is sodium chloride; it is the sodium part that is harmful.
- Drinking more alcohol than recommended.
- Stress.

Factors that protect against high blood pressure:

- An eating plan with plenty of vegetables and fruit; dry beans, peas and lentils; and whole grains.
- Drinking low fat milk, maas or yoghurt every day.
- Being active!

6.11. Use sugar and food and drinks high in sugar sparingly

A small amount of sugar can be added to foods and drinks like soft porridge or tea to improve the taste. Foods made with sugar, like jam, may be used to make a mixed meal or a snack. Sweets and cold drinks may be eaten occasionally but should not be eaten instead of mixed meals, or when a person does not have money for groceries.

Sugar provides energy but has no other nutrients. It can be enjoyed as part of a healthy eating plan, but should not displace nutrient dense foods. Some people may get too much energy from sugar, especially if they use a lot of sugar in tea / coffee, drink a lot of sugar sweetened cold drinks or use a lot of foods high in sugar (some of which are

also high in fat). Like all foods sugar should be used in moderation, and foods high in sugar should not be eaten instead of good mixed meals.

Key messages

- Sugar can be enjoyed in healthy eating plan, when used sparingly.
- Sugar and many foods made with sugar do not provide vitamins and minerals to the eating plan; these foods should not be eaten instead of good mixed meals.
- Frequent consumption of sugar, especially between meals, is a risk factor for dental decay.
- Frequent consumption of sweetened cold drinks and fruit juice can lead to obesity, when the total energy value of the eating plan is higher than needed.

Why do some people find this guideline difficult to follow?

- People like the taste of sweet foods.
- Many people are used to using a lot of sugar on a regular basis, e.g. on porridge, or in tea and coffee.
- In some households sugar is added to many dishes, including vegetables.
- Sweet foods and cold drinks are heavily advertised and easily available at tuck shops and on street corners.
- It is tempting to eat sweets between meals, especially when they are easily available.

Diet and tooth decay

Tooth decay (dental caries) is one of the most common diseases in the world⁵. Dental caries is a disease caused by acids, fermented sugars and starches that break down the tooth. It can be very painful and unsightly, and may lead to tooth loss if not managed. It's preventable and manageable if detected early.

The white visible section of the teeth is called the tooth enamel. It's made up of minerals, especially calcium and phosphate. It's constantly being dissolved (demineralised) and reformed (remineralised) depending on its environment. Oral bacteria produce acids when they break down carbohydrates. In the presence of these acids, some of the calcium within the enamel dissolves and is lost from the tooth surface. This process is known as demineralisation. Tooth decay occurs when there's more demineralisation than remineralisation.

⁵ http://www.bbc.co.uk/health/treatments/healthy_living/nutrition/dietary_dental.shtml

At this stage, surface damage to the tooth can be repaired. Saliva is one of the mouth's natural defences against this process and protects against dental caries in several ways:

- It helps to remove food from the teeth
- It contains bicarbonate that helps neutralise the acid production
- It delivers minerals such as calcium, phosphate and fluoride to the surface of the tooth, enabling remineralisation to take place.

Diet plays a significant role in dental caries. The modern diet contains a mix of sugars and other carbohydrates that can be fermented in the mouth by oral bacteria to produce acid.

Both total sugar intake and the frequency with which it's eaten are factors. Small amounts of sugar consumed frequently over a period of time will cause more damage than the same quantity consumed on a single occasion. Constant sugar nibbling encourages continuous demineralisation and the saliva doesn't have time to neutralise the acids. Sticky or chewy foods that remain in the mouth longer also cause more damage as the bacteria have more time to produce the acid.

Fluoride protects against dental caries and regular use of fluoride toothpaste contributes to improved dental health. Fluoride makes tooth enamel harder and more resistant to acid attack. It also affects plaque by reducing acid production.

