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Name the main parts of the circulatory system in human beings. Draw the structure of human heart and label its partsWhy is a person having blood group AB called universal donor? Name the instruments used for measuring pulseName the following: Different blood groupsWrite in brief about the following: Blo transfusion Find the odd one out, giving reason. Arteries capillaries blood veins Find the odd one out, giving reason. What is the rate of heartbeat in normal adult human being? Name the main artery which carries blood to different parts of the body. What is the difference between pulmonary circulation and systemic circulation? Blood in the human body circulates twice for making one complete round through the body. Explain. How many litres of blood does an adult human body have? Write a short note on the human heart. What are seen as greenish blue lines in our hands and legs? Name the iron containing protein present in RBC of blood. What is stethoscope? Explain. When does blood pressure rise? 0 ratings0% found this document useful (0 votes)643 viewsThis document contains an answer key for a biology worksheet on the circulatory st...AI-enhanced title and descriptionSaveSave CIRCULATORY SYSTEM -ANSWER KEY (1) For Later0%0% found this document useful, undefined The Motorsport Images Collections captures events from 1895 to today's most recent coverage. Discover The Collection Curated, compelling, and worth your time. Explore our latest gallery of Editors' Picks. Browse Editors' Favorites Experience AI-Powered Creativity The Motorsport Images Collections captures events from 1895 to today's most recent coverage. Discover The CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors' Picks. Browse Editor CollectionCurated, compelling, and worth your time. Explore our latest gallery of Editors' Picks.Browse Editors' FavoritesExperience AI-Powered Creativity The circulatory system is made up of 3 types of blood vessels: Arteries which carry blood away from the heart Capillaries, the smallest blood vessels connect arteries to veins and feed our cells with oxygen PROBLEMS WITH THE CIRCULATORY SYSTEM Problems with the circulatory system can be serious and lead to major life-threatening health issues such as angina, heart attacks, strokes and blood clots. These conditions must be managed by your doctor. Major circulation issues are often caused by blood vessel problems (like peripheral artery disease), or hardened and blocked arteries. They can also be caused by blood clots, and diseases such as tinnitus, cold hands and feet and varicose veins. If you suffer from one of these minor conditions, there is often something you can do to help yourself. In the section below, you can find out more about the causes, symptoms and treatment choices of some of the more common minor problems related to blood circulation. symptoms, so that you can then pinpoint the underlying cause with your GP or specialist. So, what does poor blood circulation feel like and look like?Symptoms:• Sore or weak muscles• Muscle cramps• Skin that appears blueish in colour• Abnormally cold extremities (fingers and toes)• Bulging veins• Numbress in your extremities• Feeling 'pins and needles' or tingling MINOR CIRCULATORY ISSUES Tinnitus This is a symptom, rather than a condition, with a number of causes of tinnitus relates to exposure to loud noises or sounds such as being at a rock concert. Other common causes include ear wax and viral infections such as colds or flu. Read more about tinnitus. Tinnitus TreatmentThere is no cure for tinnitus, but there are ways to treat your symptoms. Some find that listening to music or playing white noise helps mask out the noise. Speak to your audiologist about available options. Since tinnitus can be caused by different things, your treatment may differ according to the cause. Common causes include earwax build up, poor circulation, hearing loss, and medication side effects. Raynaud's syndrome - Cold hands and feet Another commonly encountered minor problem of the circulatory system is having cold hands and feet. Although one might say that in the deepest days of winter, everyone experiences cold hands and feet, people suffering from this problem may complain of the causes of the illness aren't fully understood, Secondary Raynaud's - the more serious form of the illness - is believed to result from different diseases, such as artery diseases, such as artery diseases, carpal tunnel syndrome. Raynaud's syndrome. Raynaud's TreatmentTreatment for Raynaud's Syndrome largely involves medications such as calcium channel blockers and vasodilators. However, there are some things you can do yourself to help with the symptoms, such as wearing gloves and layering up in the cold, as well as avoiding caffeine and air-conditioned spaces. Poor memory With age, the ability to remember things appears to diminish. This decline in memory is not a true health problem for most, just simply an inconvenience. Whilst some might joke that they are experiencing the early signs of Alzheimer's disease, in reality, having a poorer memory than what we are used to is often just a natural part of normal ageing. The accepted explanation for this is that the circulation of blood to the brain is not as good as it was when one reaches the age of 60 or 70. The Chinese made this observation many years ago and named the Ginkgo biloba tree the 'Memory Tree'. Today, we know that extracts of Ginkgo leaves help to improve the circulation of blood to the brain and other parts of the body. Poor Memory TreatmentWhen your poor memory is caused by dementia rather than the normal ageing process, then cognitive-enhancing treatments such as cholinesterase inhibitors and memantine are often prescribed. In addition to this, lifestyle changes such as improving your diet and exercising are also recommended. Varicose veins type of varicose vein. However, when we speak about varicose veins, we usually refer to the veins in our legs. Varicose veins, are caused by weakened valves in