The Heart

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The heart is the most important organ in our body. It is what runs the body. It sends the blood and nutrients through the body so that we can function. The heart has many sections that all have specific duties. Some of them seem redundant because there are multiples of some of the parts.

The first main parts of the heart are the superior and inferior vena cava. The superior vena cava receives blood from the top half of the body and transports it into the right atrium. The inferior vena cava is the longest vein in the body receives blood from the lower half of the body and transports it into the right atrium.

The next part is the right atrium. After receiving the deoxygenated blood from the vena cava, it sends the blood into the right ventricle, which is the next part of the heart. It takes the blood and pumps it through the pulmonary arteries to the lungs to get oxygenized.

From the right ventricle, the blood flows through the left and right pulmonary arteries. The left pulmonary artery sends the blood to the two left lobes of the lungs. The right pulmonary arteries send the blood to the three right lobes of the lungs.

After flowing through the lungs and receiving oxygen, the blood then travels through the left and right pulmonary veins. The left pulmonary veins return blood from the left lung into the left atrium. The right pulmonary veins do the same thing only they return the blood from the right lung.

Now that the oxygenized blood has returned from the lungs, it flows into the left atrium where it is forced down into the left ventricle. After the blood flows into the left ventricle, it is forced up and into the rest of the body with great force. The blood then travels through the aorta, the largest artery in the body. It is what gets the oxygenized blood from the heart, into the rest of the body.

The next major things to cover are the diseases. The heart is very important, so if we lost it, we would be dead. Here are five of the more common diseases and other problems: heart disease, coronary artery disease, hypertension, arrhythmias, heart attack, and stroke.

Heart disease is the number one killer in America and a major cause of disability. It often exists for a long time without any symptoms. It is used interchangeably with “cardiovascular disease.” Cardiovascular disease is when your blood vessels become blocked and can lead to a heart attack. The good news is that heart disease can be avoided or successfully managed with lifestyle changes such as eating a healthy diet and getting regular exercise.
Coronary artery disease, other why known as Arteriosclerosis, is the most common cause of heart disease, according to the National Institutes of Health. Arteriosclerosis is narrowing or blockage of the coronary arteries. This condition involves the buildup of plaque on the artery walls. As the arteries narrow, less blood gets to the heart. When the heart is starved for blood and oxygen, the cells in your heart muscle can die. Arteriosclerosis increases your risk for heart attack and stroke.

Hypertension is the medical term for high blood pressure. If your arteries have narrowed then your heart muscle must work harder to push the same volume of blood through your body. This creates greater force against the artery walls. This increase in force is measured by taking your blood pressure. When the top number of your blood pressure reaches 140 mmHg or higher and/or your bottom number reaches 90 mmHg or higher you may be diagnosed with high blood pressure. High blood pressure also increases your risk of heart attack and stroke.

Arrhythmia is whenever your heartbeat becomes abnormal. Your heart rate or pulse can become too fast, too slow or there can be skipped beats. The American Heart Association states that irregular heart rhythms are very common. They can be mild and cause no problems or they can contribute to heart disease and be fatal. Arrhythmia can lead to heart attacks, strokes or sudden cardiac arrest.

According to the Centers for Disease Control, coronary artery disease is the leading cause of heart attacks. When your heart does not receive the blood and oxygen it needs, cells within the heart can become damaged or die. The result is a heart attack. You need treatment right away. The sooner you receive care the better your chances of survival and minimizing damage. A stroke occurs when the arteries that supply the brain with blood and oxygen become blocked. As this happens, cells in the brain begin to die. According to the National Stroke Association, "Stroke is the third leading cause of death in America and a leading cause of adult disability." The symptoms you are left with depend on how much damage occurs and what sections of the brain were affected.

There are many jobs and occupations that are related to the heart and the system that it provides for. For one there is the most obvious, a cardiologist. There are also physical therapists, radiologists, cardiovascular perfusionists, and cardiovascular technician.

Cardiologist literally means “one who studies the heart”. So their job is obvious; they study the heart and how it works. They may also, in some cases, check for problems with
peoples' hearts and sometimes perform surgery on people who might otherwise die. They generally make an average of about 400,000 dollars a year, so they are well payed for the work they do and the time that they put into it. Cardiologists go through about twelve years of schooling and it is very expensive, but everyone should appreciate the work they do for us.