6.12. Information on alcohol.

The use of alcohol has a long history and is an ingrained part of life in many cultures. However, the abuse of alcohol is widely found in many communities and this has negative health and social consequences. The use of alcohol during pregnancy is harmful to the unborn baby and alcohol abuse has negative social, lifestyle, and economic consequences for families and communities.

Alcohol is not illustrated in the food guide as it is not required in an eating plan. People who regularly drink alcohol should be aware of the energy contribution made by alcoholic drinks and the mixers they may be served with. They may contribute to excess weight gain, as well as the social problems associated with alcohol abuse.

- Alcohol is not required by the body; health workers should not encourage anyone to drink alcohol.
- Pregnant women and children under the age of 18 must not drink alcohol.
- Alcohol abuse has many severe negative consequences.

- People who use alcohol should do so sensibly, that means within recommended limits.
- People who have been advised not to take alcohol for medical reasons (e.g. because it interferes with the action of some medications) should not do so.
- People who wish to have alcohol should not exceed recommended limits; that is one drink a day for women and two drinks for men. One drink is equivalent to one glass of wine, one dumpie of beer or one tot of spirits.

PUTTING IT ALL TOGETHER

7. How to use the FBDG and food guide education tools

All the messages in the *Guidelines for Healthy Eating* and the *Food Guide* are important. However, unless a lot of time is allocated to a nutrition education session (such as in a day long workshop), it will not be effective to use them all in one session. The guidelines identified should be identified based on the needs of the group or individual. Follow-up sessions should be held to discuss the others.

The most relevant guidelines for a specific session will depend on the typical current eating habits; to reinforce existing desirable food consumption patterns or to alter undesirable ones (such as reducing fat and salt intake or increasing vegetable intake).

Nutrition is a practical subject; a good approach to an educational session is to give participants an opportunity to contribute what they know about the message in a guideline or food group. It is also useful to ask them to identify what they see as barriers that stop them following the message in the guideline and factors that make it easier. They can then discuss ways to overcome the barriers to implementing the message.

An effective nutrition message always:

- Suggests something that people should do.
- Explains why people should do it.
- Gives people a chance to identify ways to overcome barriers.
- Gives advice in an interesting, culturally acceptable way.
- Encourages people to set their own goals of what they plan to do.

7.1.Menu planning

Information from the *Guidelines for Healthy Eating* should be used to design a healthy eating plan. The food eaten should mostly come from good mixed meals, while only some should be from snacks in between. It may be difficult to decide what is a snack and what is a meal, but the difference between the two is not important. What is important is the total food intake at the end of the day or week. Children need to eat about 3 – 6 times a day to take in all the food they need. People with high energy needs, such as very active men, and teenage boys may need snacks between meals to achieve their food needs.

Here is an example of the meals in a healthy eating plan for a family:

Food in the morning (breakfast): The whole family should eat before they go to school and work in the morning. A cup of tea is not enough. A mixed meal is especially important for children who have to walk a long way to school.

Carrying food from home for a break time snack or meal (a food box): Children should take some food in a food box or lunch box from home to eat at school. Adults should also take a food box to work. Some starchy food, as well as others that can be served with it, should be included. It need not be expensive food. Also, take a water bottle if there is no drinking water available at school or work.

Buying food during the day. Very few people will be able to rely on food during the day to provide mixed meals. Many take away foods are high in fat, high in salt, and do not include vegetables or fruit. Some people may wish to buy some extra food during the day, but must understand that sweets, chips or ice-lollies do not contain many nutrients. These foods are extras, and should not replace healthier meals and snacks.

Meals at school. Many children receive a meal or snack at school, which contributes to their daily food needs. This meal should also provide something to drink; water is a good option. Children should still eat breakfast at home and take a food box to school. These are good habits that children should keep up for the rest of their lives.

Food after school. When children get home from school they may need something more to eat. Hungry children will not be able to study well in the afternoon. In hot weather, everyone should have plenty of clean drinking water, especially after having played sport or games or having walked home from school.

