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Health Sciences Summary (Grade 12)

1.1 Introduction to medical terminology

- ▶ **medical complaint** – a pain or sickness in the body
- ▶ **terminology** – the special words or phrases that are used in a particular field
- ▶ **treatment** – medical care given to a patient for an illness or injury
- ▶ **emergency** – a serious, unexpected, and often dangerous situation requiring immediate action

The importance of medical terminology

- ▶ Allows medical professionals to communicate
- ▶ Saves time in an emergency
- ▶ Helps the emergency team identify the problem quickly
- ▶ Helps the emergency team identify the right treatment

Medical prefixes, suffixes and combining vowels

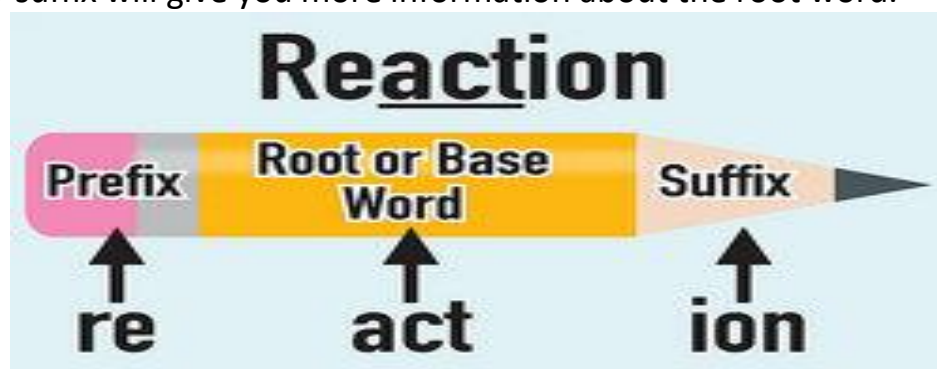
- ▶ **prefix** – a letter or group of letters that is added at the beginning of a word to change its meaning
- ▶ **suffix** – a letter or a group of letters that is added to the end of a word to change its meaning
- ▶ **root word** – Root words are the main part of the word
- ▶ **combining vowel** – used between two root words, or between a root words and a suffix
- ▶ **pronunciation** – to say words in the correct and proper way

Medical root words

Root words are the main part of the word.

Most roots must be combined with a prefix, a suffix or another word to have meaning.

Adding a prefix or suffix will give you more information about the root word.



arthr- joint	gastr- stomach	phleb vein
carcin- cancer	glyc- sugar	psych mind
cardio- heart	haem- blood	pulmon lungs
chemo- chemical	lipid fat	thromb clot
derma- skin	osteo bones	tox poison

▶ **prefix** – a letter or group of letters that is added at the beginning of a word to change its meaning

▶ **suffix** – a letter or a group of letters that is added to the end of a word to change its meaning

▶ **procedure** – a way of doing something, for example a surgical procedure

▶ **disease** – a disorder or illness in the human body

Medical prefixes

'Pre' means before.

Prefixes come before a root word.

They give more information about the root word.

Not every word has a prefix.

Word:

anaesthetic

abnormal

antibacterial

antenatal

bradycardia

epidermis

hyperglycaemia

hypoglycaemia

intercellular

intravenous

tachycardia

Meaning:

without pain or sensation

away from normal or not normal

to fight against bacteria

before the birth of a baby

slow heartbeat

above the dermis

too much sugar in the blood

too little sugar in the blood

between the cells

within the veins

a fast heart rate

Medical suffixes

A suffix can be added to the end of a root word. They give more information about the root word. When used in medical terminology, it normally refers to a condition, procedure or a disease.

Prefixes and suffixes

abnormal = (prefix)

biology = (suffix)

antibacterial = (prefix)

arthritis = (suffix)

osteoporosis = (suffix)

hypoglycemia = (prefix)

Medical prefixes, suffixes and combining vowels

- ▶ **allergy** – a sensitivity to things such as food, pollen, fur or dust
- ▶ **confidential** – secret or private
- ▶ **medical examination** – the process by which a medical professional examines the body of a patient for any possible signs or symptoms of a medical condition

Combining vowels

Letters that are vowels are A, E, I, O, U. The most commonly used combining vowel in medical terminology is 'O'. 'I' and 'U' can also be used.

Rules for using a combining vowel are:

A combining vowel does not change the meaning of the word.

If the word contains two root words, then a combining vowel is normally used.

A combining vowel isn't always needed when attaching a suffix to a root word.

If a suffix begins with a vowel, then a combining vowel will not be used.

When you add a combining vowel, it makes the words easier to say.

Now practice saying the words:

acid**o**sis
carcin**o**genic
gastro**o**enteritis
hemoglobin
immun**o**therapy
radio**o**therapy

Medical record reports

- ▶ **demographic** – the qualities (such as age, gender and income) of a group of people
- ▶ **allergy** – a sensitivity to things such as food, pollen, fur or dust
- ▶ **confidential** – secret or private
- ▶ **physical examination** – a test to check your health
- ▶ **gender** – either male or female
- ▶ **ethnicity** – where somebody is from including their culture and language

Medical record reports

A medical record report is used by healthcare providers. The report will include important information, such as:

- ▶ Signs
- ▶ Symptoms
- ▶ Medical condition
- ▶ Treatment
- ▶ Allergies
- ▶ Medical history

What is included in a medical record report?

Demographic information:

- ▶ age and date of birth
- ▶ gender (male or female)
- ▶ ethnicity (where the person is from)
- ▶ contact information

2. Medical complaint:

- ▶ a record of what is wrong with the patient

3. Medication and allergies:

- ▶ is the patient taking any medication?
- ▶ do they have any allergies? especially to medications or chemicals

4. Physical examination – this includes:

- ▶ blood pressure
- ▶ pulse rate – also called heart rate
- ▶ respiration – the rate of breathing
- ▶ temperature – body temperature

5. Results:

- ▶ the record includes information from test results

6. Treatment plan and progress, which includes:

- ▶ medication
- ▶ lifestyle changes
- ▶ a record over time of how the patient is doing

Responding to medical instructions

respond – to say or write something as an answer to a question or request

acute – an illness of short duration

chronic – a disease or illness that lasts three months or more

infection – bacteria, viruses or parasites, not normally in the body that enter the body

directions – the management or guidance of someone or something

instruction – a direction or order

There are many reasons why you will need to respond to medical instruction. For example, during a first aid situation, you may be given directions over the phone.

You may need to use common medical terms that describe diseases or conditions.

