THE EMIRATES

برنامج محمد بن راشد للتعلم الذكي
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HEALTH SCIENCES

TEXTBOOK

Grade 12

Health Sciences

Textbook

Grade 12

Volume 2

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How to use this book

Video
Indicates access to a video to support learning.

Remember
An important fact to remember.

Keyword
Provides an explanation of a language term and expression.

Example
A real life example that demonstrates the unit information.

Did you know?
Bite size pieces of interesting information related to the topic.

Think
Take time to reflect on the presented information.

Research
Research information on specific questions related to the topic.

Discussion
Discuss the highlighted topic with your class.

Further information
Additional information to expand your knowledge of this topic.

content is defined on smart learning app

Contents

Unit 5

Disease prevention

Introduction

There are lots of reasons that a person can develop an illness or disease. Some of these reasons are preventable and some are not. These are called modifiable and non-modifiable risk factors. During this unit, you will explore the modifiable risk factors for disease.

You will identify how personal health behaviours such as diet, physical activity, and adequate sleep can have an impact on physical, mental, emotional and social health. You will also learn the importance of immunisations and health screenings for disease prevention.

Learning outcomes

Standard HSC.5.3.01: Demonstrate how an individual can take control of their health in order to reduce the risk of developing a disease.

Learning outcomes:

HSC.5.3.01.001	Identify the causes of diseases and illnesses.
HSC.5.3.01.002	Explain modifiable and non-modifiable risk factors for disease.
HSC.5.3.01.003	Connect the importance of personal health behaviours such as a healthy diet, adequate sleep and personal hygiene with the prevention of illness and disease.
HSC.5.3.01.004	Explore the role of physical activity in the prevention of illness and disease.
HSC.5.3.01.005	Explore the role of immunisation in reducing the risk of developing disease.
HSC.5.3.01.006	Identify the importance of health screening for early detection of certain illnesses and diseases.

Keywords

Word	Form	Definition
behaviour	noun	the way someone acts or conducts themselves
blood pressure	noun	how hard the blood is pushing against the walls of the arteries
cholesterol	noun	a fat that your body needs to work properly; there is good and bad cholesterol
disease	noun	a medical condition that stops a person's body from working properly
ethnicity	noun	a large group of people with the same customs or origin
genetics	noun	the science of heredity; how characteristics are passed from parents to children
hygiene	noun	keeping yourself and your surroundings clean
illness	noun	a disease or period of sickness affecting the body
immunisation	noun	the process whereby a person is made resistant to an infectious disease
infection	noun	a disease caused by germs that enter the body
infectious	adjective	capable of being easily spread to other people
intensity (exercise)	noun	how much energy is used when exercising
modifiable	adjective	can be changed
non-modifiable	adjective	cannot be changed
physical activity	noun	any movement of the body that needs energy
prevention	noun	to stop something from happening
risk factor	noun	something that makes a person more likely to get a disease
sedentary	noun	having an inactive lifestyle
screening	noun	a test to identify a disease before a person has any signs or symptoms
vaccine	noun	something that it is injected into a person to protect them from a disease

5.1 The causes of disease and illness

What is a disease or illness?

A disease or an illness is a medical condition that stops a person's body from working properly. There are many reasons why people might develop a disease. For example, genetics, environmental factors, or a person's lifestyle can all be reasons why they might develop a disease or illness.

Knowing some of the things that cause disease and illnes and taking some steps to prevent them can help a person to stay healthy.

Disease prevention

Disease prevention means preventing or lowering the chance of getting a disease or illness.

The best way that people can lower their risk of disease is by:

- livng a healthy lifestyle.
- practicing good personal hygiene.
- having regular medical check-ups.

Keyword

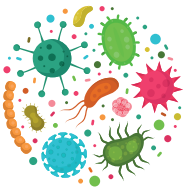
prevent

to stop something from happening

The causes of disease and illness

Discussion: What causes disease or illness?

Think about the reasons why someone might develop a disease or illness. Can some of these reasons be prevented?



The cause of diseases can be split into two categories:

- Diseases caused by bacteria, viruses and parasites which enter a pe and make them sick.
- Diseases caused by a person's lifestyle choices, the environment they live in, or their family history.

The two different categories of diseases are known as either communicable or non-communicable.

Communicable and non-communicable diseases recap

Think

Can you remember the difference between a communicable and a non-communicable disease? Can you name any communicable or non-communicable diseases?

Did you remember that:

- Communicable diseases are ones which can be passed or spread from one person to another.
- Non-communicable diseases do not pass from one person to another.

5.1 The causes of disease and illness

Communicable diseases

Keyword

bacteria

extremely small particles that cause disease or illness

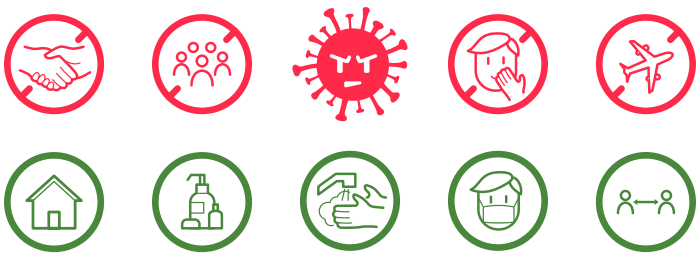
Communicable diseases are caused by bacteria, viruses and parasites which can be passed or spread from one person to another. They can be spread through contact with an infected person, through contaminated food or drinks, through insect bites or the air.

Example

Coronavirus is an infectious communicable disease. It is spread through contact with people who are sick. It causes a fever, dry cough, and sore throat. In extreme cases, coronavirus can lead to death.

Most risk factors for communicable diseases are modifiable. You can help to prevent them by:

- practising good personal hygiene.
- cleaning and disinfecting shared areas.
- staying a safe distance from people who are sick.



Further information

Having a healthy lifestyle can help to prevent you from getting some communicable diseases or getting as sick as somebody who does not have a healthy lifestyle.

This is because your body's immune system is more able to fight the bacteria and viruses that can make you sick. You can help your immune system stay healthy by eating foods that contain lots of different nutrients, getting enough sleep and exercising.

Non-communicable diseases

You cannot get one of these diseases from another person. They are usually long-term diseases.

Four of the most common non-communicable diseases are:

- cardiovascular disease
- cancer
- respiratory disease
- diabetes

Non-communicable diseases are usually caused by having an unhealthy lifestyle, living in an unhealthy environment or genetics (family history).

People can lower their risk factors for non-communicable diseases by changing their lifestyle habits, such as losing weight or stopping smoking.

Keyword

habit

a usual way of behaving, something that a person does often in a regular and repeated way

5.2 Modifiable and non-modifiable risk factors

Risk factors

Keyword

risk

something that may cause a bad or unpleasant thing to happen

Something that increases a person's chance of getting a disease is called a risk factor. The more risk factors for a disease you have, the greater your chance of getting the disease.

Remember

A person might develop a disease or an illness due to genetics, environmental factors, or lifestyle.

There are two types of risk factors:

- **Modifiable** risk factors are risk factors that you can change.
- **Non-modifiable** risk factors are ones that you cannot change.

Modifiable risk factors

You have control over some risk factors for disease. This means that you can reduce your chances of developing certain diseases. These are known as modifiable risk factors.

Modifiable risk factors for disease include:

- Sedentary lifestyle (lack of exercise)
- Being overweight or obese
- Type 2 diabetes
- Smoking
- High blood pressure (hypertension)
- High blood cholesterol
- High stress levels

Keyword

lifestyle changes

changing long-term habits such as diet or exercise to become healthier

The effect of modifiable risk factors can be reduced if you make lifestyle changes.

Example

Not getting enough physical activity can increase your risk of developing heart disease. You can change this risk factor by changing your lifestyle to be more physically active which can reduce your risk of getting heart disease.

5.2 Modifiable and non-modifiable risk factors

Non-modifiable risk factors

There are certain risk factors that you cannot change. This is because you have no control over them.

Example

If you have a parent who has heart disease, it means that you are more likely to develop heart disease as you get older. You cannot change this risk factor.

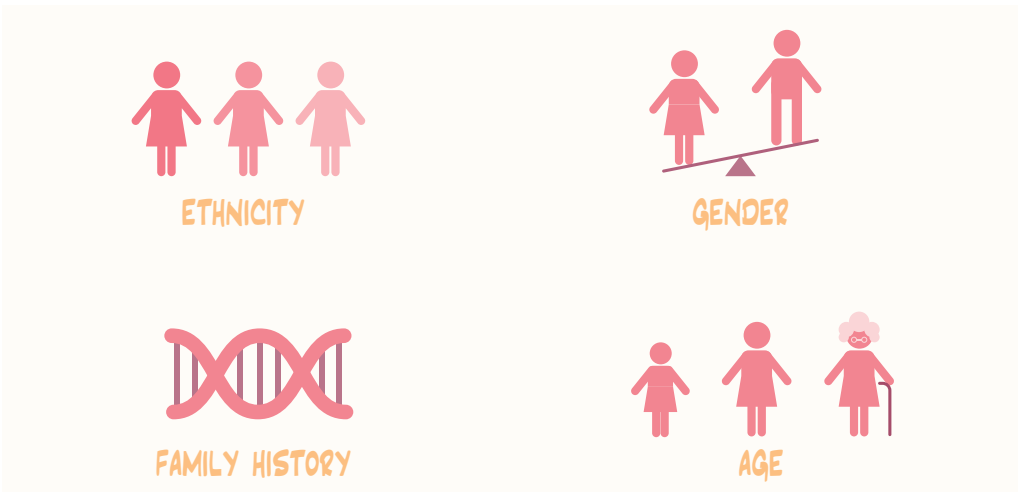
Non-modifiable risk factors include the following:

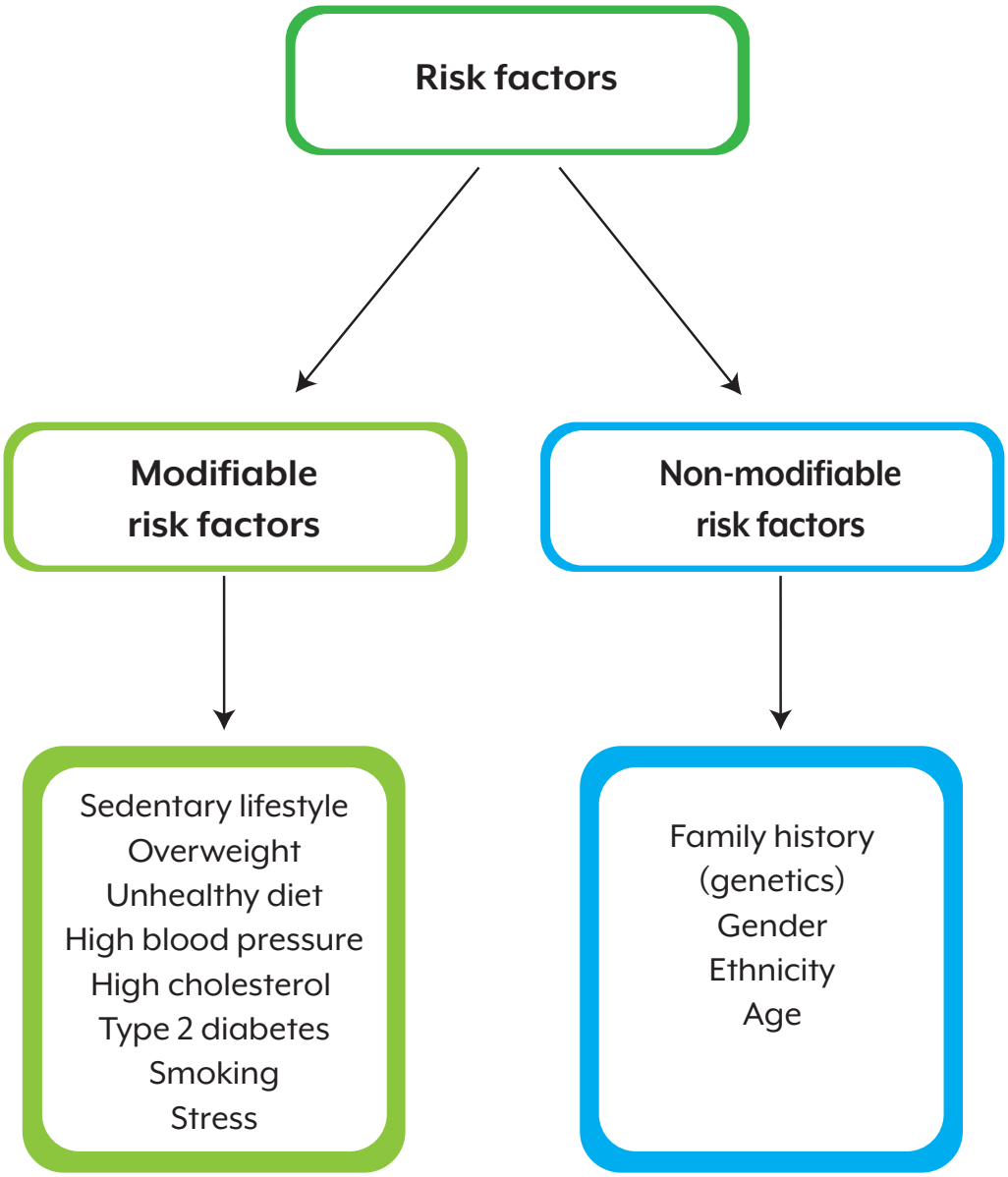
- **Gender**: You are at higher risk of developing certain diseases depending on whether you are male or female.
- **Age**: As you get older, your risk for developing certain diseases can increase.
- **Family history**: If a family member has a certain disease it could mean you are more likely to develop the same disease. This is also known as genetics.
- **Ethnicity**: Some ethnic groups are more likely to develop certain diseases compared to others.

Keyword

ethnicity

a large group of people who have the same customs or origin





Further information

Genetics is the study of the way that physical features and characteristics are passed from one generation to the next, for example, from parents to a child.

As well as receiving physical features like eye colour or hair colour from their parents, a person may inherit a disease if it is carried by one, or both parents.

5.3 Personal health behaviours for disease prevention

Personal health behaviours

Keyword

behaviour

the way a person acts or behaves

Personal health behaviours are lifestyle habits that can affect a person's health. They can be positive behaviours, which could positively affect health or negative behaviours which could negatively affect health.

Think

Can you think of any positive or negative personal health behaviours?

Positive health behaviours include:

- Having a healthy diet and drinking enough water
- Getting enough sleep
- Having good personal hygiene
- Being physically active
- Getting regular medical check-ups

Having good personal health behaviours and a healthy lifestyle could affect your modifiable risk factors for developing a disease.

Healthy diet

You already know that having a healthy, balanced diet is important to help the body stay healthy and get all of the nutrients that it needs. A healthy diet can also help to prevent diseases.

Here are some of the ways that having a healthy diet can reduce the risk of certain diseases.

Maintaining a healthy weight

Being overweight or obese is a risk factor for many diseases such as cardiovascular disease or diabetes. Being overweight puts pressure on the body's organs and blood vessels which can lead to a heart attack or stroke. Too much fat in the diet can cause diabetes.

Making healthy food choices and being a healthy weight for your age and gender can reduce the risk of developing these and other diseases.

Consuming enough nutrients

Nutrients that the body needs include protein, healthy fats, carbohydrates, vitamins and minerals. Not including enough nutrients in the diet can increase a person's risk of certain diseases.

Example

Calcium is a mineral that the body needs to build healthy bones. Without enough calcium, a person could develop a disease of the bones called osteoporosis where their bones become weak. Consuming enough calcium-rich foods such as milk, cheese and yoghurt help to prevent osteoporosis.

5.3 Personal health behaviours for disease prevention

Controlling cholesterol

Cholesterol is a type of fat that is produced by the body and found in certain foods. A small amount of cholesterol is important for the body's organs to work properly. But having too much can block the blood vessels and increase the risk of diseases of the blood vessels and heart.

Fast food, unhealthy snacks and processed foods contain high amounts of cholesterol. Limiting these foods can lower the risk of diseases caused by high cholesterol.

A healthy diet and mental health

Having a healthy diet not only keeps the body healthy, but it has also been shown to benefit mental health and lower stress levels. This can lower the risk of diseases such as depression and anxiety.

Improving your diet may:

- improve your mood.
- lower your stress levels.
- help you think more clearly.

Think

Have you noticed that the foods you eat can affect your mood? Do you feel better when you have been eating healthy foods, and not so good when you have been eating a lot of unhealthy foods?

Remember

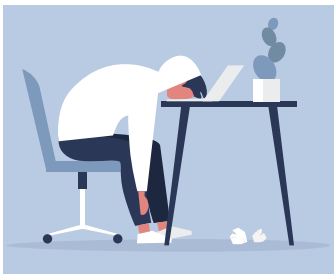
Having a healthy diet and being a healthy weight modifies the risk factors for some diseases.

Getting enough sleep

Sleep is one of the most important things that the body needs to maintain health and well-being. Sleep helps the body to repair itself and be ready for the next day.

Discussion: How much sleep do you get?

In small groups, discuss how much sleep you get each night. Do you think that it is enough? Share your answers with the class.



Not getting enough sleep can have negative health effects. After a bad night's sleep, people can feel tired, in a bad mood or even unwell.

Over a long time, not getting enough sleep can lead to a higher risk of diseases such as type 2 diabetes, obesity, high blood pressure, heart disease and poor mental health.

How to get enough sleep

To lower the risk of diseases linked to lack of sleep, a person can make some changes to their sleep habits. They should:

- aim to get between 7-9 hours of sleep a night.
- try to go to bed at the same time every night.
- not eat a large meal or drink caffeine before bed.
- not use televisions, laptops, or phones in the bedroom.

5.3 Personal health behaviours for disease prevention

Personal hygiene

Keyword

hygiene

keeping yourself and your surroundings clean

You have already learned that good personal hygiene is an effective way to protect you from communicable diseases.

It is important for:

- killing bad bacteria (germs).
- keeping the body clean and healthy.
- stopping the spread of illness and infection.

Think

What sort of diseases can you think of that could be spread by not having good personal hygiene?

When you wake up in the morning, you should brush your teeth, take a shower, wash your body, and put on clean clothes.

All of these actions are examples of good personal hygiene.

If you don't practise good personal hygiene, then dirt and bacteria could build up on your body and cause it to smell bad, or the skin to become infected and sore.

Keeping your body and hands clean also helps to stop bacteria and viruses from spreading.

Example

If you touch something that a person with a cold has touched, such as a door handle, the bacteria can spread to you and make you sick. You should wash your hands frequently to kill any bacteria that you might have come into contact with.

You should wash your hands:

- before, during and after preparing food.
- before eating.
- after using the bathroom.
- after blowing your nose, coughing, or sneezing.
- after touching someone who is sick.
- before and after giving first aid.
- after touching any animals.

Think

One of the main ways to reduce your chance of catching Coronavirus is to regularly clean your hands with an alcohol-based hand sanitiser or wash them with soap and water for at least 20 seconds.

5.4 Physical activity and disease prevention

What is physical activity?

Physical activity is defined by the World Health Organization as:

> *"any bodily movement produced by skeletal muscles that requires energy expenditure".*

This means that anything that gets you moving and increases your heart rate can be classed as physical activity. This could be anything from walking, swimming and sports, to housework and gardening.

Discussion: Why do physical activity?

Discuss why physical activity is important and some of the benefits of doing it.

The benefits of physical activity

Doing regular physical activity is very good for your health and well-being. It can benefit your physical, mental, emotional, and social health.

Physical health

Physical activity can improve how the body works and reduce the risk of disease in the following ways:

Helping to control body weight

Exercise helps to control your weight. If you do regular exercise, you will burn a lot more calories than someone who is not very active. You have already learned that being a healthy weight reduces the risk of lots of health problems.

Reducing the risk of certain diseases

Exercise reduces the amount of harmful cholesterol and fats in your blood which keeps arteries and veins clear and helps to lower blood pressure. This can reduce your risk of heart attack and stroke.

Improving bone and muscular strength

Exercise strengthens bones by increasing bone density. This helps to prevent weak bone conditions such as osteoporosis. It also reduces your risk of breaking bones.

Strong muscles support your joints which help to prevent injuries. Having strong muscles also allows you to do everyday tasks such as carrying heavy bags.

Did you know?

Your heart is a muscle. Like other muscles in the body, it gets stronger when you exercise regularly. Strengthening your heart can help reduce your chance of developing heart disease.