Food in the evening (supper). The evening meal is a good time for families to spend time together. Everyone must get a share of the meal. The meal should be served before young children become sleepy.

These meals and snacks should provide a variety of different foods, and enough food to meet the needs of each family member.

You can use these steps to plan good, mixed meals.

- Identify the meals and snacks that will be eaten during the day and remember to include times to have something to drink.
- Start with a starchy food, as a starchy food should be part of most of the meals. Starchy foods may also be part of some of the snacks. Other foods should be eaten together with the starchy food.
- Include plenty of vegetables and fruit during the day. Use one vegetable or fruit that contains beta-carotene each day. When available, use a variety of vegetables and fruit.
- Plan for other foods to be eaten with the starchy food and vegetables, including some or all of the following:
 - dry beans, split peas, lentils and soya
 - oil or plant foods with plant oil (avocado, peanut butter)
 - milk, maas or yoghurt
 - fish, chicken, lean meat, or eggs.
- These can be added for additional flavour:
 - sugar or sugar-containing foods
 - iodated salt or other seasoning used during food preparation.
- Remember that other steps for a healthy lifestyle are:
 - Be active!
 - Drink lots of clean, safe water.

8. Workshop outline

Using the Guidelines for Healthy Eating and the Food Guide.

Participative discussion

Ask participants to name foods that are commonly eaten in their area. Go around group to give all a chance to participate.

Write the foods up on the flip chart.

If some food groups are not represented give participants clues to identify those foods. The list should have nutritious and less nutritious options.

Talk about the typical meal pattern of people in that community, and identify ways that foods are prepared.

Explain that the knowledge that we have about nutrition and eating well is improving all the time. Today the workshop will include the most up to date messages, some of the information that participants already know maybe wrong; they must not worry about that as they are here to learn.

Ask participants:

- Which foods are the ones that most people like to eat most often?
- What happens to people who make poor food choices most of the time, compared to those who have a healthy eating plan?

Optimal nutrition is the best nutrition for a person. A person can achieve optimal nutrition if he or she follows a healthy eating plan most of the time. This must include a variety of food, eaten in the correct amounts. It must not include more food than is needed.

Ask participants:

- What are some of the things we should do to eat well?
Get as many ideas as possible, tell participants that some information we learn about healthy eating may not be correct.
Ask for ideas that are correct and incorrect (myths)
- Acknowledge those that are accurate and repeat.
Discuss myths and why they are inaccurate – clarify any that have potential nutritional harm.

- If participants do not raise their own points include some such as, discuss those that are accurate or not:
 - Is the most expensive food the best food?
 - Is it important for children and adults to eat vegetables?
 - Is it OK to eat vegetables only on the weekend and not during the week?
 - Is it essential for children to have 100% juice to drink?
 - Some foods in South Africa are fortified to make it easier for us to get all the nutrients we need
 - Good hygiene is also important.
 - Healthy food does not taste good.

Explain:

- Eating is an important part of everyone's life. Food is chosen for many reasons – not just for nutrients, but also for enjoyment and pleasure. Eating may be a chance to sit down with friends and family, or it can be a rushed event just because you are hungry.
- Following a healthy eating plan does not mean missing out on the enjoyment of food. All food can be enjoyed in a healthy eating plan; some food should be eaten often, and other food may be enjoyed occasionally in smaller amounts.
- Different types of food have different nutrients. No single nutrient is the most important, and no single food is the most important. No food can be called 'bad' food. What is important is learning how to plan food choices so that all nutrients are included, and so that the right amount of food is eaten.
- A healthy eating plan has a number of good mixed meals a day. Each good mixed meal should be planned using the guidelines for healthy eating. Mixed meals usually include food from different food groups, so that a variety of nutrients are provided.
- Some people need to eat snacks between meals to provide more nutrients, especially energy. These people should choose snack food that contributes to the nutrients needed by the body.

