



LEVEL 3 CERTIFICATE / DIPLOMA

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MEDICAL SCIENCE

Unit 6 (Medical Conditions)

*For use with **Unit 6 Medical Case Study** examination*

**Pre-Release Article for use in the following
examinations on 23 May 2019**

Level 3 Diploma in Medical Science

Level 3 Certificate in Medical Science

Stomach ulcers

Stomach ulcers are open sores that develop on the lining of the stomach.

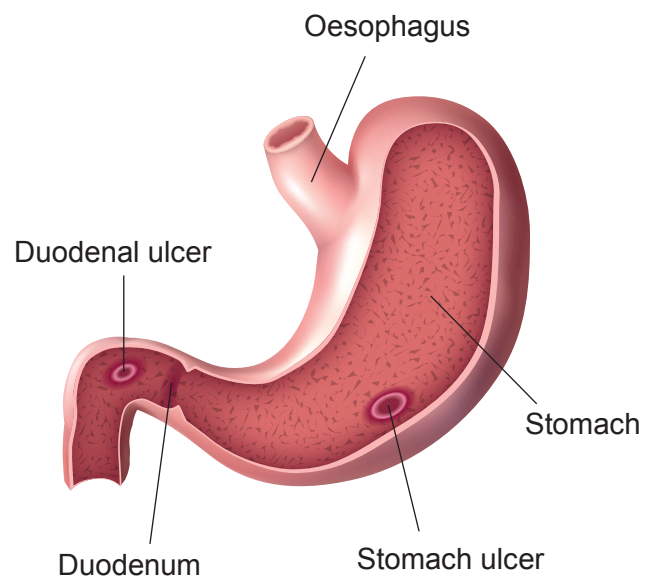
Symptoms of stomach ulcers

The most common symptom of a stomach ulcer is a burning pain in the centre of the abdomen. Some people may experience other symptoms, such as indigestion, heartburn and feeling sick. The pain can last from a few minutes to a few hours and often starts within a few hours of eating. Serious complications include vomiting blood or passing dark, sticky, tar-like faeces.

Causes of stomach ulcers

Stomach ulcers are usually caused by a bacterium called *Helicobacter pylori* (*H. pylori*). This bacterium can break down the stomach's defence against acid, allowing the stomach lining to become damaged and an ulcer to form. *H. pylori* infections are common, irritating the lining and making it more vulnerable to damage from stomach acid.

Non-steroidal anti-inflammatory drugs (NSAIDs) also cause stomach ulcers to a lesser extent. NSAIDs are medicines widely used to treat pain, high temperature (fever) and inflammation (swelling). Commonly used NSAIDs include ibuprofen and aspirin.



Diagnosing stomach ulcers

The GP or hospital may recommend one of the following tests:

- urea breath test
- faecal antigen test
- blood test
- gastroscopy

The GP will also want to know if a patient is taking NSAIDs.

Treatments for stomach ulcers

If the stomach ulcer is caused by a *H. pylori* infection, a course of antibiotics and a medication called a proton pump inhibitor (PPI) is recommended. If the stomach ulcer is just caused by taking NSAIDs, only a course of PPI medication is required. A GP may also prescribe additional antacid medication to neutralise the stomach acid and provide immediate, but short-term, symptom relief.

Preventing stomach ulcers

It is difficult to avoid infection from *H. Pylori*. Good food hygiene, avoidance of tobacco products and alcohol, and caution with use of NSAIDs is recommended.

Duchenne Muscular Dystrophy (DMD)

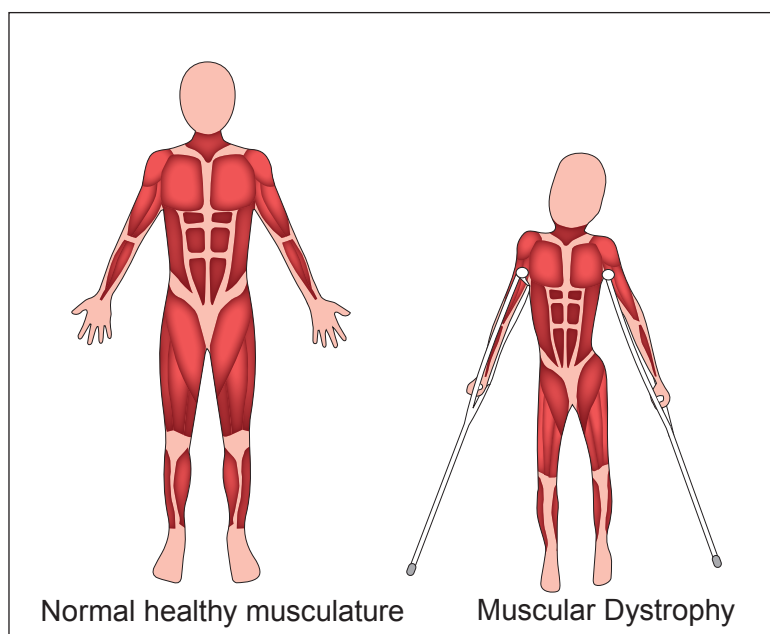
In the UK, more than 70 000 people have Muscular Dystrophy. DMD is the most common type of Muscular Dystrophy. In the UK, about 100 males are born with DMD each year, and there are about 2500 living with the condition in the UK at any one time.

