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Balloon Pump Therapy  
**Helping your heart**

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# Balloon Pump Therapy

## Helping your heart

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**For patients with certain heart conditions,** the use of an Intra-aortic Balloon Pump is an effective way to help the heart do its work. The balloon pump helps by increasing the amount of oxygen to the heart, while decreasing the workload on the heart.

If your doctor has prescribed Intra-aortic Balloon Pump therapy, you're in good company. More than 140,000 patients throughout the world receive this therapy each year.

### **Here are a few reasons why:**

- To assist the heart during or after a heart attack
- To assist the heart during or after a procedure to open a blocked artery, such as the placement of a coronary stent
- To assist the heart during or after coronary artery bypass surgery

Generally, balloon pump therapy lasts anywhere from a couple of hours to several days, depending on how much help the heart needs.

Maquet | The Gold Standard

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# Your Heart

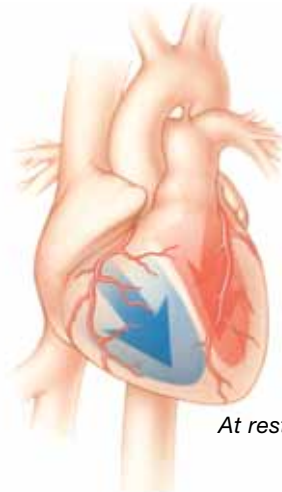
## How it works

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*At work*

**Your heart is a muscular pump with a very demanding job:** to pump oxygen-rich blood to every part of your body. Once your body's tissues have taken the oxygen needed, the oxygen-depleted blood is returned to the two chambers on the right side of your heart. These chambers then pump the blood into your lungs, where it is replenished with fresh oxygen and returned to the left side of your heart.



*At rest*

**During the heart's work phase,** the two left chambers of your heart pump the newly oxygenated blood throughout your body once again. The oxygen-rich blood leaves your heart through the aorta, which is the largest artery in your body.

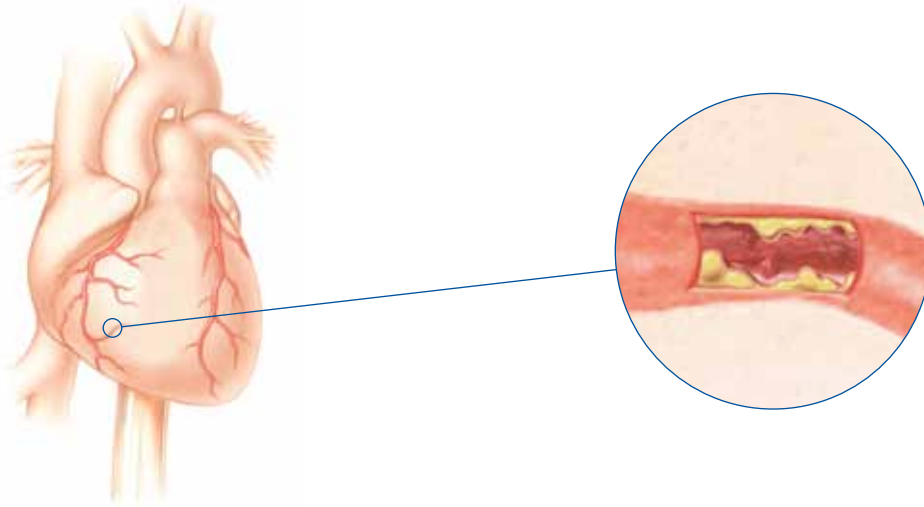
Of course, your heart needs its own continuous supply of fuel in order to work efficiently. It has a network of oxygen supply lines called coronary arteries, which begin at the base of your aorta and surround your heart muscle in the same way the fingers of your hand wrap around a ball.

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# Your Heart

## Coronary Artery Disease

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**Just like the plumbing in your house, your coronary arteries can become clogged.**

Coronary artery disease develops when fatty deposits called plaque accumulate in the lining of these arteries, which can cause several things to happen:

- The lining of the artery becomes thicker and rougher
- Plaque buildup makes it harder for blood to flow through the artery

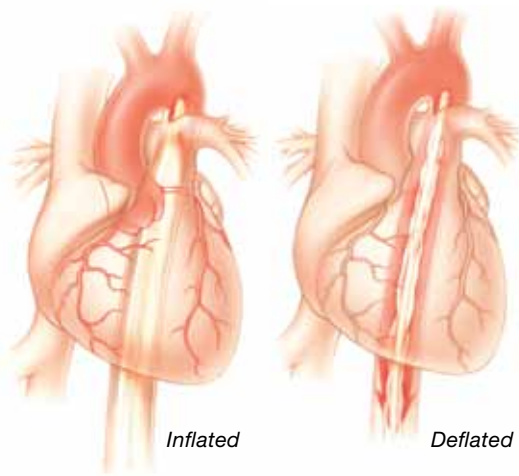
- The heart has to work harder to pump blood
- The plaque may rupture, causing a blood clot that can completely block the artery, which stops the supply of blood to the heart muscle

If one or more arteries become blocked, heart tissue doesn't get the blood supply it needs to function. The results can range from mild chest pain (angina) to a severe heart attack.

