

Specialist Referral Service
Willows Information Sheets

Pacemakers for dogs



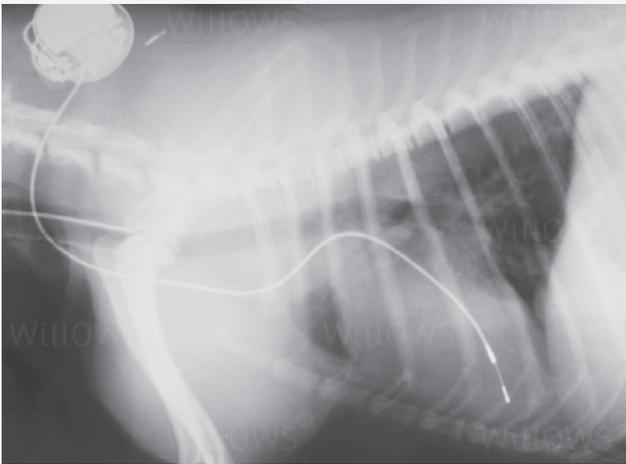
What is a pacemaker and how does it work?

A pacemaker is an electronic device that maintains the heart rate (and therefore circulation) by stimulating the heart to contract when the heart's own electrical activity fails to do so. In dogs the pacemaker is inserted under the skin at the side of the neck, from which the pacing lead (the wire that conducts the electrical 'spark') passes under the skin to the jugular vein in the neck, through it and into the heart.

The pacemaker works by monitoring the heart beat and if the heart intermittently stops, the pacemaker then stimulates the heart at these times to keep it going (this is called 'demand' pacing).

In an animal with complete heart block, the heart rate is always too slow, thus the pacemaker stimulates the heart most of the time. Pacemakers can also detect movement during exercise and increase the heart rate at these times (this is termed a rate-responsive pacemaker). Typically we set the pacemaker to have a heart rate range of 60/min to 160/min.

Before recommending pacemaker implantation our cardiologist will check the medical history provided by your vet as well as the results of any diagnostic tests such as the blood results, ECG and chest x-rays. He will also perform a thorough clinical examination and cardiac ultrasound scan to check for any underlying problems.



A radiograph of a pacemaker implantation showing the lead coursing from the heart up the cranial vena cava to the jugular vein and then subcutaneously back to the generator.

Post-operative care

Your pet will return home a couple of days following surgery with a large bandage around the neck. The bandage protects the operation sites from being scratched, helps to reduce any swelling, helps to protect against infection and restricts head movement (minimising the risk of lead displacement). Infection is a potentially lethal complication, so please ensure your pet receives the daily antibiotics we will dispense. Once home, exercise should be restricted for 4-5

weeks to allow healing. If possible prevent your dog from activities that over-stretch the neck such as jumping up or playing madly. Because of the position of the pacemaker and lead, your pet should not be restrained by a collar - it is preferable to use a harness (you may wish to purchase one in advance). The sutures and bandage can be removed by your vet 14 days after surgery.

Long-term management

Your dog will need to return for pacemaker programming checks for which there will be an additional charge. These visits monitor the battery life and ensure the pacemaker settings are optimised to meet the individual needs of your pet and maximise battery life. The first programming check is due 3 – 4 months after surgery: this is the most important check, being the first opportunity to optimise the settings. After that a programming check is required annually. We will contact you with the date and time of the clinic two or three weeks in advance. This has to be co-ordinated around a medical ECG technician who usually performs these checks on our behalf. (We always try to give you as much notice as possible, but please be aware that we must fit in around their commitments to their human patients!).

Should your dog outlive the battery life of the pacemaker, we can replace it. This involves a short operation to remove the old pacemaker and attach a new one to the existing lead. The pacemaker programming checks give us advanced warning of battery depletion.

Why should I bring my pet to Willows for a pacemaker?

Willows Referral Service is one of the few specialist centres in the UK to regularly perform pacemaker implantation. Due to our considerable experience we have a high success rate and the long-term outcome is usually good. Anaesthesia is one area in which complications can arise, however we have procedures in place to prevent cardiac arrest during anaesthesia and our mortality rate is very low.

Our cardiology service is led by a [recognised, accredited Specialist](#) and we aim to provide the best possible care and treatment for your pet in our state-of-the art hospital.

Our cardiology team works closely with the [imaging Specialists](#) who run Willows [sophisticated imaging facilities](#), as well as with expert [anaesthesia and analgesia Specialists](#) and [24-hour veterinary and nursing staff](#), all of whom help to optimise the potential for our patients to make a full and uneventful recovery.

Who do I speak to if I have any questions?

If you have any questions at all, please call [Willows Veterinary Centre and Referral Service](#) on 0121 712 7070. We can also be contacted through our [emergency service](#) at any time if necessary.



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