Word	Meaning	Word	Meaning
acute	an illness of short duration	Chronic مزمن	a disease or illness that lasts three months or more
Diagnosis تشخيص	a disease or condition that explains a person's symptom	Fracture كسر	a break in a bone; can be complete or incomplete
Infection عدوى	bacteria, viruses or parasites, that enter the body	Inflammation التهاب	the body's response to an injury; can cause redness, swelling and pain
Prognosis	the outcome of the disease; used to decide the chance of recovery	Remission نقاهه	when the symptoms of a disease go away
Sign علامات	Evidence of a disease or illness	Symptom أعراض	What the patient experiences; helps medical professionals to make a diagnosis

Spell and pronounce medical terminology

- ▶ **pronounce** – to say a word or speak correctly
- ▶ **prefix** – a letter or group of letters that is added at the beginning of a word to change its meaning
- ▶ **suffix** – a letter or a group of letters that is added to the end of a word to change its meaning
- ▶ **syllable** – a syllable is a part of a word that is created by a vowel sound

Medical prefixes

Prefix	Prefix meaning
a- or an-	without or lack of
ab-	away from or off
anti-	against
ante-	before
brady-	slow

Spelling and pronunciation

- ▶ By now, you should understand common medical terminology. It is important that you can use them properly.
- ▶ If you need to communicate with a medical professional, you need to be able to pronounce the terms correctly.
- ▶ This will make sure you are giving the correct information.
- ▶ If you make a mistake pronouncing the terms, the medical professional might not understand you properly

Pronouncing medical suffixes

Suffix	Suffix meaning
-aemia	blood
-genic	forming
-ism	condition or theory
-itis	inflammation
-logy	study of
-sis	disease or condition
-pathy	disease or disease process

Syllables

- ▶ A syllable is a part of a word that is created by a vowel sound (A, E, I, O or U).
- ▶ A syllable breaks a word into clearly defined parts.
- ▶ Some words have one syllable (these are normally shorter and easier to say) and some have more.

Let's look at the word apple. Apple has two syllables:

Ap-ple

If you say it, you can clearly hear the two parts

No. of syllables		
2	3	4
piz-za	ba-na-na	Jan-u-a-ry
twen-ty	fam-i-ly	te-le-vis-ion
per-fect	an-i-mal	in-for-ma-tion

Modifiable and non-modifiable risk factors

- ▶ **cholesterol** – a fat that your body needs to work properly, there is good and bad cholesterol.
- ▶ **ethnicity** – the culture of people from a specific geographic region.
- ▶ **genetics** – the science of heredity; how characteristics are passed from parents to children.
- ▶ **risk-factor** – something that increases the chance of getting a disease.
- ▶ **sedentary** – having an inactive lifestyle.

What causes an illness or disease?

- ▶ A person can develop an illness or disease for many reasons. These include:
 - ▶ genetics
 - ▶ environmental factors
 - ▶ behavioral factors
 - ▶ physiological factors
- ▶ A risk factor is something that increases your chance of getting a disease.
- ▶ The more risk-factors for a disease you have, the greater your chance of getting that disease.

- ▶ **information** – facts or details about a subject
- ▶ **receiver** – the person to get or be given something
- ▶ **tone** - the quality of a person's voice
- ▶ **verbal** - spoken rather than written

What is communication?

- ▶ Communication is the passing of information from one person to another.
- ▶ Communication is only done well when both the sender and receiver understand the same information.
- ▶ The person who is speaking is the sender.
- ▶ The person who is listening is the receiver.

Verbal and non-verbal

There are two types of communication, verbal and non-verbal.

Verbal

- ▶ Any communication that uses words
- ▶ Can be spoken or written

Non-verbal

- ▶ Any message received other than words, this can include:
- ▶ Facial expression
- ▶ Hand gestures
- ▶ Body language
- ▶ Tone of voice

Communication elements

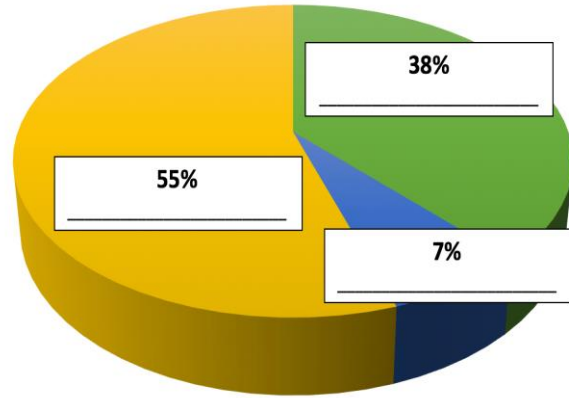
When we talk to someone face to face there are three main elements involved.

- ▶ Words
- ▶ Body language
- ▶ Tone of voice

What's more important?

The pie chart below shows the elements as a percentage. Can you guess which element is the most and least important when you communicate?

words
tone of voice
body language



2.1 Diseases & disorders

- **communicable disease** – مرض معدي an infectious disease that can be passed from one person to another
- **Non-communicable diseases** - مرض غير معدي These are diseases that cannot be spread or passed from person to person.
- **acute** - حاد a disease or disorder that lasts a short amount of time, usually less than three months
- **chronic** – مزمن a disease or disorder that lasts three months or more
- **sign** – علامات something that can be observed by other people, such as a skin rash or a cough
- **symptom**- أعراض a feeling, or physical change experienced by the patient, such as pain

A **disease** is a medical condition that stops the body from working normally.

المرض هو حالة طبية توقف الجسم عن العمل بشكل طبيعي

A **disorder** is the disruption of the normal functions of the body because of the presence of a disease.

الاضطراب هو تعطيل الوظائف الطبيعية للجسم بسبب وجود مرض

Diseases can cause:

- Pain in the body.
- Parts of the body to stop working properly.
- In some cases, death.

Diseases can affect any part or system of the body.

communicable disease	Non-communicable diseases
influenza	Epilepsy الصرع
Viral or bacterial pneumonia التهاب رئوي أو فيروسي	Hypertension ارتفاع ضغط الدم
Gastroenteritis التهاب المعدة و الامعاء	heart disease
Malaria.	Multiple sclerosis. التصلب المتعدد

An acute disease	A chronic disease
The common cold	Tuberculosis السل
Chickenpox الجدري المائي	AIDS
Influenza (flu)	Diabetes
Fever	Allergies
Pneumonia	Arthritis التهاب المفاصل
Common cold	Asthma الربو

2.2 Diseases and disorders of the musculoskeletal system

- **Inflammation** – التهاب a condition where a part of the body can become swollen, red and painful.
- **Mobility** – the ability to move freely and easily without pain.
- **Musculoskeletal** – the muscular and skeletal systems of the human body.

There are many conditions that can affect the musculoskeletal system include:

- Arthritis التهاب المفاصل
- Osteoporosis هشاشة العظام
- Sarcopenia (a disorder of the muscles) الضمور العضلي / شيخوخة العضلات
- Spine, back and neck pain
- Other pain disorders and inflammatory diseases.



Arthritis التهاب المفاصل



What is it?

Arthritis is a disease that affects the musculoskeletal system. It is a term that describes the pain and disease of a joint.

There are two types of arthritis: osteoarthritis and rheumatoid arthritis.

Who does it affect?

Arthritis can develop in anyone of any age but is more common in adults over the age of 65. It affects more women than men. Arthritis is non-communicable.

Signs and symptoms:

- Pain around the joint.
- Lack of motion – the joint won't move as much as it should.
- Stiffness تصلب when you wake up or if you've been sitting.
- Grating – you might feel things rubbing together inside the joint.
- Swelling around the joint.

