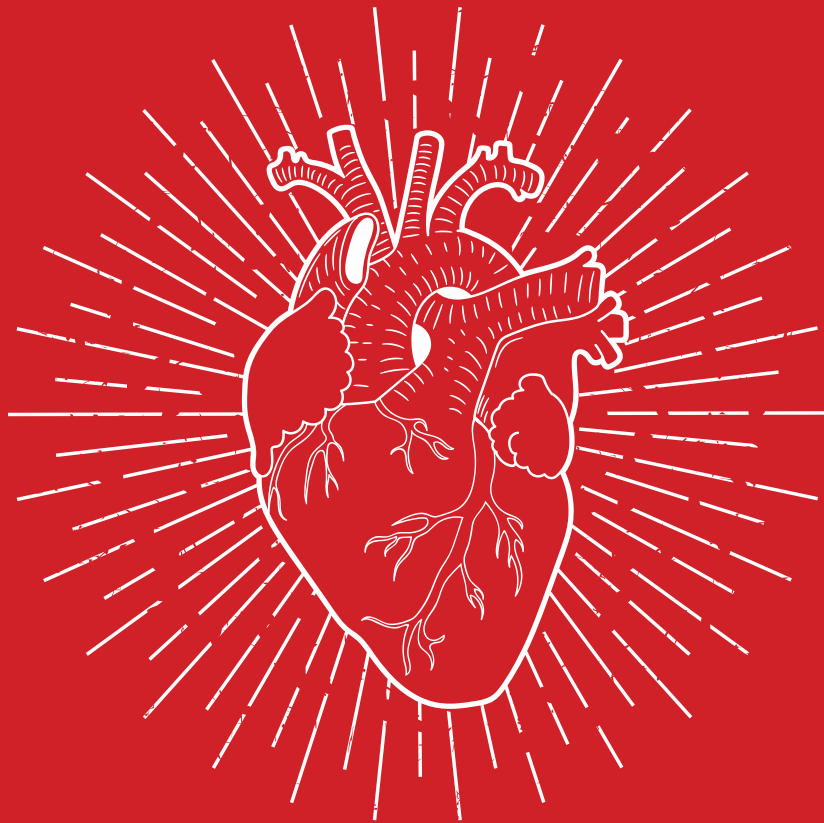




CALON HEARTS
SCREENING AND DEFIBRILLATORS UK

CARDIAC ARREST HAS NO BOUNDARIES
NO: 1193404

A-Z HEART DEFINITIONS



ACE (angiotension converting enzyme) inhibitor – A medication used to treat hypertension (high blood pressure) and is the most generally designated medication in treatment for cardiovascular disease.

ANAEMIA – A condition where there is not enough red blood cells being produced due to the lack of iron in the body. This can cause oxygen to be limited and therefore induce tiredness and a shortness of breath if left untreated. Anaemia is more common in females due to heavy periods and pregnancies. Treatment for anaemia include iron supplements and eating iron rich foods (steak, spinach).

ANGINA – Chest pain that occurs when there is reduced blood flow to the heart.

ANGIOPLASTY – The process used in heart surgery where the vessels need to be widened due to atherosclerosis of the arteries for example. This is completed either through a balloon angioplasty or percutaneous transluminal angioplasty.

AORTA – The main and largest artery that passes oxygenated blood from the heart to the rest of the body.

ARRHYTHMIAS – An abnormal heart rhythm when the heart beats too slowly or too quickly.

ARTERIES – Blood vessels that transport oxygenated blood, nutrients, and hormones from the heart to all body cells.

ATHEROSCLEROSIS – The build-up of cholesterol/plaque underneath the artery walls that harden and eventually narrow and block the lumen of the arteries. This causes increased blood pressure and an increase in ischemia.

ATRIOVENTRICULAR NODE (AV NODE) – This node has the core function of being the influencer on the heart contracting correctly by giving the correct signals to each part of the chambers of the heart to keep a consistent heartbeat. It allows for a delay of contraction between the atria and ventricles to permit the most optimal filling period for blood in the ventricles.

ATRIUM – The right atrium is one of the two upper chambers of the heart that receives deoxygenated blood from the veins. The left atrium receives oxygenated blood from the pulmonary vein. The atria pass this blood to the ventricles to be pumped out of the heart to the peripheral areas of the body.

