Variety of foods

The enjoyment of food is one of life's pleasures. For those who have an adequate food supply, eating is about far more than survival. Eating together is an important part of daily family life and of social events, celebrations and festivals.

In addition to the enjoyment it provides, food is, of course, essential for life. Obtaining the nutrients the body needs depends on the amount and variety of food locally available. This varies widely in different parts of the world. In addition, people have their individual food tastes and eating habits. Different groups of people also have different nutritional needs (this is covered in Section 2).

All foods can be enjoyed as part of a nutritious diet. From a nutritional point of view, a particular food is neither «good» nor «bad» of itself. What matters is how well a given food complements or combines with other foods to meet a person's energy and nutrient needs. The best advice is that people should try to eat a wide variety of foods and to spread consumption over the day. This is especially important for children who cannot eat enough in only one or two meals to meet their nutrition needs. Breakfast is particularly important to provide fuel both for physical and mental activity.

Important Nutrients

Food provides us with the energy we need for growth, physical activity and for basic body functions (breathing, thinking, temperature control, blood circulation and digestion). Food also supplies us with the materials to build and maintain the body and to promote resistance to disease.

These different functions are made possible by the nutrients contained in food. The types of nutrients in food are: carbohydrates, proteins, fats, vitamins, minerals and water. All foods contain one or more of these nutrients in varying amounts. Each type of nutrient serves particular functions:

Carbohydrates

Carbohydrates include sugars, starches and dietary fiber. They are the major source of food energy for most of the world's population. The sugars, or simple carbohydrates, are either monosaccharide (glucose, fructose and galatos) or disaccharides (sucrose, lactose and maltose). Starch, glycogen and dietary fibre (including cellulose, hemicelluloses and pectin) are referred to as complex carbohydrates or polysaccharides.

Some complex carbohydrates cannot be digested by humans and therefore are not a significant source of dietary energy. These are referred to as dietary fiber and come primarily from the walls of plant cells. Even though it is not a significant source of energy, fiber is still a very important part of the diet. Fibre is important in keeping the digestive tract healthy and working properly.

Foods rich in carbohydrates are rice, maize, wheat and other cereals, all types of root crops such as potatoes, yams and cassava; legumes such as peas and beans; as well as many fruits and vegetables, and sugars.

More about Carbohydrates

• Glucose is the most important carbohydrate. It is essential for brain function. It is also the form of carbohydrate used for energy in humans and other mammals and is often called 'blood sugar. ' Glucose is found naturally in many fruits and vegetable juices, but it commonly

combines with another monosaccharide to form a disaccharide.

For example, sucrose or table sugar is a disaccharide containing one molecule of glucose and a molecule of fructose, which is the primary sugar in most fruits. Lactose is a combination of glucose and galactose and occurs only in milk, including human milk. Maltose is a combination of two glucose units and is formed during the breakdown of starch.

Following digestion and absorption, the simple carbohydrates are converted to glucose which may be used immediately for energy or converted to glycogen (the storage form of glucose in mammals which is produced in only small amounts in the muscles and the liver) or to fat.

• The complex carbohydrates are many glucose molecules (often hundreds) joined together in long chains. During digestion, the starches are broken down into simple sugars which are then absorbed and utilized as any other sugar would be. When serum (blood) glucose levels fall, glycogen is also reconverted to glucose to provide a ready source of energy. This mechanism is especially important for physically active people.

Proteins

Proteins are needed to build and maintain muscle, blood, skin and bones and other tissues and organs of the body. Proteins can also be used to provide energy. Proteins are made from amino acids - the primary building blocks of the body. When proteins are eaten and digested they are broken down into their amino acids which are then absorbed and used to build new tissues.

Protein is especially important for growing children. Breastmilk contains the perfect combination of amino acids for growth and mothers should be encouraged to breastfeed as long as possible. As children are weaned from the breast it is important that their staple foods are supplemented with adequate protein-rich foods.

Good sources of proteins are all types of meat, poultry, fish, beans, peas, soya beans, groundnuts, milk, cheese, yoghurt and eggs. These are often more expensive than other foods. To get the best from these foods it is important to ensure that the body's energy requirements are met from other foods. If not, the amino acids from the protein will be converted to glucose and used for energy, and will not be available for building new proteins and tissues. Eating more protein than is needed can be wasteful: excess protein will be converted to glucose and used as energy or stored in the body as fat.

