



Physiologic pacing: Thinking beyond CSP

Support cardiac output and improve long-term outcomes.

A comprehensive physiologic pacing strategy requires a targeted approach to two components:

Conduction system pacing

+

Rate adaptive pacing

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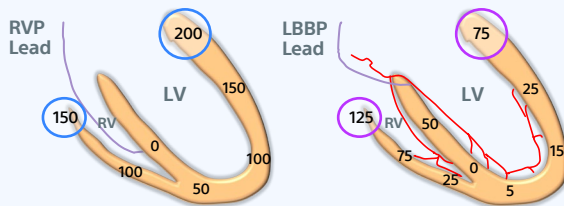
A comprehensive solution

Conduction system pacing

Conduction system pacing (CSP) restores physiologic electrical activation with a lead placement strategy via **Boston Scientific SSPC NXT or Site Selective Pacing Catheter NXT family** to increase the speed of conduction and the amount of blood ejected with each beat.

RV pacing = 200 ms¹

LBBA pacing = 75 ms¹



Successful LBBAP procedures resulted in an **increase in LVEF from 35% to 43%**.²

Increased contraction strength and LVEF can trigger **reverse remodeling**:



Fewer heart failure hospitalizations³



Lower long-term mortality⁴

While CSP optimizes activation speed and LVEF, **physiologic pacing also requires restoring the patient's heart rate response** — which CSP alone does not address.

Rate adaptive pacing

A normal physiologic heart rate response is adaptable to a patient's metabolic demand. Approximately **45% of heart failure patients cannot increase their heart rate to support daily activity** (chronotropic incompetence).⁵ Chronotropic incompetence incidence **can progress up to 70%** in as little as four years after implant.⁶

Accelerometer-only devices are limited to sensing forward motion and heel strike, leading to an inadequate heart rate (HR) response.⁷



Accelerometer-only devices achieve 60% of the HR increase needed⁸

Load-bearing or low-impact activities also increase metabolic demand requiring both increased respiratory rate and tidal volume (minute ventilation).



RightRate™ Minute Ventilation delivers rate-adaptive pacing tailored to the patient's metabolic demand.⁸



Minute ventilation devices achieve 97% of the HR increase needed⁸

The RightRate™ sensor is the only sensor **labeled to restore chronotropic competence**.⁹

► Physiologic pacing beyond lead position alone

Conduction system pacing broadens physiologic pacing strategies.

- Advances from His bundle pacing to LBBAP, with exploration of additional conduction targets, are broadening strategies to restore the body's natural physiologic activation.
- Together, these advances are expanding physiologic pacing strategies beyond lead position alone.

A physiologic pacing strategy also depends on heart rate response.

- Restoring a more natural pattern of activation does not necessarily restore an appropriate response to metabolic demand.
- Patients with chronotropic incompetence (CI) may remain limited in daily activity even when the pacing site is optimized.
- RightRate™ is designed to address this by linking rate response to physiologic demand.

Patients benefit from a comprehensive approach

- RightRate helps remove the functional limitations of CI and allows patients to return to a more active, engaged life.
- Boston Scientific has the only FDA-labeled therapy in the category designed to restore chronotropic competence.

BSC delivers a comprehensive solution that **clinicians can see** and **patients can feel**.

Disclaimer: the Boston Scientific INGEVITY™+ Pace/Sense Lead is currently only labeled for pacemaker patients.

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