

Patient Status & Demographics

- **Gallstone Status:** Indicates whether a patient **has gallstones** (cholelithiasis) or not. This is likely the main condition being studied.
 - **Age:** The patient's age in years.
 - **Gender:** The patient's biological sex (e.g., male or female).
 - **Comorbidity:** The presence of **one or more additional diseases** or conditions co-occurring with a primary condition (like gallstones).
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Specific Health Conditions (Comorbidities)

- **Coronary Artery Disease (CAD):** A heart condition caused by the **buildup of plaque** in the arteries that supply blood to the heart.
 - **Hypothyroidism:** A condition where the thyroid gland **doesn't produce enough** crucial hormones, slowing down metabolism.
 - **Hyperlipidemia:** High levels of lipids (fats) in the blood, including **high cholesterol and triglycerides**.
 - **Diabetes Mellitus (DM):** A metabolic disorder characterized by **high blood sugar levels** over a prolonged period.
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Anthropometry & Body Composition

These metrics describe the physical measurements and makeup of the body.

- **Height:** The person's physical stature, usually measured in centimeters or meters.
- **Weight:** The person's body mass, usually measured in kilograms (kg).
- **Body Mass Index (BMI):** A value derived from weight and height ($BMI = \frac{\text{weight}}{\text{height}^2}$) used as a general indicator of body fatness.
- **Total Body Water (TBW):** The **total amount of fluid** (water) in the body, typically as a percentage of total weight.
- **Extracellular Water (ECW):** The water in the body that is **outside of the cells**, found in blood plasma, lymph, and interstitial fluid.
- **Intracellular Water (ICW):** The water that is **inside the body's cells**.
- **ECF/TBW Ratio:** The ratio of **Extracellular Fluid to Total Body Water**. An elevated ratio can indicate fluid imbalance or inflammation.
- **Total Body Fat Ratio (TBFR) (%):** The **percentage of a person's total weight that is**

fat tissue.

- **Lean Mass (LM) (%)**: The percentage of a person's weight that is **not fat**, including muscle, bone, organs, and water.
- **Body Protein Content (%)**: The percentage of total body mass that is **protein**.
- **Visceral Fat Rating (VFR)**: An index or rating of the amount of **"hidden" fat stored around the internal organs** in the abdomen.

[Image of visceral and subcutaneous fat](#)

- **Bone Mass (BM)**: The estimated **weight of bone mineral** in the body (e.g., in kg).
 - **Muscle Mass (MM)**: The total estimated **weight of muscle tissue** in the body (e.g., in kg).
 - **Obesity (%)**: The percentage of body fat, used to classify weight status. This may be the same as TBFR or a related measure.
 - **Total Fat Content (TFC)**: The **absolute mass of fat** in the body, measured in kilograms (kg).
 - **Visceral Fat Area (VFA)**: A measurement of the **cross-sectional area of fat** surrounding the abdominal organs, often measured by imaging in square centimeters (cm²).
 - **Visceral Muscle Area (VMA) (Kg)**: This likely refers to **Skeletal Muscle Mass** or the mass of muscle tissue in the abdominal region, measured in kilograms (kg). The "(Area)" part may be a typo.
 - **Hepatic Fat Accumulation (HFA)**: A measure of **excess fat buildup in the liver**, also known as fatty liver disease or hepatic steatosis.
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Biochemical & Blood Markers

These are measurements taken from blood tests to assess various aspects of health.

- **Glucose**: The level of **sugar in the blood**, a primary source of energy for the body's cells.
- **Total Cholesterol (TC)**: The sum of all types of cholesterol in the blood.
- **Low-Density Lipoprotein (LDL)**: Often called **"bad" cholesterol**, as high levels can lead to plaque buildup in arteries.
- **High-Density Lipoprotein (HDL)**: Often called **"good" cholesterol**, as it helps remove cholesterol from the arteries.
- **Triglyceride**: A type of fat found in the blood that the body uses for energy. High levels are a risk factor for heart disease.
- **Aspartate Aminotransferase (AST)**: An **enzyme found in the liver, heart, and other muscles**. Elevated levels can signal liver damage.
- **Alanine Aminotransferase (ALT)**: An **enzyme found mainly in the liver**. High levels are a specific indicator of liver inflammation or injury.

- **Alkaline Phosphatase (ALP):** An **enzyme related to the bile ducts and bones**. High levels can indicate liver disease or bone disorders.
- **Creatinine:** A **waste product from muscle metabolism**. Levels are used to assess kidney function.
- **Glomerular Filtration Rate (GFR):** A key test to measure **how well the kidneys are filtering waste** from the blood.
- **C-Reactive Protein (CRP):** A protein that is produced by the liver. Its level rises in response to **inflammation throughout the body**.
- **Hemoglobin (HGB):** The **protein in red blood cells that carries oxygen** from the lungs to the rest of the body.
- **Vitamin D:** A nutrient essential for **bone health, immune function, and calcium absorption**. This measures its concentration in the blood.