your veins, which leads to them twisting and stretching out. Varicose veins, are caused by weakened valves in your veins, which leads to the veins in our legs. Varicose veins, are caused by weakened valves in your veins, which leads to the veins in our legs. Varicose veins, we usually refer to the veins in our legs. Varicose veins, we usually refer to the veins in our legs. Varicose veins, we usually refer to the veins in our legs. Varicose veins, we usually refer to the veins in our legs. Varicose veins, we usually refer to the veins in our legs. and wearing compression stockings, severe cases of varicose veins are addressed with surgery or laser treatment. Read more about varicose veins. Circulation problems: Obesity Smoking (tabacco) Sedentary lifestyles Having a poor diet (high in trans and saturated fats) Older age Natural and Home Remedies for Circulations problems So, how do you fix circulations problems naturally? When it comes to natural remedies and self-care, there are a few things you can do to help yourself. However, these should not replace medical treatment but rather complement it. The following may be beneficial to your holistic treatment plan and in improving your vein health: Exercise regularly (2-3 times a week, for at least 30min per session) Drink plenty of water (this helps your blood flow) Soak in a warm bath (this helps your blood circulate better) Wear compression clothing (this improves your blood flow). remedies with Night Blooming Cactus (this assists your circulatory muscles and blood flow). Try incorporating foods and spices that boost blood circulatory, the circulatory adding vitamins like Vitamin E and B, and minerals like Iron into your daily diet or supplement regime. In summary, the circulatory system controls blood flow throughout your body. Poor blood flow can lead to major circulation problems such as angina, heart attacks, strokes and blood clots, and minor issues like tinnitus, Raynaud's syndrome, poor memory, and varicose veins. health problem. MenoforceMenopause Formula Perimenopause is the time leading up to menopause. It can last several months or years. We describe why it happens, the symptoms and suggest natural solutions. Excessive sweating at night is often a part of menopause for uses, see Circulatory system (disambiguation). Several terms redirect here. For other uses, see Bloodstream (song) and Cardio-Vascular (album). Circulatory system (simplified). Red indicates oxygenated blood carried in arteries. Blue indicates deoxygenated blood carried in veins. Capillaries join the arteries and veins.IdentifiersMeSHD002319FMA7161Anatomical terminology[edit on Wikidata] In vertebrates, the circulatory system is a system of organs that includes the heart, blood vessels, and blood vessels, and blood vessels (from heart, and Latin vascula meaning vessels). The circulatory system has two divisions, a systemic circulation or circuit, and a pulmonary circulation or circuit, and a pulmonary circulatory system. [4] The network of blood vessels are the great vessels of the heart including large elastic arteries, and large veins; other arteries, smaller arterioles, capillaries that join with venules (small veins), and other veins. The circulatory system is closed in vertebrates, which means that the blood never leaves the network of blood vessels. Many invertebrates such as arthropods have an open circulatory system with a heart that pumps a hemolymph which returns via the body cavity rather than via blood cells, and platelets; it is circulated around the body carrying oxygen and nutrients to the tissues and collecting and disposing of waste materials. Circulated nutrients include proteins and minerals and other components include hemoglobin, hormones, and gases such as oxygen and carbon dioxide. These substances provide nourishment, help the immune system to fight diseases, and help maintain homeostasis by stabilizing temperature and natural pH. In vertebrates, the lymphatic system is complementary to the circulatory system. The lymphatic system carries excess plasma (filtered from the body tissues via accessory routes that return excess fluid back to blood circulation as lymph.[5] The lymphatic system is a subsystem that is essential for the functioning of the blood circulatory system; without it the blood would become depleted of fluid. The lymphatic system also works with the immune system, the lymphatic system is an open system Some sources describe it as a secondary circulatory system. The circulatory system can be affected by many cardiovascular diseases. Cardiologists are medical professionals which specialise in the heart, and cardiothoracic surgeons focus on disorders of the blood vessels, and lymphatic vessels. Blood flow in the pulmonary and systemic circulations showing capillary networks in the torso sections The circulatory system in all vertebrates, consists of the heart, blood vessels. The circulatory system is further divided into two major circuits - a pulmonary circulation, and a systemic circulation is a circuit loop from the left heart to the rest of the body, and returns deoxygenated blood back to the right heart via large veins known as the venae cavae. The systemic circulation can also be defined as two parts - a macrocirculation and a microcirculation. An average adult contains five to six quarts (roughly 4.7 to 5.7 liters) of blood, accounting for approximately 7% of their total body weight.[9] Blood consists of plasma, red blood cells, white blood cells, and platelets. The digestive system also works with the circulatory system to provide the nutrients the system needs to keep the heart pumping.[10] Further circulatory routes are associated, such as the coronary circulation to the heart itself, the cerebral circulation to the brain, renal circulation to the kidneys, and bronchial circulation to the bronchi in the lungs. The human circulatory system is closed, meaning that the blood is contained within the vascular network.