BLOOD CLOT (THROMBUS) – The process of preventing excessive bleeding when a blood vessel is damaged. Platelets in the blood work with proteins in the plasma to create the clot. The body will dissolve this after injury has healed, but in some cases can remain and therefore need additional treatment.

BLOOD PRESSURE - The pressure of the blood against the blood vessel walls. The value of normal blood pressure would be ~120/80mmhg.

BODY MASS INDEX (BMI) - The measure of body fat based on height and weight of either a male or female. The result of a BMI is compared to a chart to comprehend whether a person is underweight, healthy weight, overweight, or obese.

BRADYCARDIA - This is the arrhythmia of the heart where the heart rate is slower than normal. When the heart would beat less than 60 times a minute.

CAPILLARIES - The smallest blood vessels in the body, which transport blood, nutrients and oxygen to the cells of organs and collect carbon dioxide and waste products from these cells. Capillaries are the link of vessels between the arteries and the veins.

CARDIAC ARREST - This is where the heart suddenly stops working leading to blood not getting to vital organs. This often leads to death if not treated immediately with either CPR or a defibrillator.

CARDIAC OUTPUT - The product of heart rate and stroke volume, measured in litres per minute. It is the amount of blood the heart pumps out a minute.

CARDIOLOGIST - A medical professional that specialises in the cardiovascular system and can diagnose, treat, and assess patients with heart and blood vessel diseases.

CARDIOMYOPATHY - The disease of the heart muscle that makes it harder for the heart to pump blood efficiently around the body. This can be because of walls thickening, stretching, and becoming stiff.

CARDIOPULMONARY RESUSCITATION (CPR) - The process used on someone experiencing cardiac arrest. It consists of the use of chest compressions and artificial ventilation to maintain circulatory function and oxygen flow during arrest. CPR training is provided through first aid qualifications and can be provided by charities including Calon Hearts.

CARDIOVASCULAR - The overall term relating to the heart and blood vessels.

CARDIOVASCULAR DISEASE (CVD) - The overall term that describes diseases of the heart and the blood vessels. This includes diseases such as coronary artery disease (CAD) and coronary heart disease (CHD).

CAROTID ARTERIES - The blood vessels that take blood to the neck, brain, and face. The arteries are called the internal carotid artery (brain) and the external carotid artery (neck and face).

CHOLESTEROL (HDL) - high-density lipoprotein (HDL) is a cholesterol that collects cholesterol (LDL) in the blood and carries it to the Liver. High HDL levels can help decrease the risk of heart disease and stroke. The optimal level of HDL would be around 1.6mmol/L or above for benefits. HDL levels are increased by consistent exercise per week (around or above the UK weekly guidelines).

CHOLESTEROL (LDL) - Low-density lipoprotein (LDL) is a cholesterol is the most predominant fat that is found in the blood. High levels of LDL's increase the risk of heart disease and stroke. The elevated levels where increased risk occurs is anything above 3.4mmol/L.

CIRCULATORY SYSTEM - The term used for the blood vessels that carry oxygenated and deoxygenated blood through arteries and veins to and from the heart.

CORONARY ARTERIES - These are the arteries that supply the heart muscles with blood to pass oxygenated blood and other nutrients and collect any waste products away from the heart.

CORONARY ARTERY BYPASS - The surgery that is used to treat coronary heart disease. It diverts the blood to avoid blocked areas of the coronary arteries to help improve blood flow and oxygen supply to the heart. This bypass is created by taking a graft from another blood vessel from the body, mainly from the chest, leg, or arm and is placed above and below the blocked coronary artery.

CORONARY HEART DISEASE - CHD is the condition where the coronary blood vessels narrow due to the build up of cholesterol within the artery walls.

DEFIBRILLATOR - The equipment used to treat someone with life-threatening arrhythmias. The defibrillator is used to deliver a dose of electric current to the heart to restore a normal heartbeat.