Improving lung function

Exercise improves the function of the lungs. It helps with how well the lungs can move air in and out of the body. As a result, more oxygen is drawn into the body, and more carbon dioxide and other waste products are removed.

5.4 Physical activity and disease prevention

Mental and emotional health

Exercise reduces stress and improves your mood. This is because exercise makes your body release endorphins which can make you feel happy and improve your mood.

Keyword

endorphins

a group of hormones which are released by the brain and nervous system to reduce pain and raise pleasure and wellbeing

Exercise can improve mental and emotional health by:

- improving energy levels. This makes you feel more alert and less tired during the day.
- improving emotional wellbeing. Most people feel calmer and better about themselves after they exercise.
- raising brain function by improving motor skills, problem-solving and increasing attention span.

Social health

Another important benefit of exercise is improved social health, especially if you do team sports or exercise with a group.

Taking part in group sports can help to:

- increase confidence.
- learn leadership skills.
- make new friends.
- increase motivation to exercise.

Having a healthy social life is important. It has been shown to improve health by reducing stress, improving heart and lung functions, and helping the body's immune system.

Recommendations for exercise

Keyword

recommendation

an idea or plan of what should be done

The World Health Organization (WHO) recommends the following guidelines for exercise:

Children and teenagers aged 5-17 years old

- Sould do at least 60 minutes of moderate to high-intensity activity each day.
- Should do activities that strengthen muscles and bones at least three times a week.

Adults aged 18-64 years old

- At least 150 minutes of moderate-intensity physical activity or 75 minutes of high-intensity activity each week should be done.
- For further health benefits, adults should do 300 minutes of moderate-intensity physical activity or more each week.
- Aerobic activities such as running or swimming should last for at least 10 minutes at a time.
- Activities that strengthen the muscles such as weight training should be done at least two times each week.

5.4 Physical activity and disease prevention

Exercise intensity

Exercise intensity is how hard your body works while doing physical activity.

The exact intensity of exercises will vary between different people. It will depend on your level of fitness and the effort that you put into exercises.

Moderate-intensity activity

Moderate-intensity activity is when you are working at 70-80% of your maximum heart rate (MHR).

You should still be able to talk comfortably during moderate-intensity exercise and you should be sweating lightly.

Examples of moderate-intensity activity include:

- Moderate walking (around 5km per hour)
- Cycling (less than 16km per hour)
- Swimming slowly
- Gardening/heavy housework
- Golf

High-intensity activity

A high-intensity activity is an exercise that creates a big increase in your heart and breathing rate. You should be working at 80-85% of MHR.

You should be able to speak a few words, but not hold a conversation and you will be sweating a lot.

Examples of high-intensity activity include:

- Running
- Playing sports such as football
- Swimming fast laps
- Cycling (over 16km per hour)
- Hiking in the mountains
- High-intensity aerobics

Further information

A 'sedentary lifestyle' means that a person does not do regular physical activity. Having this kind of lifestyle puts people at risk of developing diseases associated with being inactive such as high blood pressure and cardiovascular disease.

According to the WHO, 60 to 85% of the world's population do not exercise enough. Diseases relating to inactivity are the 4th biggest cause of death worldwide.

Making time to fit exercise into the daily routine, or just moving around more instead of sitting can help everyone become more healthy.

5.5 Medical care for disease prevention

How medical care can prevent disease

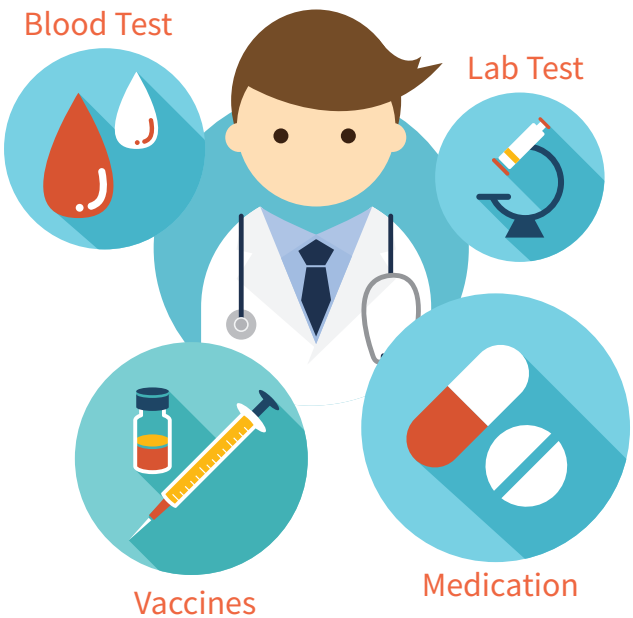
In previous units, you have learned when to visit the doctor or clinic if you experience signs or symptoms of an illness or disease. But there are some medical procedures that can help to prevent different diseases before they happen.

Two of these are:

- **Immunisation.** This is when people are made immune or resistant to an infectious disease, usually by the injection of a vaccine.
- **Screening.** This involves testing people to see if they have any signs of a disease or illness.

Discussion: Immunisation and screening

Discuss any diseases that you can think of that aim to be prevented by immunisation or screening.



Think

Can you remember in grade 11 you learned about the three different medical approaches to health promotion: primary, secondary, and tertiary?

Vaccinations are examples of primary prevention which aims to stop a disease before it happens.

Immunisation

Many countries, including the United Arab Emirates, have immunisation programmes to protect the health of their population. Immunisations involve giving people a vaccine which makes them immune or resistant to certain diseases.

Keyword

vaccine

something that is injected into a person to protect them from a disease

How do vaccines work?

Vaccinations work by injecting a very small amount of the virus or bacteria that causes a certain disease into the body. It is a small enough amount so that it does not make you ill.

This makes the body's immune system create antibodies to fight off the injected disease. Then, if the disease enters your body again in the future, your immune system knows what it is and already has the antibodies to fight it. This is called immunity.

5.5 Medical care for disease prevention

Example

Vaccines are being developed to protect against Coronavirus (COVID-19). The virus spreads easily and anybody can catch it. A vaccine would provide protection by training people's immune systems to fight the virus, so they don't become sick.

The importance of vaccinations

There are many reasons why vaccinations are important, including:

- Vaccinations save an estimated 2.5 million lives every year.
- Vaccines reduce the risk of getting a disease by working with the body's natural defences to build protection.
- Vaccines are available to prevent more than 20 life-threatening diseases, helping people of all ages live longer, healthier lives.
- Vaccinations are important for the prevention and control of infectious disease outbreaks.

Further information

Some vaccination programmes have been so successful in targeting certain diseases that they have eliminated the disease worldwide.

Smallpox is one such disease. At one time, smallpox killed 35% of people who were infected and caused scarring and blindness in others.

Over many years, the World Health Organization used a vaccination programme to prevent people from getting smallpox. Eventually, enough people were immune to the disease which meant it could no longer spread.

UAE National Immunisation Programme

In the United Arab Emirates, there is an immunisation schedule to vaccinate children against many different diseases.

The vaccination schedule starts when a child is born and usually continues until the child is in grade 11.

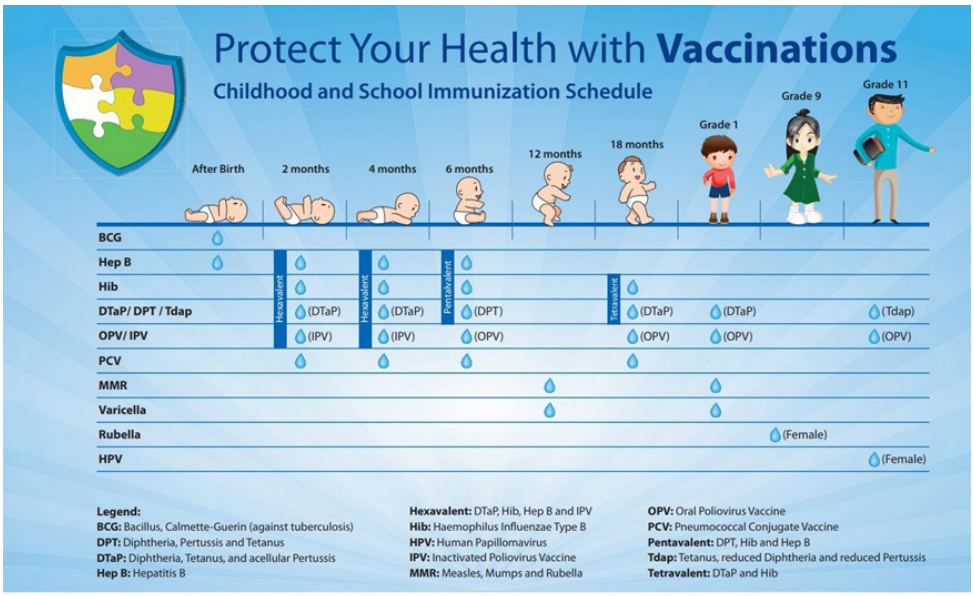
If you miss some injections when you are a child, you can still have them as an adult. Also, there are other vaccinations you can request as an adult, such as a flu injection, or vaccinations for when you are travelling to different countries which have a high risk of certain diseases.

Think

Can you remember having injections in school? The injections that you might have had are part of the UAE Government's programme to protect your health and wellbeing.

The UAE vaccinates children against diseases such as:

Tuberculosis (BCG)	Measles, mumps, rubella (MMR)
Hepatitis B (Hep B)	Varicella (chickenpox)
Polio (OPV/IPV)	Influenza (Hib)



5.5 Medical care for disease prevention

Screening

Screenings are medical tests that doctors use to check for diseases and health conditions in people before there are any signs and symptoms. Most often, screening is done on healthy people.

Medical screening for diseases can be done in many ways, for example, blood tests, scans, and physical examinations.

Regular health checks and screenings are extremely important in disease prevention. They can:

- diagnose diseases or health issues before they start to affect you.
- allow you to get treatment early. This increases your chance of recovering from certain life-threatening diseases, for example cancer.
- allow you to keep track of your health, such as weight and blood pressure.
- help you to have a healthier, longer life.
- give you peace of mind. Knowing that you have been screened for certain conditions can help you to stop worrying.

Keyword

diagnose

to recognise a disease or illness in someone

Screening tests at different ages

How regularly you need health checks and screenings will vary. It will depend on your age, gender, general health, lifestyle choices and family history.

Different health checks and screenings are recommended at different life stages:

In your 20s and 30s

- Blood pressure
- Cholesterol and glucose levels
- BMI, waist, and hip measurements
- Dental check and cleaning
- Skin cancer checks
- Cervical screening (females only)
- Diabetes risk assessment

In your 40s

The same as your 20s and 30s plus:

- Cardiovascular disease risk assessment
- Eye checks for glaucoma (a condition that can cause blindness)
- Breast screening (females only)
- Prostate screening (males only)

In your 50s and 60s

The same as your 40s plus:

- Osteoporosis risk assessment
- Bowel cancer screening
- Sight and hearing tests

5.5 Medical care for disease prevention

General screening tests for adults

For	To screen for	Type of test	Screening frequency
People over 18 years old	Obesity	Body mass index (BMI) and waist circumference	Once a year
People over 18 years old	Hypertension (high blood pressure)	Blood pressure measurement	Every 2 years (more if high risk)
People over 30 years old	Diabetes High cholesterol	Fasting blood glucose/lipids test	Every 3 years (more if high risk)
People over 50 years old	Bowel cancer	Test to find blood in stools or colonoscopy	Once a year
Women 25-65 years old	Cervical cancer	Pap smear test	Every 3 years
Women 40-69 years old	Breast cancer	Mammogram	Every 2 years
Men over 45 years old	Prostate cancer	Blood test or physical examination	Every 2-3 years

What do screening results mean?

If someone gets a 'negative' result from a screening test it means they are at low risk of having the condition they were screened for. However, it does not mean that they will never develop the condition in the future. This is why certain screening needs to be carried out every few years.

If a person gets a 'positive' result from screening, it means they might have the condition they were screened for. It will usually require further tests (diagnostic tests) to confirm the results. They can then be given treatment for the condition that has been detected.

The difference between screening and diagnostic tests

The main difference between screening and diagnostic tests is that screenings are carried out on people who do not have any signs or symptoms of a disease.

Diagnostic tests are carried out when a person has signs or symptoms of a disease or has had a positive result from a general screening.

The following table shows the differences between a screening test and a diagnostic test in more detail.

Screening tests	Diagnostic tests
To check for early signs of a disease	To confirm the presence (or absence) of a disease
For large numbers of people	For one person who has signs or symptoms of a disease, or has had a positive screening result
One simple test, such as a blood test	More in-depth testing which may include lots of different tests
Low cost, to be able to afford testing for large numbers of people	Higher costs, because of the need for more accurate testing

UNIT 6

Assessment of nutritional status

Introduction

Assessment of nutritional status can be carried out using a lot of different techniques. The techniques used allow healthcare professionals to assess the state of a person's health based on their diet. Nutritional assessment can be carried out at any stage of a person's life. For example, measuring the height of a child could be carried out to check that they are growing at the correct rate for their age, or measuring the weight of an adult to calculate their BMI which will tell if they are a healthy weight for their height. It can also be used to check for deficiencies of nutrients, as well as malnutrition or undernutrition.

In this unit, you will learn about the different assessment techniques, also known as the ABCD's of nutritional assessment. This includes anthropometry (including calculating and understanding both BMI and body fat percentage), biochemical, chemical and dietary methods of assessment. You will learn how to carry out some of these techniques by yourself, and even have the chance to practise the correct methods on yourself or your classmates.

Learning outcomes

Standard HSC.4.4.01: Perform basic nutritional assessment techniques.

Learning outcomes:

HSC.4.4.01.001 Demonstrate anthropometric measurements to assess nutritional status.

HSC.4.4.01.002 Analyse simple nutritional indices such as body mass index (BMI) and body fat percentage.

HSC.4.4.01.003 Describe the biochemical methods of assessing nutritional status.

HSC.4.4.01.004 Describe the clinical methods of assessing nutritional status.

HSC.4.4.01.005 Describe the dietary methods of assessing nutritional status.

HSC.4.4.01.006 Evaluate individual dietary intake to assess nutritional status

Keywords

Word	Form	Definition
analysis	noun	detailed examination of something
anthropometry	noun	the study of measurements of the human body
assessment	noun	the action of judging someone or something
biochemistry	noun	the branch of science that explores living things
body mass index	noun	the measurement of a person's weight for their height
body fat percentage	noun	the percentage of the body that is made up of fatty tissue
circumference	noun	the distance around something
clinical	adjective	relates to medical work done and treatment of patients
consistent	adjective	when something continues to happen in the same way
deficient	adjective	not having enough of something that is important or necessary
diet	noun	the foods and drinks regularly consumed by a person
interpret	verb	to understand something in a particular way
measure	verb	to get the size or amount of something using a device which gives standardised units
monitor	verb	to watch or observe something over a period of time for a special purpose
nutrition	noun	the process of eating or drinking the right type of foods to maintain health
open-ended	adjective	allows people to answer in a way which is not limited or controlled
plot	noun	a point that shows the relationship between two things on a graph
technique	noun	a way of carrying out a task
underweight	noun	a person who has a BMI below 18.5

6.1 Anthropometry

Nutritional assessment

The nutritional assessment methods allow medical professionals to assess a person's nutritional status.

Keyword

nutritional status

the state of a person's health depending on his or her diet

Medical professionals, such as dietitians, will measure the nutritional status of a patient. They can understand and interpret the results in order to advise them on how to improve their diet and overall nutritional status.

An ideal nutritional status occurs when the intake of nutrients matches the nutritional requirements or needs of a person.

Further information

Malnutrition

The term **malnutrition** is used to describe someone who has a poor nutritional status.

A malnourished person may be overweight or underweight. They could also be a normal weight but have a deficiency in nutrients such as vitamins and minerals. The term refers to having a lack of certain nutrients in the diet.

The term **undernutrition** is used to describe the result of a person who does not eat enough food or get enough energy from the food that they consume.

These words are often confused. It is important to remember that a person who is malnourished is not always undernourished, they may be overweight or obese.

The purpose of nutritional assessment

- There are many reasons why nutritional assessment is useful. It can:
- identify people who are malnourished or at risk of malnourishment.
- identify diseases which may be present.
- develop healthcare programmes to meet the needs of a person or community.
- measure the effectiveness of healthcare programmes after they are carried out.

6.1 Anthropometry

Measuring nutritional status

Many techniques are used by medical professionals to assess nutritional status. We will look at some of these techniques throughout this unit.

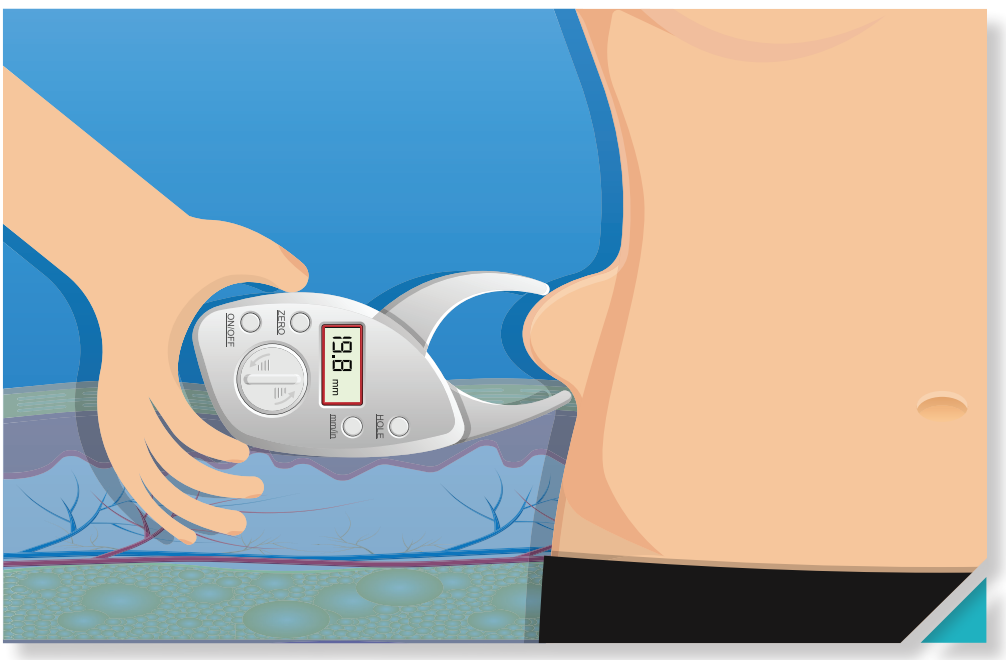
There are four main categories of nutritional assessment. These are known as ABCD methods for assessing nutritional status. These include the following:

- **A**nthropometric methods
- **B**iochemical methods
- **C**linical methods
- **D**ietary assessment

Anthropometric measurements

The first technique which we will explore is anthropometry.

Anthropo means 'human' and *metry* means 'measurement'. Anthropometry, therefore, is the physical measurements of the body. Anthropometric measurements include measuring height and weight. It can also include measuring proportions of the hips, waist, legs, arms and skinfolds. Medical professionals analyse the results to work out the physical status of a person.



Waist circumference

Waist circumference is the total distance around the waist. A larger waist circumference identifies more abdominal fat (fat around the middle of the body).

High levels of abdominal fat are associated with non-communicable diseases such as cardiovascular disease, cancer and diabetes.

Age, gender and ethnicity will affect the measurement.

Waist circumference - Males	Waist circumference - Females	Classification
Less than 94cm	Less than 80cm	Desirable
94-102cm	80-88cm	High risk
More than 102cm	More than 88cm	Very high risk

How to measure waist circumference

Follow these steps to accurately to measure waist circumference.

- Place the tape at the mid-point between the top of the hip bone and the lower ribs. It can be measured over clothes.
- The tape should not be too tight or too loose.
- Abdominal muscles should be relaxed.
- The measurement should be taken after breathing out.

6.1 Anthropometry

Measuring weight

- Make sure the weighing scale is accurate.
- The person should remove heavy items from pockets such as mobile phones.
- The person should stand still with their arms by their sides.
- Measure weight in kilograms (kg).

Measuring height

- Remove shoes as they can add extra height.
- Make sure the person is standing straight with their back against the measure.
- Make sure the measure is straight.
- The heels, back and head should be touching the measure.
- Look straight ahead.
- Lower the reading bar to the top of the head so a measurement can be taken.
- Measure the height in centimetres (cm).

