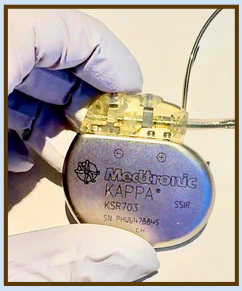
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INFO: Arrhythmias requiring a pacemaker

WHAT IS A PACEMAKER?

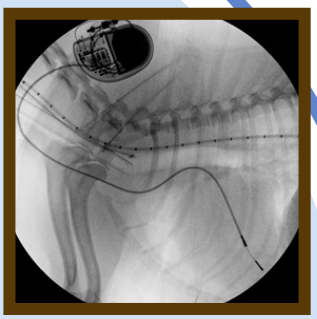


A **small electronic medical device** which is implanted under the muscle on the **side of the neck**. It sends electrical impulses to the heart via the pacemaker lead, which runs down the jugular vein and into the right ventricle. The impulse **stimulates the heart to contract**.

The unit **generates the patient's heartbeat** (but will sense a 'natural' heartbeat and allow this to occur).

Our pacemakers **detect patient movement**, to **increase and decrease heart rate in accordance with activity levels,** just as a normal heart would respond!

Pacemakers **test themselves regularly**, and adjust their own settings to keep them running efficiently.



WHEN IS A PACEMAKER RECOMMENDED?

- In certain abnormal rhythms (arrhythmias), the heartbeat is **very slow,** has **extra long pauses** between beats or **does not increase naturally** when the patient needs more output (e.g. exercise, exertion, excitement).
- This can be **dangerous** – an arrhythmia with blocked signals can mean the heart could **stop and not re-start (sudden death).**
- Patients may experience **exercise intolerance**, **weakness or collapse** when their heartbeat cannot sustain a normal blood pressure.
- For these rhythms, medication may only provide a **temporary** improvement, and patients can **deteriorate quickly** or develop **progressive heart enlargement**.
- A pacemaker takes over – providing a **regular and reliable heartbeat** which adjusts to patient activity.

WHAT ARE THE ARRHYTHMIAS?

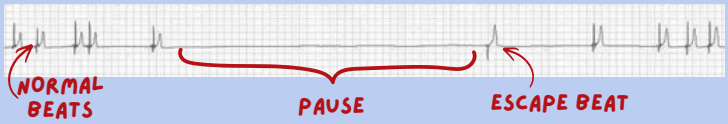
3rd degree atrioventricular block (3DAVB) (*Complete heart block*):

The total block of signals between the top and bottom chambers (the atria and ventricles).
A much slower backup ('escape') rhythm tries to maintain output from the heart ('escape from death').



Sick sinus syndrome (SSS) (clinically significant *sinus node dysfunction*):

A disorder of the heart's natural pacemaker (the sinus node), causing abnormally slow rhythms, long pauses or alternating fast and slow rates.
These cause intermittent reductions in output and blood pressure.



HOW ARE THESE ARRHYTHMIAS DIAGNOSED?

- If you pet has any signs of **reduced exercise tolerance**, **weakness** or **collapse**, it is important to seek veterinary attention.
- Your pet may **not have clinical signs**, but your vet may hear an **irregular** or **abnormally slow** rhythm when they are listening to your pet's heart.
- **Echocardiography** (heart ultrasound scan) is used to assess heart structures and function.
- **ECG** shows electrical activity, heart rate and rhythm.
- Patients can be fitted with a **24 or 48-hour ECG (Holter)** to wear at home to screen their heart rate and rhythm away from the clinic (useful for intermittent arrhythmias).



HOW ARE PATIENTS WITH PACEMAKERS MONITORED?

Patients are normally assessed **every 12 months** after pacemaker implantation.

This involves **echocardiography** and **pacemaker interrogation:** A quick and painless procedure under minimal restraint, where the pacemaker is 'read' to check battery life, settings and to make sure it is self-testing regularly.

Patients with ongoing structural changes may require more regular monitoring.

ARE HUMAN PACEMAKERS USED?

- **Yes!** We use the same type of pacemakers as those which are implanted in people.
- Providing they are the **same brand** as the equipment we use, we are even able to use some '**pre-loved**' pacemakers from people who have passed away. As long as they still have a **good battery life** when tested, they are cleaned and re-sterilised, and we add a brand new lead.

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