Some people eat snack food that has little nutrients, but is still expensive or contains too much energy. Snack food with little nutrients and a lot of energy should never be eaten instead of good mixed meals. This food can be enjoyed as

a treat or on special occasions. Examples of food with a lot of energy but little goodness are chips, cheese-flavoured chips, biscuits, cold drinks and sweets.

- The amount of energy you get from the food you eat during meals and as a snack should be the amount needed for growth or to maintain a healthy body weight. It is not healthy to be too heavy or to weigh too little.

Group work

Give each group one sentence card with a guideline for healthy eating written on it. The guidelines to be used in this session are:

- Make starchy food part of most meals
- Eat plenty of vegetables and fruit every day
- Eat dry beans, split peas, lentils and soya regularly
- Fish, chicken, lean meat or eggs could be eaten every day
- Drink milk, maas or yoghurt every day.
- Use fat sparingly: choose vegetable oils rather than hard fats.

Ask each group to discuss the following points about their guideline

- Which foods are foods that fall in this food group?
- Are there any other foods that are eaten in your community that can be included in this group?
- Do you think it is possible for families in your community to follow this guideline? If not, are there ways to help them to be able to do so?

Groups to give feedback on their guideline.

After the first group has given feedback show the participants a picture of the food guide. Ask the group to identify the place on the picture that represents the guideline they discussed.

Does the picture give any other messages about that guideline?

- For example the circle is in the centre – other foods are eaten with the starchy food. The circle with starchy foods is the biggest of all the circles; these are the foods we eat at most meals.

Use the design of the circles to help communicate the recommendations; explain that different sizes of the circles represent the fact that we eat more foods from some groups than others.

Refer to the food guide after each group has presented their feedback, and discuss the representation in the same way.

Discuss the foods from the original list that are not included on the guide e.g. foods that are high in sugar, fat or salt are not shown.

Ask participants what they think are the reasons for this.

How can they use that knowledge to improve their own eating plan?

Menu planning exercise

Ask participants to explain a typical day's meals and snacks for a family where they live. (Meal pattern).

Plan a menu for a family in this area based on this meal pattern and foods commonly eaten.

- Start by naming a starchy food that can be eaten at each meal, and possibly some snacks.
- Add in vegetables and fruit.
- Use dry beans, lentils, peas or soya as a main dish, a side dish or an ingredient.
- Include milk, yoghurt, or maas.
- Fish, chicken, lean meat, eggs, organ meat or cheese could be included.
- Where will oil or margarine be used?

Ask participants to work in pairs or groups to plan another day's menu, using different food options.

Foods that do not supply nutrients to the body may be included on occasion, but should not replace food choices that supply nutrients. They should not be used when money for food is very limited.

9. Sample menus

Menu one			
Breakfast	Soft maize porridge Milk Sugar	Breakfast cereal Milk Sugar	Soft maize porridge Milk Sugar
Mid morning snack	Brown bread Margarine Jam	Banana	Brown bread Margarine Cheese
Lunch	Brown bread Margarine Jam Apple	Brown Bread Margarine Boiled egg	Brown bread Peanut butter Jam
Supper	<u>Beef and bean stew</u> Beef Beans Onion Tomato Carrot Spinach Margarine Phutu	<u>Chicken Stew</u> Chicken Oil Onion Carrot Rice Butternut Tomato	<u>Samp and beans</u> Samp Margarine Beans Tomato Onion Green beans
Daily	Milk Sugar Water	Milk Sugar Water	Milk Sugar Water