# Intra-aortic Balloon Therapy

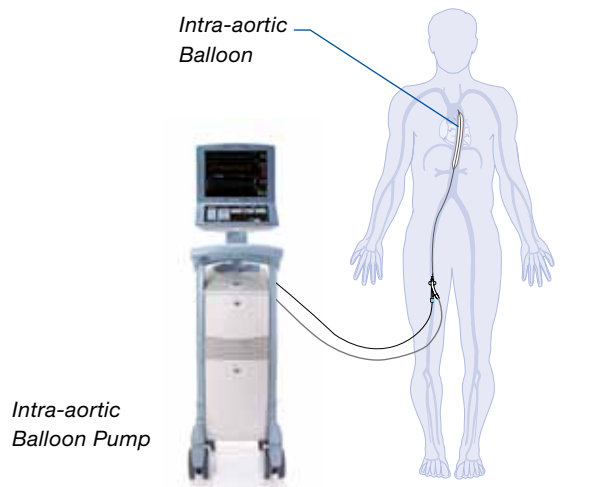
## How it works

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**When your heart does not have enough oxygen** due to blocked coronary arteries or other medical problems, it must work harder to provide oxygen to the body. Intra-aortic Balloon Pump therapy helps restore the balance between supply and demand for oxygen that is needed for the heart and other organs to function properly.

**This therapy has two components.** One is a thin balloon catheter that is positioned in your aorta after being introduced through an artery in the leg. The second is the pump itself. The pump continually inflates and deflates the balloon in sync with your heartbeat.



**The Intra-aortic Balloon assists your heart during both its rest phase and work phase.** In the rest phase of the heart, the balloon inflates, pushing more oxygen-rich blood to your coronary arteries. In the work phase of the heart, the balloon deflates, decreasing the blood pressure in the aorta, which makes it easier for the heart to eject blood. This takes the workload off the heart, allowing it to function more efficiently.

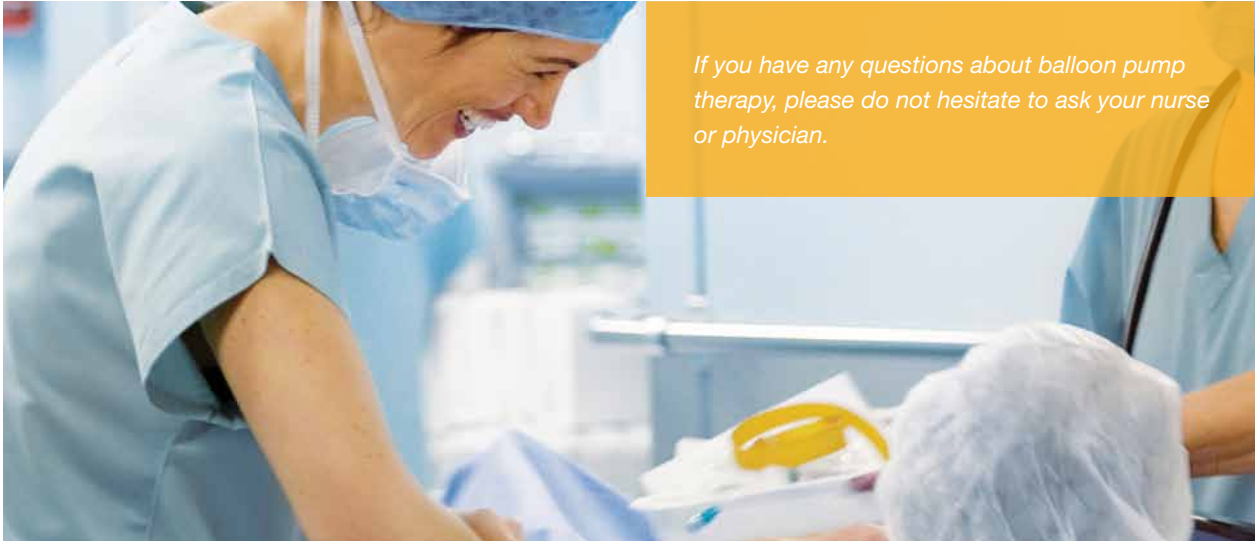




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# What to Expect During Intra-aortic Balloon Pump Therapy