Treatment:

- Medication to reduce pain, inflammation and swelling.
- Physical therapy العلاج الطبيعي to strengthen the muscles around the joint.
- Surgery جراحة to replace the affected joint with an artificial one, for example, a knee replacement.

Osteoporosis هشاشة العظام

What is it?

Osteoporosis is a disease of the bones. It means that the bones become weak and look porous. It causes pain and easily fractured bones.

Who does it affect?

Osteoporosis can develop as people reach middle-age and it affects more women than men. It can also affect people who do not exercise or have much calcium and vitamin D in their diets. The consumption of caffeine and fizzy drinks can also lead to osteoporosis.

Signs and symptoms:

- easily fractured bones
- back pain
- stooped posture
- Loss of height.

Treatment:

- Getting enough calcium and vitamin D in your diet.
- Avoiding fizzy drinks and caffeine.
- Doing weight bearing physical activity such as running, water aerobics and weight-lifting.
- Taking medication which slows down the process of bones becoming weaker.



Sarcopenia متلازمة فقدان التدريجي لكتلة العضلات الهيكلية وقوتها

What is it?

Sarcopenia is a term that describes loss of muscle strength and muscle mass. It is related to aging. Lack of exercise and poor nutrition can increase the rate of muscle loss.

Who does it affect?

Sarcopenia is a disease related to ageing. It usually affects people over the age of 75 but can begin earlier. People with a bad diet and those who are not physically active are more likely to develop sarcopenia.

Signs and symptoms:

- frailty هشاشة
- functional decline or difficulty doing everyday tasks قصور وظيفي
- reduced mobility قلة القدرة على الحركة
- reduced muscle mass نقص في الكتلة العضلية
- Weakness.



Treatment:

- Exercise. A patient can work with a physical therapist اخصائي العلاج الطبيعي to develop an exercise program that includes strength and resistance exercises to build muscle strength.

2.3 Diseases and disorders of the nervous system

- **Degenerative** – a disease or disorder that gets worse over time and the part of the body affected may stop working عن المرض أو اضطراب يزداد سوءاً مع مرور الوقت والجزء من الجسم قد تتأثر التوقف عن العمل
- **dementia** – a condition that causes a decline in memory, language and thinking
- **الخرف** – وهي حالة تسبب انخفاض في الذاكرة، اللغة والتفكير
- **seizure** – نوبة a sudden attack of illness in which someone becomes unconscious or develops shaking movements
- **tremor** – لا إرادية هزة / رعشة a shaking of a part of the body that is not voluntary

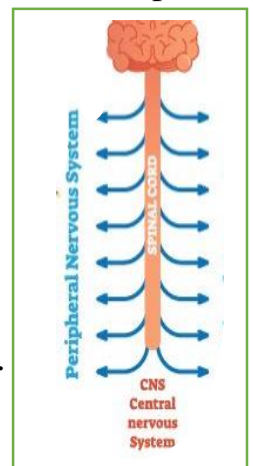
Nervous system:

• The central nervous system:

It is made up of the **brain** and **spinal cord**. It is found in the center of the body.

• The peripheral nervous system

These **nerves** are far away from the center of the body and are found in the arms and legs.



Epilepsy الصرع

What is it?

Epilepsy is a chronic disorder affecting the central nervous system. It causes abnormal brain activity which can lead to seizures. It is non-communicable.

Who does it affect?

Anyone can develop epilepsy, but it is more common in children and older adults. The cause of epilepsy is unknown, but it can be caused by a brain injury, serious illness, a high fever or a stroke.

Signs and symptoms

Seizures are the main symptom of epilepsy. If somebody is having a seizure, they might:

- Lose their sense of sight, smell, hearing, taste, or touch.
- Feel dizzy.
- Have shaking in their arms and legs.
- Fall down.
- Become unresponsive or unconscious.

Treatment includes:

- Anti-epileptic drugs that reduce or stop the seizures.
- A diet that contains high levels of healthy fats and low carbohydrates.
- Brain surgery which is sometimes used to remove or alter the area of the brain that causes the seizures.

P

arkinson's disease مرض الشلل الرعاش

What is it?

Parkinson's disease is a chronic degenerative disease of the central nervous system. It affects a person's movement and mobility. The disease is non-communicable.

Who does it affect?

People over the age of 60 are more at risk of developing the disease. It is more common in men than in women. If one family member has it, the others are more at risk of developing it.

Signs and symptoms include:

- Tremor (shaking) in the hands.
- Difficulty concentrating.
- Freezing or being unable to move.
- Loss of sense of smell or taste.
- Slow movement.

Treatment

There is no cure for Parkinson's disease. It can be managed by:

- Medications that help with movement, walking and controlling the tremors.
- Medication that controls the levels of dopamine (a hormone found in the brain).
- Lifestyle changes such as an exercise program that includes aerobic activity.
- Physical therapy.

Alzheimer's disease

What is it?

Alzheimer's disease is also a degenerative disease that causes brain cells to waste away and die. A person with Alzheimer's will experience memory loss and will lose the ability to do everyday tasks. This disease is the most common type of dementia.

Who does it affect?

It does not usually develop in people before the age of 65. If one family member has it, then others are more at risk of developing it.

Signs and symptoms

The main symptom is memory loss. Other symptoms include:

- Forgetting people's names or the names of things.
- Getting lost in familiar places.
- Having trouble with words and following conversations.
- Difficulty concentrating or thinking.
- Behavior changes such as mood swings or depression.

Treatment

- There is no cure for Alzheimer's disease. Some medication can be used to help with memory problems and or to slow down the disease.
- Having a regular routine and living in familiar surroundings with family members can help someone with Alzheimer's disease.

2.4 Diseases and disorders of the respiratory system

- **categorise** – to put something in a group of similar things تصنيف
- **pulmonary** – relating to the lungs رئوي
- **respiratory** – refers to the parts of the body that are responsible for breathing



Common diseases and disorders that affect the respiratory system include:

- Asthma الربو which affects the airway. مجرى الهواء.
- chronic obstructive pulmonary disease (COPD) مرض الانسداد الرئوي المزمن
- a disease of the lungs
- Pneumonia التهاب رئوي,
- An infection of the air sacs in the lungs عدوى من الحويصلات الهوائية في الرئتين
- Other viruses that affect the respiratory system, for example, coronavirus.

Asthma الربو

What is it?

Asthma is a long-term disease that causes inflammation of the airways. When the airway becomes inflamed, it swells and makes breathing very difficult.

Who does it affect?

Asthma can begin in childhood and lasts into adulthood. It is more common if other family members have the disease, are exposed to smoking or have allergies.

Signs and symptoms include:

- coughing سعال
- shortness of breath
- tightness in the chest ضيق في الصدر
- A wheezing or whistling صفير sound when breathing.



Treatment

There is no cure for asthma, but treatments available are very effective. They include:

- Long-term medications which should be taken daily to control asthma.
- Medications that can be used during an asthma attack (like an inhaler).
جهاز الاستنشاق / البخاخ
- Lifestyle changes (like having a healthy diet, regular physical activity, stopping smoking) can help reduce the risk of asthma attacks.
نوبات الربو.