Menu two			
Breakfast	Breakfast cereal Milk Sugar	Soft maize porridge Milk Sugar	Brown bread Peanut butter Jam
School meal	Soya Mince Stew Rice Butternut	Samp Beans Apple	Sour milk Phutu pap Banana
School snack (food box)	Brown bread Margarine Jam	Brown bread Margarine Jam	Brown bread Peanut butter Jam
Afternoon snack (after school)	Maas	Brown bread Margarine Egg	Brown bread Margarine Jam
Supper	<u>Curry bean stew with vegetables</u> Sugar beans Onion Tomato Carrot Phutu pap	<u>Pilchard kedgeree</u> Pilchards Onion Tomato Rice Carrot salad	<u>Savoury lentil stew</u> Lentils Tomato puree Onion Green beans Rice Butternut chunks
Daily	Milk Sugar Water	Milk Sugar Water	Milk Sugar Water

Menu three			
Breakfast	High fibre cereal Milk, low fat Sugar Raisins	Oats porridge Milk, low fat Sugar Apple puree	Muesli Milk, low fat Sugar
Mid morning snack	Savoury crackers Cottage cheese	Banana	Apple slices
Lunch	<u>Barley salad</u> Barley Vegetables Olive oil Herbs and spices	<u>Sandwich</u> Brown bread Tub margarine Cold chicken Green pepper	<u>Salad</u> Cut corn Vegetables Nuts Sprouted lentils Vinegar, Olive oil
Supper	<u>Chicken stew</u> Chicken Oil Chick peas Onion Carrot Rice Tomato and cucumber salad	<u>Homemade fish pie</u> Hake Pilchards Tomato Potato Butterbeans Green peas	<u>Pasta primavera</u> Pasta Onion Peppers Tomatoes Mushrooms Zucchini Olive oil Herbs
Daily	Milk Sugar Water	Milk Sugar Water	Milk Sugar Water

10. Cooking in a wonder box

Cooking in a wonder box is a way to save money. There are different types of wonder boxes, all are easy to make.

A newspaper box is made as follows:

- Take any wooden or cardboard box, such as an apple box with a lid that fits well. Line the bottom of the box with newspaper, about 2cm.
- Make a lot of balls of newspaper, each a single sheet, and pack these inside the box.
- Leave enough space to fit your pot.
- Have a thick layer of paper ready to place over your pot when the box is being used.

How to use the wonder box

- Food that usually takes a long time to cook can be done in the wonder box to save money.
- Dry beans should be soaked for about 4 hours (or overnight) in water. Discard this water. Place beans in pot and bring to the boil. Boil for 5 – 15 minutes, depending on the size of the beans. The last part of the boiling must be with the lid on. Place in the wonder box for 4 hours, or overnight.
- Bring back to the boil just before the meal, drain and season.
- Never look inside the wonder box when food is cooking as this lets the heat out.
- Never put half eaten food back in the wonder box as the food can then go bad.

11. Food sources and functions of some nutrients

MACRONUTRIENTS		
NAME	FOOD SOURCES	FUNCTION IN THE BODY
Carbohydrates <ul style="list-style-type: none"> • Starches • Fibre • Sugars 	<ul style="list-style-type: none"> • Maize, bread, rice, potatoes, dry beans • Dry beans, vegetables and fruit, unrefined starches • Vegetables and fruit, added sugar, honey 	Sugars and starches supply energy for the body. When you eat more carbohydrates than necessary, the body converts them into fat. Sugars improve the taste of some foods. Fibre slows absorption of sugar from the blood and thus prevents high blood sugar levels. It provides food for beneficial bacteria in the small intestine, which promotes digestion and improves immunity. Fibre makes faeces soft and bulky, which helps the body to pass the waste that makes up faeces.
Protein	Chicken, fish, milk, eggs, meat, dry beans, peas, lentils, soya, peanut butter (also found in starchy foods in small amounts)	For building or replacing cells, tissues, hormones, and building the immune system and helping them to function. Extra protein not used for these functions is used as an energy source.
Fat	Oils, margarine, fats, foods cooked in oil and foods rich in fat (e.g. meat, butter, cream, milk and cheese)	Fat supplies energy to the body. It also helps with the absorption of some vitamins. Fats improve the taste of meals and supply building blocks for some hormones and body parts like the brain and nervous system. Extra fat in the diet is stored as fat in the body.
Water	Water, vegetables and fruit, soup, drinks made with water like tea	All living tissues contain water. It is needed for digestion, temperature control, body processes and lubrication.

