

Junctional Dysrhythmias

Junctional rhythms originate from the AV junction instead of the SA node. This happens when:

- The SA node fails
- The SA node fires too slowly
- The AV node becomes irritable and takes over as the pacemaker
- The AV junction normally has an intrinsic rate of 40–60 bpm.

Where the Impulse Starts

- SA Node → Normal sinus rhythm (60–100 bpm)
- AV Junction → Junctional rhythms (40–60 bpm)
- Ventricles → Ventricular rhythms (20–40 bpm)

Key ECG Features of Junctional Rhythms

Feature	What You'll See
Heart Rate	40–60 bpm (unless accelerated/tachy)
Rhythm	Usually regular
P Waves	Inverted, buried in QRS, or after QRS
PR Interval	< 0.12 sec (if visible)
QRS Complex Narrow	(< 0.12 sec)

Types of Junctional Dysrhythmias

1. Junctional Escape Rhythm

- Rate: 40–60 bpm
- Cause: SA node failure
- Meaning: Protective backup rhythm
- Treatment: Often none unless symptomatic

2. Accelerated Junctional Rhythm

- Rate: 61–100 bpm
- Cause: Increased AV node automaticity

Seen With:

- Digoxin toxicity
- Myocardial ischemia
- Post-cardiac surgery

3. Junctional Tachycardia

- Rate: >100 bpm
- Cause: Highly irritable AV junction
- Serious because: Reduces cardiac output
- Treatment: Treat the cause, possible medications or cardioversion

Why Are P Waves Abnormal?

- Because the impulse is traveling backward (retrograde) toward the atria instead of forward from the SA node.

So P waves may be:

- Upside-down (inverted)
- Before the QRS
- Hidden inside the QRS
- After the QRS

Common Causes

- Digoxin (digitalis) toxicity
- Inferior wall MI
- Hypoxia
- Electrolyte imbalances
- Heart surgery
- Increased vagal tone

Patient Symptoms

- Dizziness
- Fatigue
- Hypotension
- Syncope (fainting)
- Chest discomfort

Short Answer (Write complete answers)

1. What is a junctional dysrhythmia?
2. Where does a junctional rhythm originate from in the heart?
3. What is the normal intrinsic rate of the AV junction?
4. Why are P waves inverted or missing in junctional rhythms?
5. What does a retrograde impulse mean?

Match the ECG feature to the correct description.

- A. Inverted P wave
- B. Narrow QRS
- C. Buried P wave
- D. Regular rhythm
- E. PR interval less than 0.12 sec

1. _____ Normal ventricular conduction
2. _____ Backward atrial depolarization
3. _____ Impulse originates at AV junction
4. _____ Consistent timing between beats
5. _____ Short AV conduction time