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A COMPREHENSIVE COLLECTION OF PHYSIOLOGICAL CHARACTERISTICS

Mr. Sachin Panwar*, Dr. Praveen Kumar**

* Research Scholar, Department of Physical Education, Swami Vivekanand Subharti University, Meerut (U.P.).

** Associate Professor, Department of Physical Education, Swami Vivekanand Subharti University, Meerut (U.P.).

ABSTRACT

A reliable human recognition scheme is required in wide variety of systems to either verify or identify the identity of an individual requesting their services. Using traditional approaches such as possession based and knowledge based systems, it is very difficult to differentiate between an authorized person and an impostor. This is a strong reason for replacing traditional ID-based systems with biometric systems which are based on human traits that cannot be denied, stolen, or faked easily. Biometric recognition refers to the automatic recognition, based on physiological and /or behavioral characteristics of an individual. By using biometrics, it is possible to establish an individual's identity based on "who he or she is" rather than by "what he or she possesses likes smart card" or "what he or she remembers likes password." Human ear due to its consistent behavior over the age, has gained much popularity in recent years among various physiological biometric traits. The decidability index of the ear has been found that magnitude significant greater than that of face. Ear remarkably consistent and does not change its shape under expressions like face. The shape of the outer ear is recognized as a valuable means for personal identification. Naturally, an ear biometric system consists of ear detection and ear recognition modules. Ear biometric has played an important role for many years in forensic science and its use by law enforcement agencies.

Keyword: Physiological Characteristics

INTRODUCTION

Physiology is the scientific study of functions and mechanisms in a living system. As a sub discipline of biology, physiology focuses on how organisms, organ systems, individual organs, cells, and bimolecular carry out chemical and physical functions in a living system. Physiological characteristics refer to the physical functions of a human. According to the critical hypothesis theory, Physiology is the science of life. It is the branch of biology that aims to understand the mechanisms of living things, from the basis of cell function at the ionic and molecular level to the integrated behavior of the whole body and the influence of the external environment. Research in physiology helps us to understand how the body works in health and how it responds and adapts to the challenges of everyday life; it also helps us to determine what goes wrong in disease, facilitating the development of new treatments and guidelines for maintaining human and animal health. The emphasis on integrating molecular, cellular, systems and whole body function is what distinguishes physiology from the other life sciences. Physiology is an experimental science. Research in physiology advances our understanding of the detailed mechanisms that control and regulate the behavior of living things. We continue to learn more about fundamental processes, such as the control of heart rate or the sense of vision, through comprehensive exploration of the multiple processes involved. All over the world, physiologists are working in universities, in research institutions, in biotechnology companies and in the pharmaceutical industry to advance our understanding of how the body functions. Physiology is an exciting

and dynamic discipline that underpins translational and clinical medicine. It also provides the interface between the physical sciences and the life sciences. Physiologists study every aspect of the way human and other animal bodies work. Some physiologists investigate the behavior of individual proteins in single cells. Others are researching the interaction of cells in tissues, organs and systems or study the integration of these systems to control the whole complex organism. This work provides the foundation for many biological and clinical sciences, including medicine and veterinary science. Not all physiologists are found in research laboratories, though. Physiologists also work with patients in hospital clinics, helping with the diagnosis and management of disease. They work alongside elite athletes, helping to improve their performance and avoid injury, or they investigate how the body adapts to extreme environmental challenges, such as deep sea diving or prolonged space flight. Physiology is recognized globally. Physiologists can travel the world to conferences and meetings to present their findings to other scientists. Some physiologists report scientific developments for newspapers, journals and other media, or play an advisory role to Government or charitable organizations. Physiologists also use their skills in the legal arena, engaging in complex issues of patent law, or in education, inspiring and nurturing the next generation. Studying physiology opens doors to employment in all these areas and more. For more information about the range of careers and skills you can develop through a physiology degree, children who have not reached the critical age are still physically and biologically immature and have neurological advantages in learning language as compared to adults .Their speech organs and brains are more flexible which also make it easier for them to speak with a more accurate pronunciation and intonation Penfield & Roberts, 1960). Adults, on the other hand, are less flexible in their speech organs and more limited in developing native-like proficiency because their tone and pronunciation of a second language are often affected by their first language. Physiological characteristics refer to the physical functions of a human. According to the critical hypothesis theory, children who have not reached the critical age are still physically and biologically immature and have neurological advantages in learning language as compared to adults