Growth charts

The WHO provide growth charts for all children up to nineteen years of age. These charts are used to compare height and weight against people of the same age and gender. They are also used to follow a child's growth and can identify some medical problems at an early age.

Lines or curves on the growth chart show the height of many other children at each age.

The WHO growth charts are divided up into age groups. There are charts for babies aged 0-2 years, 2-5 years, and 5-19 years. In general, people do not grow after nineteen years of age.

World Health Organization

What you will need

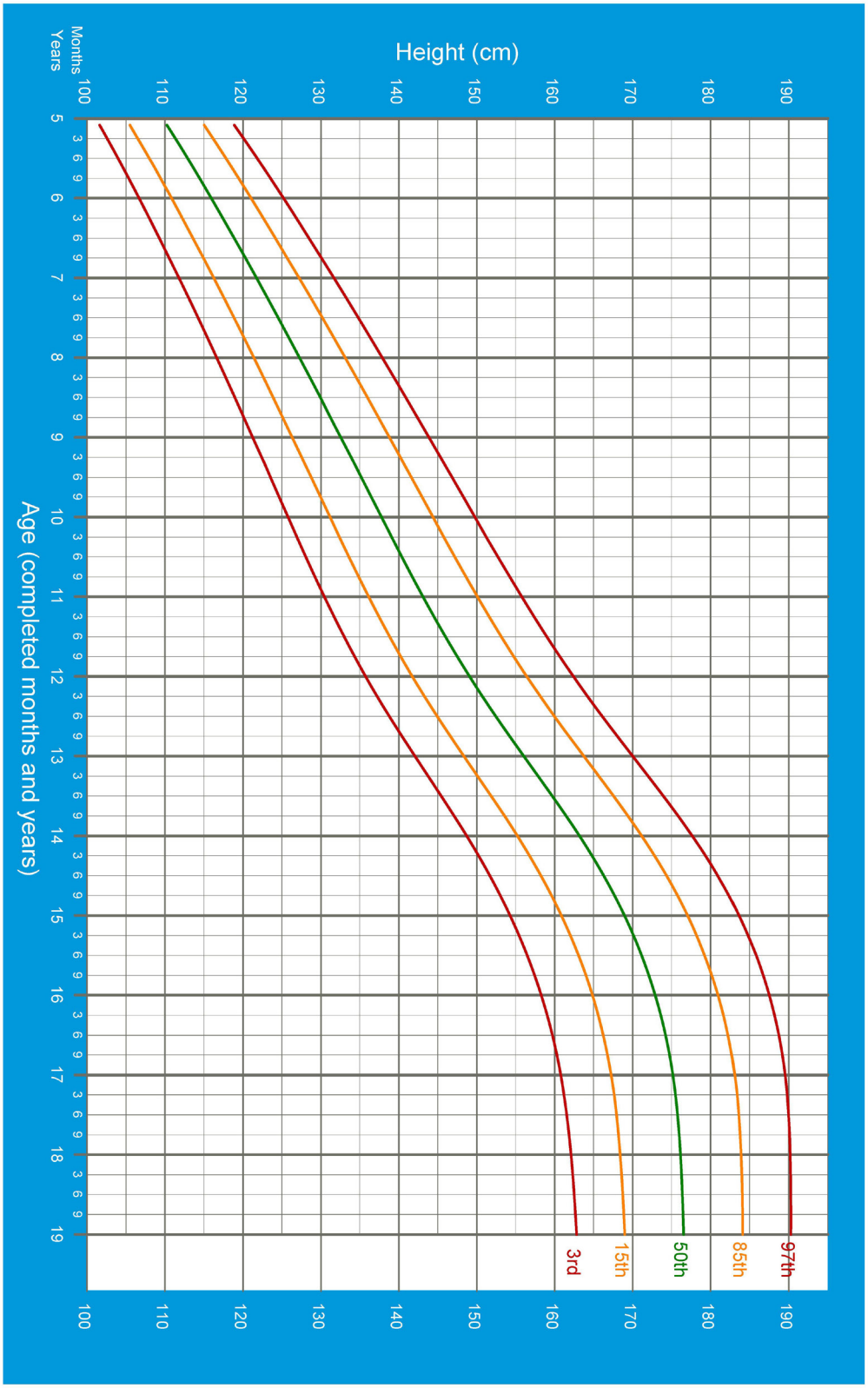
To figure out where someone fits on the growth chart there are a few things you need to know.

- The person's gender (male or female)
- The person's age (usually in years)
- The person's height (in centimetres)

How the chart works

The bottom of the chart shows the age of the person. Once you find the age of the person, you then look for their height on the chart. Make a mark on the chart where the age meets the height. The red, yellow, and green lines on the chart are called percentiles.

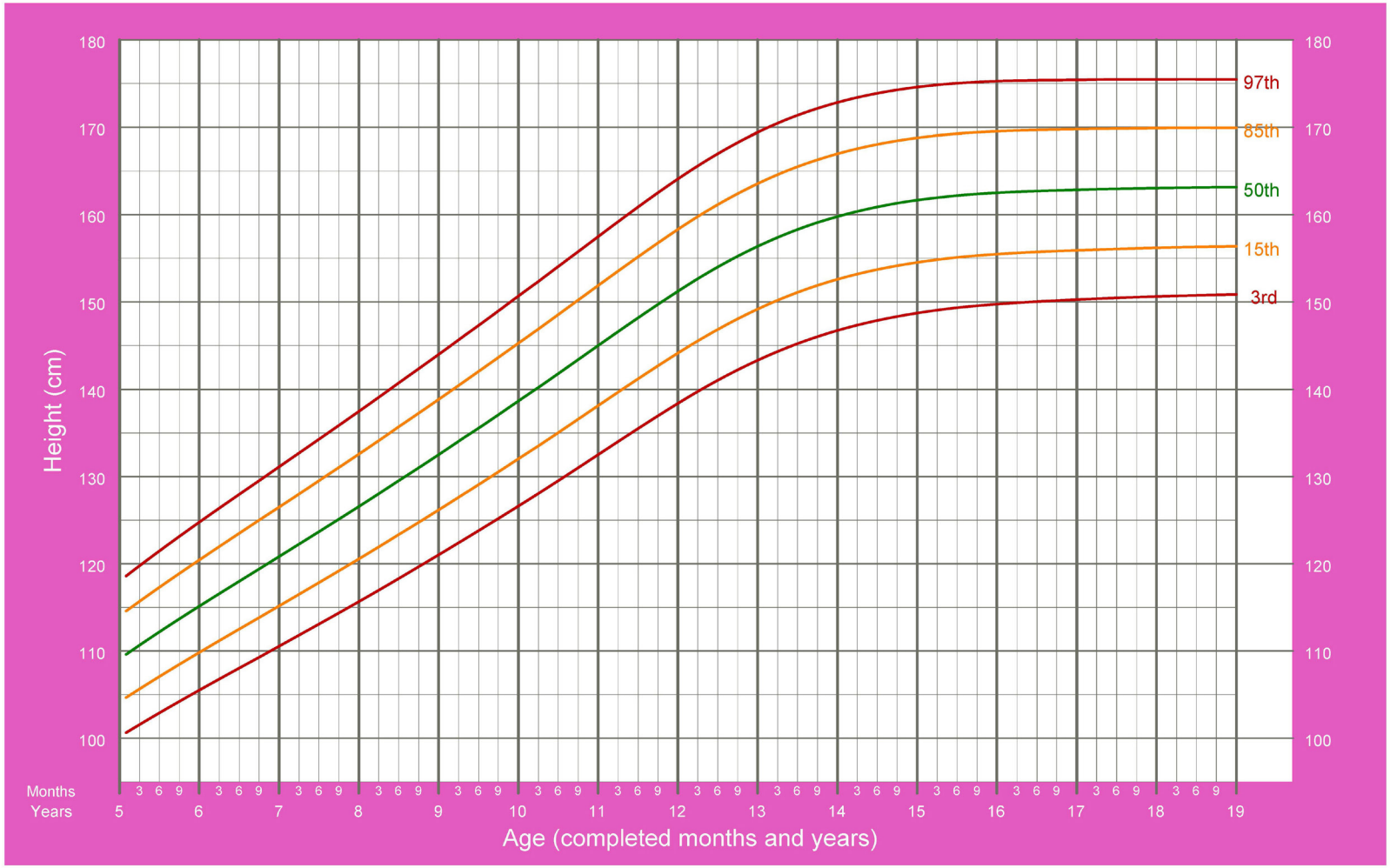
6.1 Anthropometry



Height-for-age GIRLS

5 to 19 years (percentiles)

World Health Organization



6.1 Anthropometry

Interpreting the results

As you know, the red, yellow and green lines on growth charts are called percentiles. Percentiles show how many other people (of the same age as the person being measured) are taller, shorter and the same height.

Example

The height for sixteen-year-old males on the 50th percentile is 173cm. This means that the average height for sixteen-year-old males is 173cm tall. The height on the 97th percentile is 187.5cm. This means that only 3% of sixteen-year-old males are this height or taller.

The height for sixteen-year-old females on the 50th percentile 162.5cm. This means that the average height for sixteen-year-old females is 162.5cm tall. The height on the 3rd percentile is 150cm. This means that 97% of sixteen-year-old females are this height or taller.

Further information

The data on the growth charts provided by the WHO are based on the American population. When you plot the age and height for someone, you are comparing them to the average height of children in the USA.

Research: Average height in UAE

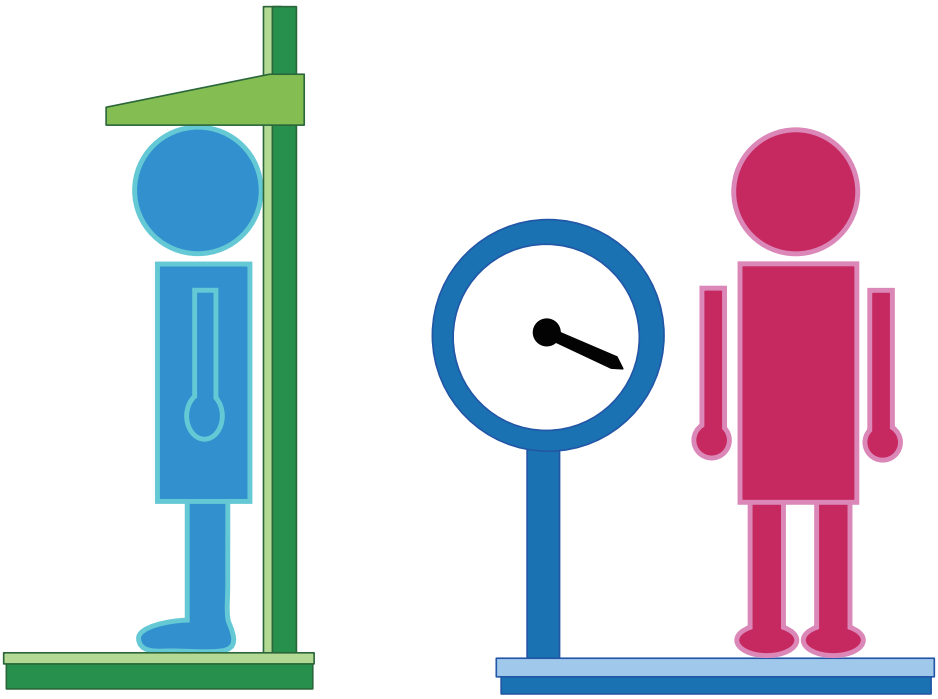
Research the average height of adult men and women in the UAE. Choose two other countries and investigate how their average height compares to the UAE.

Healthcare professionals use growth charts to compare the growth of individuals of the same age. They also help to monitor and track the development of boys and girls over time. Growth charts can be used to identify if there is a growth problem that could be related to malnutrition.

6.2 Body mass index (BMI) and body fat percentage

Body mass index (BMI)

Body mass index (BMI) is a measurement of a person's weight for their height which is used to identify weight status. So, to calculate BMI, you need to know the person's weight and height.



Remember

Think back to the lesson when you learned how to measure weight and height.

Calculating BMI

BMI is calculated using the following equation:

$$\text{BMI} = \text{weight (kg)} \div \text{height}^2\ (\text{m}^2)$$

Example

Sara weighs 58kg and her height is 1.61m.

To calculate Sara's BMI, first, we must work out her height^2.

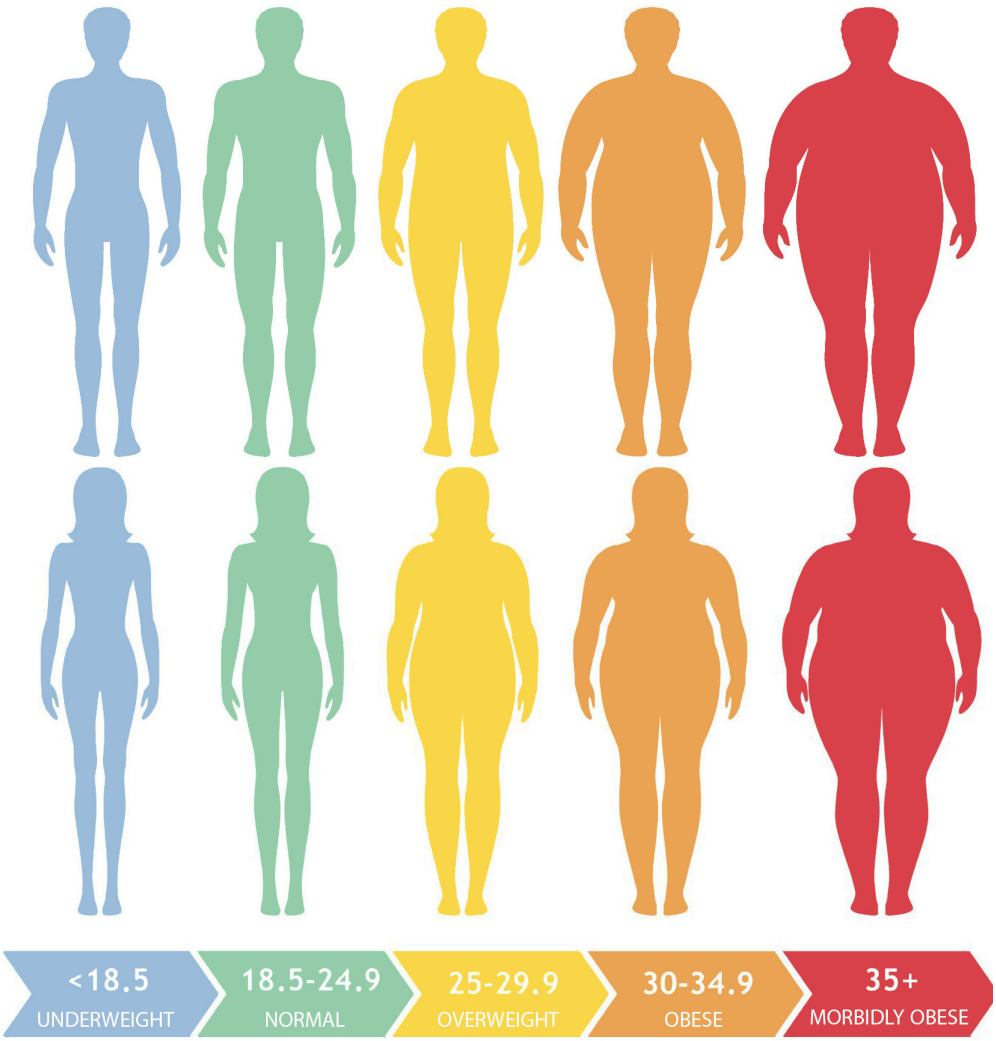
1.61 x 1.61 = 2.592 (height^2)

Then we can calculate her BMI.

58 ÷ 2.592 = 22.4

Sara's BMI is 22.4

After calculating BMI, the next step is to understand the results. The BMI number will fall into one of four categories; underweight, normal weight, overweight or obese (there are different classes of obesity).



6.2 Body mass index (BMI) and body fat percentage

You can see from the information on the previous page, people with higher BMIs are overweight or obese. People who have a high BMI are more likely to develop non-communicable diseases like diabetes and heart disease.

Underweight

A BMI result lower than 18.5 is a sign that the person is underweight. In this case, the person should speak to a healthcare professional about gaining weight in a healthy way.

Healthy weight

A BMI between 18.5 and 24.9 is a sign that the person is a healthy weight. They should aim to maintain this weight by eating a healthy, balanced diet.

Overweight

A BMI result between 25 and 29.9 is a sign that the person is overweight. They should consider talking to a healthcare professional about losing some weight in a healthy way.

Obese

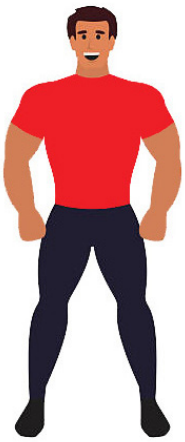
There are different levels of obesity, but any BMI above 30 is classed as being obese. A person with a BMI of more than 30 should seek professional help as they need to seriously consider reducing their weight.

Remember

BMI is a measure of weight for height. It does not consider fat mass or muscle mass. A person could have a lot of muscle which would add to their weight and increase their BMI even though they have a healthy amount of fat.

Body fat percentage

Sometimes it is useful to use BMI alongside body fat percentage to assess health. A person could be overweight or obese according to their BMI, but their body fat percentage could be quite low. This happens a lot with sports players and athletes who have a lot of muscle.

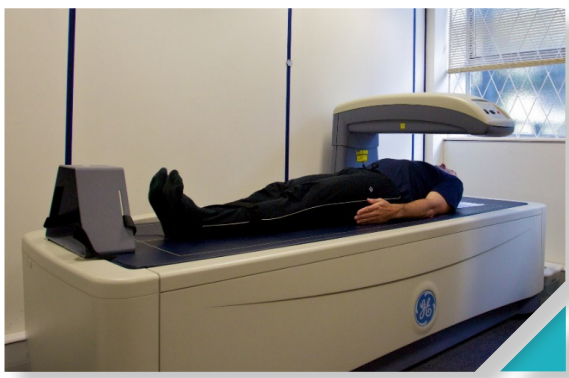
	
BMI = 32	BMI = 32

Everyone has fat on their body. We need fat to protect our organs, provide energy, and help our bodies stay warm. Too much fat on the body can increase the risk of developing non-communicable diseases such as heart disease and cancer.

Measuring body fat

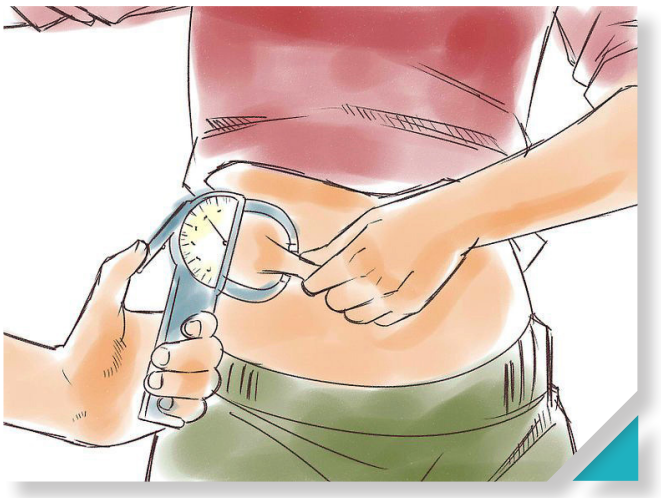
Before you can calculate body fat percentage, you must first measure the amount of fat on the body.

The most accurate way to measure body fat is by using a **DEXA scanner**. This is an X-ray that shows an exact breakdown of fat mass, bone density and muscle mass.