Chronic obstructive pulmonary disease (COPD)

مرض الإنسداد الرئوي المزمن

What is it?

COPD is a respiratory illnesses that cause breathlessness and difficulty breathing. It gets worse over time. Forms of COPD include bronchitis and emphysema.
التهاب شعبي
انتفاخ الرئة.
COPD is a serious illness that can cause complications.
مضاعفات.

Who does it affect?

The disease usually begins around the age of 30 or 40 and both men and women are at risk. People who smoke have the greatest risk of developing COPD. People who have asthma or are exposed to air pollution, chemicals or dust are also at risk.

Signs and symptoms include:

- shortness of breath
- wheezing
- chest tightness
- A chronic (long-term) cough.

Treatment includes:

- Not smoking is the best way to prevent the disease.
- Medication to relax the airway and make it easier to breathe.
- Steroid medication to reduce the inflammation in the airways.

Pneumonia التهاب الرئوي

What is it?

Pneumonia is an acute infection that causes a cough, a fever and makes it difficult to breathe. Pneumonia is mainly caused by bacteria or viruses and can be a communicable disease.

Who does it affect?

Anyone can develop pneumonia with children under the age of 2 and adults over the age of 65 being most at risk. A person with another serious disease such as heart disease or COPD is more likely to get pneumonia.

Signs and symptoms include:

- chest pain when breathing or coughing
- confusion
- cough
- shortness of breath
- Fever, sweating القشعريرة. التعرق and chills.

Treatment

- If it is a mild infection, عدوى خفيفة, treatment can take place at home using antibiotics and pain medication to manage the fever.
- In serious cases where the patient needs to be hospitalized, treatment includes medication, and sometimes a machine called a ventilator الصناعي التنفس is used to help the patient breathe.

2.6 Diseases and disorders of the circulatory system

- **blockage** – انسداد an obstruction عرقلة that makes the movement or flow of blood difficult or impossible
- **circulation** – الدورة الدموية the movement of blood through the body that is caused by the pumping action of the heart

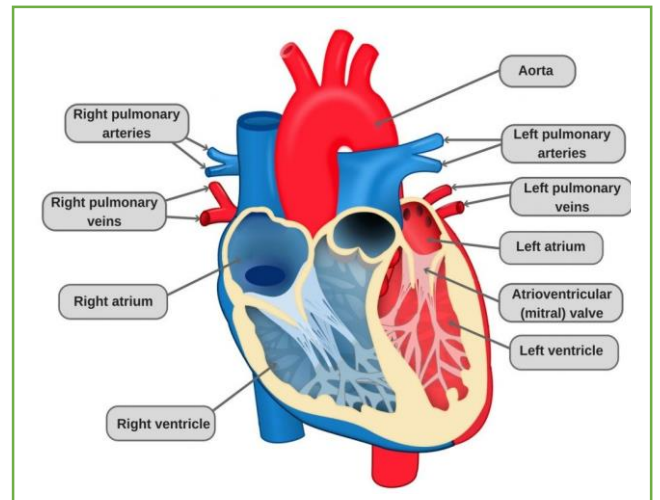
The function of the circulatory system

Circulate blood. Blood is pumped through the body by the heart. This blood carries nutrients and oxygen to all parts of the body.

The **blood vessels** الأوعية الدموية that carry the blood are called: **arteries** الشرايين, **veins** الأوردة, and **capillaries** الشعيرات الدموية.

The main parts of the circulatory system are:

The heart	Pumps blood through the body.
Arteries الشرايين	Takes blood away from the heart.
Veins الأوردة	Takes blood to the heart.
Blood	Carries oxygen and nutrients.



Conditions affecting the circulatory system:

- **Hypertension** : high blood pressure.
- **Atherosclerosis**: تصلب الشرايين a narrowing of the arteries.
- **Angina**: ذبحة heart pain caused by low blood flow.
- **Heart failure**: the heart is weakened or damaged and cannot pump blood around the body.
- **Stroke**: سكتة قلبية which is caused by poor blood flow or bleeding in the brain.
- **Venous thrombosis**: جلطة وريدية / تخثر بالوريد which is caused when a blockage forms in a blood vessel.

ارتفاع الضغط الدم Hypertension

What is it?

Hypertension is also known as high blood pressure. It means that the blood pressure in the arteries is higher than it should be. It is a chronic condition. If hypertension isn't treated, it can lead to more serious complications like heart failure, sight loss, kidney disease and a heart attack.

Who does it affect?

High blood pressure can affect anybody. There are a lot of risk factors for developing the disease like family history, being overweight, consuming too much salt, high stress levels, lack of physical activity etc.

Signs and symptoms:

Most people with high blood pressure normally have no signs or symptoms, except when it is very high. Then they could experience:

- Severe headache.
- Fatigue or confusion.
- Vision problems.
- Chest pain.
- Irregular heartbeat.
- Difficulty breathing.

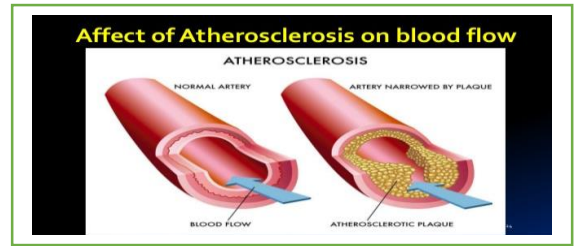
A blood pressure monitor can be used to read the pressure when the heart beats (**systolic pressure**) الانقباض and the pressure when the heart relaxes (**diastolic pressure**) الانقباض.

Normal blood pressure is less than 120/80. High blood pressure is when the reading is over 130/80.

Treatment:

- Having your blood pressure checked regularly by a doctor. The quicker the hypertension is diagnosed, the less damage it will cause.
- Leading a healthy lifestyle, i.e. keeping a healthy weight, exercising regularly, consuming less salt and having a low-fat diet.
- Medications are available that lower the blood pressure and relax the blood vessels.

Atherosclerosis تصلب الشرايين



What is it?

Atherosclerosis happens when a fatty substance called plaque ترسبات builds up in the body's arteries and eventually blocks blood flow. If this happens in the arteries of the heart, it can cause a heart attack. In the brain, it can cause a stroke.

Who does it affect?

Risk factors include being overweight, having hypertension, not exercising and having an unhealthy diet with too much salt and fat. If family members have the disease, other family members are more at risk.

Signs and symptoms

Atherosclerosis develops very slowly, so people usually don't know they have it until there is a blockage in the artery.

Symptoms include:

- Severe chest pain if the blockage is in the heart.
- Weakness in the body, loss of vision and difficulty speaking if the blockage is in the brain.
- Pain in the arms or legs in the area of the blockage.

Treatment

The most common treatments include making lifestyle changes, medications to lower the fat in the body, and surgery to remove plaque from the blood vessels.

2.7 Diseases and disorders of the immune system

- **antibodies** – الأجسام مضادة a substance produced by the body to fight disease
- **immune** – مناعة protected from a disease

The body's immune system is responsible for 'fighting' disease. It is constantly working to keep your body healthy and free from infection. It does this by producing **antibodies** which 'fight' infections that enter the body. The immune system is made up of cells, tissues, and organs.