[11] The lymphatic system of the circulatory system consisting of a network of lymphatic vessels, lymph nodes, organs, tissues and circulating lymph. This subsystem is an open system. [12] A major function is to carry the lymphatic ducts back to the heart for return to the circulatory system. Another major function is working together with the immune system to provide defense against pathogens.[13] Main article: Heart Diagram of the human heart showing blood to all parts of the body providing nutrients and oxygen to every cell, and removing waste products. The left heart pumps blood to all parts of the body providing nutrients and oxygen to every cell, and removing waste products. rest of the body in the systemic circulation. The right heart pumps deoxygenated blood to the lungs in the pulmonary circulation. In the human heart there is one atrium and one ventricle, right atrium and right ventricle. The right atrium is the upper chamber of the right side of the heart. The blood that is returned to the right atrium is deoxygenated (poor in oxygen) and passed into the right atrium receives newly oxygenated blood from the lungs as well as the pulmonary vein which is passed into the strong left ventricle to be pumped through the aorta to the different organs of the body. Main article: Pulmonary circulation as it passes from the heart. circulatory system in which oxygen-depleted blood is pumped away from the heart, via the pulmonary artery, to the lungs and returned, oxygen-deprived blood from the superior and inferior vena cava enters the right atrivent atrivent blood from the superior and inferior vena cava enters the right atrivent blood from the superior and inferior vena cava enters the right atrivent blood from the superior and inferior vena cava enters the right atrivent blood from the superior and inferior vena cava enters the right atrivent blood from the superior and inferior vena cava enters the right atrivent blood from the superior attrivent blood from the superi valve) into the right ventricle, from which it is then pumped through the pulmonary semilunar valve into the pulmonary artery to the lungs. Gas exchange occurs in the lungs, whereby CO2 is released from the blood, and oxygen is absorbed. The pulmonary vein returns the now oxygen-rich blood to the left atrium.[10] A separate circuit from the systemic circulation, the bronchial circulation supplies blood to the tissue of the larger airways of the larger airw blood is returned in the systemic circulation to the right heart via two large veins, the inferior vena cava and superior vena cava, where it is pumped from the right atrium into the pulmonary circulation. [10] The blood vessels of the circulatory system are the arteries, veins, and capillaries. The large arteries and veins that take blood to, and away from the heart, major veins and arteries constructed from body scans Oxygenated blood enters the systemic circulation when leaving the left ventricle, via the aortic semilunar valve.[15] The first part of the systemic circulation is the aorta, a massive and thick-walled artery. The aorta arches and gives branches supplying the upper part of the body after passing through the aortic opening of the diaphragm at the level of thoracic ten vertebra, it enters the abdomen.[16] Later it descends down and supplies branches to abdomen, pelvis, perineum and the lower limbs.[17] The walls of the aorta are elastic. This elasticity helps to maintain the blood from the heart, it recoils and is responsible for pulsating blood pressure. As the aorta branches into smaller arteries, their elasticity goes on decreasing and their compliance goes on increasing.[18] Arteries branch into the venous system.[20] The total length of muscle capillaries in a 70 kg human is estimated to be between 9,000 and 19,000 km.[21] Main article: Vein Capillaries merge into venues, which merge intovenues, which merge into venues, whi heart.[23] Main article: Portal venous system The general rule is that arteries from the heart branch out into capillaries, which collect into veins are a slight exception to this. In humans, the only significant example is the heart branch out into capillaries around the gastrointestinal tract where the blood absorbs the various products of digestion; rather than leading directly back to the heart, the hepatic portal vein branches into a second capillary system in the liver. Main article: Coronary circulation The heart, the hepatic portal vein branches into a second capillary system in the liver. contained within the four chambers. The coronary circulation begins near the origin of the aorta by two coronary arteries: the right coronary artery and the left coronary artery. After nourishing the heart muscle, blood returns through the coronary veins into the coronary sinus and from this one into the right atrium. Backflow of blood through its opening during atrial systole is prevented by the Thebesian valve. The smallest cardiac veins drain directly into the heart chambers.[10] Main article: Cerebral circulation from arteries at its front and back. The anterior circulation arises from the internal carotid arteries, to supply the front of the brain. The posterior circulation from the front and brainstem. The circulation arises from the internal carotid arteries, to supply the back of the brain and brainstem. and vasculature channels within the brain, regulates the flow of blood to activated neurons in order to satisfy their high energy demands.[24] The renal circulation is the blood supply to the kidneys, contains many specialized blood to the ascending inferior vena cava. Main articles: Heart development, Vasculogenesis, Vascular remodelling in the embryo, and Fetal circulatory system starts with vasculogenesis in the embryo. The human arterial and venous systems develop from different areas in the embryo. the aortic arches, six pairs of arches that develop on the upper part of the embryo. The venous system arises from three bilateral veins during weeks 4 - 8 of embryogenesis. Fetal circulation begins within the 8th week of development. Fetal circulation does not include the lungs, which are bypassed via the truncus arteriosus. obtains oxygen (and nutrients) from the mother through the placenta and the umbilical cord.