

Rotary Blood Pumps: New Developments and Current Applications

Rotary blood pumps (RBPs) are mechanical devices that are used to circulate blood within the circulatory system. They are typically used in patients who have heart failure or other conditions that prevent their hearts from pumping blood effectively. RBPs can be used as a bridge to heart transplantation, or they can be used as a permanent replacement for the heart.

RBPs have been in development for many years, and there have been significant advances in their design and performance over the years. Newer RBPs are smaller, more efficient, and more reliable than older models. They are also less likely to cause complications, such as blood clots and infections.

There are two main types of RBPs: axial flow pumps and centrifugal pumps. Axial flow pumps move blood in a straight line, while centrifugal pumps move blood in a circular motion.



Rotary Blood Pumps: New Developments and Current Applications by Rene Woodhy

★★★★★ 5 out of 5

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Axial flow pumps are typically smaller and more efficient than centrifugal pumps. However, they are also more likely to cause blood clots. Centrifugal pumps are larger and less efficient, but they are less likely to cause blood clots.

The type of RBP that is used for a particular patient will depend on their individual needs and preferences.

There are a number of new developments in RBPs that are currently being investigated. These include:

- **Magnetic levitation:** Magnetic levitation (maglev) is a technology that uses magnets to levitate the impeller of the pump. This eliminates the need for bearings, which can wear out over time and cause the pump to fail. Maglev pumps are still in the early stages of development, but they have the potential to be more durable and reliable than traditional RBPs.
- **Impeller design:** The impeller of the pump is the component that moves the blood. New impeller designs are being developed to improve the efficiency of the pump and to reduce the risk of blood clots.
- **Materials:** New materials are being developed for use in RBPs that are more biocompatible and less likely to cause infections.

RBPs are currently used in a variety of clinical applications, including:

- **Heart failure:** RBPs can be used to support patients with heart failure who are waiting for a heart transplant. RBPs can also be used as a permanent replacement for the heart in patients who are not eligible for a heart transplant.
- **Mechanical circulatory support (MCS):** RBPs can be used to provide MCS to patients who have suffered a heart attack or other cardiac event. MCS can help to stabilize the patient and improve their chances of survival.
- **Extracorporeal membrane oxygenation (ECMO):** ECMO is a life-support technique that uses a RBP to circulate blood outside the body. ECMO is used to treat patients who have severe lung failure.

RBPs are an important part of the treatment of patients with heart failure and other cardiac conditions. New developments in RBPs are making them smaller, more efficient, and more reliable. These advances are making RBPs a more viable option for patients who need heart support.

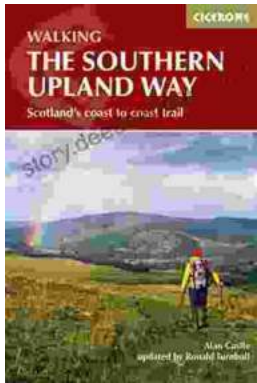


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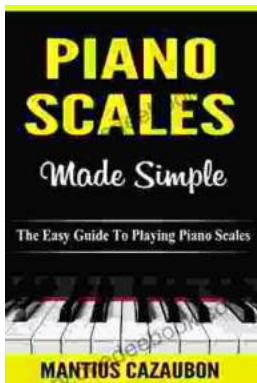




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