

Physiological disorders

Overview of diagnostic tests

Blood tests

Blood tests are used in the diagnosis of a wide variety of physiological disorders. For example:

- ***Blood glucose levels*** to diagnose diabetes.
- ***Thyroid function tests*** (to measure thyroid-stimulating hormone (TSH) and thyroxine (T4) in the blood).
- ***Erythrocyte sedimentation rate*** (ESR) to test for inflammatory conditions such as rheumatoid arthritis.
- ***Prostate-Specific Antigen*** (PSA) test for prostate cancer.

Scans

Different kinds of scans are used in the diagnosis of physiological disorders. They can produce detailed images of body organs like the heart and brain or bones and joints.

For example:

- **Computerised Tomography** (CT scans) and **Computerised Axial Tomography** (CAT scans) combine a series of X-rays and use computer processing to create cross-sectional images.
- **Magnetic Resonance Imaging** (MRI scans) use strong magnetic fields and radio waves to produce detailed images.
- **Ultrasound scans** use high frequency sound waves to create an image. An **echocardiogram** produces an image of the heart using sound waves.

X-rays

X-rays use radiation to examine bones, joints and some body systems.

- A barium X-ray is a radiographic examination that allows visualisation of the digestive tract. The barium solution can be used either orally (a **Barium swallow**) or rectally (a **Barium enema**) and is used to diagnose abnormalities such as tumours, ulcers and other inflammatory conditions.
- X-rays are also used in **coronary angiography**. A catheter is passed into an artery in the groin or arm and guided into the coronary arteries using X-rays. A dye is injected into the catheter to highlight the arteries supplying the heart with blood.

Respiratory tests

Respiratory tests are used in the diagnosis of a variety of respiratory disorders, such as asthma and Chronic Obstructive Pulmonary Disease (COPD). For example:

- ***Spirometry*** measures the volume of exhaled breath (the forced expiratory volume)
- ***Peak expiratory flow test*** measures how fast an individual can blow air out of their lungs (peak expiratory flow).

Specialised tests (1)

A variety of other specialised tests are used in the diagnosis of physiological disorders. For example:

- **Electrocardiogram** (ECG) records the rhythm and electrical activity of the heart. An exercise ECG test, or 'stress test' taken during exercise (usually on a treadmill) can help identify the symptoms of angina, which is usually a result of coronary heart disease (CHD)
- **Endoscopies** are tests that look inside the body. An endoscope is a long flexible tube with a tiny camera and light at one end. Endoscopies can examine the trachea (bronchoscopy); bladder (cystoscopy); bowel (colonoscopy); uterus (hysteroscopy).

Specialised tests (2)

- ***A biopsy*** is an examination of tissue removed from a living body to discover the presence, cause, or extent of a disease. Biopsies can be taken from various parts of the body including the liver, lung or bronchus. A bone marrow biopsy is one of the main diagnostic tests for acute myeloid leukaemia.
- ***A lumbar puncture*** uses a needle to extract a sample of cerebrospinal fluid from around the spine. The fluid can then be checked for the presence of infection or cancerous cells.
- ***A rectal exam*** is a manual examination of the rectum. This is an important diagnostic test for rectal or prostate cancer.