CIRCULATION

The blood circulatory system (cardiovascular system) delivers nutrients and oxygen to all cells in the body. It consists of the heart and the blood vessels running through the entire body. The arteries carry blood away from the heart; the veins carry it back to the heart. the movement of blood through the vessels of the body that is induced by the pumping action of the heart and serves to distribute nutrients and oxygen to and remove waste products from all parts of the body see pulmonary circulation, systemic circulation Listen to pronunciation. The flow or movement of blood throughout the body. Blood carries oxygen, nutrients, and other important substances from the heart, through the blood vessels, to the rest of the body's cells, tissues, and organs.

COMPOSITION OF PLASMA

Plasma contains 91% to 92% of water and 8% to 9% of solids. It mainly comprises of: Coagulants, mainly fibrinogen, aid in blood clotting. Plasma proteins, such as albumin and globulin that help maintain the colloidal osmotic pressure at about 25 mmHg. The plasma composition mainly contains reactive oxygen species, reactive nitrogen species, aqueous electrons, free radicals, etc. The aqueous electrons are the predominant ones that directly destroy the PFAS compounds, whereas other ions perform indirect destruction. The blood component plasma is used to carry nutrients to the cells of the body's numerous organs and to transport waste products produced by cellular metabolism to the kidneys, liver, and lungs for elimination. Plasma accounts for 55% of total blood volume. It is particularly rich in proteins (including its primary protein albumin), immunoglobulins, clotting factors, and fibrinogen and is composed of 90% water, salts, lipids, and hormones. Transporting blood cells and nutrients, controlling the body's water and mineral salts, irrigating tissues, providing an infection defense and coagulating blood are all activities of plasma.

SPECIFIC GRAVITY

Specific gravity is defined as the ratio of the density of the solid part of a material to the density of water at 20°C. Typically, the specific gravity of soils is in the range 2.60 to about 2.80. If a substance's relative density is less than 1 then it is less dense than the reference; if greater than then it is denser than the reference. If the relative density is exactly then the densities are equal; that is, equal volumes of the two substances have the same mass. If the reference material is water, then a substance with a relative density (or specific gravity) less than 1 will float in water. For example, an ice cube, with a relative density of about 0.91, will float. A substance with a relative density greater than 1 will sink. Temperature and pressure must

be specified for both the sample and the reference. Pressure is nearly always. Where it is not, it is more usual to specify the density directly. Temperatures for both sample and reference vary from industry to industry. In British brewing practice, the specific gravity, as specified above, is multiplied by 1000 Specific gravity is commonly used in industry as a simple means of obtaining information about the concentration of solutions of various materials such as brines, must weight (syrups, juices, honeys, brewers worth, must, etc.) and aci

MINERALS

Such as iron are needed in smaller amounts. Some macro-minerals are electrolytes. Common electrolytes are calcium, sodium, potassium, phosphate, magnesium and chloride. Electrolytes dissolve in fluid and carry an electric charge. The geological definition of mineral normally excludes compounds that occur only in living organisms. However, some minerals are often biogenic (such as calcite) or organic compounds in the sense of chemistry. Moreover, living organisms often synthesize inorganic minerals that also occur in rocks. The concept of mineral is distinct from rock, which is any bulk solid geologic material that is relatively homogeneous at a large enough scale. A rock may consist of one type of mineral or may be an aggregate of two or more different types of minerals, specially segregated into distinct phases. Some natural solid substances without a definite crystalline structure, such as opal or obsidian, are more properly called mineralogist. If a chemical compound occurs naturally with different crystal structures, each structure is considered a different mineral species. Thus, for example, quartz and stishovite are two different minerals consisting of the same compound, silicon dioxide. The International Mineralogical Association (IMA) is the generally recognized standard body for the definition and nomenclature of mineral species. As of July mineral species. The chemical composition of a named mineral species may vary somewhat due to the inclusion of small amounts of impurities. Specific varieties of a species sometimes have conventional or official names of their own.[6] For example, amethyst is a purple variety of the mineral species quartz. Some mineral species can have variable proportions of two or more chemical elements that occupy equivalent positions in the mineral's structure; for example, the formula of mackinawite is given as.