More about Proteins

• There are about 20 different amino acids used by the human body. These can be joined together in a wide variety of combinations to make different proteins. Most of these amino acids can be made by the body from carbohydrates and other amino acids. However, nine amino acids cannot be made by the body and must be present in the food we eat. These nine are called «essential», amino acids. If adequate amounts of each of these essential amino acids are not present in the diet, then the body will not be able to make all the protein it needs, nor use effectively all of the proteins which have been eaten.

• Different types of protein in the foods we eat have different amounts of the amino acids required by the human body. Proteins from animals, that is the protein found in meat, milk, fish and eggs, have the most of the essential amino acids. The proteins found in food from plants usually have lesser amounts of one or more of these amino acids. However, by eating a

combination of different types of foods it is possible to get all the amino acids one needs. This is especially important for vegetarian populations. For example, eating legumes or pulses (beans, peas, lentils) with cereals (rice, maize, wheat, sorghum) will provide a balanced mix of amino acids. Also, small amounts of milk, yoghurt, nuts, seeds, meat or fish eaten along with the staple food can provide an adequate source of amino acids to meet the body's protein needs.

Fat

Dietary fat includes cooking fats, oils and butter and ghee and is also a natural component of meats, milk, eggs, nuts and other vegetable foods.

Fats are an essential part of a nutritious diet. They are a concentrated form of energy and are the form in which much of the energy reserve of animals and some seeds is stored. In addition to serving as an energy source, fats (also known as lipids) are essential components of cell membranes and are needed for the absorption and use of some vitamins. Fat also makes meals more tasty and satisfying.

Fats and oils provide more than twice the amount of food energy as carbohydrates and proteins. Adding fat in the form of oil to the food of young children is a particularly good way to increase their energy intake. This is important since often children are not able to eat enough «bulky» foods to meet their energy needs. Young children should receive between 30%-40% of their calories from fat.

Depending on their activity levels and dietary patterns, adults should receive between 15% and 35% of their calories from fat. Generally. people are advised to avoid excessive intakes of saturated fats (less than 10% of energy intake) to reduce their risk of heart disease.

Foods rich in fats are oils, some meat and meat products, lard, butter, ghee and some other milk products margarine, some types of fish, nuts and soya beans.

More about Fats and Oils

• The term «dietary fats and oils» most commonly refers to triglycerides. These are the most abundant of the compounds also known as lipids. Phospholipids and sterois are other types of lipids, but about 95% of what we eat are the triglycerides.

• Dietary fats and oils Include the triglycerides you can see, for example the fat in meek buffer, ghee, lard and processed oils, as well as those that cannot be seen, such as that in milk, nuts, seeds and other vegetable sources (olives, avocadoes, palm fruit). Generally, fats are solid or semi-solid when cool (room temperature) and oils are liquid.

• Chemically triglycerides are composed of three fatty acids bonded to a glycerol molecule. Fatty acids are chains of carbon atoms with hydrogen atoms attached and an acid group (COIH) at one end. The length of the carbon chains varies from two to over twenty.

If two hydrogens are attached to each carbon (three on the terminal carbon atom), the fatty acid is said to be «saturated». If some of the carton atoms have only one hydrogen attached, the fatty acid is «unsaturated».

Depending on the number of unsaturated carbon atoms, the fatty acid Is said to be either

monounsaturated or polyunsaturated. (See Fig. 1.2 below)

• In general, the more saturated fatty acids there are in a tryglyceride the more solid It is at room temperatures. Beef fat is highly saturated, chicken fat less so, and moat oils from plants (for example, olive oil, peanut oil, sunflower oil) have a high proportion of unsaturated fatty acids.

• Cholesterol is an essential component of all cells in the body and it serves a number of Important functions. Most of the cholesterol in the body is manufactured in the liver, but some Is made by other cells and some come, from the food we eat. Cholesterol is transported in the blood in various forms and excessive levels of some types of cholesterol can Increase the risk of high blood-pressure, heart disease and stroke.

Several factors, Including diet, Influence how much and what type of cholesterol is produced and circulated in the body. High Intakes of saturated kits can lead to particular problems, so It is generally recommended that not more than 10% of daily energy intake should come from saturated fats.

Vitamins and Minerals

Vitamins and minerals are called micronutrients. They are needed in much smaller amounts than protein, fat and carbohydrate but are essential for good nutrition. They help the body work properly and stay healthy. Some minerals also make up pan of many of the body's tissues, for example, calcium and fluoride are found in bones and teeth and iron is found in the blood.