[25] Main article: Aortic arches Animation occurs at a faster rate (~20 seconds of the average 60-second cycle) and shows the red blood cell deforming as it enters capillaries, as well as the bars changing color as the cell alternates in states of oxygenation along the circulatory system. The human arterial system originates from the aortic arches and form only the maxillary arteries and stapedial arteries respectively The arterial system itself arises from aortic arches 3, 4 and 6 (aortic arch 5 completely regresses). The dorsal aortae, present on the basis for the and sides. These branches form the intercostal arteries, arteries of the arms and legs, lumbar arteries and the lateral sacral arteries. Finally, branches at the front of the aorta consist of the vitelline arteries and umbilical arteries. The vitelline arteries form the celiac, superior and inferior mesenteric arteries of the gastrointestinal tract. After birth, the umbilical arteries will form the vitelline veins, the umbilical veins and the cardinal veins, all of which empty into the sinus venosus. Main article: Blood § Oxygen transport About 98.5% of the oxygen in a sample of arterial blood in a healthy human, breathing air at sea-level pressure, is chemically dissolved in the other blood liquids and not connected to hemoglobin molecules. About 1.5% is physically dissolved in the other blood liquids and not connected to hemoglobin molecules. vertebrates. Further information: List of circulatory system conditions Many diseases affect the circulatory system. These include a number of cardiovascular diseases affecting the lymphatic system. Cardiologists are medical professionals which specialise in the heart, and cardiothoracic surgeons specialise in operating on the heart and its surrounding areas. Vascular system are called cardiovascular disease are called "lifestyle diseases" because they develop over time and are related to a person's exercise habits, diet, whether they smoke, and other lifestyle choices a person makes. Atherosclerosis is the precursor to many of these diseases. It is where small atheromatous plaques build up in the walls of medium and large arteries. This may eventually grow or rupture to occlude the arteries. It is also a risk factor for acute coronary syndromes, which are diseases that are characterised by a sudden deficit of oxygenated blood to the heart tissue. Atherosclerosis is also associated with problems such as aneurysm formation or a clot, called a "thrombus". These can originate in veins or arteries. Deep venous thrombosis, which mostly occurs in the legs, is one cause of clots in the veins of the legs, is one cause of clots in the veins of this may include pulmonary for a long time. These clots may embolise, meaning travel to another location in the body. The results of this may include pulmonary embolus, transient ischaemic attacks, or stroke. Cardiovascular diseases may also be congenital in nature, such as heart defects or persistent fetal circulatory system are associated with diseases, a large number are anatomical variations. Magnetic resonance angiography of aberrant subclavian artery The function and health of the circulatory system and its parts are measured in a variety of manual and automated ways. These include simple methods such as those that are part of the cardiovascular examination, including the taking of a person's pulse as an indicator of a person's heart rate, the taking of blood pressure through a sphygmomanometer or the use of a stethoscope to listen to the heart's values. An electrocardiogram can also be used to evaluate the way in which electricity is conducted through the heart. Other more invasive means can also be used A cannula or catheter inserted into an artery may be used to measure pulse pressure or pulmonary wedge pressures. Angiography, which involves injecting a dye into an artery to visualised, blockages or narrowings may be fixed through the insertion of stents, and active bleeds may be managed by the insertion of coils. An MRI may be used to image arteries, called an MRI angiogram may be used to investigate vascular diseases affecting the venous system and the arterial system including the diagnosis of stenosis, thrombosis or venous insufficiency. An intravascular ultrasound using a catheter is also an option. This section needs expansion. You can help by making an edit requestadding to it . (March 2015) Further information: Vascular surgery and Vascular bypass There are a number of surgical procedures performed on the circulatory system: Coronary stent used in angioplasty Vascular surgery Vein stripping Cosmetic procedures are more likely to be performed in an inpatient setting; in the United States, only 28% of cardiovascular surgeries were performed in the ambulatory care setting.[26] The open circulatory system of the grasshopper - made up of a heart, vessels and hemolymph. The hemocoel, then back through the ostia in the heart and the process repeated. While humans, as well as other vertebrates, have a closed blood circulatory system (meaning that the blood never leaves the network of arteries, veins and capillaries), some invertebrate groups have an open circulatory systems. An additional transport system, the lymphatic system, which is only found in animals with a closed blood circulation, is an open system providing an accessory route for excess interstitial fluid to be returned to the blood.[5] The blood vascular system first appeared probably in an ancestor of the triploblasts over 600 million years ago, overcoming the time-distance constraints of diffusion, while endothelium evolved in an ancestral vertebrate some 540-510 million years ago.