The main parts of the immune system are:

- The tonsils and adenoids. اللوزتين والغدد.
- the thymus. عضو لمفاوي
- The lymph nodes. العقد اللمفاوية.
- Bone marrow. نخاع.
- The spleen. الطحال.
- The appendix... الزائدة الدودية
- Parts of the intestine (Peyer's patches)..(بقع بير).

Conditions affecting the immune system

Sometimes the immune system mistakes healthy body cells for unhealthy ones and attacks them.

This condition is called an **autoimmune disease** أمراض المناعة الذاتية. There are as many as 80 autoimmune diseases which affect different systems of the body.

They include:

- Multiple sclerosis, which affects the nervous system.
- Certain types of arthritis, affecting the joints of the body.
- Certain bowel diseases, affecting the digestive system.

Allergies are also a condition of the immune system which happen when the system overreacts to usually harmless substances.

Multiple sclerosis التصلب المتعدد

What is it?

Multiple sclerosis (MS) is an autoimmune disease مرض المناعة الذاتية of the brain and spinal cord. It happens because the immune system attacks the protective covering (the myelin) of the nerve cells. MS is a chronic disease which makes it difficult to do everyday tasks.

Who does it affect?

MS usually affects people between 16-55. Women are more likely than men to get the disease. If a close family member has the disease, then there is more chance of developing it.

Signs and symptoms:

The symptoms of the disease in some people come and go. In others, they get worse over time. They include:

- Tiredness and weakness.
- Vision problems.
- mobility problems. صعوبة بالحركة
- Pain or numbness تخدير in arms and legs.
- cognitive problems. صعوبات بالإدراك

Treatment:

- There is no cure for MS.
- Treatment includes using medication to slow the development of the disease and managing attacks.
- Physical therapy can be used to stretch and strengthen muscles, and to help with walking and doing day-to-day activities.

الحساسية Allergy

What is it?

Allergies happen when the immune system reacts to a substance such as dust غبار , animal hair, or a type of food. The immune system produces something called antibodies that think that the substance is harmful. This can cause inflammation of the skin, eyes, and airway. In some cases, allergies can be life-threatening.

Who does it affect?

Allergies can affect anyone. If there is a family history of allergies, or if you have asthma, you might be more likely to develop allergies.

Signs and symptoms

Signs and symptoms can range from mild to severe. **Mild symptoms** أعراض خفيفة include:

- Sneezing. العطس
- Watery eyes , red, or swollen eyes تورم العينين , سيلان
- Swelling of the face, lips , or throat الشفايف , الحلق
- A rash طفح الجلدي
- Chest tightness and shortness of breath.

A severe allergic reaction حادة is called **anaphylaxis** الحساسية المفرطة .

Anaphylaxis can lead to death. It is a medical emergency. Signs and symptoms are:

- Severe shortness of breath.
- Skin rash.
- rapid weak pulse. نبض ضعيف سريع
- Loss of consciousness. فقدان الوعي



Treatment

Preventing allergic reactions can be done by avoiding things that cause the reaction. For example, if you are allergic to cats, do not touch them.

Medications can reduce the immune system reaction and ease symptoms. These medicines are called **antihistamines** مضادات الهيستامين .

If a person has a severe allergy to something, they might carry an **epinephrine auto-injector** حقن الإبينفرين / الإدرينالين . It can save their life if they are experiencing anaphylaxis.

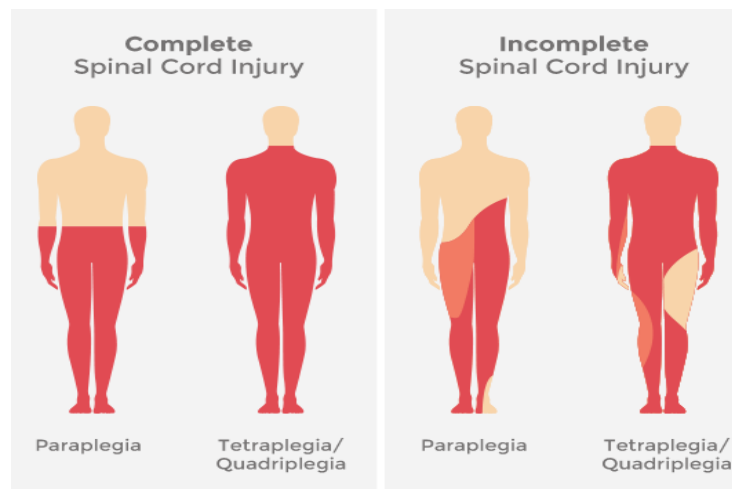
Unit (3)

Head and spine injury

- ▶ **Accident** – a sudden event (such as a crash) that causes damage or injury
- ▶ **Emergency** – an unintended or unexpected incident that requires immediate action
- ▶ **Paralysis** – the loss of ability to move or feel anything in part of the body
- ▶ **Traumatic** – an injury that requires immediate medical attention
- ▶ **Concussion** – a brain injury that can happen after an impact to the head

The spinal cord and spinal cord injuries

- ▶ The spinal cord runs from the brainstem to the bottom of the lumbar region.
- ▶ The main function of the spinal cord is to send nerve signals from the brain to the rest of the body.
- ▶ Spinal injuries can result in paralysis.
- ▶ A spinal injury occurs when there is any damage to the spinal cord.
- ▶ A spinal injury blocks communication between the brain and the body.



Common causes of spinal cord injuries include:

Traumatic injuries	Non-traumatic injuries
car crash	cancer
sports injuries	osteoporosis
falls from a height	multiple sclerosis
diving into shallow water	inflammation of the spinal cord
violence	arthritis

Head injuries

Symptoms of a head injury include:

- ▶ Unconsciousness
- ▶ Unresponsive
- ▶ Acting sleepy or confused
- ▶ Difficulty speaking or staying awake
- ▶ Problems with the senses such as hearing or double vision
- ▶ Vomiting

Stroke

- ▶ **Paralysis** – the loss of ability to move or feel anything in part of the body
- ▶ **Treatment** – the medical care given to a patient for an illness or injury
- ▶ **Recovery** – the time when someone is getting healthier after an illness or injury
- ▶ **Unresponsive** – not reacting or moving because of being unconscious or very ill

A stroke happens when there is a lack of oxygen getting to the brain. This is caused by a blockage of blood flow or a rupture to the artery that carries blood to the brain. When a person has a stroke, the cells in the brain begin to die because they are without oxygen.



Signs of a stroke

Use **FAST** to recognize the signs of a stroke.

- ▶ **F**ace drooping: when one side of the face droops. Do they have numbness in their face?
- ▶ **A**rm weakness: Do they feel weakness in one or both arms?
- ▶ **S**peech difficulty: Are they finding it difficult to talk? Does their speech sound different?
- ▶ **T**ime: If the answer is yes to any of the above, the person could be having a stroke. Call the emergency services immediately.