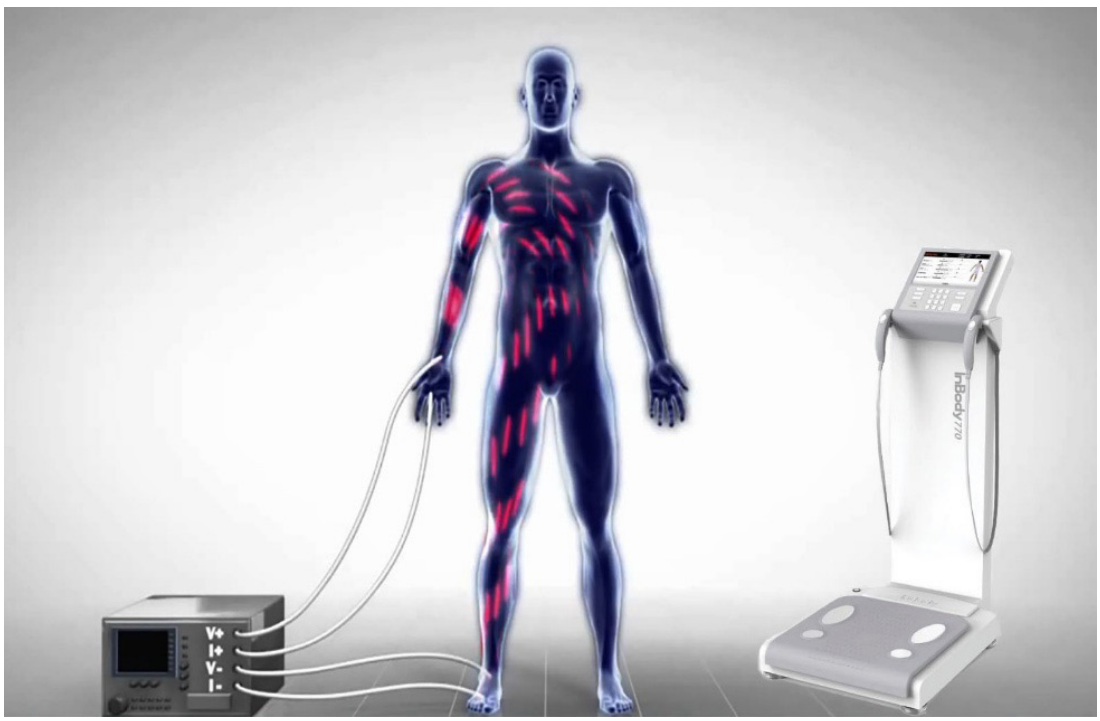


6.2 Body mass index (BMI) and body fat percentage

Another method for calculating body fat is to measure **skinfold thickness**. Skinfolds are areas of skin that can fold when pinched. Skinfolds are measured using a tool called callipers which grip the fat through the skin at various parts of the body.



Bioelectrical impedance analysis (BIA) is another method of measuring body fat. It sends a weak electrical current through the body. The person does not feel the electrical current. The machine can tell when the electrical current is travelling through fat as opposed to muscle.



Calculating body fat percentage

Once you have measured body fat, you can then calculate the body fat percentage. You need three things for this:

- Total body weight (TBW) in kilograms (kg)
- Body fat in kilograms (kg)
- Age

The formula for calculating body fat percentage:

$$\frac{\text{Body fat}}{\text{TBW}} \text{ X100}$$

Example

Hamad's body fat is 30kg and his TBW (total body weight) is 100kg. He is 30 years old.

30 ÷ 100 = 0.3
0.3 x100 = 30%
Hamad's body fat percentage is 30%.

Maha's body fat is 14kg and her total body weight (TBW) is 58kg. She is 22 years old.

14 ÷ 58 = 0.24
0.24 x 100 = 24%
Maha's body fat percentage is 24%.

6.2 Body mass index (BMI) and body fat percentage

Understand the results

Once you calculate the results of the body fat percentage, you need to interpret the results. Body fat levels change as people get older. This is why it is important to know the person's age so you can accurately identify which range they fit into.

There are four possible ranges that a person can fit into:

Blue

This category shows that the person has too little body fat for their age.

Green

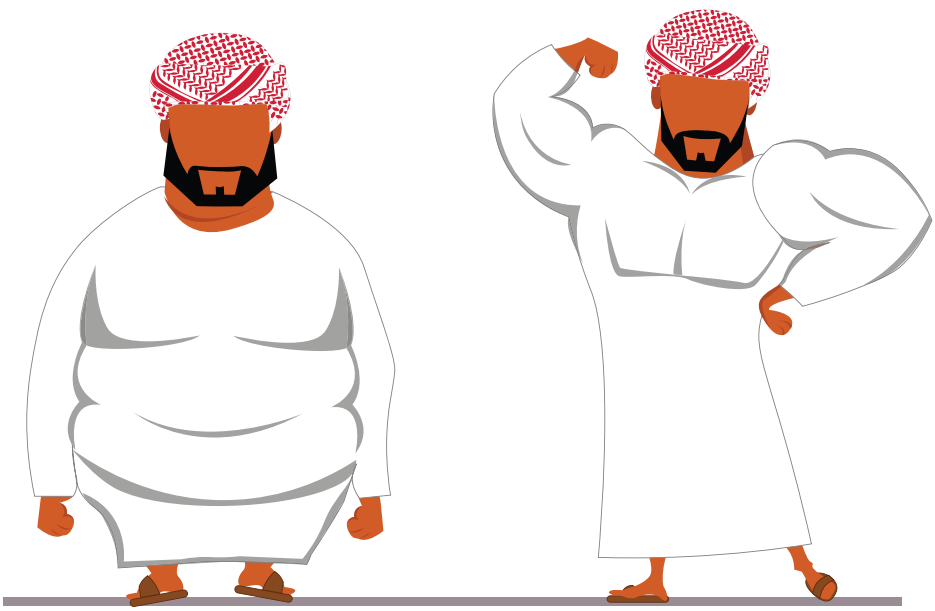
This category shows that the person has a healthy amount of body fat for their age.

Amber

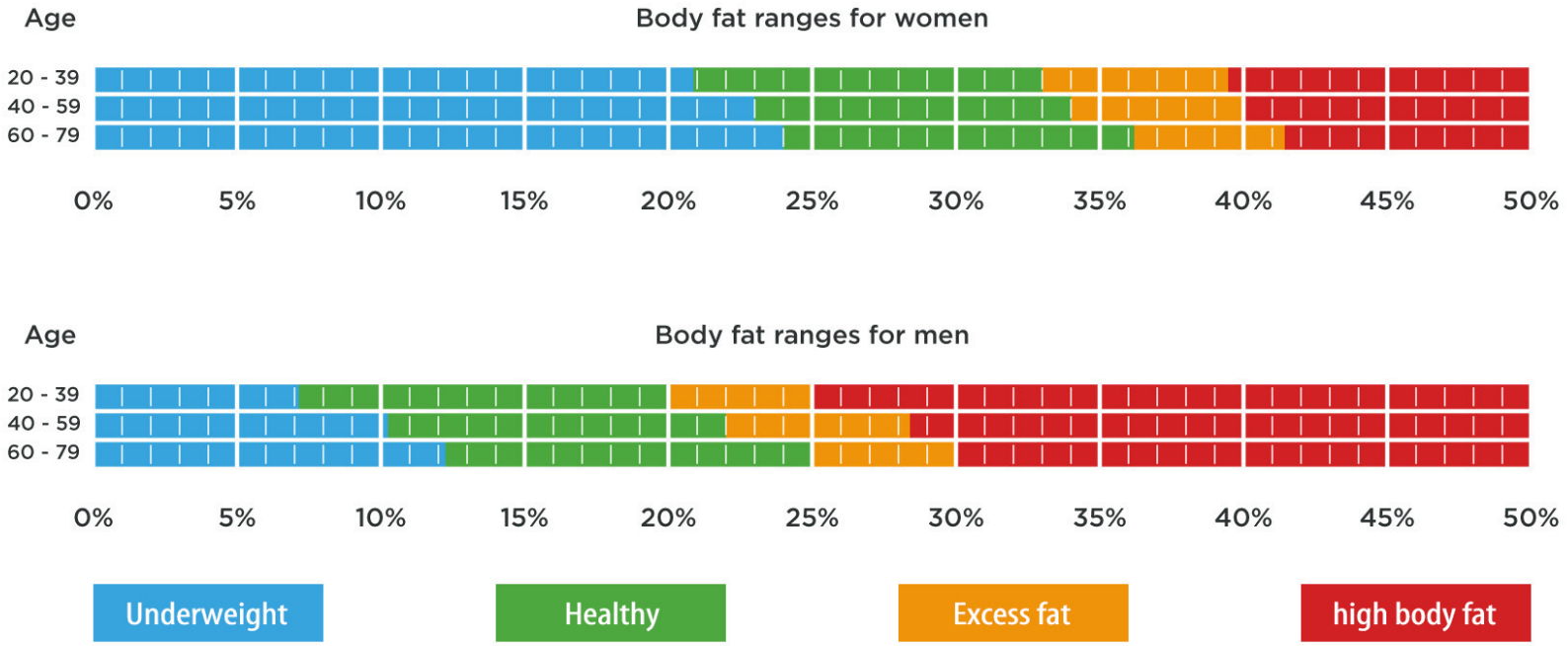
This category shows that the person has gone above the healthy body fat for their age and they should try to reduce it.

Red

This category shows that the person has so much body fat for their age that it could have a negative impact on their health by putting them at a higher risk of certain conditions. They need to reduce it.



Healthy body fat ranges for adults



6.3 Biochemical methods

Biochemical methods

As you know, the B in ABCD of nutritional assessment stands for biochemical methods. These are otherwise known as laboratory measurements of nutritional assessment.

Keyword

biochemistry

a part of science that explores the chemistry of living things

Biochemical methods of assessment involve testing samples of blood and urine. Samples are taken from people and tested in a lab facility. When your body digests the food you eat, chemicals and nutrients are released into your bloodstream. These travel around your body and are either stored, used up as energy or exit through your urine. Therefore, blood and urine are good ways to indicate the nutrients that are present in someone's body.

The results

To have successful results of biochemical measurements, the laboratory specialist who interprets the results needs to know certain things about the patient who is being tested. The information they need to know includes:

- previous medical history.
- current medications.
- a clinical examination report.

Biochemical methods of assessing nutritional status are the most accurate as they show exactly how much of a certain nutrient or enzyme is present in the body. It is easy to spot if someone is deficient in any nutrients by looking at their biochemical markers. Sometimes deficiencies and nutrient-related diseases are spotted before symptoms develop.

Biochemical methods do not require the patient to remember what foods they have eaten, or how much of a certain food they have eaten.

6.4 Clinical methods

Clinical methods

The letter C in ABCD stands for clinical methods of nutritional assessment.

Clinical methods are basically a physical examination. Medical professionals look for physical clues of nutrition-related health problems on the body. These clues may be seen or felt in different parts of the body. Tissues of the body that can show nutrient deficiencies include the following:

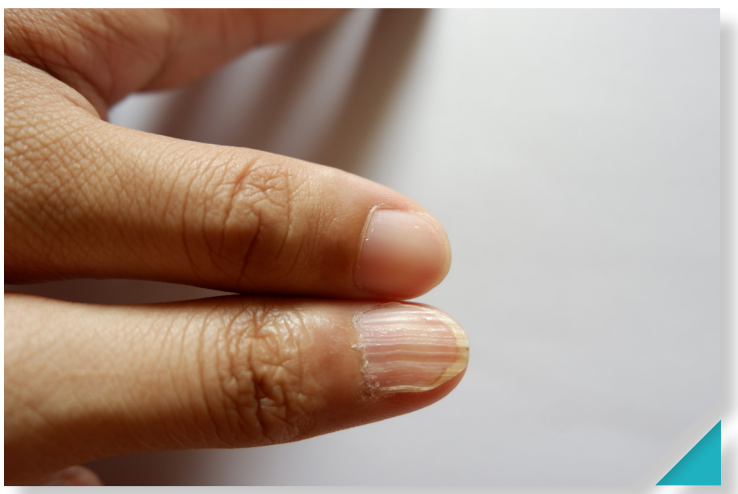
- Skin
- Eyes
- Gums
- Hair
- Nails
- Mouth

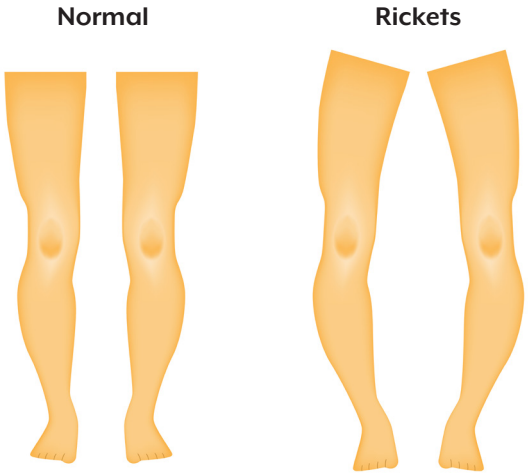
Example

If a person has a sore mouth and bleeding gums, it could suggest they are deficient in some vitamins and minerals.

If a person's hair can be pulled out very easily, it could mean they are low in protein.

If a person's nails are thin and indented, it could suggest they have an iron deficiency.





Rickets is a disease that causes the bones of children to become soft. Their bones do not grow or develop properly.

The development of rickets is usually due to a deficiency in vitamin D and calcium.

What is checked in a physical exam?

Medical professionals need to know the patient's medical history when carrying out a physical exam.

The following will be checked:

- Diarrhoea and other digestive issues
- Medications
- Previous or current medical conditions
- Physical appearance
- Signs of infection
- Nutritional supplement use

Other factors including the person's ability to prepare meals, financial resources, and social resources are taken into consideration.

Further information

Carrying out a physical examination and taking a medical history can help a doctor to identify malnutrition. If a doctor suspects some form of malnutrition, they may send the patient for some biochemical testing to check which exact nutrients are causing problems.

6.5 Dietary methods

Dietary intakes

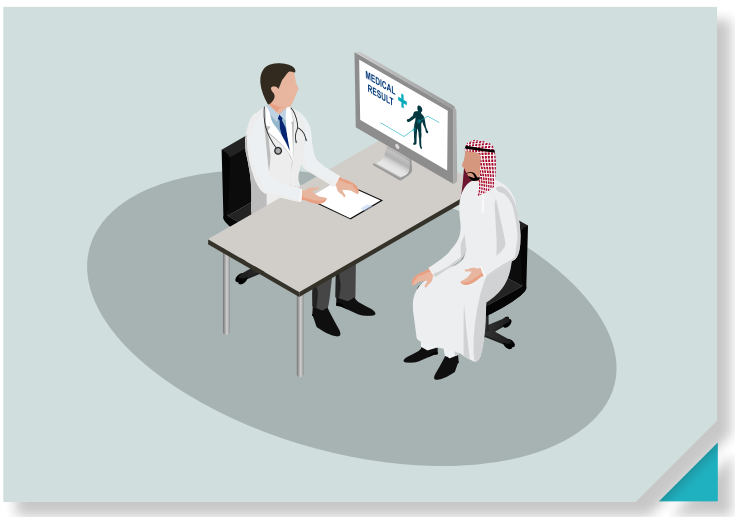
The letter D in ABCD stands for dietary intakes.

This is where the patient must record their eating patterns or the food and drinks that they consumed in a given period of time. Nutritional assessment is carried out by healthcare professionals who consider the foods eaten, and patterns of consumption. This method of dietary assessment relies on the honesty of the patient to truthfully record the correct foods, the correct cooking methods and amounts eaten.

Recording dietary intakes

Three of the most common ways to measure dietary intake are:

- Twenty-four-hour dietary recall
- Three-day food diary
- Food frequency questionnaire



Twenty-four-hour dietary recall

This is done over a period of twenty-four hours. It is an open-ended method of nutritional assessment. Patients must remember what they ate within a twenty-four-hour period (usually from midnight on one day until midnight the next day).

A medical professional will interview the patient and ask questions such as "Did you eat anything after breakfast?". The patient should give as much information as they can about the foods and drinks they consumed.

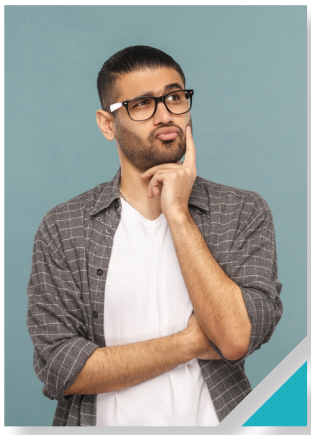
The patient needs to recall:

- the ingredients used.
- the cooking method used.
- the time of day they had it.
- the amount of food eaten.
- if they had any leftovers.

Advantages

- The information is quite easy to collect.
- Most patients can remember everything that they ate on the previous day.
- Recalls do not take a large amount of time to complete and can be carried out over the phone or in person.
- The information provided can estimate regular food and nutrient intake.

Disadvantages



- This method relies on memory only. Some people may struggle to recall the portion size of their foods, or how much they had leftover.
- If a patient ate in a restaurant, they may not know the cooking methods or ingredients used.
- It only gives an overview of one day's eating pattern. This may not properly show that patient's regular eating habits.
- Some patients will not give honest responses out of fear of being judged by the medical professional that is interviewing them.

6.5 Dietary methods

Three-day food diary

Like the twenty-four-hour diet recall, it is an open-ended method of nutritional assessment. However, patients must record food intake for three days: two weekdays and one weekend day. They should recall the same information as on a twenty-four-hour diet recall.

However, this is a diary as opposed to a recall, information should be recorded in real-time and not from memory. Weights of foods should be measured using scales. Because of this, it is expected to be more accurate than a 24-hour recall where portion sizes are not expected to be as accurate.

Advantages:

- The level of detail provided (three days of food intake, mealtimes, and weights of portions) will allow for accurate estimates of regular dietary intake.
- Diary entries are done in real-time, so it does not rely on memory.

Disadvantages:

- It requires a high level of commitment to weigh and record every item of food eaten.
- People may change their normal eating habits because they know they must record all their food. They may also become lazy and not record some smaller items of food or ingredients added to meals for example, salt or butter.

Food frequency questionnaire

A food frequency questionnaire (FFQ) has a set number of questions with multiple-choice answers. It is not an open-ended method of nutritional assessment. It includes questions about portion size and how often food is eaten. FFQs may ask how often a portion of food is eaten over the course of a week, a month, several months or a year.

FFQs have an interviewer who is trained in how to ask the questions to the patient, so there is no impact on the result. They are useful when medical professionals want to analyse the intake of a small number of foods or one single food group.

FOODS AND AMOUNTS	AVERAGE USE LAST YEAR								
BREAD AND SAVOURY BISCUITS (one slice or biscuit)	Never or less than once/month	1-3 per month	Once a week	2-4 per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day
White bread and rolls						✓			
Brown bread and rolls				✓					
Wholemeal bread and rolls	✓								
Cream crackers, cheese biscuits		✓							
Crispbread, eg. Ryvita		✓							
CEREALS (one bowl)									
Porridge, Readybrek				✓					
Breakfast cereal such as cornflakes, muesli etc.					✓				

Advantages:

- It can be used on large groups of people.
- It is quick and easy to complete.

Disadvantages:

- Specific foods are listed. Sometimes a food could be forgotten or missed out.
- Some people's eating patterns of certain food items are not consistent.
- It requires a good level of memory, especially for longer timeframes.

UNIT 7

Healthy pregnancy Girls only

Introduction

During pregnancy, a woman must consider her physical and nutritional needs and the needs of the foetus. At every stage of the pregnancy, a woman's nutritional and physical requirements change to meet her demands and the demands of the foetus. To understand these needs, a woman must understand each stage of pregnancy.

If a pregnant woman knows what to expect during a healthy pregnancy, she will know when to seek extra medical care at any stage.

In this unit, you will learn how a woman can stay healthy during pregnancy. You will understand the nutritional and physical activity guidelines during pregnancy and the nutritional needs of a newborn.

Learning outcomes

Standard HSC.1.4.01: Identify the stages of pregnancy and the lifestyle changes required to have a healthy pregnancy.

Learning outcomes:

HSC.1.4.01.001	Explain the main characteristics of each trimester of pregnancy.
HSC.1.4.01.002	Describe a healthy diet during pregnancy and changes in nutritional requirements.
HSC.1.4.01.003	Describe exercise guidelines and the benefits of staying active during pregnancy.
HSC.1.4.01.004	Identify medical needs during pregnancy including when emergency medical care is required.
HSC.1.4.01.005	Describe the care for a newborn.