Another occupation that is related to the heart is a physical therapist. Although it may not be obvious, they really are connected. After the cardiologist and heart surgeons do their job on the patients, the patients need to recover and get there heart used to doing its job again, and that is what the physical therapist is for. A physical therapist is really just a different kind of doctor. What they so is to help people become what they used to be. More or less, they re-teach our bodies how to function, and since the heart is vital to the survival of the body, a physical therapist's job is incredibly important to the body.

Radiologists do their job as well as cardiologists. They use many different ways to see into the body and diagnose patients with their individual diseases. This is why they are related to the system, because without them no one would ever know about the problems that their bodies were having and the cardiologists wouldn't be able to do their job.

Cardiovascular perfusionists help the heart surgeons during open heart surgery. They run the heart and lung machines that keep the patients alive while the surgery is being performed. Their average pay is about 65,000.

A cardiovascular technician sometimes acts as a type of secretary for the actual doctors. They do paperwork, schedule appointments, and do what the doctors need. People with this occupation usually run the EKG machines, which are machines that record and measure the electrical impulses that the heart gives off.

The earliest operations on the pericardium (the sac that surrounds the heart) took place in the 19th century and were performed by Francisco Romero, Dominique Jean Larrey, Henry Dalton, and Daniel Hale Williams. The first surgery on the heart itself was performed by Norwegian surgeon Axel Cappelen on the 4th of September 1895 at Rikshospitalet in Kristiania, now Oslo. He ligated a bleeding coronary artery in a 24 year old man who had been stabbed in the left axillae and was in deep shock upon arrival. Access was through a left thoracotomy. The patient awoke and seemed fine for 24 hours, but became ill with increasing temperature and he ultimately died from what the post mortem proved to be mediastinitis on the third postoperative day. The first successful surgery of the heart, performed without any complications, was by Dr.
Ludwig Rehn of Frankfurt, Germany, who repaired a stab wound to the right ventricle on September 7, 1896.

Some of the most common surgeries are open heart surgery, beating-heart surgery, and minimally invasive surgery.

Open heart surgery is a surgery in which the patient’s heart is opened and surgery is performed on the internal structures of the heart. It was soon discovered that is much easier to operate when the heart is empty and not moving. The first scientists first tried hypothermia to slow a person’s heart but that resulted in complications. It was soon after that a team of scientists: Dr. Zuhdi, a heart surgeon, Dr. Allen Greer, a lung surgeon and Dr. John Carey performed the first successful open heart surgery using a heart-lung machine, which keeps the body alive while the heart is being operated on.

Another common surgery is beating-heart surgery. In these operations, the heart is beating during surgery, but is stabilized to provide an almost still work area. Some researchers also believe this approach results in fewer post-operative complications, such as postperfusion syndrome, and better overall results.

The last common surgery is minimally invasive surgery. It is a new form of heart surgery that has grown in popularity because size of the incision made is much smaller compared to what it used to be. Instead of an incision being at least big enough for the surgeon to put his hands inside, it does not have to be bigger than three small homes for the robot’s much smaller hands to get through. The biggest advantage is this surgery is a robot assisted heart surgery where a machine is used to perform the surgery while being controlled by the heart surgeon.

Natural foods are great for the heart health. Mainly, vegetables and fruits, because they wipe out the free radicals in the blood stream, which protects the blood vessels. Phytochemicals come from the fruit and vegetables, and are thought to help with the healthiness of the body. There are many chemicals that are prevalent in the phytochemicals, but the most common are carotenoids. They are the red, orange, and yellow pigments in fruits and vegetables. Fruits and vegetables with a lot of carotenoids are also thought to strengthen the heart more than others would.

The heart needs a balanced intake of nutrients, fats, and other chemicals in food. The total fat intake should be less than thirty percent of total calories daily. If you consume more than thirty percent, you’re at risk to have blood vessels to clog up with fat and plaque. Other
chemicals in food include caffeine and MSG. Too much caffeine can make your heart rate increase too much. When your heart is beating so quickly, you are prone to injury. Also, when you have so much energy all at once, you end up having a crash at the end where your body goes completely empty on energy. When your body has too much MSG, it can lead to migraine headaches, food allergies in children, obesity, and hyperactivity in children. Any of these can affect your heart.

Your heart needs a lot of attention. That includes taking multi-vitamins if you aren’t getting the nutrition that you need in the first place. Sometimes after a heart attack, you may need to take a blood thinner such as Dalteparin, Enoxaprin, and Warfarin. These help the blood to move along through the body. If the blood is too thick, then you can be at risk for a heart attack. Blood thinners are also taken sometimes in order to prevent a heart attack.
Bibliography


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