Emergency medical care for stroke

Follow the following steps if you suspect someone is having a stroke:

- ▶ Call the emergency services or ask someone to call them. Ask them how long it will take the emergency services to arrive.
- ▶ Get the first aid kit and the **AED**.
- ▶ Take note of the time that the patient started to experience symptoms or the time you found them.
- ▶ Stay with the person until the emergency services arrive. Give the medical team any details you know about the patient.
- ▶ If the person becomes unresponsive or is not breathing properly, be prepared to give **CPR**.

Diabetic episode

- ▶ **Insulin** – a hormone created in the pancreas
- ▶ **Hyperglycaemia** – ارتفاع ضغط الدم too much sugar in the blood
- ▶ **Hypoglycaemia** – انخفاض ضغط الدم low blood sugar
- ▶ **Polydipsia** – عطش مفرط excessive thirst
- ▶ **Polyuria** – تبول مفرط excessive urination

Diabetes

Diabetes is a disease where the body is unable to properly produce or respond to the hormone insulin.

When the body does not respond to insulin, the level of sugar in the blood (glucose) becomes too high.

Blood sugar can also be too low. Low blood sugar is called **hypoglycaemia**, and is managed by taking medication.

Low blood sugar can occur when a person with diabetes:

- ▶ miss a meal.
- ▶ have not eaten enough food.
- ▶ takes too much insulin.

does a lot of physical activity without eating enough food.

Hyperglycaemia occurs when there is too much sugar in the blood. It can affect people with type 1, type 2 and gestational diabetes.

If hyperglycemia is not treated, it can lead to damage to:

- ▶ blood vessels.
- ▶ eyes.
- ▶ kidneys.
- ▶ nerves.

Signs of hypoglycaemia and hyperglycaemia

Hypoglycaemia	Hyperglycaemia
dizziness	feeling sick
feeling hungry	fruity smelling breath
irritated	polydipsia
pale	polyuria
palpitations	tiredness and fatigue

Seizures

- ▶ **Seizure** – نوبة a sudden attack that can cause spasms or convulsions
- ▶ **Epilepsy** – صرع a medical condition associated with abnormal electrical activity in the brain
- ▶ **Jerking** – making short and sudden movements
- ▶ **Unresponsive** – not reacting or moving because of being unconscious or very ill

A seizure occurs when there is abnormal electrical activity in the brain. Most seizures are caused by epilepsy.

Other causes of seizure include:

- ▶ a head injury
- ▶ low blood sugar levels
- ▶ heat-related illness
- ▶ poison
- ▶ sudden cardiac arrest

Signs of a seizure

People who are suffering from a seizure may show the following signs:

- ▶ lose control of their muscles
- ▶ fall to the ground
- ▶ show a jerking movement, especially in the arms and legs not able to respond

There is another type of seizure where the person might not show a jerking movement and just become unresponsive.

Emergency medical care for a seizure

During the seizure:

- ▶ protect their head. place a towel or something soft under their head
- ▶ move furniture or other objects out of the way
- ▶ call the emergency services and get the first aid kit

After the seizure:

- ▶ check to see if they are responsive
- ▶ if the person is having trouble breathing, put them into the recovery position
- ▶ stay with the person until the emergency services arrive
- ▶ if they become unresponsive, or have difficulty breathing, check the airway. Be prepared to give CPR

Allergic reaction

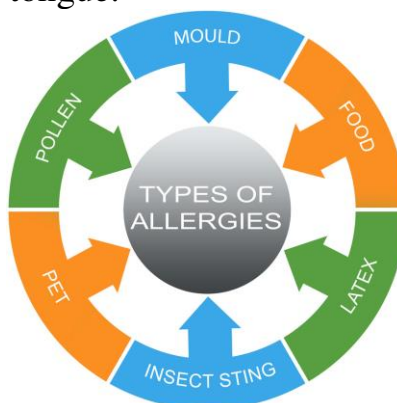
- ▶ **Allergy** – the body's immune response to substances that it has become hypersensitive to
- ▶ **Hypersensitive** – extreme sensitivity
- ▶ **Severe** – very bad or intense reaction
- ▶ **Anaphylaxis** – a severe allergic reaction
- ▶ **Adrenaline** – a type of medication

Allergy

- ▶ An allergy is the body's immune response to substances that it has become hypersensitive to.
- ▶ When you have an allergy, your body reacts and tries to fight against the trigger.

Anaphylaxis

Anaphylaxis is a severe allergic reaction that can make it difficult to breathe. It can lead to swelling of the face or tongue.



Allergic reaction

- ▶ Most people will know if they have an allergy.
- ▶ If they get a severe reaction, it is likely they will carry an adrenaline auto-injector.
- ▶ This is also known as an epinephrine pen.
- ▶ An adrenaline auto-injector is an injectable medication.



Administering an epinephrine pen

- ▶ Ask the person if they are having an allergic reaction. If they respond yes, then ask them if they have an adrenaline auto-injector.
- ▶ You might need to help them locate it.
- ▶ Always read the instructions on the auto-injector. Do not put your hand over either end of an auto-injector.
- ▶ Remove the safety cap.
- ▶ Hold the person's leg firmly in place. The injection should be given halfway between the hipbone and the knee.
- ▶ Place the tip of the adrenaline auto-injector, where the injection is released, press hard against the person's thigh.
- ▶ The pen should be held in place for the advised length of time. This is generally between three and ten seconds.
- ▶ You should pull out the auto-injector; do not touch the needle.
- ▶ After giving the injection, rub the thigh, where the injection was administered, for about ten seconds.
- ▶ Take note of all the details, including the time of the injection.
- ▶ All details should be passed on to the emergency services when they arrive.
- ▶ The used adrenaline auto-injector should be given to the emergency team to dispose of it properly.

Poisoning

- ▶ **Poison** – a substance that can cause harm
- ▶ **Absorbed** – يمتص something being taken into the body
- ▶ **Chemical** – a substance that has been artificially made
- ▶ **Drowsiness** – النعاس a feeling of being sleepy or tired
- ▶ **Confusion** – being unclear or unsure in your mind



Poisoning

A poison is anything that someone swallows, breathes in, gets into the eyes or gets on the skin that can cause sickness or death.

Poisons can cause short-term or long-term damage.

This depends on the poison and how much of it is absorbed by the body.

Causes of poisoning

Poisons can be swallowed, absorbed through the skin, injected, inhaled or splashed into the eyes.

- household products, such as bleach مثل سائل التبييض
- cosmetic items, such as make-up or nail polish مواد التجميل، مثل المكياج أو طلاء الأظافر
- some types of plants
- household chemicals and pesticides المواد الكيميائية المنزلية ومبيدات الآفات
- carbon monoxide أول أكسيد الكربون
- medicines for pets

Signs and symptoms of poisoning

Poisoning signs can be similar to other medical emergencies. Look out for these signs:

- Redness or burning around the mouth
- A chemical smell on the breath
- Vomiting
- Difficulty breathing
- Drowsiness
- Confusion
- Seizures
- Sudden heartbeats

Medical care needed to deal with poisoning

If you suspect poisoning, call the emergency services immediately. Then you should do the following:

If they are conscious

- ▶ Ask them to sit and stay still.
- ▶ If they have swallowed a poison, try get them to spit out anything remaining.
- ▶ Do not give them anything to eat or drink.
- ▶ If a harmful substance splashed on their clothes, remove these items.
- ▶ Wash the affected area with warm or cool water.
- ▶ Be careful not to touch the poison yourself.