Keywords

Word	Form	Definition
anaemia	noun	a medical condition where there is not enough red blood cells in the blood
bleeding	verb	to lose blood from the body
blood pressure	noun	the pressure of blood through the circulatory system
breastfeeding	verb	when a woman feeds a child with milk from her breast
calcium	noun	a mineral needed by the body for healthy bones and teeth
demand	noun	a strong need for something
embryo	noun	the name given to a developing baby (of less than 8 weeks old) in the womb
foetus	noun	an unborn baby that is still developing in the womb
folic acid	noun	one of the B vitamins that is found in fortified bread and cereals
fortified	adjective	to add or supplement with something
gestation	noun	the duration of development in the womb
imminent	adjective	when something is just about to happen
immune system	noun	the parts of the body that are responsible for fighting disease and infection
iron	noun	a mineral that is required by the body and is needed to make haemoglobin in the blood
labour	noun	the process of childbirth
physical activity	noun	the process of moving the body or to exercise
pregnancy	noun	duration when a woman is carrying a foetus before birth
recommendation	noun	advice or guidance given to someone
supplement	noun	something that provides a nutrient; it can be added to a food or a drink or taken in liquid or tablet form
trimester	noun	a period of three months

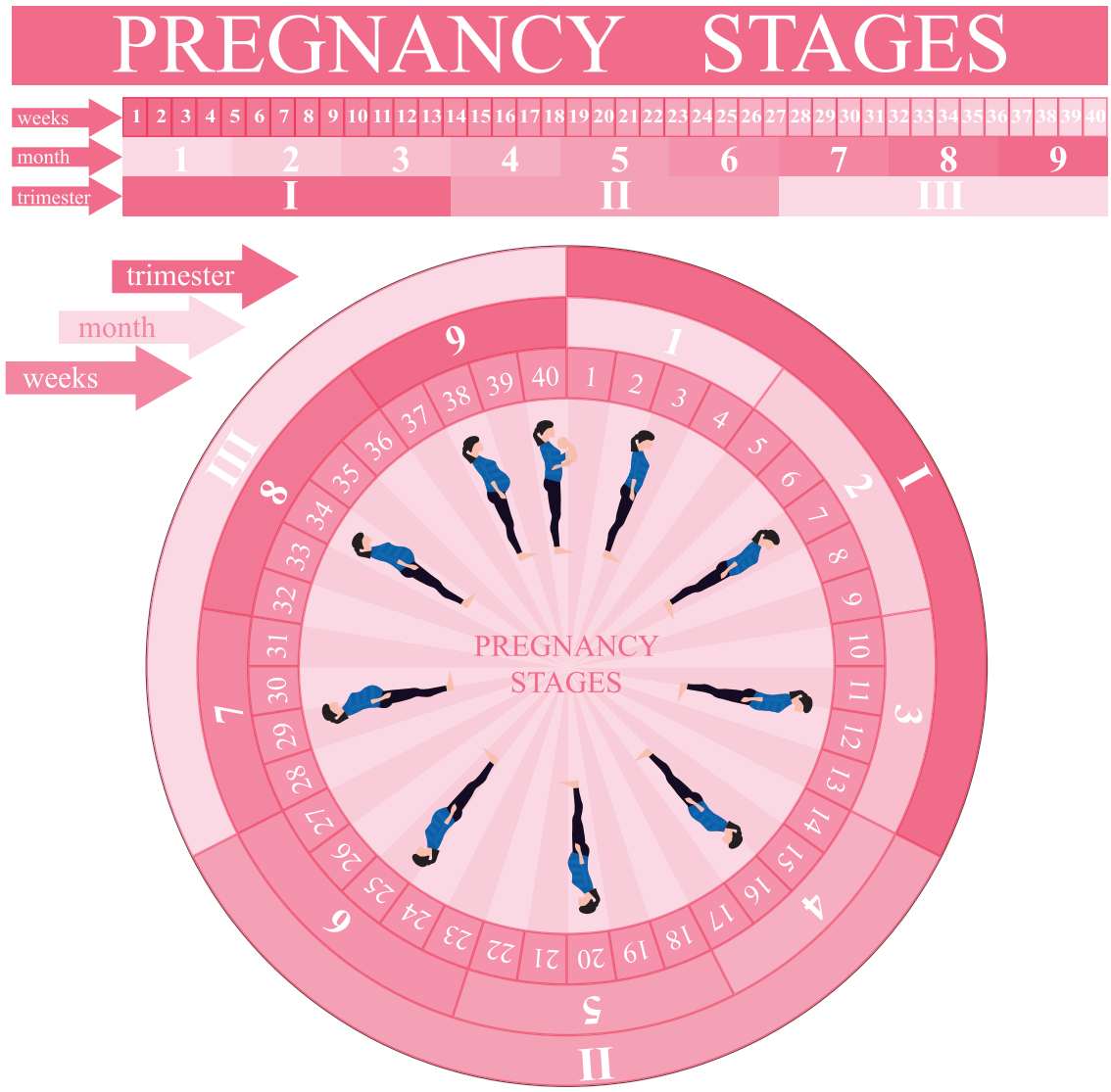
7.1 Stages of pregnancy

What is pregnancy?

Discussion: Pregnancy

Discuss what you understand about pregnancy.

Pregnancy, also known as gestation, is the time when a woman carries her developing embryo/foetus in her womb. The foetus is the name given to the unborn baby that is still developing in the womb. Pregnancy can be categorised into three stages which are called trimesters. Pregnancy usually lasts 40-42 weeks.



Trimesters

Trimester 1

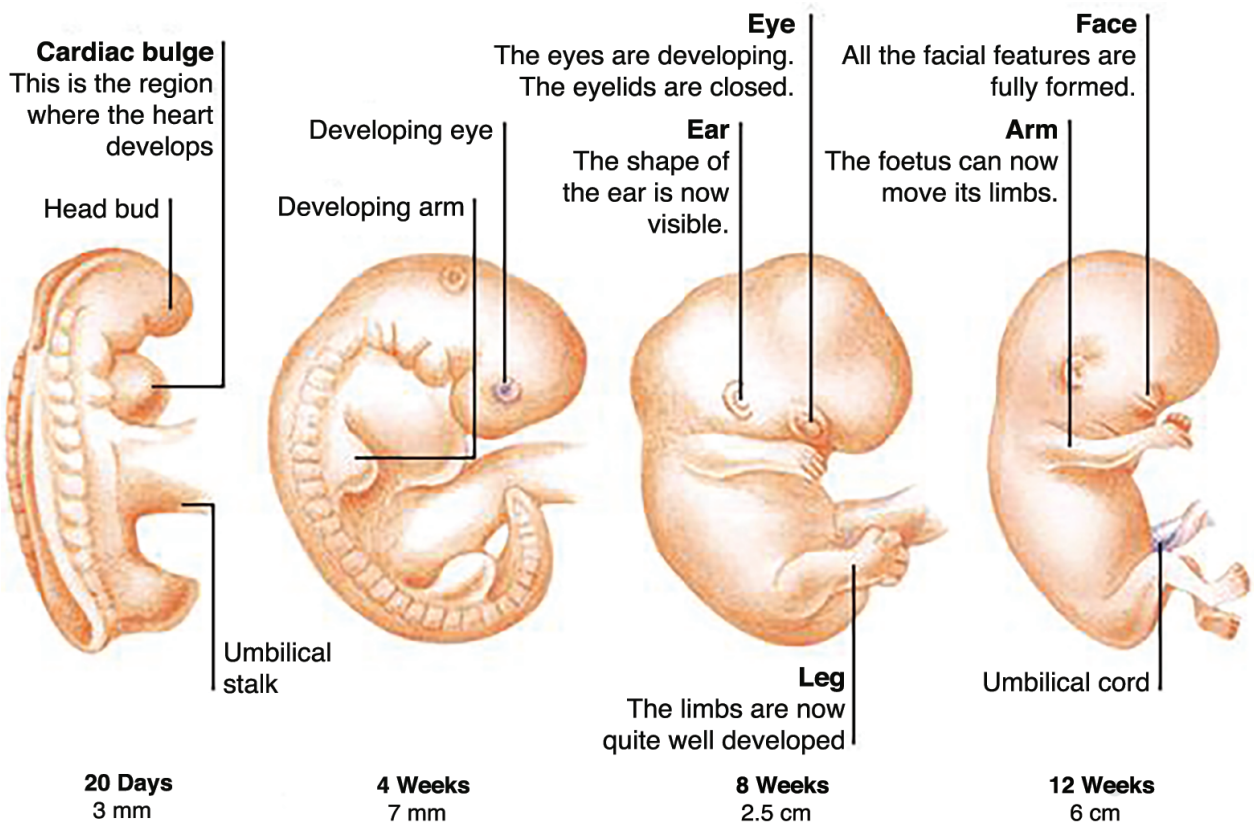
Keyword

trimester

a period of three months

A fertilised egg forms an embryo inside the mother's womb. At first, this looks like a group of cells. From around eight weeks, this group of cells gradually turns into the shape of the human body. This is called the foetus. The foetal stage officially starts after 10 weeks of pregnancy.

Before the foetus has formed, there have already been a lot of physical developments that have happened to the embryo, as shown below.



7.1 Stages of pregnancy

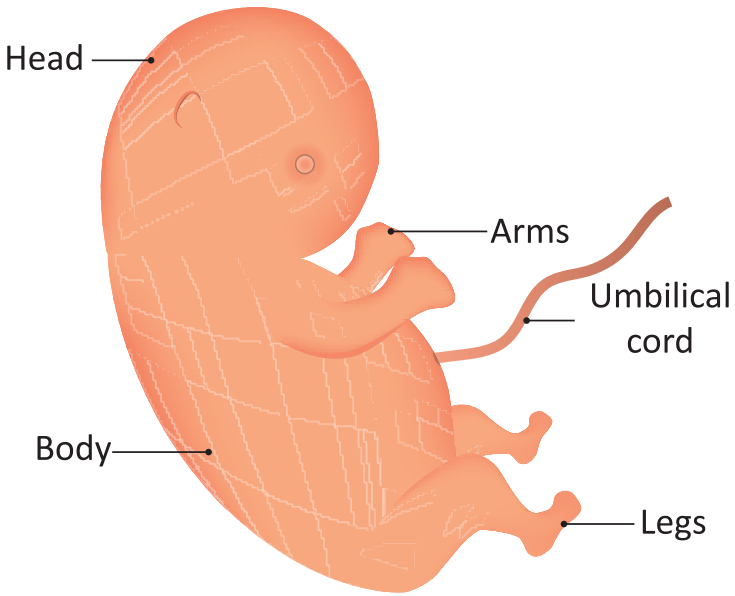
The following changes happen during the first trimester:

- Early in the pregnancy, the nervous system (brain and spinal cord) begins to develop.
- The umbilical cord forms.
- The heart, eyes, ears, mouth, nose, hands and feet take shape.
- By the end of the first trimester, the organs have formed and are developing.

Did you know?

The umbilical cord connects the foetus to the placenta. It carries oxygen and nutrients to the foetus.

Human embryo



There are lots of changes that can occur for the pregnant woman during the first trimester. These include:

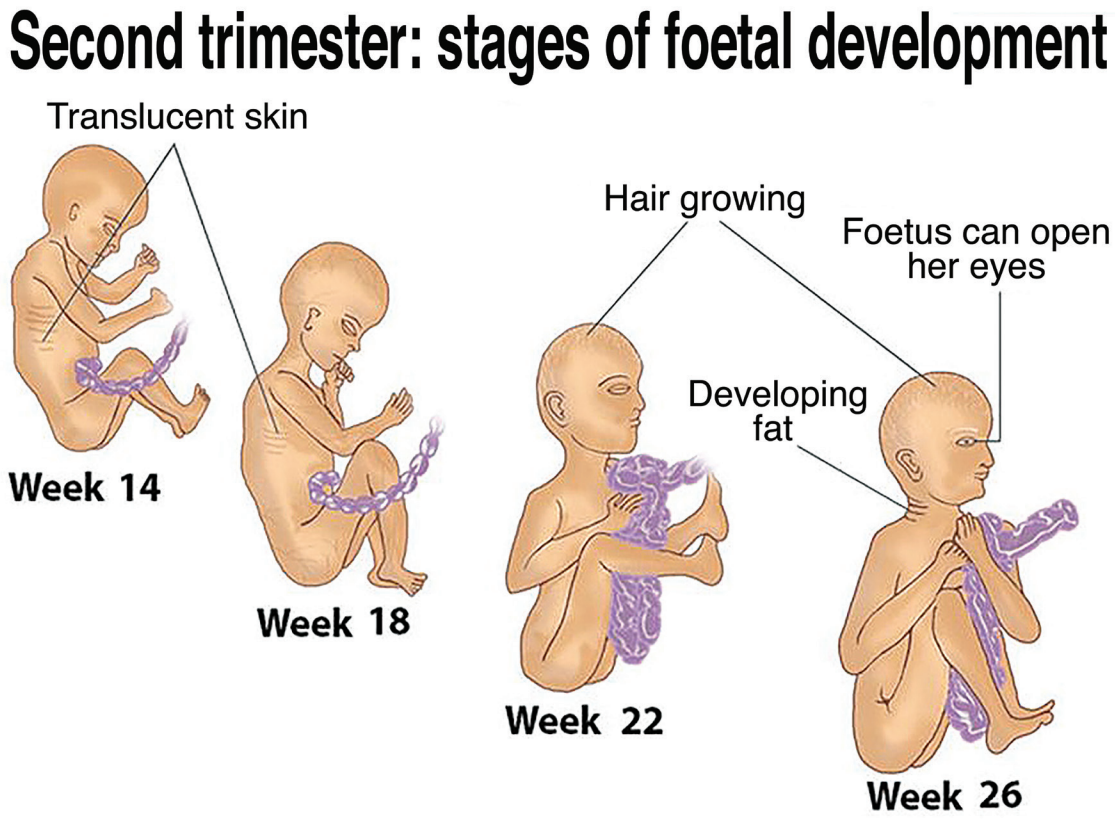
- Fatigue (tiredness)
- Heartburn
- Missed period
- Nausea and possibly vomiting (this is known as morning sickness)

Trimester 2

During the second trimester, the following changes occur for the foetus:

- The foetus begins to make urine.
- They develop meconium. This is the first bowel movement.
- The gender will become apparent.
- The musculoskeletal system is developing, and the bones begin to harden.
- The skin is translucent (almost see-through).
- The foetus can suck their thumb, and their fingerprints form.
- By the end of this trimester, they are gaining some body fat.

The second trimester is one where a lot of women start to feel well. Morning sickness eases off, and the growth of the foetus is noticed as the bump gets larger. The mother can feel the foetus moving.



7.1 Stages of pregnancy

Trimester 3

This is the final stage of pregnancy before childbirth. As the foetus gets bigger, it can become uncomfortable for the mother. The frequency of urination increases as there is more pressure against the organs. It might be more difficult for her to sleep.

By this stage, the foetus' bones are fully formed, and the eyes can open and close. At 37 weeks, they are classed as full-term. At this stage, the organs are functioning.

Near to the end of the third trimester, the woman's body will prepare for childbirth. The foetus will turn and be in position for childbirth towards the end of the pregnancy. Most women go into labour and give birth between 40 and 42 weeks of pregnancy.

Video: Foetal development

Watch a video about the development of a foetus.

7.2 Healthy diet and nutritional requirements during pregnancy

Healthy diet during pregnancy

During pregnancy, there are many different nutritional requirements for the mother and for the developing baby.

She should eat a healthy balanced diet containing foods from each of the main food groups to get all of the nutrients that she needs during each trimester. This is also important for the healthy growth and development of the foetus.

Remember

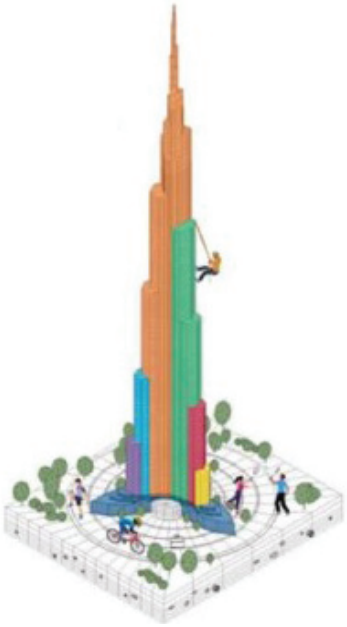
Eating a healthy balanced diet means that the mother must consume a variety of foods.

Energy (calorie) needs

Energy needs increase during pregnancy. This means that a pregnant woman must consume some extra food, from each of the food groups, to get more calories. Generally, a pregnant woman will need to increase her calorie intake by 360 calories during the second trimester and by 475 calories in the third trimester.

Think

Can you remember any of the food groups?



National Nutrition Guide

- Vegetables
- Fruits
- Fats
- Water
- Cereals and their products
- Milk and dairy foods
- Meat, eggs and legumes

Further information

The United Arab Emirates has chosen the Burj Khalifa to represent the food based dietary guidelines for the country.

It is divided into six food groups, plus water, each one is represented by a different section of the Burj Khalifa, highlighted in a different colour. The food groups include cereals and their products, vegetables, milk and dairy foods, fruits, meat, eggs and legumes, and fats. The blue base of the Burj Khalifa represents the seventh group which is water.

7.2 Healthy diet and nutritional requirements during pregnancy

Recommended food during pregnancy

The recommendations for a woman during pregnancy are not very different than for those who are not pregnant. However, it is important that pregnant women consume certain nutrients during pregnancy. Eating a wide range of foods will ensure that a pregnant woman gets all of the nutrients she requires.

Discussion: Food groups

Discuss with your class the foods that make up each of the food groups.

Fruit and vegetables

Fruit and vegetables are an important part of everyone's diet, as they contain lots of vitamins and minerals. They are also a good source of fibre.

Pregnant women should aim to eat at least five fruit and vegetables every day.

There are lots of ways you can include fruit and vegetables in your diet. It doesn't matter if they are raw or cooked, eaten on their own or as part of a meal.

They can be:

- added to breakfast cereal/eaten with yoghurt.
- added to main meals.
- eaten as a snack between meals.
- included in salads.
- included in smoothies and juices.
- used to make soups.

Cereals and their products

Cereals and their products are one of the main food groups. They are important for everyone, including pregnant women. Foods like grains, cereals, bread, potatoes, rice, crackers and pasta make up this food group. These foods are a good source of carbohydrates.

Did you know?

Carbohydrates can be broken into two categories; simple carbohydrates and complex carbohydrates.

Pregnant women should aim to eat between five and eight servings of cereals and their products every day, in the form of complex carbohydrates. Complex carbohydrates can be found in wholegrain bread and cereals.

Complex carbohydrates

Cereals and their products can be included in the diet in many ways:

- Wholegrain cereals can be eaten for breakfast.
- Choose more wholegrain rice and pasta-based meals.
- Choose more potato and potato-based dishes.
- Wholegrain crackers can be eaten as a healthy snack.

7.2 Healthy diet and nutritional requirements during pregnancy

Milk and dairy products

Milk and dairy products are an important part of a pregnant woman's diet. These foods provide pregnant women and the foetus with the calcium needed for the healthy development of bones. Foods containing calcium also help the feotus grow a healthy heart, nerves and muscles.

Did you know?

Calcium can also help to control blood pressure.

Pregnant women should aim to eat three servings of dairy products every day. Low-fat dairy products are recommended over the full-fat versions. A pregnant woman can choose non-dairy alternatives to milk such as soya, rice or almond milk, as long as these contain added calcium.

Milk and dairy products can be included in the diet in many ways. They can be:

- added to breakfast cereal.
- used in cooking.
- eaten as a snack.
- added to fresh fruit as a healthy breakfast or snack option.
- added to sandwiches and salads.

Meat, eggs and legumes

These foods are important for pregnant women and for the foetus during pregnancy. Foods from this group include meat, poultry, fish, pulses and eggs. Some of these options are meat sources, and others are non-meat sources. Both sources give the mother and foetus protein and iron.

It is quite common for women to develop an iron deficiency in pregnancy, so they should eat plenty of foods from this food group that contain iron. It is found in red meat, nuts, eggs and pulses.

Pregnant women should aim to eat two to three servings from this food group every day. They should follow the steps below to include foods from the meat, eggs and legumes food group in their meals:

- Regularly include meat and non-meat foods in the diet.
- When having red meat, trim off the fat before cooking.
- Try to grill or bake meat instead of frying.
- Try to have more fresh meat and fish.
- Make sure all meat and meat products are cooked through to kill any bacteria.

7.2 Healthy diet and nutritional requirements during pregnancy

Fats

Fats are essential to give the body energy. They also help the body to absorb vitamins and nutrients. However, not all fats are healthy, and a pregnant woman should know how to recognise healthier fats to include in her diet.

There are different types of fats; saturated, unsaturated and trans-fat. Pregnant women should limit their intake of saturated fats and avoid trans-fats.

Unsaturated fats however, are considered healthier fats. These fats should be regularly included in the diet.

Foods containing unsaturated fats include the following:

- Nuts
- Seeds
- Olive oil
- Rapeseed oil
- Avocados
- Oily fish such as salmon and trout

Foods to avoid during pregnancy

Research

Do some research about the types of foods that should be avoided during pregnancy.