Iron is a major component of red blood cells and is necessary to keep all of the body's cells working properly. Iron deficiency anaemia is the most widespread nutritional problem in the world. It can be very serious in children and women of childbearing age, especially during pregnancy, but it also affects men and older women. It leads to lethargy (low work capacity), learning difficulties, poor growth and development, and increased morbidity (illness) and maternal mortality, especially at delivery.

The best sources of iron are meat, fish, poultry, liver and other organ meats. Iron is also found in legumes, dark-green leafy vegetables and dried fruits, but this iron is not absorbed as well by the body as is the iron from animal products. Increasing the intake of **Vitamin C** along with the vegetable sources of iron can help more of the iron to be absorbed and utilized.

Vitamin A is needed for building and maintaining healthy tissues throughout the body, particularly eyes, skin, bones and tissues of the respiratory and digestive tracts. It is also very important for effective functioning of the immune system. Vitamin A deficiency can lead to poor night vision (night blindness), severe eye lesions and in severe cases permanent blindness. This occurs mainly in undernourished children, especially those with measles and other infections. Vitamin A deficiency can also lead to increased illness and death from infections.

Vitamin A is found naturally only in foods of animal origin, notably breast-milk, liver, eggs and many dairy products. However, many dark coloured fruits and vegetables contain pigments, called carotenes, that the body can convert to vitamin A. Foods rich in carotene include red palm oil, dark green vegetables, carrots, deep yellow and orange sweet potatoes, mangoes and papaya.

Thiamin, riboflavin, niacin, B_6, foliate, pantothenic acid, B_{12} and biotin belong to what is sometimes called the vitamin B complex. The B-vitamins are necessary for converting carbohydrates, fat and protein into energy and for using them to build and repair the body's tissues. Deficiencies of these vitamins can lead to serious effects including muscular weakness, paralysis, mental confusion, nervous system disorders, digestive problems, cracked and scaly skin, severe anemia and heart failure.

Folate (folio acid, folacin) is needed to make healthy blood cells and its lack is a common cause of anaemia among women and young children. Foliate deficiency during pregnancy can lead to birth defects.

Adequate daily intake of the B-vitamins is important. Food rich in B-vitamins are dark green vegetables, groundnuts, beans, peas, cereals, meat, fish and eggs.

Vitamin C is needed to increase absorption of dietary iron, to make collagen (connective tissue) which binds the body's cells together, and to serve as an antioxidant. Prolonged vitamin C deficiency can lead to scurvy. The signs of scurvy are bleeding gums and sore, swollen joints and it can lead to death.

Most fruits, especially citrus and guava, and many vegetables, including potatoes, are good sources of vitamin C. Eating fresh fruit and vegetables is important for both adults and children.

Vitamin D is particularly important in the use of calcium by the body. Vitamin D is found in fish oils, eggs and milk, and is also produced by the body when the skin is exposed to sunlight. Lack of vitamin D can lead to rickets, a disease which causes soft and deformed bones in young children.

Calcium and phosphorus are important to body maintenance and to having strong healthy bones and teeth. Milk and dairy products are excellent sources of calcium and phosphorus.

Iodine is important for proper growth and development. Lack of iodine in the diet can cause goiter (swollen thyroid gland) and mental retardation. Iodine is found in seafood and in foods grown on iodine-rich soils. In areas where soils are low in iodine steps should be taken to add iodine to the diet, usually through iodized salt.

Fortified Foods: Vitamins and minerals can also be added to some foods to replace nutrients lost in processing or to enhance their overall nutrient content. Foods with added vitamins and minerals are called fortified foods. For example, iodine is frequently added to salt to produce iodized salt. In many countries bread, flour and other cereal products are commonly fortified with B-vitamins and iron, and vitamins A and D are often added to processed milk and dairy products and to some vegetable-oil products.

Water

Water is needed for many functions in the body: to make cells and body fluids, for chemical reactions to occur and to make urine which carries waste from the body. It is essential to maintain an adequate intake of clean water to replace the water lost by the body, especially in hot weather and during physical activity. People may also become dehydrated (suffer excessive loss of water) when they have diarrhea, vomiting and fever.

Eat to meet your needs

Where a good and varied supply of food is available and affordable, everyone should be able to select and eat the foods that meet their nutritional needs.

Selecting a proper diet requires knowledge about changing nutrition needs throughout the life-cycle and how these needs can best be met from locally available foods. Encouraging family members to enjoy and choose a wide variety of foods can help them meet their needs. Choosing wisely is especially important when incomes are low and food supplies are insecure. Nutritional needs are influenced by age, sex, health status and activity levels, and the following groups often need special care.

