

Examined subject as a physical system

The human body

Is typical example of the physical system , and anything else outside the body it is called environment.

A physical examination

Is an evaluation of the body and its functions using inspection, palpation (feeling with the hands), percussion (tapping with the fingers), and auscultation (listening). A complete health assessment also includes gathering information about a person's medical history and lifestyle, doing laboratory tests, and screening for disease.

A typical physical examination includes:

- **Inspection** (looking at the body)
- **Palpation** (feeling the body with fingers or hands)
- **Auscultation** (listening to sounds)
- **Percussion** (producing sounds, usually by tapping on specific areas of the body).

A complete physical examination usually starts at the head and proceeds all the way to the toes. However, the exact procedure will vary according to the needs of the patient and the preferences of the examiner. An average examination takes about 30 minutes.

The examination

First, the examiner will observe the patient's appearance, general health, and behaviour, along with measuring height and weight. The vital signs—including pulse, breathing rate, body temperature, and blood pressure—are recorded. With the patient sitting up, the following systems are reviewed:

- **Skin.** The exposed areas of the skin are observed; the size and shape of any lesions are noted.
- **Head.** The hair, scalp, skull, and face are examined.
- **Eyes.** The external structures are observed. The internal structures can be observed using an ophthalmoscope (a lighted instrument) in a darkened room.
- **Ears.** The external structures are inspected. A lighted instrument called an otoscope may be used to inspect internal structures.
- **Nose and sinuses.** The external nose is examined. The nasal mucosa and internal structures can be observed with the use of a penlight and a nasal speculum.
- **Mouth and pharynx.** The lips, gums, teeth, roof of the mouth, tongue, and pharynx are inspected.
- **Neck.** The lymph nodes on both sides of the neck and the thyroid gland are palpated (examined by feeling with the fingers).
- **Back.** The spine and muscles of the back are palpated and checked for tenderness. The upper back, where the lungs are located, is palpated on the right and left sides and a stethoscope is used to listen for breath sounds.
- **Breasts and armpits.** A woman's breasts are inspected with the arms relaxed and then raised. In both men and women, the lymph nodes in the armpits are felt with the examiner's hands. While the patient is still sitting, movement of the joints in the hands, arms, shoulders, neck, and jaw can be checked.

Then while the patient is lying down on the examining table, the examination includes:

- **Breasts.** The breasts are palpated and inspected for lumps.
- **Front of chest and lungs.** The area is inspected with the fingers, using palpation and percussion. A stethoscope is used to listen to the internal breath sounds.

The head should be slightly raised for:

- **Heart.** A stethoscope is used to listen to the heart's rate and rhythm. The blood vessels in the neck are observed and palpated.

he patient should lie flat for:

- **Abdomen.** Light and deep palpation is used on the abdomen to feel the outlines of internal organs including the liver, spleen, kidneys, and aorta, a large blood vessel.
- **Rectum and anus.** With the patient lying on the left side, the outside areas are observed. An internal digital examination (using a finger), is usually done if the patient is over 40 years old. In men, the prostate gland is also palpated.
- **Reproductive organs.** The external sex organs are inspected and the area is examined for hernias. In men, the scrotum is palpated. In women, a pelvic examination is done using a speculum and a Papanicolaou test (Pap test) may be taken.

- **Legs.** With the patient lying flat, the legs are inspected for swelling, and pulses in the knee, thigh, and foot area are found. The groin area is palpated for the presence of lymph nodes. The joints and muscles are observed.
- **Musculoskeletal system.** With the patient standing, the straightness of the spine and the alignment of the legs and feet is noted.
- **Blood vessels.** The presence of any abnormally enlarged veins (varicose), usually in the legs, is noted.

In addition to evaluating the patient's alertness and mental ability during the initial conversation, additional inspection of the nervous system may be indicated:

- **Neurologic screen.** The patient's ability to take a few steps, hop, and do deep knee bends is observed. The strength of the hand grip is felt. With the patient sitting down, the reflexes in the knees and feet can be tested with a small hammer. The sense of touch in the hands and feet can be evaluated by testing reaction to pain and vibration.

Sometimes additional time is spent examining the 12 nerves in the head (cranial) that are connected directly to the brain. They control the sense of smell, strength of muscles in the head, reflexes in the eye, facial movements, gag reflex, and muscles in the jaw. General muscle tone and coordination, and the reaction of the abdominal area to stimulants like pain, temperature, and touch would also be evaluated.

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