Some foods and drinks are not recommended for pregnant women because they can increase the mother's risk of becoming ill during her pregnancy. Each of the following can put the pregnant woman or the foetus at risk of illness. They should be avoided or limited throughout the pregnancy.

Caffeine

Caffeine during pregnancy can reach the foetus and can be harmful. Caffeine intake should be limited.

Discussion: Caffeine

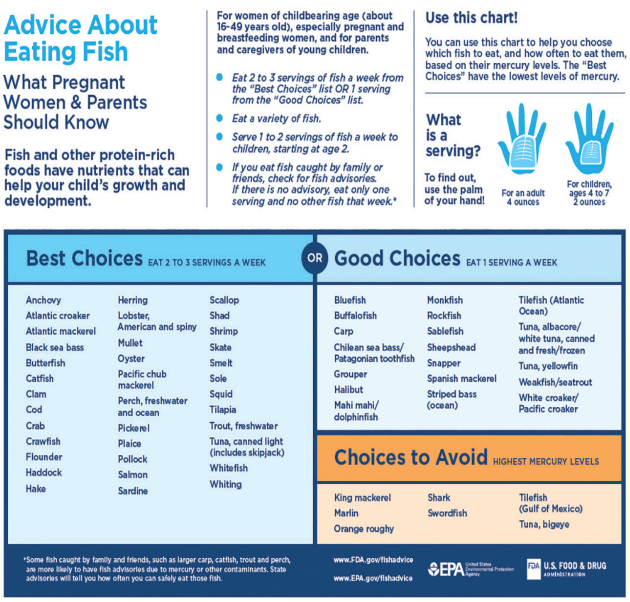
Discuss with your class what food or drinks contain caffeine.

Fish high in mercury

Some fish contain high levels of mercury. This can be dangerous for the foetus.

Fish that are high in mercury include bigeye tuna, shark, mackerel, marlin and swordfish. Pregnant women should avoid eating these types of fish.

Pregnant women should choose fish and seafood that are low in mercury such as canned light tuna, salmon, anchovies and sardenes. These are safe to eat 2-3 times a week when pregnant.



7.2 Healthy diet and nutritional requirements during pregnancy

High fat, salt and sugary foods

Intake of foods that are high in fat, salt and sugar should be limited during pregnancy. Having a diet containing too much fat, sugar and salt can raise a pregnant woman's blood pressure and cause her to gain too much weight.

Saturated and trans fat

Too much saturated fat in the diet can lead to the build-up of a fatty layer in the arteries. Saturated fat is found in foods such as butter, crisps, chips, mayonnaise and in the fat on meat. Pregnant women should cut down on these types of foods, and avoid trans fat which is commonly found in fried fast food, cookies and cakes.

Processed meat

Processed meats are high in salt and saturated fat. Intake should be limited during pregnancy. Processed meats include hot dogs, canned meats and cured or salted meats. Lots of takeaway foods contain processed meats.

Other foods

Keyword

bacteria

very small living things that can cause disease or illness

Bacteria and parasites are present in many foods. It is important during pregnancy to avoid eating foods which may contain parasites and bacteria. These can reach the foetus and can be harmful. Pregnant women should also practice good food hygiene to lower their risk of food poisoning.

It is recommended that women who are pregnant should avoid eating the following:

- raw sprouting vegetables
- undercooked or raw meat
- processed meat
- undercooked or raw eggs
- undercooked or raw fish and shellfish
- unpasteurised milk and dairy products
- unwashed fruit and vegetables

7.2 Healthy diet and nutritional requirements during pregnancy

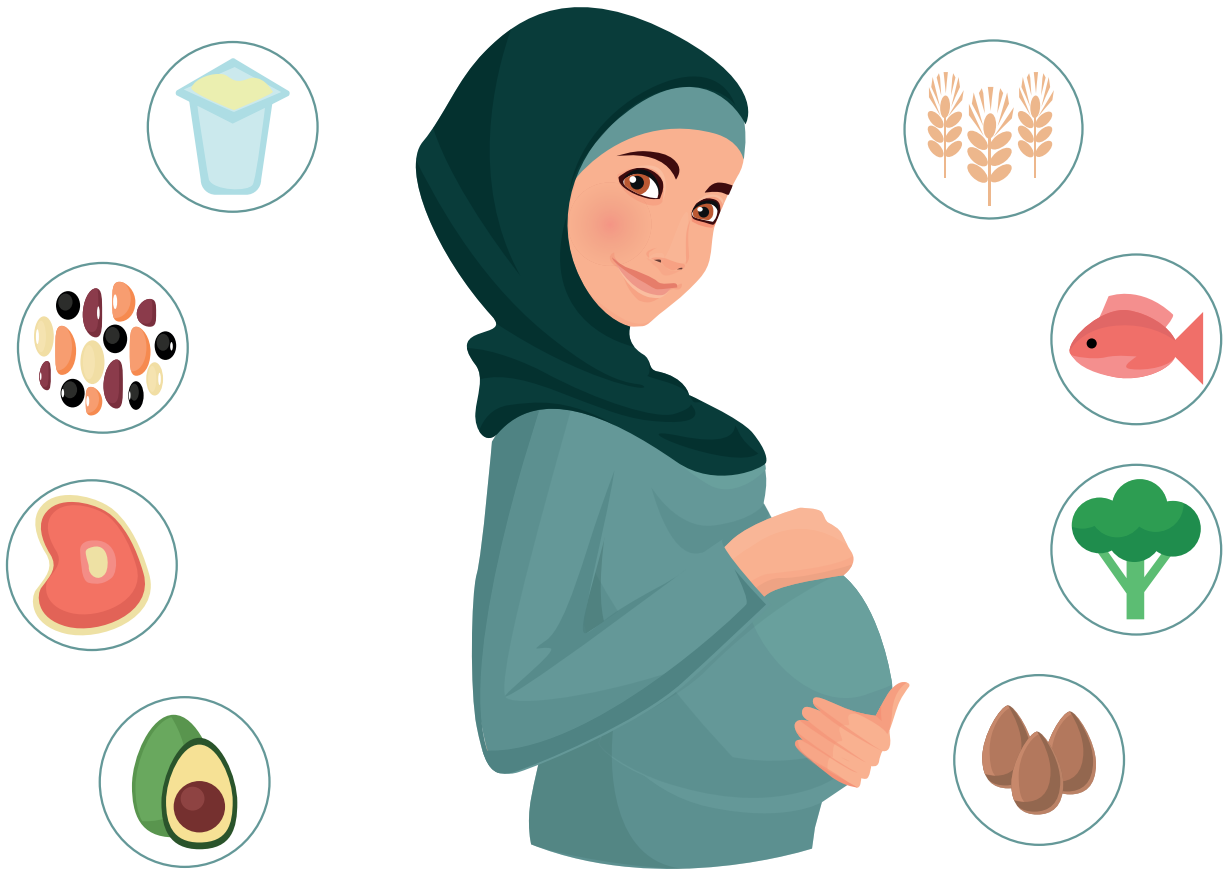
Extra nutritional requirements

Discussion: Nutrient needs during pregnancy

Discuss with your class what you already know about the nutrient requirements during pregnancy.

All nutrients are important during pregnancy to help a woman stay healthy and help the foetus grow and develop.

You have learned the benefits of eating foods from each of the food groups, but a pregnant woman should also pay special attention to including certain nutrients in her diet, these are folic acid, calcium and iron.



Folic acid

Keyword

supplement

something that provides a nutrient; it can be added to a food or a drink or taken in liquid or tablet form

Women should take a supplement of 400µg of folic acid before, and up to the 12th week of pregnancy. Taking a supplement of folic acid can help prevent the foetus developing defects of the brain, spine or spinal cord (these are known as neural tube defects). Folic acid is the synthetic (man-made) version of folate (vitamin B9).

Certain foods contain natural folate. These foods should be eaten every day. Green leafy vegetables like spinach are a good source of folate. Broccoli and asparagus are also good sources. Some foods are fortified with folic acid.

Example

Fortified foods are foods which have vitamins or minerals added to them to improve nutrition and add health benefits. Foods often fortified with folic acid are breakfast cereals and bread.

7.2 Healthy diet and nutritional requirements during pregnancy

Calcium

Calcium is an important nutrient that should be included in everyone's diet. During pregnancy, a woman needs to consume enough calcium for her own needs, as well as for the needs of the foetus.

A pregnant woman should aim to eat three servings of calcium-rich foods every day.

Milk and dairy products are good sources of calcium. These include:

- milk
- cheese
- yogurt

There are also some non-dairy foods that are good sources of calcium. These include:

- green leafy vegetables
- dried fruit
- sardines with the bones
- non-dairy milk alternatives such as soy, almond and oat milk
- fortified foods such as cereals

Iron

Consuming enough iron in their diet is very important for women during pregnancy. This is because the demand for iron increases as the foetus grows.

Pregnant women should eat iron-rich foods regularly. These foods include the following:

- Red meat
- Eggs
- Pulses
- Seafood
- Green leafy vegetables
- Fortified foods

Further information

If a pregnant woman's iron level becomes too low, then she can develop a condition called anaemia. Anaemia means that there is not enough healthy red blood cells to carry oxygen around the body.

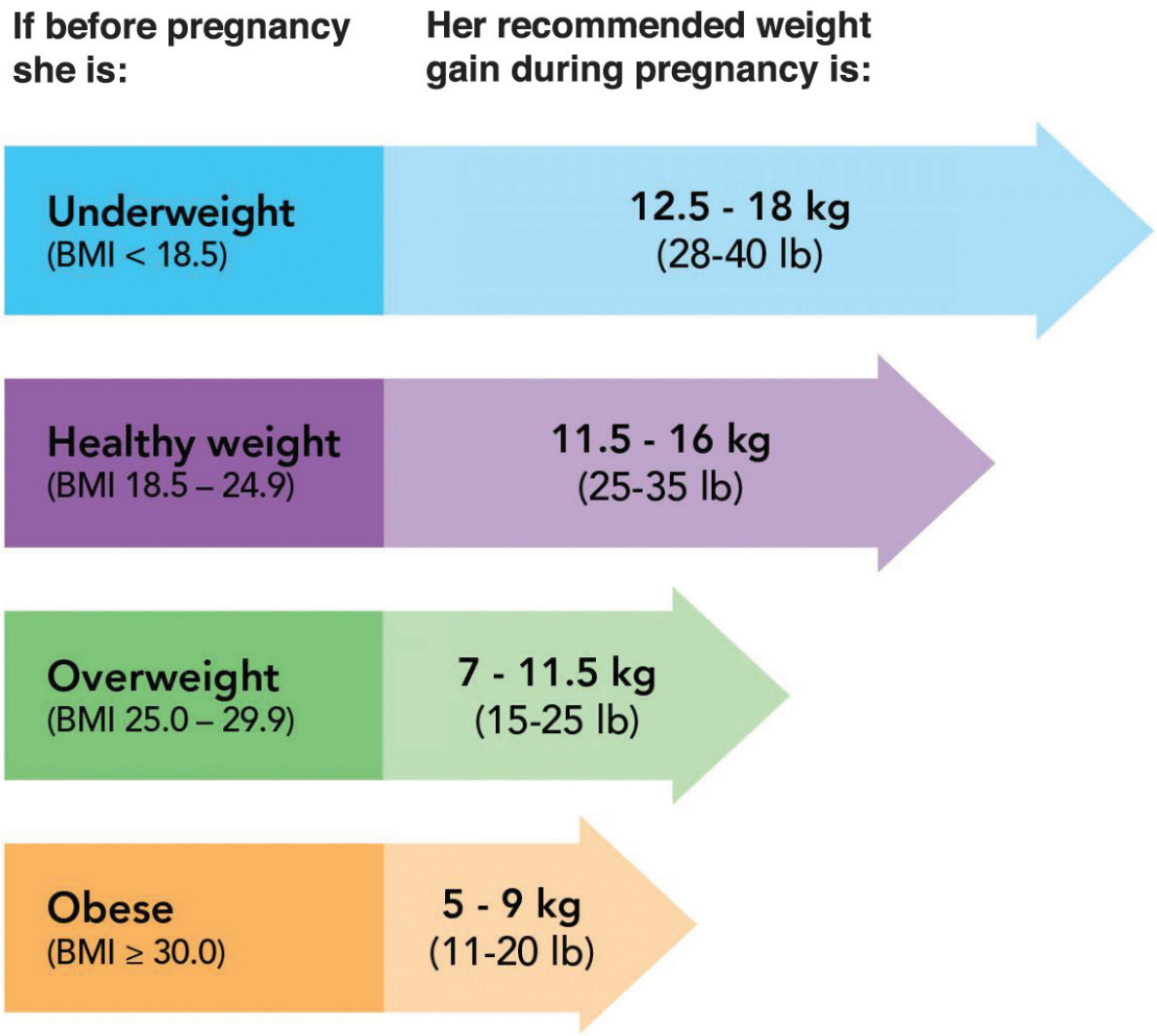
This can make the pregnant woman tired and weak and can cause the baby to be a low birth weight or to be born early.

A doctor might give a woman an iron supplement if she develops anaemia during her pregnancy. Or they could recommend a diet that contains more iron-rich foods, and foods that increase the absorption of iron in the body such as fruit and vegetables.

7.2 Healthy diet and nutritional requirements during pregnancy

Weight gain during pregnancy

Weight gain is a healthy and normal part of pregnancy. A woman can expect to gain between five and eighteen kilograms during pregnancy. The amount of weight she will gain will depend on her weight before she becomes pregnant. If she is a healthy weight before pregnancy, she can expect to gain between 11.5 and 16 kg.



Further information

Eating for two

When people say a woman is 'eating for two' when she is pregnant, this doesn't mean that she should be doubling the amount of food she eats. In fact, a woman only needs to increase her calorie intake by 360-475 calories a day during the last six months of her pregnancy.

Morning sickness

Morning sickness usually happens during the first trimester of pregnancy. It is caused by the increased hormones in the body. Despite its name, morning sickness can happen at any time of day. To help with morning sickness, it is recommended that a pregnant woman eats small amounts of plain food.

Food cravings

When they are pregnant, many women start to 'crave' certain foods. Most commonly these are foods such as sweets, ice-cream and fast food; but sometimes women crave very unusual food combinations such as pickles with ice cream. Research suggests that these cravings might be because of a hormone imbalance, nutritional deficiencies in the diet, or just because of the need for comfort foods.

7.3 Exercise during pregnancy

Physical activity guidelines during pregnancy

Discussion: Exercise during pregnancy

Discuss with your class what exercises you think pregnant women should and shouldn't do.

Physical activity is important for everyone, including pregnant women. There are guidelines on how much physical activity to do. Everyone should do at least 150 minutes of moderate activity per week or 30 minutes of activity five days a week. This is no different for women who are pregnant.

For an activity to be considered moderate, the person should have increased breathing and heart rate during the activity. They should also be able to hold a conversation. If they cannot hold a conversation, they might be exercising too hard.

Remember

A pregnant woman, doing moderate physical activity, should feel comfortable throughout the activity.

There are recommendations that a woman who is pregnant should follow when exercising. These include:

Pregnant women who **are not active** can slowly increase their physical activity. They should start with a few minutes of light activity and build it up over a number of weeks. She should consult her doctor before doing any exercise.

Pregnant women who **are already active but who are not meeting the guidelines** should continue to slowly increase their level of physical activity.

If cardiovascular exercise and resistance training **are already** part of the woman's exercise routine, there is no need to stop when she is pregnant. However, she might need to change her exercise routine throughout her pregnancy.

Pregnant woment should exercise with caution and try not to overdo it.

7.3 Exercise during pregnancy

Benefits of physical activity during pregnancy

Taking part in regular physical activity during pregnancy can:

- improve self-esteem and mood.
- help a woman to gain only a healthy amount of weight during pregnancy.
- help to improve energy levels.
- help to reduce stress and anxiety.
- help to maintain cardiovascular and muscular fitness. This helps to prepare the mother's body for childbirth.
- reduce the risk of developing gestational diabetes; a form of diabetes that only develops during pregnancy.
- help the woman to recover faster and remain healthy after giving birth.

Recommended exercises during pregnancy

The most recommended exercises to do when pregnant are ones which increase blood circulation and tone the body. For example:

- Walking
- Swimming
- Low impact aerobics (with a qualified instructor)

Pelvic floor exercises which strengthen the muscles of the pelvis are also recommended as they can help during labour and after the birth of the baby.

When to stop physical activity during pregnancy

It is important to recognise when a woman should stop exercising during pregnancy. Women should stop exercising if there is a risk to her or to the foetus.

Some signs that could mean that the foetus or mother is in danger include:

- Bleeding or fluid loss
- Chest pain
- Decreased movement from the foetus
- Dizziness
- Difficulty breathing before exercise
- Muscle weakness
- Pain around the stomach or pelvis
- Pre-term labour or contractions
- An irregular heartbeat

Exercises to avoid during pregnancy

While lots of exercises are safe to do during pregnancy, there are some that should be avoided. For example:

- Pregnant woman should not lie flat on their back for long periods of time, particularly after 16 weeks, as she might feel faint or dizzy.
- It is not recommended to take part in contact sports where there's a risk of being hit, such as kickboxing or judo.
- Sports where there is a risk of the woman falling such as horse-riding or rock climbing should be avoided.

Think

A pregnant woman should consult their doctor if they want to start to exercise, or if they want to change their exercise routine. If she has any complications when exercising, she should consult her doctor immediately.

7.4 Medical care during pregnancy

Medical needs during pregnancy

Think

Can you think of any reasons why a pregnant woman might need medical care during her pregnancy?

During pregnancy, there are lots of reasons why a woman might need medical care. If she knows what to expect during her pregnancy, she might be able to identify when she needs medical attention. If a woman believes that she needs medical attention, it is important to assist her to get the help she needs.

Ultrasound scans

An ultrasound scan will let the doctor know if the foetus is growing and developing at a healthy rate. The scan will record the heart rate and breathing.

Hypertension

Women can experience hypertension (high blood pressure) during pregnancy. High blood pressure during pregnancy should be monitored by a healthcare professional.

Gestational diabetes

Glucose levels are the levels of sugar in the blood. A doctor will monitor the glucose levels of a pregnant woman. This can identify the onset of gestational diabetes.

Gestational diabetes is a type of diabetes that sometimes develops during pregnancy. It happens because the body cannot produce enough insulin to meet the extra demands of the pregnancy. This leads to the woman's glucose in the blood being too high (hyperglycaemia).

Gestational diabetes is not usually a long-term condition, and generally goes away after the delivery of the baby.

Other symptoms

The following symptoms can also occur during pregnancy. If a woman experiences these during pregnancy, she should see her doctor but **does not** need emergency medical care.

- Back pain
- Low iron levels in the blood (anaemia)
- Constipation
- Fatigue (tiredness)
- Heartburn
- Morning sickness
- Swelling of the legs (oedema)

7.4 Medical care during pregnancy

When to get emergency medical care

If a pregnant woman experiences any of the following, she should get immediate medical attention.

- No movement from the foetus
- Excessive fatigue
- Excessive thirst
- Feeling of anxiety
- Heavy bleeding
- More than three contractions per hour
- Sudden loss of fluid
- Unexplained pains

Labour

Keyword

labour

the process of childbirth

Labour, or childbirth, is the process of the baby leaving the womb. Signs of labour include lower back pain or pain around the stomach, the release of amniotic fluid known as the 'waters breaking', and contractions.

If a woman thinks she is in labour, she should get medical attention.

There are three stages of labour:

Stage 1

During the first stage of labour, the woman will feel contractions, which are the muscles in the womb tightening and relaxing. These can be identified by a dull pain. These contractions will be regular.

During early labour, women can time their contractions. They will be around five minutes apart. There is less time between contractions at the later stages of labour.

Stage 2

During this stage, the woman will feel the urge to push. Contractions become stronger and last longer. The abdominal muscles help with the delivery of the baby during this stage. The second stage of labour usually lasts 1-2 hours.

Stage 3

After the birth of the baby, the umbilical cord is clamped. The placenta is delivered 5-20 minutes after the delivery of the baby.

Did you know?

Towards the end of their pregnancy, some women experience 'Braxton Hicks' contractions. These are not regular contractions but are often mistaken for labour contractions.

7.5 Care for a newborn

Nutritional needs of a newborn

The nutritional needs of a newborn are very specific. A newborn baby is growing and developing very fast. During the first six months, a baby's weight will have doubled. They are building up their immune system to fight infection and disease. The best way to support this growth and development is to breastfeed the baby.