Pregnant and Breastfeeding Mothers

Women need to eat enough before, during and after pregnancy to deal with the extra strain that pregnancy puts on the body. Babies - both before and after they are born also need to be well nourished. When a woman is pregnant or breastfeeding, she must meet the baby's nutritional needs as well as her own.

If the mother's diet does not satisfy the needs of her baby, the baby will draw on, and reduce, the mother's own stores of nutrients. This puts the mother at increased risk of illness and can affect the baby's development.

Pregnant and breastfeeding women should therefore be aware of the importance of obtaining additional foods to meet their and the growing baby's nutrient needs:

- Carbohydrates and fats: these supply the extra energy needed.

- Protein, vitamins and minerals (especially iron, iodine, calcium, folic acid and vitamins A, C and K): these are particularly important for building the baby's muscles, organs and tissues, bones and teeth and for the formation of haemoglobin and blood.

These needs can generally be met by eating a wide variety of foods including plenty of fresh fruits and orange coloured and dark green leafy vegetables. Fruit and vegetables are also a good source of fibre; this helps prevent constipation which is common during pregnancy.

Pregnant women should be encouraged to have regular medical checks to ensure that they are keeping themselves and the developing baby well nourished. If the mother is not getting enough of a particular nutrient relevant dietary advice should be given.

In some cases vitamin and mineral supplements might also be recommended, but these should be taken only as advised by a doctor. During pregnancy the requirement for iron is particularly high and supplements are often needed. Folic acid is another common supplement, as is iodine in certain areas.

Breastfeeding mothers need a varied, nutritious diet too. They should have adequate supplies of energy and protein. Lots of fluids, such as fruit juices and soups are also important.

Babies

Breastmilk is the natural food for babies. Breastmilk has the added advantage of boosting the baby's resistance to disease. It is safe, inexpensive and provides all the nutrients most babies need for the first six months of life. Breastfeeding can continue up to two years.

While breastmilk is the basic food of the baby, milk alone is not enough to meet the increased nutritional needs as the baby grows older. By six months babies should be introduced to other foods to supplement the energy, protein, vitamins and minerals provided by breastmilk. This will also accustom the baby to varieties in food flavours and textures.

Foods for babies require special preparation to make sure that they are soft, clean and easy to digest. To meet all of the baby's nutritional needs it will be necessary to add foods high in energy and other nutrients (oil, fruit, vegetables, legumes and animal products) to the family's staple food. Once the baby is accustomed to liquid and soft foods, and as the teeth appear, semi-solid and then solid foods can gradually be introduced to the diet.

Preparing safe and nutritious supplementary foods can take a lot of time and effort. Many mothers and fathers, especially young and first time parents, need practical advice and assistance to help them provide their babies with the foods they need.

Young Children

Young children are often the most at risk of being malnourished. They have very high energy and nutrient needs for their body size in comparison to adults. Proper care and feeding is essential for their normal growth, development and activity.

Children can eat many of the same foods as their parents. They should be encouraged to eat enough of a variety of energy and protein-rich foods and fruit and vegetables for growth and body maintenance.

Children cannot eat the same amount of food in one meal as adults. They also expend a lot of energy throughout the day. They should sustain energy requirements by eating small meals and snacks spread over the day.

Children need to maintain their diet of energy-rich and body-building foods throughout their growing years until they reach adulthood. They should be encouraged to exercise and stay active so that the high energy intake does not result in obesity.

Sick children must be encouraged to eat and drink, even if they have little appetite. They should be offered softer textured foods and the foods they like best. Lots of fluids milk, fruit juice, soups and clean water - are especially important when a child has diarrhoea.

Children recovering from fevers and sickness should also be given plenty of energy and nutrient-rich foods to eat.

Eating habits are established early on, so it's important to teach children at an early age how to get the best from food.

Adolescents

Adolescents grow rapidly and so have very high energy and nutrient needs. They need adequate intakes of vitamins and minerals, especially iron, calcium, vitamins A, C and D. In addition, adequate amounts of energy and protein are needed to sustain growth and development.

Special attention should be given to adolescent girls who need to be well nourished both for their immediate development and the future stresses of childbearing. Anaemia and calcium deficiency are common problems. Foods rich in calcium and iron should be encouraged.

Adolescent girls who become pregnant are at particular risk and must have additional nutrients for their baby's growth as well as for their own.