If the person is unconscious

- ▶ Try to wake them and encourage them to spit out anything in their mouth.
- ▶ Do not put your hand into their mouth.
- ▶ Put them in the recovery position until emergency services arrive.
- ▶ If the person isn't breathing or their heart has stopped, be prepared to give CPR if you are certified.

How to help medical staff

Medical staff will need to take a detailed information to treat a person who has been poisoned., You should give them as much information as you can, including:

- What substances you think the person may have swallowed?
- When the substance was taken (how long ago)?
- How it was taken (for example, swallowed or breathed in)?
- How much was taken (if you know)?



Burns and 3.8 Electrical injury

- ▶ **Blisters** – فقاعات bubbles on the skin caused by friction or burns
- ▶ **Electric** – worked by, or charged with electricity
- ▶ **Current** – تيار كهربائي a flow of electricity
- ▶ **Hazard** – مخاطر potential risk or danger
- ▶ **Voltage** – the electrical force
- ▶ **Internal** – داخلي inside the body

Burns

Injuries from burns can be caused by heat, electricity or chemicals.

They are most commonly the result of a person coming into contact with hot liquids, hot surfaces, steam or fire.

Burns can be identified by:

- Reddening of the skin
- Blisters
- Pain in the area of the burn

Emergency medical care burns

Small burns are quite common and can be painful. They do not usually cause lasting damage.

If the burn is **small**, follow these steps:

Depending on how serious a burn is, it may be possible to treat it at home.

For **minor burns** : keep the burn clean and do not burst any blisters لا تفجر الفقاعات that form.

More serious burns : require professional medical attention.

You can decide if the person needs medical attention after taking the first aid steps for burns.

First aid for burns

1. Stop the burning process as soon as possible.
2. Remove any clothing jewellery.
3. Cool the burn with cool running water.
4. Keep the injured person warm.
5. Sit up as much as possible if the face or eyes are burnt.

Emergency care for burns

Once you have taken these steps you need to decide whether further medical treatment is needed.

You should call emergency services for:

- Large or deep burns bigger than the injured person's hand.
- Burns that cause white or charred متفحم skin.
- Large burns on the face, arms, feet or legs that cause multiple blisters.
- all chemicals and electrical burns.

Electrical Injury

What causes an electric shock?

- Electrical currents used in your home or in your school can cause serious injury.
- Electric shock normally happens because of broken or loose switches, appliances or wires.
- Electric shock can also be caused by handling an electric appliance with wet hands as water is a conductor of electricity.
- Electric shock can cause burns and damage to internal organs.

Signs and symptoms of electric shock

Somebody suffering from an electric shock may have:

- Burns.
- Cardiac arrest.

Electrical injury

Electrical shocks can cause burns and damage to the outside of the body or internal organs.

► If the burns are internal, it is hard to know how much damage the burn has caused.

High voltage current	Low voltage current
includes powerlines and overhead cables	found in school, at home and in the workplace

Remember: **DO NOT** touch a person who is still in contact with a power source.

Emergency medical care for electrical injury

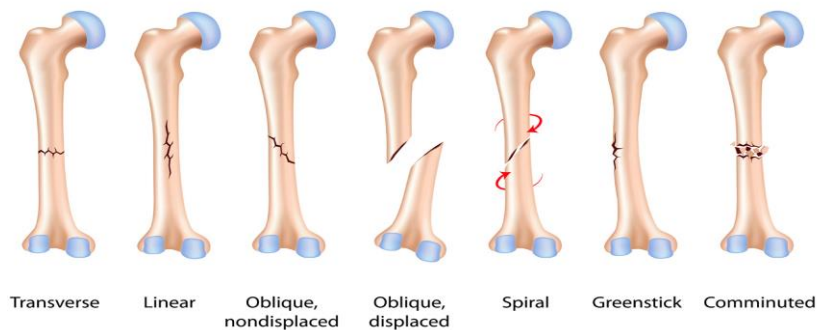
- Remove the casualty from the source of electricity.
- Do not touch the casualty if they are still in contact with the electrical source as you are also at risk of electric shock.
- If it is possible, turn off the source of electricity to break the current between the electrical supply and the casualty.
- If that is not possible, move the casualty away from the source.
- You should stand on some dry, insulating material مواد عازلة and use a wooden pole to push the casualty's limb away from the source.
- If you are unable to break contact using a wooden object, loop some rope حلقة بحبل around the casualty's arms or ankles and pull them away from the source.
- Once you are sure the contact has been broken between the casualty and the electrical source, check the casualty for any injuries such as burns, or conditions that could be life threatening.
- Call the emergency services for anyone who has suffered an electrical injury and be prepared to give CPR.

Fracture

- ▶ **Bones** – the hard, white tissue in the body that makes up the skeleton
- ▶ **Fracture** – كسر a crack or break in something
- ▶ **Numbness** – تنميل / تخدير lack of feeling in part of the body
- ▶ **Protruding** – تبرز sticking out, like a broken bone sticking out of the skin
- ▶ **Wound** – in injury where the skin is cut or broken

Fracture

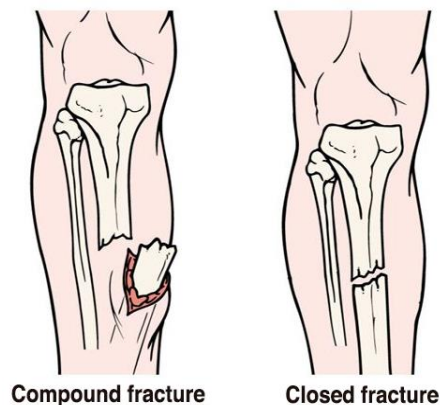
- ▶ There are **206** bones in the human body. They come in many shapes and sizes, and they provide support for the body.
- ▶ Bones can fracture in many ways.



Types of bone fracture

There are two main types of bone fractures: closed fractures and compound fractures.

- ▶ A **closed fracture** is when the bone is broken but it does not break through the skin.
- ▶ A **compound fracture** is when one or more broken bones break through the skin.



- ▶ A **displaced fracture** is when there is a gap between the two ends of the bone. These often require surgery.



- ▶ A **partial fracture** is when there is an incomplete break of the bone.
- ▶ A **complete fracture** is a complete break of a bone, causing it to separate into two or more pieces.
- ▶ A **stress fracture**, sometimes called a hairline **خط الشعر** fracture is like a crack and may be difficult to see with regular X-rays.