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*If you have any questions about balloon pump therapy, please do not hesitate to ask your nurse or physician.*

**Most likely, the therapy will be initiated in a Cardiac Cath Lab or an Operating Room;** and afterwards, you will be taken to an Intensive Care Unit. Here are a few tips that can help you feel more at ease:

- **Bed rest is important during the therapy.** To help ensure that your balloon catheter functions properly, don't sit up, get out of bed, or bend the leg in which the balloon catheter is inserted.
  - **You will be able to hear the balloon pump machine inflating and deflating.** Don't be concerned when the balloon pump stops briefly, as it is programmed to do so at certain intervals. During this time, your heart will continue to beat on its own.
- Remember, a nurse or health care professional trained in the operation of the balloon pump will be monitoring the machine throughout your therapy.
- **Let your nurse or physician know if you notice any changes in your condition,** particularly chest pain, chest heaviness, numbness or tingling.
  - **When the therapy is no longer needed,** a physician or other trained health care professional will remove the balloon catheter and hold pressure on the site until the bleeding stops. You will be on bed rest for a while after that and your nurse will give you instructions on when you can bend your leg, sit up and get out of bed.

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# Glossary

To help you understand more

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**Angiogram:** A series of x-rays of the blood vessels in the heart taken in rapid sequence following the injection of a contrast substance into the blood stream.

**Aorta:** The large arterial trunk that carries blood from the heart to be distributed by branch arteries through the body.

**Arteries:** The thick, muscular tubes that carry blood away from the heart.

**Blood clots:** The conversion of blood into a semi-solid gel.

**Blood thinner:** Medication used to prevent blood clots or keep the blood in a liquid form (for example, Coumadin®).

**Blood vessels:** An extensive network of flexible tubes that carries blood to and from the heart and throughout the body. The blood vessels are the transportation system of the body. The blood vessels include arteries, capillaries, and veins.

**Coronary Arteries:** Either of two arteries that originate in the aorta and supply the heart muscle with blood.

**Coronary Artery Bypass Grafting (CABG):** A heart surgery procedure that treats the symptoms of coronary artery disease. CABG surgery reroutes (or 'bypasses') the blood flow around the blockages in the coronary arteries, restoring blood flow to the heart muscle itself.

**Coronary Stent:** A tube placed in the coronary arteries that supply the heart, to keep the arteries open in the treatment of coronary heart disease. It is used in a procedure called percutaneous coronary intervention (PCI).

**Coronary Heart Disease (CHD):** A disease in which plaque deposits containing cholesterol atherosclerosis and fat globules are deposited within the arteries.

**Ejection Fraction (EF):** A measure of how efficiently the heart is able to eject blood from the ventricles to the rest of the body. Ejection fraction is expressed in percentages.

**Intravenous lines:** A drug, nutrient solution, or other substance administered into a vein.

**Ischemic:** A decrease in the blood and oxygen supply to an organ or tissue in the body.

**Myocardial infarction:** Damage or death of myocardial tissue (heart muscle) as a result of decreased blood flow.

**Myocardial revascularization:** Restoring blood flow to the myocardium (heart muscle).

**Perfusion scan:** A test to determine blood flow through the vessels to the heart. The pulmonary artery receives blood from the right ventricle and passes it to the lungs where it is enriched with oxygen.

**Right atrium:** Receives oxygen depleted blood from the body and passes it on to the right ventricle.

**Right ventricle:** Receives blood from the right atrium and pumps it through the pulmonary artery into the lungs where it is enriched with oxygen.

**Valves:** Flap-like structures that maintain blood flow in one direction only through the heart.

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## On-Line Resources

To help you learn more

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### **American Heart Association**

**visit:** [www.heart.org/HEARTORG/](http://www.heart.org/HEARTORG/)

### **WebMD**

**visit:** [www.webmd.com](http://www.webmd.com)

### **American Medical Association**

**visit:** [www.ama-assn.org](http://www.ama-assn.org)

### **Patient Advocate Foundation**

**visit:** [www.patientadvocate.org](http://www.patientadvocate.org)

### **European Heart Network**

**visit:** [www.ehnheart.org](http://www.ehnheart.org)

*The third party websites named herein may have information of interest to you, but Maquet has not analyzed the contents of such websites and therefore makes no representations as to the content of such websites.*

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