The Elderly

There is no set age at which a person is elderly. The ageing process is significantly influenced by culture, individual activity levels and general health status.

As people begin to feel the effects of old age, illness and loss of taste and thirst sensation can reduce appetite; loss of teeth can make chewing difficult; a variety of stomach and intestinal disorders can lead to digestive problems; disabilities and infirmities, coupled with poverty, loneliness and depression can make acquiring and preparing food difficult. All older people should therefore pay attention to their nutritional needs; many will need special help to do this.

Even though most people need less energy as they get older, the elderly need adequate protein, carbohydrates, fat, vitamins, minerals and dietary fibre. Women should have an adequate calcium intake throughout life to reduce bone loss.

Foods for the elderly should include a wide variety of grains, fruits, vegetables, legumes, meats and dairy products.

Consumption of high energy foods may be particularly important if appetite fails and overall food intake is limited. Maintaining adequate fluid intake is also important.

For those who find it harder to eat and digest foods, special preparation might be needed to make these foods more appealing and easier to digest.

For example:

- Boiling, steaming or baking food may be preferable to frying.
- Fatty meat should be avoided in favour of lean meat and poultry.
- More food should be eaten at the start of the day; food intake at the end of the day should be limited to a light supper.

People with High/Low Activity Levels

Food is the body's fuel. It therefore follows that the more active people are the more fuel they need, whereas less active people will need less fuel. For most people their work-related activities determine energy expenditure.

Those who eat more food energy than they use will put on weight. Those who eat less than they use up in energy will lose weight. When dietary energy intake balances with energy requirements, body weight remains fairly constant.

Measuring Dietary Energy

Dietary energy is measured in kilocalories (kcal for short).

- 1 g carbohydrate gives 4 kcal.
- 1 g fat gives 9 kcal.
- 1 g protein gives 4 kcal.
- 1 g alcohol gives 7 kcal.

Fat is a concentrated source of energy. It contains twice as many kilocalories per gram as carbohydrate (starch and sugar) or protein. Carbohydrate and fat are the main sources of energy for the body. When more is eaten than is needed any excess is converted into fat. This fat is stored and can be broken down and used for energy in the future.

The amount of energy needed to maintain a healthy body weight depends on a person's age, sex, physiological condition and physical activity level. Energy needs vary widely. The larger and more active a person is the more energy or calories is needed. Further information about the energy used up during different activities is contained in Section 4.

Weight Control

Having a proper body weight is important to good nutrition. Body weight can also affect the happiness and enjoyment of life. Being underweight can lead to malnutrition. Malnutrition often results in poor growth, lack of energy, reduced ability to work and other nutritional problems. Being very overweight (obese) is also a form of malnutrition and can lead to serious health problems including cardiovascular disease, diabetes and hypertension. Overweight people often find it harder to do physical work, exercise and stay fit.

What is the Right Weight?

An individual should not be too fat or too thin, but how much weight is too much and how little is not enough? There are several ways of evaluating the appropriate weight for an individual. Two of the most common methods use the body mass index (BMI) for adults and the weight-for-height index for children.

Body Mass Index

This index is a measure of fatness or leanness, and is calculated by dividing one's weight in kilogrammes by the square of their height in metres.

The formula is:

$\text{BMI} = \text{Weight in kg}/(\text{Height in metres})^2$

For example, an adult weighs 75 kg and is 1.7 metres tall. His BMI is:

$$\frac{75}{1.7\text{x}1.7} = \frac{75}{2.87} = 26$$

Gaining Weight

Being significantly underweight can be a serious problem for anyone, especially children, adolescents, pregnant and breastfeeding mothers and the elderly. Underweight in children is usually caused by a combination of inadequate food intake and recurrent episodes of infections.

Health problems can also lead to underweight among older people, and these should be investigated if people fail to gain weight by eating more.

To gain weight people should try to:

• eat more of their regular foods

• eat more frequent meals and snacks

• eat a greater variety of food

• make sure they are eating enough protein and energy

• increase the energy content of their food by adding fats, oils and sugar.

Although activity uses up energy, it's still important to keep fairly active even when trying to gain weight. Exercise helps stimulate appetite and is important for all round good health.

Relaxation is also important. Worry and stress can cause weight loss, so stressful situations should be avoided or minimised if possible.

Losing Weight

In many countries, particularly in urban areas, more people are becoming overweight and obese (more than 20% above the normal weight-for-height, or BMI >30).