Signs and symptoms of a fracture

A fractured bone can cause one or more of the following signs and symptoms:

- ▶ Intense pain in the injured area that gets worse when trying to move or put weight on it.
- ▶ Numbness and tingling in the injured area.
- ▶ A bluish color, swelling or a visible deformity **تشوه** in the injured area.
- ▶ A bone protruding through the skin.
- ▶ Heavy bleeding at the injury site.
- ▶ A snap, **فرقة** pop, or grinding noise at the time of injury.
- ▶ Feeling faint **إغماء**, dizzy or sick because of the shock and pain

Emergency medical care for a suspected fracture

Call the emergency services if:

- ▶ the person is unresponsive, isn't breathing or isn't moving. Begin CPR if this is the case.
- ▶ there is heavy bleeding.
- ▶ gentle pressure **ضغط لطيف** or movement causes pain.
- ▶ the limb or joint appears deformed **تشوه بأي عضو أو مفصل**.
- ▶ the bone has pierced the skin.
- ▶ the extremity **الأطراف** of an injured arm or leg (such as a toe or finger) is numb or bluish at the tip.
- ▶ you suspect a bone is broken in the neck, head or back.

While waiting for emergency help, you should take the following steps:

- ▶ Stop any bleeding.
- ▶ Immobilize **يشل الحركة** the injured area.
- ▶ Apply ice packs to limit swelling and help relieve pain.
- ▶ Treat for shock.

Dehydration and heat related illness and 3.11 Insect stings and bites

- ▶ **Dehydration** – جفاف a harmful reduction in the amount of water in the body
- ▶ **Exhaustion** – إنهاك a state of extreme tiredness
- ▶ **Dizzy** – a feeling of spinning

Dehydration and heat related illness

- ▶ Heat exposure can have serious effects on a person.
- ▶ Mild exposure to heat can result in dehydration.
- ▶ Severe heat exposure can result in heat exhaustion and heat stroke.

Dehydration

Dehydration occurs when there is not enough water in the body.

The emergency care for dehydration is to encourage the patient to drink some water.

Heat exhaustion:

- ▶ Happens when a person has been out in the sun for a long time and their body overheats.
- ▶ It is more serious than dehydration.
- ▶

Heat stroke:

- ▶ Happens when dehydration and heat exhaustion are not treated properly.
- ▶ The person will generally stop sweating.
- ▶ Heat stroke is life-threatening.
- ▶ If you suspect somebody is suffering from heat stroke you must call the emergency services immediately.

Insect stings and bites

- ▶ **Venom** – سم a poisonous liquid that some snakes and spiders produce
- ▶ **Allergy** - حساسية the body's immune response to substances that it has become hypersensitive to it.

Bugs that bite or sting include wasps دبور , hornets دبابير , bees, ticks, mosquitoes, fleas بق الفراش and spiders. الببراغيث

Types of Insect stings and bites

- **Mild** (not serious) : most insect bites are not serious and will get better within a few hours or days.
- **Severe** : sometimes insect bites and stings can become infected and cause severe allergic reaction (**anaphylaxis**) or spread serious illnesses such as Lyme disease (طفح جلدي) and malaria الملاريا .

Signs and symptoms of insect stings and bites

- Insect bites and stings usually cause a red, swollen lump on the skin. This may be painful or very itchy.
- Some people have a **mild allergic reaction** and a larger area of skin around the bite or sting becomes swollen, red and painful.
- Occasionally, a **severe allergic reaction** can occur, causing symptoms such as breathing difficulties, dizziness and a swollen face or mouth.

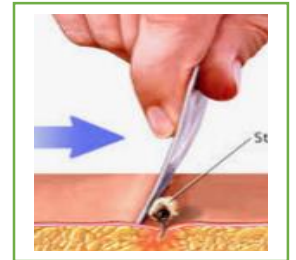
Emergency medical care for stings and bites

To treat an insect bite or sting, do the following:

- Remove the sting if it is still in the skin.
- Wash the affected area with soap and water.
- Apply a cold compress (such as a cloth cooled with cold water) or an ice pack to any swelling for 10 minutes.
- Raise or elevate the affected area if possible, as this can help reduce swelling.
- Avoid scratching the area or bursting any blisters تفجير الفقاعات , to reduce the risk of infection.

Removing a sting

- If you have been stung and the sting has been left in your skin, you should remove it as soon as possible to prevent any more venom (Poisonous liquid) being released.
- Do this by scraping it out sideways with something with a hard edge, such as a bank card, or your fingernails.
- Don't pinch the sting with your fingers or tweezers because you may spread the venom.



When to get emergency help

Call for an ambulance immediately if you or someone else has any of the following symptoms of a severe reaction.

- Wheezing or difficulty breathing.
- A swollen face, mouth or throat.
- Feeling sick or being sick.
- A fast heart rate.
- Dizziness or feeling faint.
- Difficulty swallowing.
- Loss of consciousness.

Choking and foreign body airway obstruction

- ▶ **Choking** – difficulty breathing
- ▶ **Obstruction** – when something is blocked
- ▶ **Airway** – an area in the throat where air passes to and from the lungs to allow breathing
- ▶ **Breathe** – to move air into and out of your lungs; inhale and exhale
- ▶ **Abdomen** – the middle part of the body; the stomach

Choking and foreign body airway obstruction

When someone is choking, there is an obstruction in their airway, meaning they are unable to breathe properly.

They may be able to clear it by coughing, but if they can't you will need to help them straight away.

Causes of airway obstruction

A common reason for breathing difficulties is when there is an obstruction of the airway.

Common causes of airway obstruction include:

- ▶ obstruction by the tongue
- ▶ foreign objects, such as food or other items which may have been accidentally swallowed
- ▶ allergic reactions

It is extremely important to remove or reduce the obstruction where possible.

Partial airway obstruction

Signs of a partial airway obstruction include noisy breathing such as snoring or wheezing.

When there is a partial airway obstruction:

- ▶ Encourage responsive patients to cough
- ▶ Do not interfere with the patient's efforts to clear the airway themselves
- ▶ If they are not able to clear the obstruction, begin first aid as if there is a complete airway obstruction

Signs of choking and airway obstruction

Look for the following things if you think someone is choking:

- Difficulty breathing, speaking or coughing.
- A discolored, puffy face.
- Signs of distress, and they may point to their throat or grasp their neck.

Emergency medical care for choking

- If you think someone is choking, ask them: “**Are you choking?**”
- If they can breathe, speak or cough then they might be able to clear their own throat.
- If they cannot breathe, cough or make noise then they need your help.

Emergency medical care for choking

Encourage the person to cough and remove any obvious obstruction from their mouth. If they cannot do that, you need to give abdominal thrusts using the following steps:

- Stand behind the choking person and put your arms around their waist.
- Place one hand in a clenched fist between their belly button and the bottom of their chest.
- With your other hand, grasp your fist and pull sharply inwards and upwards up to five times. Check their mouth again, each time.

This method of removing an obstruction is called the **Heimlich manoeuvre.**

Emergency medical care for choking

If the blockage does not clear, call 998 for emergency help. Continue abdominal thrusts until help arrives.

If the choking person becomes unconscious, place them on their back. Prepare to give CPR if you are certified.

*My best wishes for
success, doctors of the
future
Teacher: Amira Mustafa*