DIABETES - The disease that occurs when blood glucose is too high, and the body either cannot produce insulin or becomes insulin resistant and therefore not being able to lower blood sugar. This leads to the damaging blood vessels and other organs over time. Diabetes is split into two different types. Type 1 diabetes is the genetic disease where a person's pancreas produces little to no insulin due to the beta cells that produce insulin. These are destroyed by the immune system of someone with type 1 diabetes. Type 2 diabetes however, is developed when the someone becomes resistant to insulin or does not make enough insulin to suffice. This can develop through an unhealthy diet or an inactive lifestyle. This is the most common type of diabetes.

DIASTOLIC PRESSURE - This is the second measure of blood pressure taken alongside systolic blood pressure. This measurement takes the pressure when the heart rests between beats.

DOPPLER ULTRASOUND - A non-invasive test that is used to estimate blood flow through the blood vessels by using ultrasound waves to bounce off the circulating blood. This is used to help diagnose blood clots, poor valve functionality, decreased blood circulation in the legs, and many more.

ECHOCARDIOGRAM - The screening of the heart that uses ultrasound waves to produce a visual display of the heart. This is used for the diagnosis of heart disease and function of the heart. This test is normally conducted when an electrocardiogram detects an irregular beat in a patient and therefore the patient needs a further diagnosis of the heart.

EJECTION FRACTION – this is the term for the amount of blood the heart pumps out of the left ventricle per contraction. This is calculated through a formula by dividing stroke volume and end-diastolic volume, then multiplying by 100. This detects the amount of blood that is left in the ventricle per contraction. The normal ejection fraction level is around 50–70% of blood pumped out per contraction.

ELECTROCARDIOGRAM – The simple test that is used to analyse the rhythm of the heart through its electrical activity. This is the most common test conducted for heart screening due to it being a non-invasive method and only taking a few minutes to complete. If this detects any irregularities, other tests will be conducted to further diagnose heart conditions.

ENDOTHELIUM – The thin membrane that is the innermost layer of the heart and blood vessels. The function of this is to release substances to allow for vasoconstriction and vasodilation, and allows for filtration of oxygen, carbon dioxide and other nutrients found in the blood.

GENETIC TESTING – The process of testing a person's DNA to find out whether this person has changes in their DNA that could cause inherited heart disease. These changes are called pathogenic mutations.

HAEMATOCRIT – The test that measures the proportion of red blood cells in the blood. A healthy amount of haematocrit in the blood would be between 41%–50% for males and 36%–44% in females. If haematocrit is too high or low, it can show signs of heart disease.

HAEMOGLOBIN – The protein present in the red blood cells that carries oxygen in the blood. Each haemoglobin can carry four oxygen molecules.

HEART – The major organ in the body that pumps blood continuously around the body through the circulation system by the consistent contraction and dilation of the heart.

HEART RATE – The frequency of beats of the heart per minute. A normal heartbeat for an adult is around 60 to 100 beats per minute depending on your age. A lower heart rate can show a better cardiovascular fitness and better heart function.

HEREDITARY – The passing of genes from parent to child. This could be the passing of characteristics or diseases such as heart disease.

HYPERTENSION – When someone has constant increased blood pressure. This is when levels of blood pressure are over 120/80mmhg.

HYPERTROPHY – The increase of size in cells which can occur in organs and tissue. This can occur in the heart and can cause the heart to not contract as efficiently.

HYPOTENSION – The medical term used for low blood pressure, this is when blood pressure is found to be 90/60mmhg. This can cause symptoms such as dizziness, nausea, confusion, and fainting.

HYPOXIA – The medical term for inadequate oxygen in the body to maintain homeostasis. This can be due to low blood flow to the tissue or low oxygen content in the blood.

INFERIOR VENA CAVA – The largest vein in the body and carries de-oxygenated blood from the lower body (below diaphragm), back to the heart.

IRON – An important mineral important that is required to produce haemoglobin in helping the transportation of oxygen in the blood.

ISCHEMIA – Where a certain part of the body has decreased levels of oxygen due to restriction in blood vessels or low oxygen saturation. Myocardial ischemia is when the heart is not receiving enough oxygen.

LUMEN – The open channel in the blood vessel that the blood flows through. The arteries have a smaller lumen than the veins due to the need of a higher blood pressure in arteries for more efficient flow of oxygen throughout the body.