Losing weight means eating less food or less high energy containing foods and exercising more. But it doesn't mean starving oneself; everyone has a basic nutritional requirement to meet each day. Rather than going without meals altogether, the way to lose weight is by changing the diet and exercising on a regular basis.

Maintaining one's proper weight, when attained, is nutritionally preferable to periodic cycles of weight gain and crash-dieting to lose weight again.

Those who need to lose weight should:

• eat less energy-dense foods, especially ones high in fat

• eat more foods rich in fibre, ea. fruit, vegetables and whole grain products

• substitute foods rich in starches, ea. rice, pasta, bread and potatoes for some of the more energy-rich foods

• eat regular meals; constantly going hungry is not the answer

• drink water whilst eating; that will help them feel full too

• drink less alcohol

Most importantly, exercise should be increased to use up energy stores. The best advice is to start off by being more active in everyday life, for example, by simply walking more. Then, providing one is in general good health, more vigourous exercise sessions can be gradually introduced as part of a daily routine.

Keep active and stay fit

As well as eating properly it's important to stay fit and keep physically active. This keeps the body working properly and helps people get the best from their food.

Regular physical activity produces many benefits, it:

• stimulates cardiovascular and respiratory functions

• increases blood supply to the heart muscles helps to maintain muscle strength and joint flexibility

• stimulates the secretion of growth factors in children

• improves coordination and alertness

• favourably influences mood

• helps relieve anxiety

• helps regulate appetite

• helps people sleep better and work more efficiently.

• helps build strong bones and prevent osteoporosis in later life.

• burns up energy which helps weight control

Physical inactivity and a sedentary lifestyle may lead to overweight and an increased risk of developing some chronic diseases, including heart disease, high blood pressure and diabetes.

It's important both to keep at the right weight and keep active; keeping active of course also helps keep weight down. People therefore need to balance the food they eat with the energy they use up. Some guidance can be found in the tables below.

Table 4.1 sets out the energy requirements of different types of people according to their age, sex and activity levels.

Approximate Energy Requirements - *Table 4.1*

	males		females	
age	**weight**	**kcal**	**weight**	**kcal**
1 yr	10.0	1090	9.5	1035
3 yrs	14.5	1385	14.0	1330
5 yrs	18.5	1700	17.5	1540
10 yrs	31.5	2115	32.5	1885
15 yrs	56.5	2655	53.5	2155
25 yrs	65.0		55.0	
light activity		2530		2040
moderate activity		2905		2145
65 yrs	65.0		55.0	
light activity		2060		1830

Table 4.2 sets out some examples of how energy is used up in different types of activity.

Energy Expenditure - *Table 4.2* (kilocalories per hour of activity by a 55 kg woman)

Activity	**kcal\hr**
Sleeping	55
Sewing	60
Office work	65
Washing dishes	82
Sweeping	93
Cooking	98
Walking	158
Planting groundnuts	169
Washing clothes by hand	174
Scrubbing floors	174
Weeding	273
Labouring	294
Pounding grain	305
Playing football	327
Chopping wood	332
Hoeing or digging	354
Walking uphill with a load	480

Note that energy is used up in physical work as well as in exercising for pleasure. People who do physically demanding work need to make sure they get enough food to meet their energy needs. It's also important that they find time to rest and relax at the end of the day to let their bodies recover.

Children, and adults with less demanding physical work, should exercise or play a sport to stay fit and maintain a proper weight. Brisk walking, swimming, jogging, cycling or playing ball games are all ideal.

Lack of exercise in the elderly can reinforce agerelated limitations and handicaps that further reduce physical activity. This can lead to conditions such as varicose veins, blood clots, increased bone brittleness and painful, rigid joints. The elderly should therefore try to keep up a comfortable level of physical activity. Gentle exercise such as walking or swimming is ideal. Irregular, strenuous exercise should be avoided.

All exercise should be carried out regularly. Half an hour three times a week is a good target to aim for. Sporadic exercise does not achieve the same benefits and it carries a higher risk of over-exertion or injury.

Those who have been inactive for long periods, especially if this is as a result of illness, should have a health check before starting to exercise or resuming heavy physical work. Activity levels should be built up gradually, taking care not to do too much too soon.

Moderation is the golden rule. Eating in moderation combined with moderate exercise is the best approach for everyone.

Regular exercise and a balanced diet helps people stay fit and healthy, but other dietary habits are important as well. In particular, people who drink alcoholic beverages should do so in moderation.