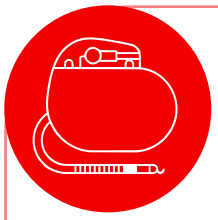
AT A GLANCE:

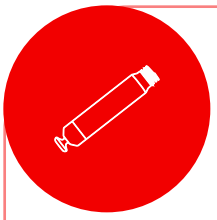
Traditional and leadless pacemakers

Pacemakers are used to treat heart conditions such as a slow or irregular heartbeat.



A TRADITIONAL PACEMAKER, also known as a transvenous pacemaker is implanted through the chest.

It has wires (leads) attached to it that are placed into one or both of the heart's chambers. These chambers are called the atria (the smaller top chamber, collecting chamber) and the ventricle (the larger bottom chamber, main pumping chamber).



A LEADLESS PACEMAKER is inserted through a vein in the groin using a tube (catheter).

Compared to surgery, this procedure has been shown to reduce the risk of infections. Leadless pacemakers are placed directly into the heart. They can be implanted as a single unit or two pacemakers can be implanted together, one in the top chamber (atrium) and one in the bottom chamber (ventricle). They can be wirelessly connected and work together to help the heart beat in time, this is called 'dual chamber pacing'.

A leadless pacemaker may not be suitable for everybody, and the decision about which pacemaker to have should be a shared decision between the doctor and the patient. This will be based on a range of factors including the patient's needs, lifestyle, and medical history. Available technologies may also vary depending on where you are based, and the treating physician and hospital.

Features	Traditional pacemakers (Transvenous pacemakers)	Leadless pacemakers
Battery life	Approx. 10 years – 15 years	Approx. 18 years in a single chamber 5-10 years for a dual chamber device[1]
Implant method	Surgery with chest incision	Procedure through a vein in the groin
Risk of infection	0.77% to 2.08%[2]	0.002%[2]
Device description	Wires implanted in the heart, connecting to the pacemaker unit inserted in the chest	No wires. Small device implanted in the heart chamber.
Recovery time after implant	Typically, 1-2 nights in hospital[3] Approx. 4 weeks for full wound healing and return to all normal activities[3] Note: In some cases the pacemaker unit is placed under the muscle and requires a longer recovery time of around 6-8 weeks.	Typically, a day procedure or overnight stay.[4,5,6] Restricted lifting and physical activities for approx. 1 week.[4]
Removal or replacement	Surgery involving a chest incision to replace pacemaker unit. Leads can also be surgically replaced if there is a malfunction. This may require a more invasive operation.	Designed to be replaced when batteries run low. Some models use a dedicated extraction device to remove and replace the pacemaker in a procedure similar to having the first pacemaker implanted. Some models will be left in the heart with a new leadless pacemaker implanted beside the old one.
Longer term changes to lifestyle after implant	Some caution is necessary, some ongoing restrictions may be required, for example, in exercise or sports (such as golf).	Continue to be active, no major changes.
Changes to appearance after implant	A bulge under the skin in the upper chest may be seen where the pacemaker is implanted. Some scarring on the chest may be visible.	A tiny scar may be visible in the groin area. Minimal to no evidence long term that you have a pacemaker.

All questions about pacemakers should be discussed with your doctor.

REFERENCES

1. Reddy. VY,E,Dea. 1-Year Outcomes of a Leadless Ventricular Pacemaker: The LEADLESS II (Phase 2) Trial. JACC: Clinical Electrophysiology. 2023 July; 9(7 Pt 2): 1187-1189.
2. El-Chami. MFea. Leadless pacemakers reduce risk of device-related infection: Review of the potential mechanisms. Heart Rhythm. 2020; 17: 1393-1397.
3. Health Direct Australia Limited. healthdirect. [Online].; 2025 [cited 2025 August 14]. Available from: https://www.healthdirect.gov.au/pacemaker.
4. Queensland Cardiovascular Group. Leadless Pacemaker. [Online].; 2025 [cited 2025 August 14]. Available from: https://qcg.com.au/procedures/leadless-pacemaker/.
5. Somani R,ea. Expert opinion on a safe same day discharge strategy as standard of care. IJC Heart & Vasculature. 2025 June; 58: 1-8.
6. Amardeep. AM,A,MSaJN. Leadless Pacemakers: A Retrospective Analysis of Efficacy, Safety, and Applicability in High-Risk Patients at a Single Centre in North Queensland. J Heart, Lung and Circulation. 2024 August; 33: S432-S433.

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