A resting electrocardiogram (ECG or EKG) records the electrical activity of the heart while the person is at rest. It helps detect heart abnormalities, especially those that might contribute to heart disease, arrhythmias, or structural problems.

🔍 ECG Result Categories:

1. ✅ Normal

What it means:

- Heart's electrical activity is within normal limits.
- No signs of ischemia (lack of blood flow), hypertrophy, or rhythm disturbances.

Implication:

- Lower likelihood of heart abnormalities, though not a guarantee of a healthy heart—some issues may not appear at rest.

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2. ⚠️ ST-T Abnormality

What it means:

- ST segment and/or T wave deviations are observed.
- Could indicate ischemia, electrolyte imbalances, or past myocardial infarction (heart attack).
- Examples:
    - ST depression (↓): Suggests ischemia (not enough blood flow).
    - T wave inversion: Suggests repolarization abnormality, possibly from ischemia or ventricular strain.

Implication:

- Moderate risk; this abnormality often appears in patients with coronary artery disease (CAD) or angina.

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3. 🚨 Left Ventricular Hypertrophy (LVH)

What it means:

- The left ventricle wall is thickened (hypertrophied).
- Detected via specific ECG voltage criteria (e.g., large QRS complexes).

Why it happens:

- Most commonly due to long-standing high blood pressure (hypertension) or aortic valve disease.
- The heart works harder, leading to muscle thickening.

Implication:

- Increases the risk of:
    - Heart failure
    - Arrhythmias
    - Sudden cardiac events

📊 Summary Table:

ECG Result	Meaning	Risk Level	Associated Conditions
Normal	Normal heart rhythm and function	Low	Healthy heart or early-stage disease
ST-T Abnormality	Ischemic changes or repolarization issues	Moderate	CAD, past MI, electrolyte issues
Left Ventricular Hypertrophy (LVH)	Thickened left heart wall due to overwork	High	Hypertension, valve disease

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These categories are commonly used in datasets for heart disease prediction models like the UCI Heart Disease Dataset. If you're building or training a model, these ECG results are usually encoded numerically (e.g., 0 = Normal, 1 = ST-T, 2 = LVH).