Breastfeeding

Breastmilk is very important for the baby. It is the milk that is produced by the mother and fed to her baby from the breast. The baby must latch onto the breast and suckle to feed from the mother's breast.

Keyword

breastfeeding

the action of feeding a baby with milk from the breast

Breastmilk contains all of the nutrients and antibodies the baby needs to grow and develop and fight infection. It gives the baby all of the energy they need to meet their demands. Mothers should try to feed their baby for the first time within one hour of birth.

The World Health Organization recommends that women breastfeed exclusively for the first six months. This means that no other food or drinks are given to the baby during this time.

7.5 Care for a newborn

Breastfeeding is important for many reasons:

- It encourages bonding between the mother and the baby.
- It contains all the nutrients the baby needs.
- It is free, safe and readily available.
- It helps to develop the baby's immune system.
- It is environmentally friendly.

At the end of the six months, it is recommended that the baby should be introduced to home-made food, but breastfeeding should continue until two years of age or longer.

Colostrum

Colostrum is the first form of milk that is produced by the mother straight after the baby is born. This is what the baby feeds on for their first few days during breastfeeding. It is a sticky yellowish substance. It is concentrated and provides the best nutrients for the baby, including protein, vitamins and minerals.

Colostrum helps the baby to get rid of meconium. This is the baby's first stool after birth. During the first week, the amount of colostrum produced reduces and more mature milk is produced. Mature milk may look thin at the beginning. During the feed, mature milk becomes creamy and rich. This combination of thin at the beginning and rich during the feed will satisfy the hunger and thirst needs of the baby.

How much?

The baby's needs will determine how much milk is produced by the mother. The more often the baby feeds from the breast, the more milk will be produced to meet the demand. During the first few days, the baby can feed up to 15 times a day.

Babies will feed when they are hungry and stop when they are full. A baby should be breastfed as often as they want it. They will take enough milk to help them to grow and develop at a healthy rate.

Nutrients in breastmilk

Breastmilk contains all of the nutrients that babies need. The amount of nutrients in breast milk depends on the quality of the mother's diet. This is why a healthy diet is important during pregnancy as well as during the time when a mother is breastfeeding her baby.

Breastmilk contains the following:

- Antimicrobial factors
- Carbohydrate
- Digestive enzymes
- Fat
- Protein
- Vitamins and minerals

UNIT 8

Behaviour change

Introduction

Understanding behaviour change is important. It can help us to know why we make the choices that we do, and to know how to make a change to our behaviour that could benefit our health. In healthcare, understanding human behaviour can help a healthcare professional to support and motivate someone to make a positive change.

In this unit, you will learn about what influences our behaviour. You will study some behaviour change interventions and learn a technique for setting goals. You will also focus on two methods that support behaviour change: the stages of change model and motivational interviewing.

Finally, you will learn about advocacy and empowerment, two important concepts in promoting confidence and control over one's own life and decision making.

Learning outcomes

Standard HSC.2.3.01: Evaluate how changing behaviour can improve health.

Learning outcomes:

HSC.2.3.01.001	Identify behavioural and environmental factors that influence behaviour.
HSC.2.3.01.002	Identify the importance of behaviour change in relation to health.
HSC.2.3.01.003	Describe how the Social Cognitive Theory can be applied to develop an effective health intervention.
HSC.2.3.01.004	Demonstrate the ability to use SMART goal setting to support behaviour change.
HSC.2.3.01.005	Discuss how the stages of change model can be used to understand behaviour change.
HSC.2.3.01.006	Identify methods used by healthcare professionals to facilitate behaviour change.
HSC.2.3.01.007	Define advocacy and empowerment.
HSC.2.3.01.008	Identify how advocacy and empowerment can benefit health.

Keywords

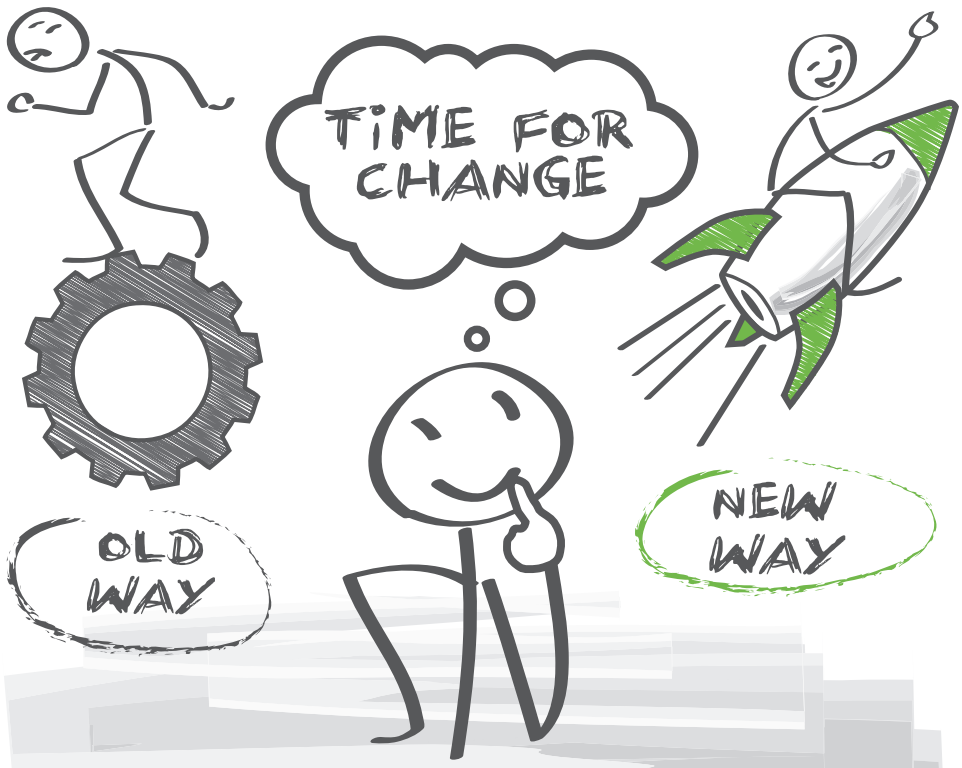
Word	Form	Definition
achieve	verb	to reach something (such as a goal) by working hard
advocacy	noun	the act of speaking on the behalf of or in support of another person
behaviour	noun	the way someone acts or conducts themselves
believe	verb	to trust in your ability to do something
contemplation	noun	the act of thinking about something
empowerment	noun	giving power or authority to a person or a group of people
environment	noun	the conditions that surround someone or something
goal	noun	something you want to do or achieve
influence	noun	something that affects the way a person behaves
intervention	noun	action that is taken to change something
interview	noun	a meeting where people talk to each other in order to ask questions and get information
lifestyle	noun	the way a person or a group of people live
maintenance	noun	the act of causing something to continue without changing
measurable	adjective	something that is able to be measured
method	noun	a procedure or process that helps people to do or achieve something such as a goal
motivational	adjective	to promote a person's goal to do or achieve something
preparation	noun	the process of becoming ready to do something
realistic	adjective	something that can be done or achieved
relapse	noun	a return to bad behavior that you had stopped doing
risk factor	noun	something that makes a person more likely to get a particular disease or condition
social	adjective	relating to people or society in general
specific	adjective	to be clear and exact
timely	adjective	something that can be done in a set time

8.1 What is behaviour change?

What is behaviour change?

Behaviour is a term that describes how a person acts. Change is when a person does something differently from how they used to do it.

This different way of behaving is known as behaviour change.



Behaviour change is important because making positive changes can benefit a person's health and well-being.

But keeping to a new behaviour can be hard. To make a successful long-term change it is important that people:

- understand why they behave the way they do.
- know that they need to change.
- know where to find the support to help them to change.

Discussion: Behaviour change

Discuss a behaviour change that you have made to improve your health.

What influences behaviour?

Keyword

influence

something that affects the way a person behaves

Think

Can you remember learning about psychology in grade 11? One of the theories you learned was the 'Social Cognitive Theory'. This theory suggests that people's knowledge and behaviour is influenced by watching how others behave and by the things around them.

Social Cognitive Theory

There are many things that influence the way that a person behaves. Social Cognitive Theory is a theory that can be used to explain why people behave the way that they do.

Social Cognitive Theory explains that our behaviour is influenced by:

- the natural and man-made environment.
- our social environment.
- personal factors.

Keyword

theory

an idea or set of ideas that explain facts

8.1 What is behaviour change?

Environmental influences on behaviour

The natural and man-made environment

The natural environment iseverything that makes up the natural world around us such as the air, land, water, and the weather. The man-made environment includes things that people have created such as cars, buildings, and roads.

The environment can have a big influence on the way that people behave. It can direct them to make healthy or unhealthy choices.

Example

The UAE has very hot summers. During the summer, people are more likely to stay indoors than to go outside and exercise. When the weather is cooler, lots of people can be seen outside running, walking, and cycling. This is how the natural environment can influence peoples' choice to exercise.

Man-made things are usually created to make our lives easier and more comfortable. But these can also affect people's decisions to make healthy choices.

But quite often, people do not even know that their behaviour is being influenced by the man-made things around them.

Example

You are in the mall and you want to go up to the next floor. Do you use the stairs, or do you use the escalator? Most people would use the escalator without thinking, just because it is there. They would not think about using the stairs even though it is better for their health.

The social environment

The social environment includes all the social things that surround a person. This includes our relationships with other people, the society we live in and our culture.

Keyword

culture

the beliefs and customs of a group of people

The social environment can affect people's behaviour because many things that people do are influenced by the people that they know such as family and friends.

8.1 What is behaviour change?

We learn many things from the people around us. They could be how we do something, or how we act. For example:

- learning communication skills such as talking and listening
- learning practical skills such as cooking
- learning how to behave in different situations
- learning to know right from wrong

This means that the way that we behave could be because we watched our parents behave that way, or that we have been taught a particular behaviour.

Society

It could also be that society influences us to behave or act in a certain way. For example, when you go to a shop to buy something you wait in line to be served. You behave that way because it is what society expects you to do.

Keyword

society

a group of people living together in a community

Personal factors

Personal factors are individual things that influence a person's behaviour.

Some personal factors that can explain why people behave the way that they do are:

Self-efficacy. This is people's belief in themselves and their ability to do something.

Example: If you believe that you can run for 30 minutes, then you are more likely to be able to do it.

Outcome expectations. This is what people expect to happen if they do something.

Example: If you change to a healthier diet and exercise more you would expect to lose weight.

Goals. These are things that a person wants to do in their life.

Example: If you have a goal that you want to achieve, then you might change your behaviour so that you can reach the goal.

You will learn more about goals and goal setting later in this unit.

Think

Having belief in yourself and your abilities and knowing what to expect when you set out to do something is important.

These things can make you more likely to succeed in making behaviour changes that could benefit your health and life.

8.2 Behaviour change and health

Personal health behaviours

Video: Approaches to behaviour change

Watch a video that shows how an individual can change their behaviour to have a healthier lifestyle.

How a person behaves can have a big effect on their health. If they choose positive health behaviours, they can reduce their risk of illness and disease.

Positive health behaviours include having a balanced diet, being a healthy weight and getting enough physical activity.

But if people choose negative health behaviours, such as not exercising and eating unhealthy foods, then they are at greater risk of developing diseases.

Replacing negative behaviours with positive ones can help people to:

- reduce their risk factors for disease.
- increase their life expectancy.
- increase their wellbeing.

Think

Earlier this term you learned about disease prevention and how making lifestyle changes can help to prevent or reduce the chances of developing certain diseases. These are known as modifiable risk factors for disease.

Behaviour change interventions

Behaviour change interventions encourage a person, a community, or a whole population to make a positive behaviour change.

Keyword

intervention

action that is taken to change something

These interventions are usually carried out by government health departments or healthcare providers to protect and improve people's health.

The aims of a behaviour change intervention are to:

- promote health.
- prevent illness and disease.
- reduce healthcare costs.

8.2 Behaviour change and health

Three types of interventions:

1. **Education and communication** - This is when health advice is given to one or more people.

   This could be advice from a doctor given to one person about how to have a healthy diet. It could also be a TV advert about the dangers of smoking which many people would see.

2. **Resources** - This is when things are provided for people to use to help them to make positive health changes.

   For example, if people have access to a park or a gym near where they live it makes it easier for them to choose to exercise.

3. **Policy** - This is when governments bring in measures to change something that affects the health of many people.

Example

To prevent the spread of coronavirus, the government of the United Arab Emirates created new policies. They introduced fines for not wearing face masks in public, and for not socially distancing. They also limited the number of people that can gather together. These measures helped to protect the health of the whole UAE population.

Think

Last year you learned about health promotion. The interventions listed above fall under the three pillars of health promotion.

Planning a behaviour change intervention

Behaviour change interventions can be planned using the steps below.

Identify the problem

What is the risk to health?

Does it affect an individual, a community or the whole population?

Find the cause

Is the problem caused by individual behaviour?

Is it influenced by society?

Is it influenced by the natural or man-made environment?

Take action

Decide which intervention to make:

An individual, community or population approach?

At an educational, resources or policy level?

Following these steps can help to create a targeted behaviour change plan that helps to change a particular health problem in a person or group of people.

Further information

Behavioural science is a branch of science that explores human actions.

It studies the way that emotions, the environment, and social factors influence our decisions. It does this to discover why individuals and societies behave the way that they do.

The United Arab Emirates College of Medicine and Health Sciences has a behavioural science department which provides an undergraduate programme in psychiatry and behavioural sciences.

8.3 Goal setting

What is goal setting?

Keyword

goal

something you want to do or achieve

A goal is something you want to happen in your life. For example, you might want to go to university or join the police. You may also want to change a behaviour to make positive changes to your health.

Discussion: Goals

In groups, discuss the goals that you have for the future. Do you have a plan of how to achieve them?

Sometimes, people know what they want to achieve, but they don't know how to go about doing it. Making an action plan can help people to reach their goals.

Example

An action plan is a detailed plan listing the steps to take to reach one or more goals. SMART goal setting can help people to successfully do this.

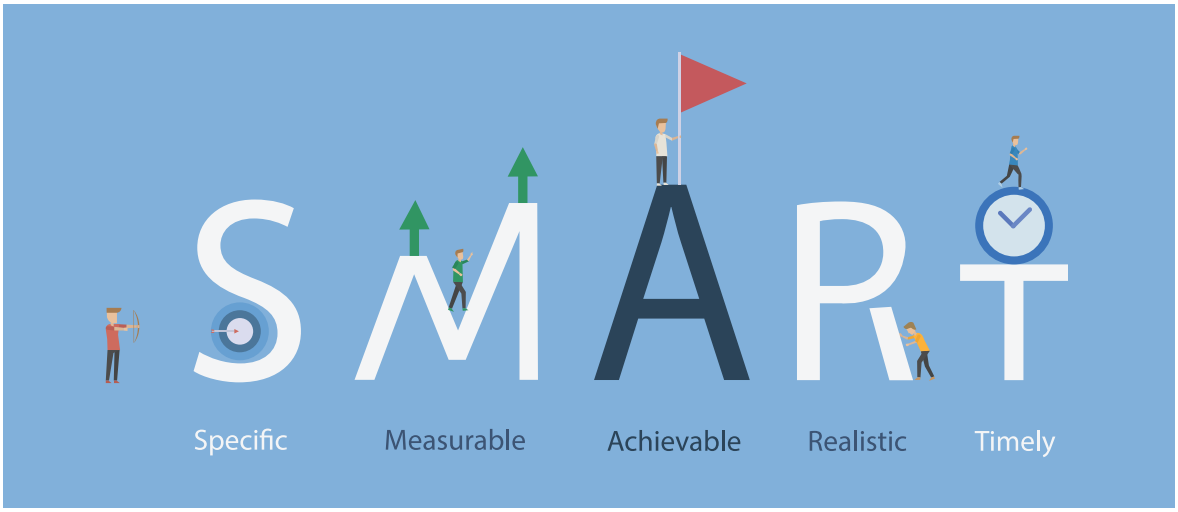
SMART goal setting

SMART is a goal-setting method that can help people to be more focussed and successful when trying to reach their goals. It breaks goals down into simple steps which makes them easier to put into action.

Keyword

method

a procedure or process that helps people to do or achieve something such as a goal



Think

SMART is an acronym. An acronym is when you take the first letter from a group of words to form another word.

So, this means that each letter in the word SMART stands for something.

S – Specific

M – Measurable

A – Achievable

R – Realistic

T – Timely

8.3 Goal setting

Specific

The first letter in SMART is S, and this stands for specific. Specific means to be clear. So, in order for it to be specific, your goal should be clear.

This will make it easier to understand what you are planning to do. Add as much information as you can to your goal.

Example

Imagine you want to set yourself the goal of doing more physical activity. Your goal should state exactly what type of activity you want to do. Which of these two goals is more specific?

'I want to be fitter.'

'I want to be able to run 5km in six weeks.'

Measurable

The second letter in SMART is M, and this stands for measurable. Measurable means that your progress is able to be tracked.

If you are able to track your progress, you will then know where you are in reaching your goal.

Example

Look at these two goals:

'I want to lose weight.'

'I want to lose 10kg of weight.'

It is hard to measure the progress of someone who just wants to lose some weight. If you want to track your progress, you must measure it against something definite such as losing a certain amount of weight.

Achievable

The third letter of SMART is A, and this stands for achievable. Achievable means that it is something that can be done.

A goal is more achievable when you are doing something that interests you, and something that you can find support to help you with. Ask yourself these questions:

- Can I do this?
- Do I have the right support?

Example

Look at these two statements:

'I want to lose 10kg.'

'I want to lose 10kg in 10 weeks by eating healthy food and exercising. I will follow a diet plan and join a gym.'

The second statement makes the goal more achievable as it sets out a plan of how to reach the goal. Following a diet plan and joining a gym will give you the support you need.

Realistic

The fourth letter in SMART is R, and this stands for realistic. Realistic means that an idea is practical and can be achieved.

Example

'I want to lose 20kg in a week.'

This goal is not realistic. Even if you eat healthy food and exercise every day it is not possible to lose 20kg in a week.

8.3 Goal setting

Timely

A goal must have a target date of when you want to achieve it by. This is what is meant by 'timely'.

Setting a time of when you want to reach your goal will give you something to work towards. Remember that the time needed to reach your goal should be realistic.

Example

Your goal is to lose 10kg. You need to ask yourself:

- How much weight can I lose each week?
- Do I have a diet and exercise plan in place to be able to achieve this?

Based on your answers, you should calculate how long it will take to achieve your goal and set this as the date to work towards.

Remember

When setting out your goals, try to think about:

- what you want to achieve.
- how you will achieve it.
- how long it will take.

Steps of goal setting

Now that you have learned about how SMART can help you to reach your goals, there are some extra steps that you can follow to make sure you are successful.

1. Set a goal that is important to you.

   When you set a goal, make it something that is important to you. If you choose something that you care about, it will be easier to reach your goal.

2. Phrase your goal positively.

   Write your goal in a positive way. For example, it is better to write 'I will .....' rather than 'I might .....'. You should believe that you can reach your goal.

3. Plan your goal.

   Use SMART to plan each stage of your goal. This way you can clearly see what it is that you want to achieve, and you will know when you have achieved it.

S **Specific**
What exactly do you want to achieve? Explain this in as much detail as possible.

M **Measurable**
How will you measure how successful you are?

A **Achievable**
Will you be able to achieve this goal? Set small goals that you will be able to achieve.

R **Realistic**
Is this goal relevant for your overall aim? Your goal should help you achieve your long-term aim.

T **Timely**
How long are you giving yourself to achieve your goal? Create a time frame.

8.4 Supporting behaviour change

Changing a behaviour

You have learned how methods such as SMART goal setting can help you reach a goal or change a behaviour.

People go through different stages when they change a behaviour. If they are helped to understand what they will experience at each stage and get some support to change then they are more likely to be successful.