Symptoms of DMD

DMD is a progressive condition. It often begins by affecting a particular muscle group, before affecting the muscles more widely. DMD will eventually affect the heart causing cardiomyopathy and heart failure. It also affects the muscles used for breathing and at this point the condition becomes life-threatening.

Causes of DMD

DMD is a sex-linked, recessive, genetic disorder. There is a mutation in a gene responsible for the structure and functioning of a person's muscles. The mutation causes changes in the production of a protein called dystrophin which affects the muscle fibres and so interferes with the muscles' ability to function.



Diagnosing DMD

If a child has any symptoms of DMD a GP will refer them to a hospital for tests. Diagnosis will involve some of the following:

- blood tests for creatine kinase (CK)
- genetic testing for the DMD gene
- cardiovascular screening e.g. ECG and echocardiography
- electrical tests on the nerves and muscles
- a muscle biopsy

Treatments for DMD

There is no cure for DMD, but a range of treatments can help with the physical disabilities and problems that may develop. These can include:

- mobility assistance – including exercise, physiotherapy and physical aids
- support groups – to deal with the practical and emotional impact of DMD
- surgery – to correct postural deformities, such as scoliosis
- medication – such as steroids to improve muscle strength, or ACE inhibitors and beta-blockers to treat heart problems

Preventing DMD

New research is looking into ways of repairing the genetic mutations and damaged muscles associated with DMD. Clinical trials have shown promising results.

Hypothyroidism (underactive thyroid)

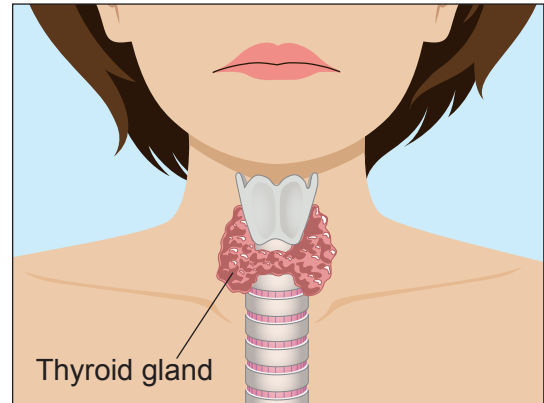
Hypothyroidism is a condition in which the thyroid gland does not produce enough of the hormones triiodothyronine (T3) and thyroxine (T4). Production of T3 and T4 requires iodine.

T3 and T4 travel in the blood stream and act on cells to regulate metabolic rate. The thyroid gland is controlled by the pituitary gland releasing thyroid stimulating hormone (TSH).

Symptoms of hypothyroidism

Symptoms usually develop slowly. Common symptoms include:

- tiredness and weight gain
- sensitivity to cold
- slow movements
- muscle ache and weakness
- dry and scaly skin, with brittle hair and nails



Causes of hypothyroidism

A condition called Hashimoto's disease is an auto-immune disease that causes hypothyroidism.

Hypothyroidism can occur as a side effect or complication of previous treatment of the thyroid gland, such as surgery or radioactive iodine therapy.

Hypothyroidism has been linked to some viral infections and the side effects of some medications, such as lithium and amiodarone, which are used to treat other conditions.

Diagnosing hypothyroidism

A blood test, called a thyroid function test, looks at levels of TSH and T4. The levels can be determined using a radioimmunoassay (RIA). A high level of TSH and a low level of T4 could be due to an underactive thyroid. If the test results show raised TSH but normal T4, the patient may be at risk of developing an underactive thyroid in the future. A GP may refer the patient to an endocrinologist.

Treatments for hypothyroidism.

Hypothyroidism is usually treated by taking hormone replacement tablets called levothyroxine. The daily dosage prescribed is usually between 50-200 µg levothyroxine. These tablets come in blister packs, usually as a 28-day supply, and the GP will prescribe at least 3 of each pack per prescription.

Preventing hypothyroidism

There is no way of preventing hypothyroidism.