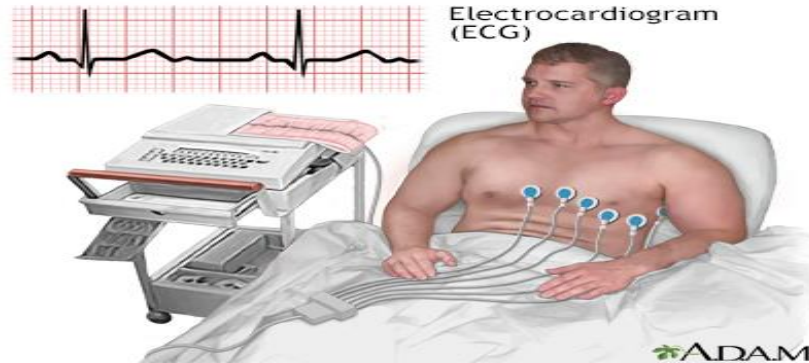




## Introduction to Medical Measurements



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# Introduction

- Medical measurement refers to the process of quantifying biological, physiological, or clinical parameters to assess a patient's health status, diagnose conditions, monitor disease progression, or evaluate the effectiveness of treatments. These measurements are crucial in healthcare for making informed clinical decisions and ensuring accurate diagnoses and treatments.

## **Factors influencing measurement**

- the quality of tools
- techniques used
- the training of the evaluator.

## 1. Vital Signs

- **Blood Pressure (BP):** Measured using a sphygmomanometer.
- **Heart Rate (Pulse):** Measured in beats per minute (bpm).
- **Respiratory Rate:** Number of breaths per minute.
- **Body Temperature:** Measured using a thermometer.

## 2. Anthropometric Measurements

- **Height:** Measured using a stadiometer.
- **Weight:** Measured using a scale.
- **Body Mass Index (BMI):** Calculated using height and weight.
- **Body Circumferences:** Measurements like waist, hip, and chest circumferences.
- **Skinfold Thickness:** Used to estimate body fat percentage

### 3. Laboratory Measurements

- **Blood Tests:** Includes measurements like glucose levels, hemoglobin, electrolytes, etc.
- **Urine Tests:** Includes measurements like protein levels, glucose, ketones, etc.
- **Biochemical Markers:** Levels of specific proteins, enzymes, or hormones.

## 4. Imaging-Based Measurements

- **Radiographic Measurements:** X-ray, CT scan, MRI, and ultrasound images are analyzed for sizes, volumes, or densities of tissues and organs.
- **Bone Density (DEXA scans):** Used to assess bone health.

## 5. Functional Tests

- **Electrocardiogram (ECG/EKG):** Measures the electrical activity of the heart.
- **Pulmonary Function Tests (PFTs):** Measure lung capacity and airflow.
- **Cardiac Stress Tests:** Measure heart function under physical stress.
- **Audiometry:** Measures hearing function.

## 6. Neurological Measurements

- **Electroencephalography (EEG):** Measures brain wave activity.
- **Nerve Conduction Studies:** Measure the speed and strength of signals in nerves.
- **Cognitive Assessments:** Measure memory, attention, and other cognitive functions.