LUNGS – Located within the ribcage, the lungs are another major organ that play an essential role in the cardiovascular system. They pass oxygen into the red blood cells and extract carbon dioxide from red blood cells. They also have the role of protecting your body from harmful substances and irritants that are respired.

MAGNETIC RESONANCE IMAGING (MRI) – The use of radio waves and magnets to create an image. For the heart, the MRI can show the chambers, valves, and muscles of the heart. This is another method used to detect heart disease, enlarged heart, and heart failure.

MAXIMUM HEART RATE – Can be estimated by calculating 220bpm minus the age of the person. For example, a 24 year old (220-24) would have a max heart rate of 196bpm. This would be the max heart rate when completing high intensity exercise.

MITRAL VALVE – The mitral valve is found between the left atrium and left ventricle and its purpose is to prevent the backflow of the blood in these chambers.

MYOCARDIAL INFARCTION – The medical term used for heart attack. A heart attack is where the blood is restricted from getting to the heart, this needs to be treated as soon as possible or could lead to death.

MYOCARDIUM – The muscular tissue of the heart.

NITRIC OXIDE – A valuable molecule released by the endothelium in the blood vessels that allows for the relaxation of the muscles within the blood vessels causing the lumen in the blood vessels to widen, increasing blood flow, and lowering blood pressure. The release of nitric oxide is increased during and after exercise.

NITROGLYCERIN – A drug that is a vasodilator and used to treat certain heart conditions and widen the blood vessels.

NSTEMI (DIAGRAM) – A non-ST-elevation myocardial infarction is found on an electrocardiogram when a patient is found to have a depression at ST section of an ECG wave. It shows a restriction of one of the coronary arteries, reducing oxygen rich blood getting to the heart muscle, leading to ischemia of the heart.

OBESITY – When a person is overweight due to the accumulation of a high amount of fat in the body. This can lead to increased risk in diseases such as diabetes and CVD.

OESTROGEN – The hormone that helps develop and maintain female sex characteristics and growth of bones. It is needed during the menstrual cycle, the levels of oestrogen vary across the cycle. Women that have had the menopause will have a big reduction of oestrogen and this can increase the risk of coronary heart disease.

PACEMAKER – The device used to control an irregular heartbeat. Leads are placed in one or more chambers of the heart. These wires send an electrical pulse when an irregular beat is detected to adjust the rhythm of the heart.

PALPITATION – A palpitation is when a person's heartbeats become more noticeable. This can be uncomfortable and unusual sensation. Some common causes of heart palpitations are strenuous exercise, lack of sleep, stress, alcohol, and smoking.

PLAQUE – The build up of fat/cholesterol and other substances.

PLASMA – The colourless liquid that partly makes up the four elements of the blood. The plasma carries the blood cells and platelets and makes up 55% of the blood.

PLATELETS – Tiny-disc shaped pieces of cell that are found in the blood and make up one of the four elements of the blood. These help to form blood clots to slow/stop bleeding and help wounds to heal.

PULMONARY VALVE – The valve located in the heart between the right ventricle and the pulmonary artery. This stops backflow of the blood from the pulmonary artery.

PULMONARY VEIN – The pulmonary veins have the mission of passing oxygenated blood from the lungs, towards the heart.

RESTENOSIS – This occurs when an artery that was opened with a stent becomes narrowed again.

RISK FACTOR – Risk factors are both modifiable and non-modifiable factors that can increase the risk of getting a cardiovascular disease. Non-modifiable factors being age, ethnicity, sex, and genetics. Modifiable risk factors would include smoking, physical inactivity, hypertension, obesity, cholesterol, and insulin resistance.

SEPTAL DEFECT – A septal defect can be both found between the atrial walls or the ventricular walls and is a hole in the hearts muscular wall. This is most commonly a birth defect that either closes on its own or open-heart surgery is required to fix the issue. This is a form of congenital heart disease.

SEPTUM – The septum is the wall that separates the left and right side of the heart. It makes up the atrial septum and ventricular septum.

SINUS NODE (SA NODE) – This node is known as the pacemaker of the heart. Its purpose is to send electrical impulses to the atria of the heart to promote contraction and then passes through the AV node to contract the ventricles.

SPHYGMOMANOMETER – The piece of equipment that is used to measure blood pressure. This uses a rubber cuff which is wrapped around the upper arm, which is connected to a mercury meter and pump.

