



Your Private Dynamo

The heart can beat 2.5 billion times per lifetime

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INTUITION TELLS US GOOD HEALTH BEGINS with the heart. This hard-working, chambered organ sustains us day after day, year after year, without whimper or complaint even though most of us routinely ignore it. Many of us never think about the heart until something goes wrong, threatening our well-being or even our lives. Often these malfunctions cause us to recognize for the first time the amazing work the heart does for us.

The heart pumps blood around the body. The integrity of vessels (arteries and veins) that carry the blood benefits from a heart that beats predictably. Major organs like the brain rely on an uninterrupted supply of blood, which is the carrier of oxygen. Deprive the brain of blood for even a short time and expect grave results.

Heart attack and stroke are the names given to two serious medical events. A heart attack occurs when a heart stops pumping or cannot pump optimally. A stroke occurs when a blockage or a rupture in a blood vessel prevents blood from reaching part of the brain.

Heart basics

The heart is an extremely powerful muscle. Each day, it beats about 100,000 times. In 70 years it beats 2.5 billion times. Like other muscles, the heart requires a constant, reliable supply of energy to contract. Molecules that deliver potential energy to the

heart must combine with oxygen to release the energy. Small blood vessels supply the heart muscle with energy molecules and oxygen.

The heart performs two big tasks. One is to pump blood around the entire body so that every body part receives oxygen from blood that has been refreshed in the lungs. The other function is to pump blood to the lungs so that it can be refreshed by picking up oxygen and getting rid of carbon dioxide.

The rhythmic contraction of the heart, source of the lub-dub sounds physicians listen to and evaluate, begins in a special mass of tissue called the sinoatrial node. The tissue is autonomous, or self-regulating. When this node sends out an electrical signal, the rest of the heart responds when the heart is healthy.

What can go wrong?

When the small blood vessels supplying the heart muscle with energy and oxygen become clogged, significant problems ensue. Less energy and less oxygen are available to the heart muscle. The heart may begin to falter or beat so erratically that it either cannot contract at all, or it contracts but cannot relax. That is the essence of a heart attack.

Why would the small vessels become clogged? Just as old pipes and hoses begin to accumulate material on the inside, so do

blood vessels. Certain aspects of modern diets also accelerate the accumulation of material in blood vessels.

Preventing blockage in a vessel, particularly the arteries that carry oxygenated blood, demands the same tried and true methods used to keep household pipes clear. In short, do not feed them fats. The root words of atherosclerosis, the technical term for hardening or accumulation of materials inside the walls of arteries, illustrate the phenomenon vividly.

Athero comes from the Greek word for gruel or paste. Sclerosis derives from the Greek word for hardness.

Many undesirable health outcomes short of a heart attack can occur because the vessels that supply the heart with oxygen are blocked. Recurring pain, or angina, is often a symptom of what's going on as well as a problem in itself.

Blockages in vessels outside the heart impede the flow of blood around the body and can cause problems for any organ. When walls of blood vessels weaken and break, that is also a problem.

It is comparable to a garden hose; if a garden hose is so old that part of its wall is very thin, it could rip apart at any instant. An aneurysm, for example, is a thin, ballooning part of a blood vessel in danger of breaking.

The amount of damage done corresponds to the place a blockage or rupture occurs in a vessel. The brain does not tolerate or recover well from a disruption of blood supply. If such a disruption occurs in the brain, the event is commonly referred to as a stroke.

Hearts can sometimes be jolted back to action if they stop beating. However, the portion of a brain cut off from blood supply takes a long time to regroup, and recovery may never be complete. Motor functions, or those that move limbs and enable speech, are often lost following a stroke because they depend on direction from the brain.

Seek immediate medical help if you experience these

...warning signs of a heart attack:

discomfort in the chest or upper body
difficulty breathing

cold sweat, nausea, or lightheadedness

... warning signs of a stroke:

sudden numbness or weakness

sudden confusion, garbled speech

sudden vision impairment

sudden, severe headache

sudden loss of balance or coordination

Keeping blood moving

Arteries with paste in them make the heart work harder to keep blood moving, which elevates blood pressure. Again, think of how a pump has to work to achieve the same flow rate through a narrow hose compared to a larger-diameter hose.

Many medical conditions also require the heart to work harder. Among them are kidney disease and diabetes. Lifestyle choices such as inactivity, being overweight, smoking, or drinking



excessively put more pressure on vessels and consequently, increase demands on the heart.

Higher blood pressure increases pressure against the walls of blood vessels, which stretch and lose elasticity. In turn, the heart has to work harder and harder to pump blood around the body. As it pumps harder, blood pressure goes up. It is a vicious cycle. It is also a dangerous one because high blood pressure can contribute to the rupturing of blood vessels.

The stress of modern life is also a major contributor to increases in blood pressure because of the antiquated fight or flight hormones it causes the body to release. So try to reduce stress. Catch the next rainbow in the sky. ♥



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