SOME MICRONUTRIENTS

There are many different vitamins and each one has a specific use in the body. Most vitamins help body functions, and help to promote and maintain health. Vitamins help the body to use the carbohydrate, protein and fat contained in foods. They also help to protect the body against infections. Minerals form part of the structure of body tissues, such as bone, teeth and nails, blood, nerves and muscles. They are essential for physical and mental development.

NAME	FOOD SOURCES	FUNCTION IN THE BODY
Vitamin A (retinol and beta-carotene)	Liver, kidney, egg yolk, breastmilk (especially colostrum), milk fat. Carrot, pumpkin, butternut, spinach, <i>imifino</i> , yellow sweet potato, enriched margarine, fortified maize and bread.	Maintains mucous membranes, skin and immune system. Supports eye health and night vision, and normal growth and development. Helps the body to use iron.
B-group vitamins	From various foods and fortified and enriched foods	Promote energy production and help to build and repair tissues.
Vitamin C	Fresh vegetables and fruit, oranges, green leaves, tomato, breast milk	Helps the body to use calcium and iron. Makes blood vessels stronger and promotes wound healing.
Vitamin D	Sunlight on skin Liver, milk fat, egg yolk	Helps minerals to be deposited in bones and teeth. Helps several organs to function, including the immune system.
Iron	Liver, kidneys, meat, chicken, fish, breastmilk, spinach, enriched or fortified foods	Helps to carry oxygen in red blood cells and muscles. Helps brain and immune system function.
Calcium	Milk, yoghurt, maas, fish if eaten with bones	Helps to build bones and teeth. Important for normal heart and muscle functions, blood clotting and immune defences.
Iodine	Iodated salt	Makes thyroid hormones, and needed for early development of brain, energy and temperature control, and growth of children.
Fluoride	Some ground water, fluoridated toothpaste	Good for bones and teeth. Helps to repair damage to teeth.

12. Protect the quality and safety of your food

Germs in the environment and on food can easily multiply and contaminate foods. Eating contaminated foods can lead to serious illness. To reduce the risk of food poisoning it is important to follow the basic rules of good hygiene at all times when handling and storing foods.

The World Health Organisation has produced a publication called "The five keys of food safety⁶"; this provides detail on messages to promote a safe food supply. A summary of the points is given below.

KEEP CLEAN

Wash your hands before handling food and often during food preparation.
Wash your hands after going to the toilet.
Wash and disinfect all surfaces and equipment used for food preparation.

SEPARATE RAW AND COOKED

Separate raw meat, chicken and fish from other foods.
Use separate equipment and utensils such as knives and cutting boards for handling raw foods.

COOK THOROUGHLY

Cook food thoroughly (especially chicken, fish, meat and eggs), to kill bacteria and spores.
Bring foods like soup and stew to the boil to ensure they have reached 70 °C. For meat and chicken, make sure that juices are clear, not pink.
Reheat previously cooked food thoroughly.

KEEP FOOD AT SAFE TEMPERATURES

Do not leave cooked food at room temperature for more than two hours.
Refrigerate all cooked and perishable food promptly.
Keep cooked food hot before serving.
Do not store food too long, even if in the refrigerator.
Do not thaw frozen food at room temperature.

USE SAFE WATER AND RAW MATERIALS

Use safe water or treat it to make it safe.
Select fresh and wholesome foods.
Choose foods processed for safety, e.g. pasteurised milk.
Wash vegetables and fruit, especially if eaten raw.

⁶ http://www.who.int/foodsafety/publications/consumer/manual_keys.pdf.