STABLE ANGINA – The pain in the chest when someone is undergoing exercise or becoming stressed. This is caused by poor blood flow to the heart.

STEMI (DIAGRAM) – An ST-elevated myocardial infarction is what is seen on an ECG wave when the ST part of the ECG is elevated. This is when the coronary artery is completely blocked off, stopping oxygen rich blood from getting to the heart. This develops into a heart attack and immediate action is needed to save this person.

STENOSIS – The narrowing of a blood vessel.

STENT – A short wire mesh that is used to help keep the artery open. There are two types of stents, bare metal uncoated stent, and drug eluting stent. The drug-eluting stent is medication that reduces the risk of the artery becoming blocked again.

STETHOSCOPE – A medical apparatus used for listening the heart and lungs. It has a small disc-shaped resonator that is placed against the chest which is connected to two earpieces for the user to listen.

STROKE – Where the blood supply is cut off to the brain and could be fatal if not treated straight away. This caused either by a blood clot in the blood vessels or a bleed on the brain. Symptoms of a stroke can be remembered through the term FAST (Face, Arms, Speech, and Time) created by the NHS. Face is where the face could have dropped to one side, Arms means that the person may not be able to move their arms, speech would be when they can have slurred speech or have trouble understanding what is being said. Lastly, time is to immediately call 999 to act as quickly as possible to these symptoms.

STROKE VOLUME – This is the amount of blood that is pumped out through the left ventricle of the heart at each heartbeat. Stroke volume is taken by subtracting end-systolic from end-diastolic volumes of the left ventricle. This is helpful in acquiring whether the heart is correctly functioning.

SUPERIOR VENA CAVA – The vein that is in the upper body and carries blood from head, neck, upper chest, and arms back to the heart.

SYSTOLIC PRESSURE – The measurement of the pressure of the blood against the walls of the arteries at each beat and is the higher measure of both systolic and diastolic pressure.

TACHYCARDIA – The irregular electrical impulse of the heart where the beats are a lot faster than regular ECG. Tachycardia is seen as the heart having a heart rate of over 100 beats per minute.

THROMBOSIS – The term used for blood clotting in the blood vessels. An example of this is Deep Vein Thrombosis (DVT) which is when blood clots form in one or more of the deep veins in the body.

TRICUSPID VALVE – This valve is in the heart between the right atrium and right ventricle and allows blood to flow from the atrium to the ventricle whilst also preventing blood from backflowing back into the atrium.

UNSTABLE ANGINA – The pain that occurs in the chest area, but unstable angina occurs when someone is resting and not during exercise or a stress related scenario.

VALVE REPLACEMENT – Where the valves are damaged and therefore need a replacement. The most common valves that need replacing include the aortic valve and mitral valve, the other valves are uncommonly replaced. There are several replacement valve options that include a mechanical valve and a tissue valve.

VASOCONSTRICTION – This is where the blood vessels narrow, this occurs when exposed to colder temperatures to keep temperatures at a normal level. Can also occur due to risk factors such as stress, smoking and medications.

VASODILATION – This is the widening of the blood vessels as a result of the relaxation of the muscular walls in the blood vessels. This promotes increased blood flow in the blood vessels and helps areas of the body that may need increased blood supply.

VASODILATORS – These are drugs used on people with high blood pressure to help promote the widening of the blood vessels to increase oxygen supply.

VEINS – One of the types of blood vessels in the body that have the job of moving blood back to the heart to be reoxygenated.

VENTRICLES – The two lower chambers of the heart that acquire blood from the upper chambers (atria) to pump the blood out of the heart. The left ventricle pumps blood out into the peripheral areas of the body and the right ventricle pumps blood out of the heart and towards the lungs to collect oxygen and deposit carbon dioxide.

VENTRICULAR FIBRILLATION – A type of arrhythmia where the ventricles contract in a very rushed and uncoordinated manner and due to this upset rhythm, the heart is unable to pump blood to the rest of the body. Without treatment this can cause death.

WHITE BLOOD CELLS – Part of the components of the blood that help fight against infection and many other diseases as a major part of the immune system. Types of white blood cells include granulocytes, monocytes, and lymphocytes.