[27] See also: Hemolymph In arthropods, the open circulatory system is a system in which a fluid in a cavity called the hemocoel or haemocoel bathes the organs directly with oxygen and nutrients, with there being no distinction between blood and interstitial fluid; this combined fluid is called hemolymph or haemolymph. [28] Muscular movements by the animal during locomotion can facilitate hemolymph fills all of the interior hemocoel of the body and surrounds all cells. Hemolymph is composed of water, inorganic salts (mostly sodium, chloride, potassium, magnesium, and calcium), and organic compounds (mostly carbohydrates, within the hemolymph. They play a role in the arthropod immune systems, such as this Pseudoceros bifurcus, lack specialized circulatory organs. Two-chambered heart of a fish The circulatory systems of all vertebrates, as well as of annelids (for example, earthworms) and cephalopods (squids, octopuses and relatives) always keep their circulating blood enclosed within heart chambers or blood vessels and are classified as closed, just as in humans. Still, the systems of fish, amphibians, reptiles, and birds show various stages of the evolution of the circulatory system. [29] Closed systems permit blood to be directed to the organs that require it. In fish, the system has only one circuit, with the blood being pumped through the capillaries of the gills and on to the capillaries of the body tissues. This is known as single cycle circulation. The heart of fish is, therefore, only a single pump (consisting of two chambers).[citation needed] In amphibians and most reptiles, a double circulatory system is used, but the heart is not always completely separated into two pumps. Amphibians have a three-chambered heart.[citation needed] In reptiles, the ventricular septum of the heart is incomplete and the pulmonary artery to the lungs, the sphincter may be contracted to divert this blood flows from the capillaries instead of to the left ventricle and out through the aorta. This means the blood flows from the capillaries instead of to the lungs. needed] Mammals, birds and crocodilians show complete separation of the heart into two pumps, for a total of four heart chambers; it is thought that the four-chambers; it is thought that the four-chambers; it is thought that the four-chambers is the lungs, speeding up delivery of oxygen to tissues.[citation needed] Circulatory systems are absent in some animals, including flatworms. Their body cavity has no lining or enclosed fluid. Instead, a muscular pharynx leads to an extensively branched digestive system that facilitates direct diffusion of nutrients to all cells. The flatworm's dorso-ventrally flattened body shape also restricts the distance of any cell from the exterior of the organism. Oxygen can diffuse from the surrounding water into the cells, and carbon dioxide can diffuse out. Consequently, every cell is able to obtain nutrients, water and oxygen without the need of a transport system. Some animals, such as jellyfish, have more extensive branching from their gastrovascular cavity (which functions as both a place of digestion and a form of circulation), this branching allows for bodily fluids to reach the outer layers. Human anatomical chart of blood vessels, with heart, lungs, liver and kidneys included. Other organs are numbered and arranged around it. Before cutting out the figures on this page, Vesalius suggests that readers glue the page onto parchment and gives instructions on how to assemble the multilayered figure onto a base "muscle man" illustration. "Epitome", fol.14a. HMD Collection, WZ 240 V575dhZ 1543. The earliest known writings on the circulatory system are found in the Ebers Papyrus, it acknowledges the connection of the heart to the arteries. The Egyptian medical papyrus, it acknowledges the connection of the heart to the arteries. lungs and heart. From the heart, the air travelled to every member through the accounts of scientific thought, [citation needed] In the 6th century BCE, the knowledge of circulation of vital fluids through the body was known to the Ayurvedic physician Sushruta in ancient India.[31] He also seems to have possessed knowledge of the arteries, described as 'channels' by Dwivedi & general rules that govern the motions of the elements in the body; accordingly, he does not place much importance in the heart itself.[32] The valves of the heart were discovered by a physician of the Hippocratic school around the early 3rd century BC.[33] However, their function was not properly understood then. Because blood pools in the veins after death, arteries look empty. Ancient anatomists assumed they were filled with air and that they were for the transport of air.[citation needed] The Greek anatomist Erasistratus observed that arteries that were cut during life bleed. He ascribed the fact to the phenomenon that air escaping from an artery is replaced with blood that enters between veins and arteries by very small vessels. Thus he apparently postulated capillaries but with reversed flow of blood.[citation needed] In 2nd-century AD Rome, the Greek physician Galen knew that blood vessels carried blood and identified venous (dark red) and arterial (brighter and thinner) blood, each with distinct and separate functions. Growth and energy were derived from venous blood created in the heart. Blood flowed from both creating organs to all parts of the body where it was consumed and there was no return of blood to the heart or liver. The heart did not pump blood around, the heart's motion sucked blood in during diastole and the pulsation of the arteries themselves.[citation needed] Galen believed that the arterial blood was created by venous blood passing from the left ventricle to the right by passing through 'pores' in the interventricular septum, air passed from the lungs via the pulmonary artery to the left side of the heart. As the arterial blood was created 'sooty' vapors were created and passed to the lungs also via the pulmonary artery to be exhaled.