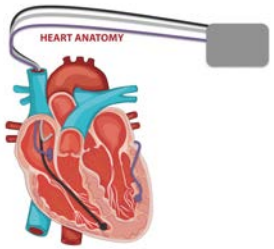
Biventricular pacing

Who qualifies for a biventricular pacemaker?



Biventricular pacemaker

Who qualifies?

- Significantly desynchronized ventricles
- A reduced ejection fraction

	Recommendations	Class	Level	Ref.
1	**LBBB with QRS duration > 150 ms** CRT is recommended in chronic HF patients and LVEF ≤ 35% who remain in NYHA functional class II, III, and ambulatory IV despite adequate medical treatment.	I	A	48-64
2	**LBBB with QRS duration 120 - 150 ms** CRT is recommended in chronic HF patients and LVEF ≤ 35% who remain in NYHA functional class II, III, and ambulatory IV despite adequate medical treatment.	I	B	48-64
3	**Non-LBBB with QRS duration > 150 ms** CRT should be considered in chronic HF patients and LVEF ≤ 35% who remain in NYHA functional class II, III, and ambulatory IV despite adequate medical treatment.	IIa	B	48-64
4	**Non-LBBB with QRS duration 120-150 ms** CRT may be considered in chronic HF patients and LVEF ≤ 35% who remain in NYHA functional class II, III, and ambulatory IV despite adequate medical treatment.	IIb	B	48-64
5	CRT in patients with chronic HF with QRS duration < 120 ms is not recommended	III	B	65, 66

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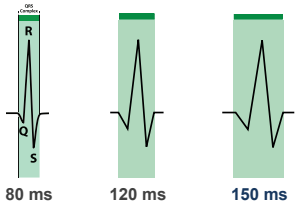

80 ms 120 ms 150 ms

QRS ≥ 120 ms

Ejection fraction ≤ 35%

New York Heart Association (NYHA) Classification of Heart Failure

Class	Patient Symptoms
Class I (Mild)	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, rapid/irregular heartbeat (palpitation) or shortness of breath (dyspnea).
Class II (Mild)	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in fatigue, rapid/irregular heartbeat (palpitation) or shortness of breath (dyspnea).
Class III (Moderate)	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes fatigue, rapid/irregular heartbeat (palpitation) or shortness of breath (dyspnea).
Class IV (Severe)	Unable to carry out any physical activity without discomfort. Symptoms of fatigue, rapid/ irregular heartbeat (palpitation) or shortness of breath (dyspnea) are present at rest. If any physical activity is undertaken, discomfort increases.

NYHA II, III, ambulatory IV

Takeaway message

Biventricular pacemakers are used when ventricular **desynchronization** is responsible for a reduced **ejection fraction** and **heart failure** symptoms.