Keyword

successful

reaching an aim or a goal you have set

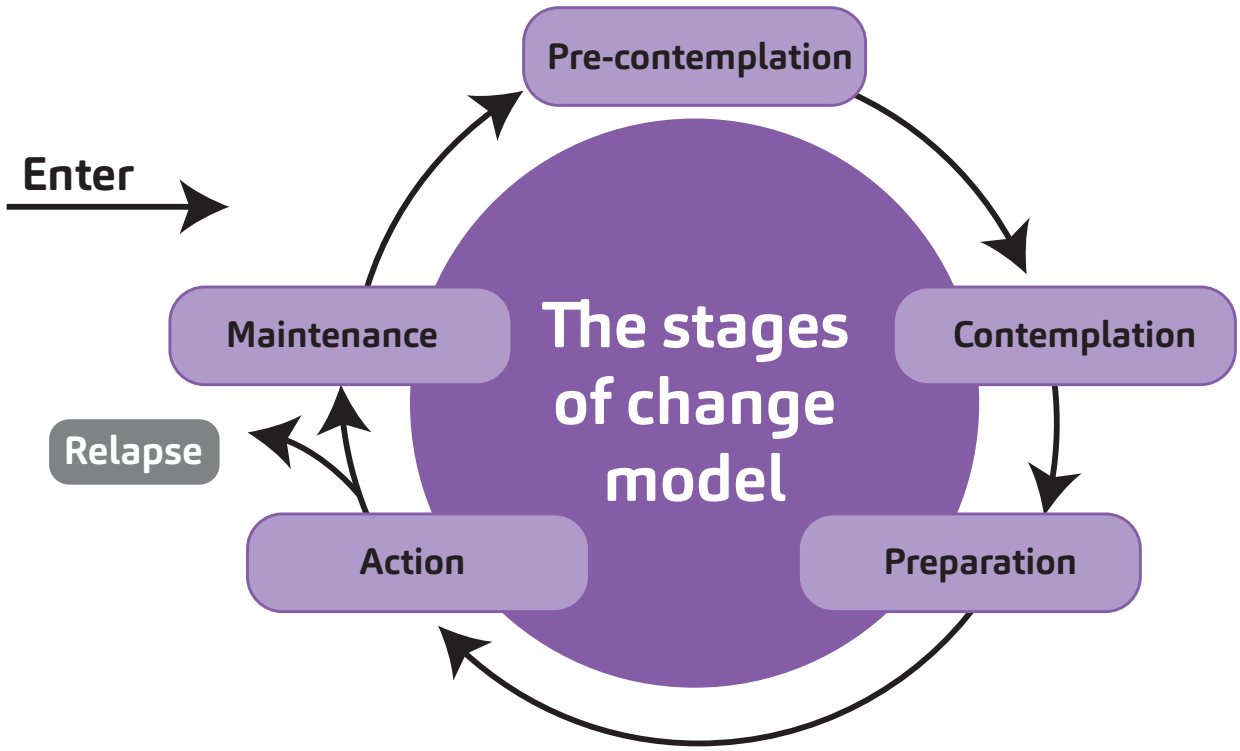
Earlier in this unit, you learned about how healthcare professionals can play a part in supporting behaviour change in people.

Two models that can be used to help explain why people may be able to change their behaviour are:

- The stages of change model
- Motivational interviewing

The stages of change model

The stages of change model is used to explain the different stages that people go through when they want to make a change in their lives.



The stages are:

Pre-contemplation: This is the stage before a person starts to think about making a change. They might not even know a change is needed. They have not made a goal or plan to change.

Contemplation: The person starts to think that there might be a need for change.

Preparation: By this stage, the person knows that a change is needed. This when they start planning to make the change.

Action: At this stage, a person has started to make the planned changes to their behaviour.

Maintenance: The new behaviours have replaced the old ones.

Relapse: The person can fall back into old habits and behaviours.

8.4 Supporting behaviour change

Example

You know that you have an unhealthy diet and are a little overweight, but you do not think it is a problem (**pre-contemplation**).

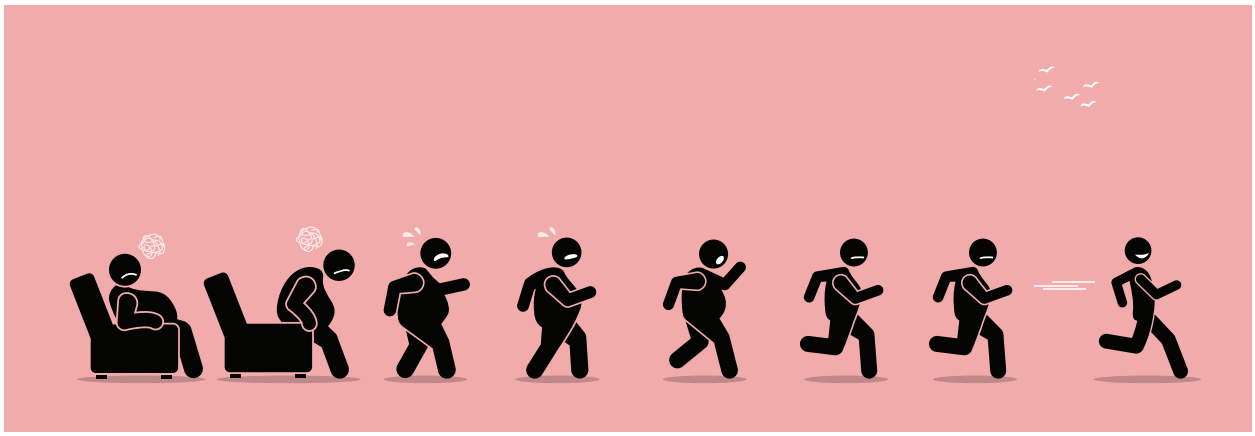
In your Health Sciences lesson, you learned about health problems that can be caused by being overweight. You start to think about how your weight might affect your health (**contemplation**).

By now, you know that you need to make a change. You start to find out information about how to have a healthier lifestyle (**preparation**).

You are making the changes needed to be healthier. You have planned a diet and exercise plan and set a SMART goal to lose weight (**action**).

Now, healthy eating and exercise is part of your everyday life. You are more fit and active (**maintenance**).

Over time, you might start to replace healthy foods with unhealthy foods and stop exercising (**relapse**). If this happens, then you must go back to a stage where you were making more healthy decisions.



The stages of change model and healthcare

For a healthcare professional, knowing which stage the patient is in can help them to understand what approach to take to support the patient to reach their goals.

For example, if a dietician has a patient who has relapsed and has begun eating unhealthy foods, they should encourage the patient to not be too hard on themselves and tell them that relapse is common.

Let's look at the roles of a patient and a healthcare professional at each part of the stages of change model.

Stage	The patient:	The healthcare professional:
Pre-contemplation	does not know that they need to change	helps to make the patient see that they need to make a change for their health
Contemplation	is thinking about making a change	answers questions about why the patient needs to change
Preparation	is planning the change	gives the patient the information they need and helps them to plan the change
Action	is beginning to make the changes needed	helps the patient find any extra support they need
Maintenance	is following the new, healthy behaviour	supports the patient to continue the new behaviour, keeps track of progress
Relapse	has gone back to the old behaviour	reminds the patient that relapse is normal and helps them to try again

8.4 Supporting behaviour change

Motivational interviewing

Keyword

interview

a meeting where people talk to each other in order to ask questions and get information

Discussion: Interviews

With your class, discuss what you know about interviews.

Motivational interviewing is an approach used by healthcare professionals to help people to change their behaviour. This type of interviewing aims to help people to identify their goals and the reasons that they want to make a change.

Keyword

motivational

to promote a person's goal to do or achieve something

Motivational interviewers should:

- allow the person to identify their own goals.
- encourage the person to believe that they can reach their goal.
- help the person to feel supported to achieve their goals.

The role of the healthcare professional

Think back to the healthcare professional's role in the stages of change model. The healthcare professional only helps the person to identify that they need to change and guides them through the process.

This is the same as during a motivational interview. They should only support the person to make their own choices and decisions.

Remember

If a person feels in control of their own decisions, they are then more likely to succeed.

Further information

During a motivational interview, a healthcare professional should follow four principles, known as 'RULE'.

Resist – Resist telling the person what to do. Instead the healthcare professional should support the patient to make their own decisions about changing a behaviour.

Understand their motivation – Try to understand why the person wants to make a change. This can help the healthcare professional create a plan to support the individual.

Listen with empathy – Empathy is when you try to understand a person's feelings. It is important that the health professional does not blame the person for having an unhealthy lifestyle or for not making a change sooner.

Empower the individual – This means to help the client to believe that they can successfully make the change.

You will learn more about empowerment later in this unit.

8.5 Advocacy and empowerment

Advocacy

Keyword

advocacy

the act of speaking on the behalf of or in support of another person

Advocacy is the process of helping a person, or a group of people, to get their voices heard. This may include:

- expressing their views.
- accessing information and services for them.
- defending their rights.
- finding out about their choices.

Further information

An advocate is somebody who helps to provide advocacy for another person. This means that they will speak on another person's behalf when they feel that they cannot speak for themselves.

Self-advocacy

Self-advocacy means having the ability to speak up for what you need. Being able to speak up for yourself can help you in many parts of your life, from school to your personal life.

Self-advocacy is made up of three main parts:

- Understanding what you need
- Knowing what to do so that you can meet those needs
- Getting the message across to the right people who can help you meet your needs

Example

In class, the teacher is talking about something that you find hard to understand. After the lesson, you speak to the teacher and ask them to explain the part of the lesson that you found difficult. This is self-advocacy.

Advocacy in healthcare

Advocacy is used in healthcare to promote health and help people to access health services. Health advocacy can be applied to an individual or a whole community.

Example

Individual health advocacy is when a doctor finds out what treatment choices a patient has or helps them to find information about their health condition.

Community health advocacy is when an action is made to improve the health of a whole group of people, such as a healthy diet education programme.

Think

Do you remember that advocate, along with mediate and enable is one of the three basic strategies for health promotion? You learned about this in grade 11.

8.5 Advocacy and empowerment

Empowerment

Keyword

empowerment

giving power or authority to a person or a group of people

Empowerment means to give power to people to allow them to do or change something.

- **Individual empowerment** is when a person is able to make decisions and have control over their own life.
- **Community empowerment** is when a group of people take control of something to benefit everyone in the community.

Empowerment in healthcare

The World Health Organization defines empowerment as:

"a process through which people gain greater control over decisions and actions affecting their health"

Empowerment for health is giving people the power to control their own health.

Empowered patients are those who have control over their own healthcare decisions without just relying on healthcare professionals.

An empowered community is a group of people who work together to improve the healthcare services and needs in their community.

Benefits of advocacy and empowerment

There will be activities in your community that are based around advocacy and empowerment. These can include public parks, environmental projects, and sports groups. All are aimed at improving the health and wellbeing of the people who live there.

There are also many personal benefits of getting involved in community advocacy and empowerment activities.

These include:

- gaining knowledge to help yourself and others.
- learning how to keep yourself and others safe and healthy.
- developing your communication skills.
- building your self-confidence.
- identifying your strengths.
- learning new skills from other people.
- helping to improve your community.

Further information

Someone who is empowered within healthcare is referred to as an empowered patient. They have greater control over their health. There are a number of steps in patient empowerment:

Information: Empowered patients have access to all the information about their health condition. This will help make their options clearer.

Health literacy: Empowered patients have the ability to understand the health-related information they are given.

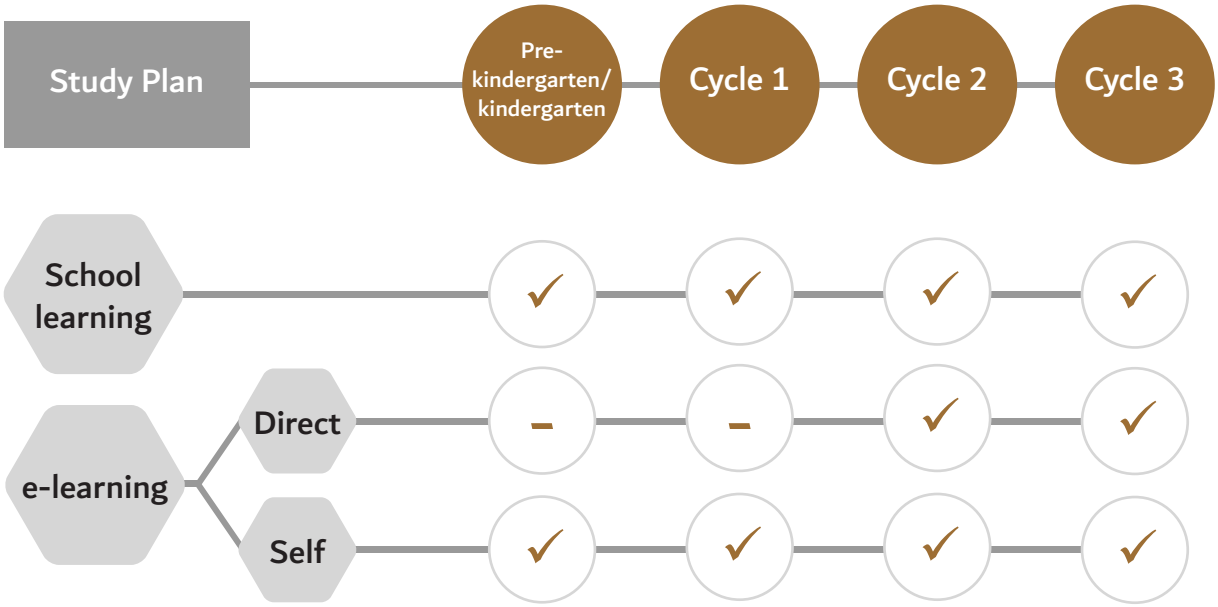
Mutual respect: The relationship between the health professional and the patient should be equal. They should be able to question them on things they may not agree on.

Shared decision-making: This is when the patient and the healthcare professional reach healthcare decisions together.

Designed by

Hybrid education in the Emirati school

Within the strategic dimension of the Ministry of Education's development plans and its endeavor to diversify education channels and overcome all the challenges that may prevent it, and to ensure continuity in all circumstances, the Ministry has implemented a hybrid education plan for all students at all levels of education.



Channels for obtaining a textbook:

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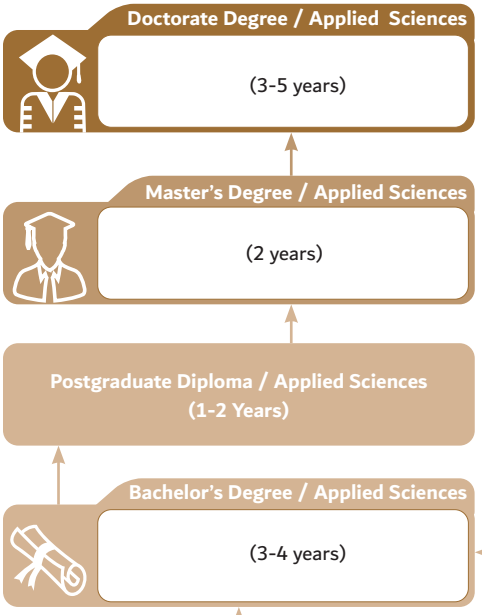
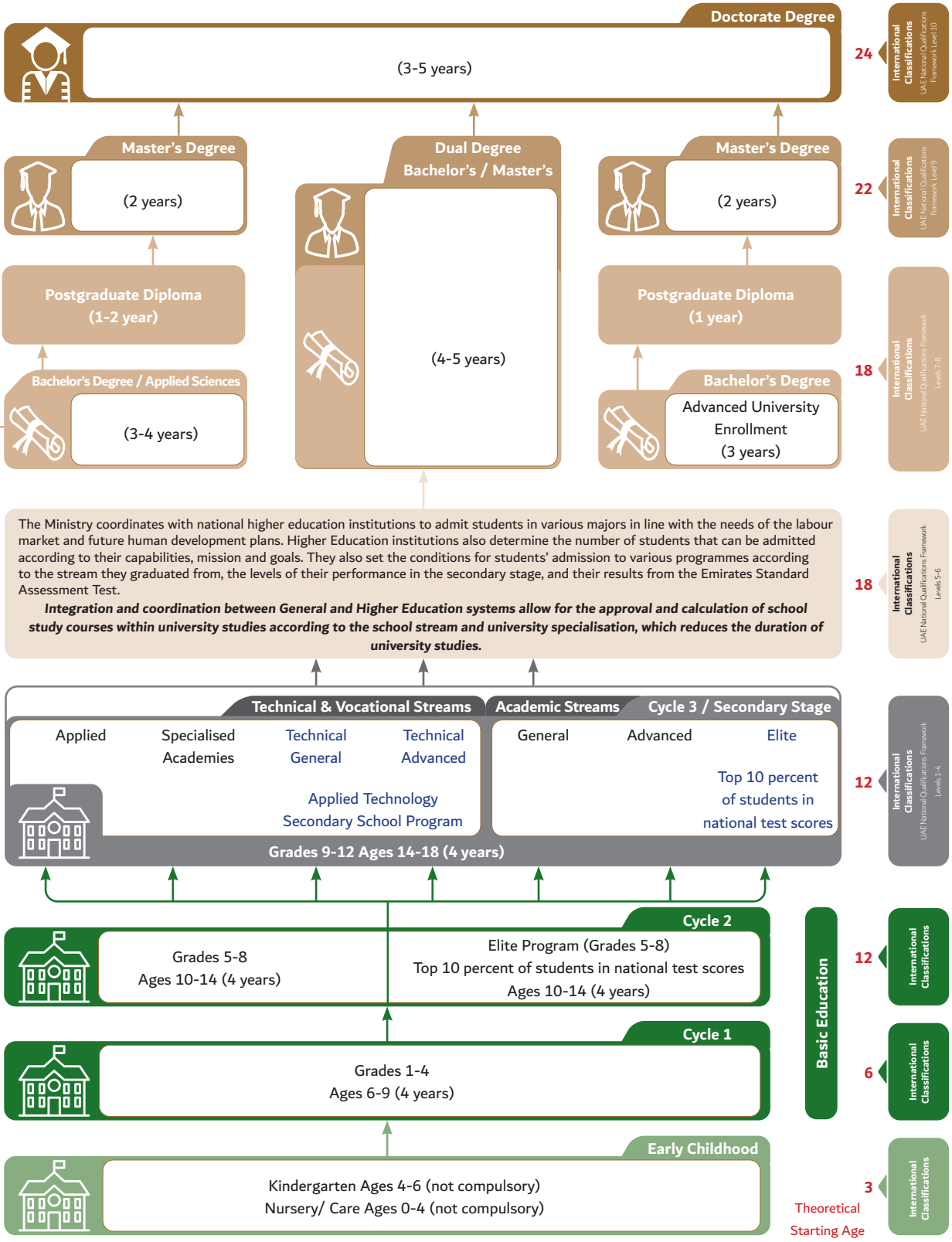
Mohammed Bin Rashid Smart Learning Program

Electronic units

UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

Education System in the United Arab Emirates




Doctorate Degree
(3-5 years)
24
International Classifications
UAE National Qualifications Framework Level 10
Master's Degree
(2 years)
Dual Degree
Bachelor's / Master's
(4-5 years)
Master's Degree
(2 years)
22
International Classifications
UAE National Qualifications Framework Level 9
Postgraduate Diploma
(1-2 year)
Postgraduate Diploma
(1 year)
Bachelor's Degree / Applied Sciences
(3-4 years)
Bachelor's Degree
Advanced University Enrollment
(3 years)
18
International Classifications
UAE National Qualifications Framework Levels 7-8
The Ministry coordinates with national higher education institutions to admit students in various majors in line with the needs of the labour market and future human development plans. Higher Education institutions also determine the number of students that can be admitted according to their capabilities, mission and goals. They also set the conditions for students' admission to various programmes according to the stream they graduated from, the levels of their performance in the secondary stage, and their results from the Emirates Standard Assessment Test.
Integration and coordination between General and Higher Education systems allow for the approval and calculation of school study courses within university studies according to the school stream and university specialisation, which reduces the duration of university studies.
18
International Classifications
UAE National Qualifications Framework Levels 5-6
Technical & Vocational Streams
Academic Streams
Cycle 3 / Secondary Stage
Applied
Specialised Academies
Technical General
Technical Advanced
General
Advanced
Elite
Applied Technology Secondary School Program
Top 10 percent of students in national test scores
Grades 9-12 Ages 14-18 (4 years)
12
International Classifications
UAE National Qualifications Framework Levels 1-4
Cycle 2
Grades 5-8
Ages 10-14 (4 years)
Elite Program (Grades 5-8)
Top 10 percent of students in national test scores
Ages 10-14 (4 years)
Basic Education
12
International Classifications
Cycle 1
Grades 1-4
Ages 6-9 (4 years)
6
International Classifications
Early Childhood
Kindergarten Ages 4-6 (not compulsory)
Nursery/ Care Ages 0-4 (not compulsory)
3
Theoretical Starting Age
International Classifications