[citation needed] In 1025, The Canon of Medicine by the Persian physician, Avicenna, "erroneously accepted the Greek notion regarding the existence of a hole in the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by which the blood traveled between the ventricular septum by blood traveled betw refining Galen's erroneous theory of the pulse, Avicenna provided the first correct explanation of pulsation: "Every beat of the pulse is a movement in the heart and arteries ... which takes the form of alternate expansion and contraction." [35] In 1242, the Arabian physician, Ibn al-Nafis described the process of pulmonary circulation in greater, more accurate detail than his predecessors, though he believed was formed in the left ventricle. Ibn al-Nafis stated in his Commentary on Anatomy in Avicenna's Canon:[36] ... the blood from the right chamber of the heart must arrive at the left chamber but there is no direct pathway between them. The thick septum of the heart is not perforated and does not have visible pores as some people thought or invisible pores as some people though the vena arteriosa (pulmonary artery) to the lungs, spread through its substances, be mingled there with air, pass through the arteria venosa (pulmonary vein) to reach the left chamber of the heart and there form the vital spirit... In addition, Ibn al-Nafis had an insight into what later became a larger theory of the capillary circulation. He stated that "there must be small communications had an insight into what later became a larger theory of the capillary circulation. He stated that "there must be small communications had an insight into what later became a larger theory of the capillary circulation. or pores (manafidh in Arabic) between the pulmonary artery and vein," a prediction that preceded the discovery of the capillary system by more than 400 years. [36] Ibn al-Nafis' theory was confined to blood transit in the lungs and did not extend to the entire body. Michael Servetus was the first European to describe the function of pulmonar circulation, although his achievement was not widely recognized at the time, for a few reasons. He firstly described it in the "Manuscript of Paris" [37][38] (near 1546), but this work was never published. And later he published this description, but in a theological treatise, Christianismi Restitutio, not in a book on medicine. Only three copies of the book survived but these remained hidden for decades, the rest were burned shortly after its publication in 1553 because of persecution of Servetus by religious authorities.[citation needed] A better known discovery of pulmonary circulation was by Vesalius's successor at Padua, Realdo Colombo, in 1559.[citation needed] Image of veins from William Harvey's Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus, 1628 Finally, the English physician William Harvey, a pupil of Hieronymus Fabricius (who had earlier described the valves of the veins without recognizing their function), performed a sequence of experiments and published his Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus, 1628 Finally, the English physician William Harvey a pupil of Hieronymus Fabricius (who had earlier described the valves of the veins without recognizing their function). Sanguinis in Animalibus in 1628, which "demonstrated that there had to be a direct connection between the venous and arterial systems throughout the body, and not just the lungs. Most importantly, he argued that the beat of the body. This is a conceptual leap that was guite different from Ibn al-Nafis' refinement of the anatomy and bloodflow in the heart and lungs."[39] This work, with its essentially correct exposition, slowly convinced the medical world. However, Harvey did not identify the capillary system connecting arteries and veins; this was discovered by Marcello Malpighi in 1661 [citation needed] Medicine portal Cardiology - Branch of medicine dealing with the heart Cardiovascular drift - medical conditionPages displaying wikidata descriptions as a fallback Cardiac cycle - Performance of the human heart Vital heat Cardiac muscle - Muscular tissue of heart in vertebrates Major systems of the human body - Collective structure of a human beingPages displaying short descriptions of redirect targets Amato Lusitano - Portuguese physician (1511-1568)Pages displaying short descriptions of redirect targets Vascular resistance - Force from blood vessels that affects blood flow ^ a b Hall, John E. (2011). Guyton and Hall textbook of medical physiology (Twelfth ed.). Philadelphia, Pennsylvania. p. 4. ISBN 9781416045748. {{cite book}}: CS1 maint: location missing publisher (link) ^ a b Saladin, Kenneth S. (2011). Human anatomy (3rd ed.). 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Navarro y Navarro, Zaragoza, collaboration with the Government of Navarra, Department of Institutional Relations and Education of the Government of Navarra, ISBN 84-235-3266-6 pp. 215-228 & 62nd illustration (XLVII) ^ Michael Servetus]. proof on the Manuscript of Paris and many other manuscripts and new works by Servetus ^ Pormann, Peter E. and Smith, E. Savage (2007) Medieval Islamic medicine Georgetown University, Washington, D.C., p. 48, ISBN 1-58901-161-9. Wikimedia Commons has media related to Cardiovascular system. Look up circulatory system in Wiktionary, the free dictionary. Library resources about Circulatory System Resources in your library Circulatory Pathways in Anatomy and Physiology by OpenStax The Circulatory System Michael Servetus (1546 description of the Pulmonary Circulatory System Michael Servetus and adult's apical heart beat at110 beats per minute. The nurse describes this as:1. asystole.2. bigeminy.3. tachycardia. A client has an elevated AST 24 hours following?1. Gallbladder disease2. Liver disease3. Myocardial infarction4. Skeletal muscle injury An adult has a coagulation time of 20 minutes. The nurse should observe the client for which of the following?1. Blood clots2. Ecchymotic areas3. Jaundice4. Infection A prothrombin time test should be performed appropriate for a client who is receiving warfarin (Coumadin)?1. 12 seconds 2. 20 seconds 3. 60 seconds 4. 98 seconds The nurse is caring for a client who is receiving heparin asks the nurse why it cannot be given by mouth. The nurseresponds that heparin is given parenterallybecause: 1. it is destroyed by gastric secretions. 