



## **LEVEL 3 CERTIFICATE / DIPLOMA**

4463U60-1A



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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  
examination on 24 May 2018**

**Level 3 Diploma in Medical Science**

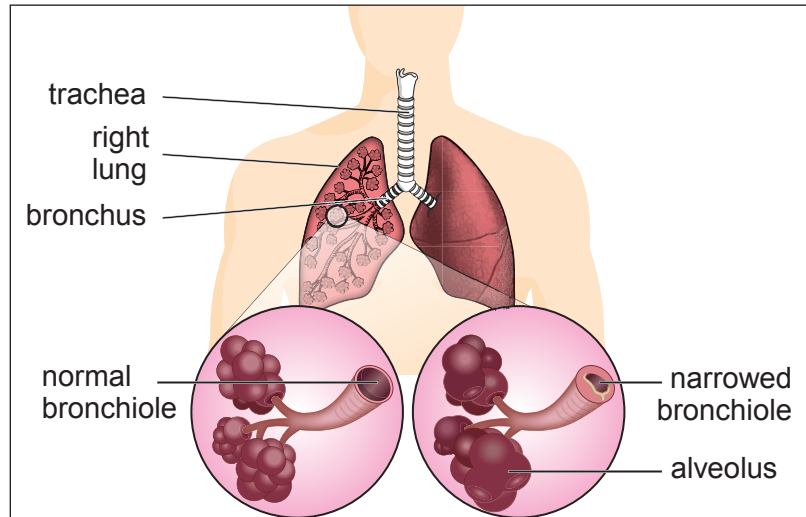
**Level 3 Certificate in Medical Science**

## COPD

Chronic Obstructive Pulmonary Disease (COPD) is the name for a group of lung conditions that cause breathing difficulties. It includes;

- Emphysema – damage to the alveoli of the lungs
- Chronic bronchitis – long term inflammation of the airways

COPD is a major cause of death in the UK, killing over 25 000 people a year. It tends to affect middle-aged or older smokers. Breathing problems tend to get gradually worse over time which can limit normal activities, although treatment can help keep the condition under control.



## Symptoms

- Increasing breathlessness, particularly when active.
- A persistent wheeze and chesty cough with phlegm (smokers' cough).
- Frequent chest infections.

## Causes

The main cause is smoking. The condition can also affect people who have never smoked, but this is very rare. The risk factors and severity of COPD increase with the degree and length of time the person has been a smoker.

## Diagnosis

The doctor will ask about the patient's medical and family history, their lifestyle including past and present smoking habits. Tests can include a chest examination using a stethoscope, a peak expiratory flow meter, a spirometer to include FEV<sub>1</sub> and FVC, and X-ray. Further tests can include an ECG, echocardiogram and a CT scan. The doctor may also ask for phlegm and blood samples to be tested.

## Treatments

Treatment can slow the progression of the disease. The most important thing is to stop smoking. Bronchodilators help make breathing easier as do the use of corticosteroids. Typical treatments for asthma do not affect COPD patients. A specialised program of breathing exercises and education can also help. A lung transplant is only an option for a very small number of cases.

## Prevention

COPD is a preventable condition. The chance of developing this disease is significantly decreased by not smoking, which can reduce further lung damage. Medication to help people to stop smoking is readily available.

## Athlete's foot

### Symptoms

Athlete's foot most commonly affects the skin between the toes or on the bottom of the feet. Affected areas of skin may be:

- dry, red, scaly and flaky
- white, soggy and cracked
- itchy and sore
- blistered

Contact with other parts of the body can also spread the infection. In severe cases the skin can become infected with bacteria. If a patient suffering from diabetes is infected with athlete's foot, it is important the infection is treated quickly. Complications can arise if diabetic people with an athlete's foot infection remain untreated. Patients with immune-suppressed conditions are also more prone to athlete's foot infections.



### Causes

Athlete's foot is caused by a fungus growing on the skin. The fungus that causes this infection thrives in warm, moist places like feet.

### Treatments

Athlete's foot can usually be treated using antifungal medication, available from pharmacies without the need to see a doctor. Antifungal treatments stop the fungus growing. They disrupt the formation of an essential component of the cell membrane called ergosterol. Treatments come in cream, spray and powder forms. Sometimes topical treatments are not applicable so alternatives are available.

### Prevention

Good foot hygiene reduces the risk of catching athlete's foot.

## Iron Deficiency Anaemia

Anaemia is a condition where a lack of iron in the body leads to a reduction in the number of erythrocytes. Iron deficiency anaemia is the most common type.

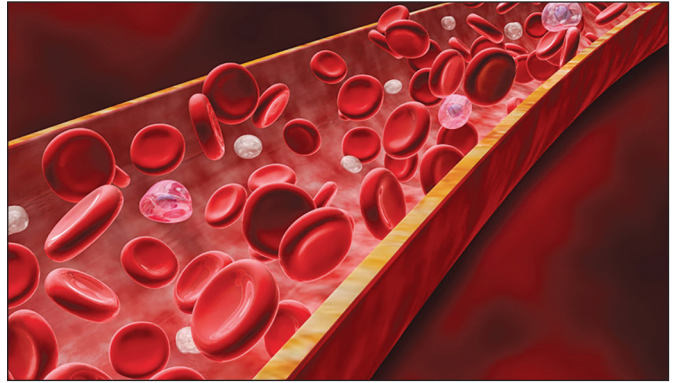
### Symptoms

Many people with iron deficiency anaemia only have a few symptoms. The severity of the symptoms largely depends on how quickly anaemia develops.

Symptoms may appear immediately, or they may develop gradually if anaemia is caused by a long-term problem.

The most common symptoms include:

- lethargy
- shortness of breath
- tachycardia and heart failure
- pale complexion



### Causes

In men and post-menopausal women, the most common cause is bleeding in the stomach and intestines. This bleeding can be caused by a stomach ulcer, stomach or bowel cancer, or by taking non-steroidal anti-inflammatory drugs (NSAIDs).

In women of reproductive age, heavy periods and pregnancy are the most common causes of anaemia. Except for in pregnancy, it is rare for iron deficiency anaemia to be caused just by a lack of iron in the diet.

### Diagnosis

To diagnose iron deficiency anaemia, a blood sample is taken and a full blood count is made.

If anaemia exists:

- levels of haemoglobin will be lower than normal
- there will be fewer erythrocytes which may be smaller and paler than usual.

The GP may also test for a substance called ferritin using an ELISA or RIA. Ferritin is a protein that stores iron. If ferritin levels are low, there is less iron stored in the body which means iron deficiency anaemia may exist.

### Treatment

Treatment for iron deficiency anaemia involves taking iron supplements to boost the low levels of iron in the body.

### Prevention

Increasing the amount of iron in the diet can help prevent iron deficiency anaemia.