

## The Normal Heart

An intricate web of blood vessels and electrical circuits travel throughout the heart, the center of the cardiovascular system, 24-hours-a-day, 365-days-a-year, without rest. This constant activity is responsible for moving needed blood, nutrients and waste throughout the body.

The size of a clenched fist, the heart is comprised of four chambers made of muscle and linked by valves that act as doorways.

### Facets and functions

The heart chambers, blood vessels and electrical pathways work together to ensure the heart pumps an adequate amount of oxygen- and nutrient-rich blood throughout the body and carries away waste products.

Trouble in any part of any of the heart's components can disrupt the entire system and lead to problems elsewhere.

### A cohesive system

For instance, a heart attack brought about by clogged vessels may kill a portion of heart muscle. Because that section of muscle may have housed key electrical signal components, the heart may begin to suffer from arrhythmia (heart rhythm disorder.)



### Heart health

Keeping the entire heart system healthy is, to a great extent, under individual control. Commonly prescribed advice to eat well, exercise, and avoid smoking, can go a long way in maintaining heart health. However, certain heart problems can appear despite the best efforts to stay healthy.

Thanks to decades of research, clinicians and patients can call on a host of medicines, procedures and interventions to minimize heart problems and restore the organ's basic operation.

### THREE SYSTEMS: AN OVERVIEW

**Circulatory:** Arteries, veins and capillaries all play key roles in carrying blood to and from the heart. The arteries carry "fresh" blood rich in oxygen from the heart to capillaries throughout the body. The veins receive "used" blood from the capillaries and deliver it back to the heart. The heart then pumps the blood to the lungs, and the flow of blood through the connected web of vessels repeats again.

**Electrical:** The heart has a unique, built-in electrical system. A "pacemaker" triggers the heartbeat. Then, the electrical pathways that run through the heart cause contractions in the upper and lower chambers of the heart, pumping blood in the steady, rhythmic pattern that we feel as our heartbeat.

**Structural:** The heart, which is muscle tissue, is divided into four chambers, each with its own role. Blood travels between chambers via valves that open, to allow blood to flow to the next chamber, and then close, to ensure that blood moves forward to its next station of activity.