2. it irritates the gastric mucosa. 3. it irritates the gastric mucosa. 3. it irritates the intestinal lining. 4. therapeutic levels can be achieved morequickly. An adult who is admitted for a cardiaccatheterization asks the nurse if she will be asleepduring the cardiac catheterization. What is thebest initial response for the nurse to make?1. "You will be given a general anesthesia."2. "You will be sedated but not asleep?" 9. During the admission interview, a client who isadmitted for a cardiac catheterization says, "Everytime I eat shrimp I get a rash." What action is sessential for the nurse to take at this time?1. Notify the physician.2. Ask the client if she gets a rash from any otherfoods.3. Instruct the dietary department not to give the client if she gets a rash from any otherfoods. Which action would the nurseexpect to take?1. Administer a radioisotope as ordered.2. Give the client a cleansing enema.3. Locate and mark peripheral pulses.4. Encourage high fluid intake before the test. A young adult with a history of rheumatic feveras a child is to have a cardiac catheterization. She asks the nurse why she must have a cardiaccatheterization. The nurse's response is based on the understanding that cardiac catheterization canaccomplish all of the following EXCEPT:1. assessing heart structures.2. determining oxygen levels in the heart chambers.3. evaluating cardiac output.4. obtaining a biopsy specimen. When a client returns from undergoing a cardiaccatheterization, it is most essential for the nurse to:1. check peripheral pulses.2. maintain NPO.3. apply heat to the insertion site.4. start range of motion exercises immediately. A male client with angina pectoris has beenhaving an increased number of episodes of painrecently. He is admitted for observation. During the admission interview, heat number of episodes of painrecently. tells the nurse that hehas been having chest pain during the last week. Which statement by the client would be of greatest concern to the nurse?1. "I had chest pain while I was walking in thesnow on Thursday."2. "We went out for a big dinner to celebrate mywife's birthday, but I couldn't enjoy it becauseI got the pain before we got home from therestaurant."3. "I had chest pain vesterday while I was sitting in the living room watching television."4. "I felt pain all the way down my left arm after I was playing with my grandson on Monday." The nurse responds to the call light of a clientwho has a history of angina pectoris. He tells thenurse that he has just taken a nitroglycerin tabletsublingually for anginal pain. What action should the nurse take next?1. If the pain does not subside within fiveminutes, place a second tablet under historique2. Position him with head lower than feet3. Administer a narcotic as needed (PRN) for painif he still has pain in 10 minutes4. Call his physician and alert the code team for possible intervention The nurse is teaching an adult who has anginaabout taking nitroglycerin. The nurse tells him hewill know the nitroglycerin is effective when: 1. he experiences tingling under the tongue. 2. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 3. his pain subsides. 4. his activity tolerance increases. 4. his activity tolerance incr the following statements by the client would indicate that he understands the necessary modifications in lifestyle to prevent and a day."2. "I will need to stay in bed all the time so Iwon't have the pain."16. A client with angina will have to make lifestyle modifications. Which of the following statements by the client would indicate that he understands the necessary modifications in lifestyle to prevent and take a pill."4. "I will need to stay in bed all the time so Iwon't have the pain."3. "I'll stop what I'm doing whenever I have pain attacks?1. "I will need to stay in bed all the time so Iwon't have the pain."3. "I'll stop what I'm doing whenever I have pain attacks?1." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pain."4." I will need to stay in bed all the time so Iwon't have the pai walk more slowly and restfrequently to avoid the angina." A client who has been treated for angina isdischarged in stable condition. At a clinic visit, he tells the nurse to make?1. "Do you have ambivalent feelings toward yourwife?"2. "Many persons with angina have less painwhen their partner assumes the top position."3. "Be sure that you attempt intercourse onlywhen you are well rested and relaxed."4. "You might try having a cocktail before sexualactivity to help you relax." A low-sodium, low-cholesterol, weight-reducingdiet is prescribed for an adult with heart disease. The nurse knows that he understands his dietwhen he chooses which of the following meals?1. Baked skinless chicken and mashed potatoes2. Stir-fried Chinese vegetables and rice3. Tuna fish salad with celery sticks4. Grilled lean steak with carrots An adult client is admitted with a diagnosis of left-sided congestive heart failure. Which assessment finding would most likely sticks4. be present?1. Distended neck veins2. Dyspnea3. Hepatomegaly4. Pitting edema Digoxin (Lanoxin) and furosemide (Lasix) areordered for this client?1. Potassium2. Calcium3. Aspirin4. Coumadin When the nurse is about to administer digoxinto a client, the client says, "I think I need to see the eye doctor. Things seem to look kind of greentoday." The nurse takes his vital signs, which areblood pressure = 150/94, pulse = 60 bpm, and record thefindings on his chart2

Withhold the digoxin and report to the chargenurse3. Request an appointment with theophthalmologist4. Reassure the client that he is having a normal reaction to his medication An adult client is admitted to the hospital vascular disease of the lower leg area. Other parts of his skin are shiny and taut with loss of hair. Aprimary nursing goal for this client should be todo which of the following?1. Increase activity tolerance2. Relieve anxiety3. Protect from injury4. Help build a positive body image An adult client who has peripheral vasculardisease of the lower extremities was observedsmoking in the waiting area. What is the mostappropriate response for the nurse to makeregarding the client's smoking?1. "Smoking is not allowed for patients withblood diseases."2. "Smoking increases your blood pressure and strains your heart."4. "Smoking causes the blood vessels in yourlegs to constrict and reduces the blood supply."3. "Smoking increases your blood pressure and strains your heart."4. "Smoking causes your body to be under greaterstress." An adult client with peripheral vascular diseasetells the nurse he is afraid his left leg is notimproving and may need to be amputated. Howshould the nurse respond?1. "You and your wife should discuss yourfeelings before surgery."2. "You sound concerned about your leg and possible surgery."3. "It is better to have an amputation when theulcers are not improving."4. "You don't need to be afraid of surgery." An adult is diagnosed with hypertension. He is prescribed chlorothiazide (Diuril) 500 mgPO. What nursing instruction is essentialfor him?1. Drink at least two quarts of liquid daily.2. Avoid hard cheeses. 3. Drink orange juice or eat a banana daily.4. Do not take aspirin. A low-sodium diet has been ordered for anadult client. The nurse knows that the clientunderstands his low-sodium diet when the clientselects which menu?1. Tossed salad, carrot sticks, and steak2. Baked chicken, mashed potatoes, and greenbeans3. Hot dog, roll, and coleslaw4. Chicken noodle soup, applesauce, and cottagecheese A female client is admitted to the hospital withobesity and deep vein thrombophlebitis (DVT) the right leg. She weighs 275 pounds. Which of thefollowing factors is least related to her diagnosis?1. She has been taking oral estrogens for the lastthree years.2. She smokes two packs of cigarettes daily.3. Her right femur was fractured recently.4. She is 30 years old. Which assessment finding would most likelyindicate that a client has thrombophlebitis in the leg?1. Diminished pedal pulses2. Color changes in the extremities whenelevated3. Red, shiny skin4. Coolness and pallor in the leg What should be included in the teaching plan foran adult who has hypertension?1. Reduce dietary calcium.2. Avoid aerobic exercise.3. Reduce alcohol intake.4. Limit fluid intake. The nurse is caring for an elderly client who hascongestive heart failure and is taking digoxin. The client should be monitored for which of thefollowing signs of toxicity?1. Disorientation2. Weight gain3. Constipation4. Dyspnea The licensed practical nurse (LPN) is assisting theregistered nurse (RN) in developing the nursingcare plan for an older adult who has congestiveheart failure. Which nursing diagnosis is mostlikely to be included?1. Deficient fluid volume2. Impaired verbal communication3. Chronic pain4. Activity intolerance The nurse is caring for a client who is beingevaluated for arteriosclerosis obliterans. Which complaint is the client most likely to have?1. Burning pain in the legs that wakens him or herat night2. Numbness of the feet and ankles with exercise3. Leg pain while walking that becomes severeenough to force him or her to stop4. Increasing warmth and redness of the legs when they are elevated An adult is admitted with venousthromboembolism. What treatment should thenurse expect during the acute stage?1. Application of an elastic stocking?. Ambulation three times a day3. Passive range of motion exercises to the legs4. Use of ice packs to control pain The nurse is observing a client who is learning to perform Buerger-Allen exercises. The nurseknows that the client is performing these exercises correctly when the client is observed doing what?1. Alternately dorsiflexing and plantar flexing thefeet while the legs are elevated?. Massaging the legs beginning at the feet and moving toward the heart3. Alternately walking short distances and resting with the legs elevated?. eachposition What should be included in foot care for the clientwho has a peripheral vascular disorder?1. Soaking the feet for 20 minutes before washingthem2. Walking barefoot only on carpeted floors3. Applying lotion between the toes to avoidcracking of the skin4. Avoiding exposure of the legs and feet to thesun An adult male is being evaluated for possibledysrhythmia and is to be placed on a Holtermonitor. What instructions should the nursegive him to ensure that this test provides acomprehensive picture of his cardiac status?1. Remove the electrodes intermittently for hygiene measures.2. Exercise frequently while the monitor is inplace.3. Keep a diary of all your activities while beingmonitored.4. Refrain from activities that precipitatesymptoms. An older adult is scheduled for coronaryarteriography during a cardiac catheterization. Which nursing intervention will be essential asshe recovers from the diagnostic procedure on thehospital unit?1. Encouraging frequent ambulation to preventee yein thrombosis 2. Limiting fluid intake to prevent fluidoverload3. Limiting dietary fiber to prevent diarrhea4. Assessing the arterial puncture site when takingvital signs An older adult is admitted to the hospital withsymptoms of severe dyspnea, orthopnea, diaphoresis, bubbling respirations, and cyanosis. Hestates that he is afraid "something bad is about happen." How should the nurse position thisclient?1. Sitting upright2. Head lower than feet3. Supine4. Prone An adult male has a high level of high-densitylipoproteins (HDL) in proportion to low-densitylipoproteins (LDL). How does this relate to hisrisk of developing coronary artery disease(CAD)?1. His risk for CAD is low.2. There is no direct correlation.3. His risk may increase with exercise.4. His risk will increase with age. A 72-year-old man had a total hip arthroplasty eight days ago. He suddenly develops tendernessin his left calf, a slight temperature elevation, and a positive Homan's sign. Which of the following will be included in the initial care of this man?1. Warm packs to the left leg2. Vigorous massage of the left leg3. Placing the left leg in a dependent position4. Performing range of motion exercises to theleft leg