PLASMA PROTEINS

Plasma proteins, such as albumin and globulin that help maintain the colloidal osmotic pressure at about 25 mmHg. Electrolytes like sodium, potassium, bicarbonate, chloride, and calcium help maintain blood pH. Immunoglobulin’s help fight infection and various other small amounts of enzymes. It can be separated from whole blood by the process of centrifugation, i.e., spinning whole blood with an anticoagulant in a centrifuge. Plasma is lighter, forming the upper yellowish layer while the denser blood cells fall to the bottom. The plasma collected is frozen within hours to preserve the functionality of the various clotting factors and immunoglobulin; it is thawed before use and has a shelf life of 1 year. Interestingly, while O- is the preferred universal donor for blood, the plasma of AB blood groups is the most preferred because their plasma does not contain antibodies, making it acceptable for everyone without fear of an adverse reaction. Plasma, like whole blood, is initially tested to ensure the safety of recipients. As per the FDA regulations, the collected plasma undergoes a battery of tests to identify transmittable diseases, mainly hepatitis along with syphilis and HIV. The process of fractionation separates individual plasma proteins

HORMONES AND VITAMINS.

Free serum amino acids Values for the free amino acids of fetal serum at full- term pregnancy in this species have been reported pre- piously; values for turbine, lysine, and 3-CH3-histidine were significantly higher, and those of leonine, serine and tyrosine were significantly lower in umbilical vein serum than they were in. Vitamins A and D are the first group of substances that have been reported to exhibit properties of skin hormones, such as organized metabolism, activation, inactivation, and elimination in specialized cells of the tissue, exertion of biological activity, and release in the circulation. Vitamin A and its two important metabolites, retinaldehyde and retinoic acids, are fat-soluble unsaturated isoprenoids necessary for growth, differentiation and maintenance of epithelial tissues, and also for reproduction. In a reversible process, vitamin A is oxidized in VIVO to give retinaldehyde, which is important for vision. The dramatic effects of vitamin A analogues on embryogenesis have been studied by animal experiments; the clinical malformation pattern in humans is known. Retinoic acids are major oxidative metabolites of vitamin A and can substitute for it in vitamin A-deficient animals in growth promotion and epithelial differentiation. Natural vitamin A metabolites are vitamins, because vitamin A is not synthesized in the body and must be derived from arytenoids in the diet. On the other hand, retinoids are also hormones - with intracranial activity - because retinol is transformed in the cells into molecules that bind to and activate specific nuclear receptors, exhibit their function, and are subsequently inactivated. The mechanisms of action of natural vitamin A metabolites on human skin are based on the time- and dose-dependent influence of morphogenesis, epithelial cell proliferation and differentiation, epithelial and mesenchymal synthetic performance, immune modulation,

stimulation of angiogenesis and inhibition of carcinogenesis. As drugs, vitamin A and its natural metabolites have been approved for the topical and systemic treatment of mild to moderate and severe, recalcitrant acne, photo aging and biologic skin aging, acute promyelocytic leukemia and Kaposi's sarcoma. On the other hand, the critical importance of the skin for the human body's vitamin D endocrine system is documented by the fact that the skin is both the site of vitamin D (3) and 1.25-dihydroxyvitamin D

BLOOD OBTAINED

Serum constituents Serum contains all proteins except clotting factors (involved in blood clotting), including all electrolytes, antibodies, antigens, hormones; and any exogenous substances (e.g., drugs, microorganisms). Most of the time, blood is drawn from a vein located on the inside of the elbow or the back of the hand. The site is cleaned with germ-killing medicine (antiseptic). An elastic band is put around the upper arm to apply pressure to the area. This makes the vein below it swell with blood. A needle is inserted into the vein. The blood collects into an airtight vial or tube attached to the needle. The elastic band is removed from your arm. The needle is taken out and the spot is covered with a bandage to stop bleeding. In infants or young children, a sharp tool called a lancet may be used to puncture the skin and make it bleed. The blood collects onto a slide or test strip. A bandage may be placed over the area if there is any bleeding.

BLOOD VOLUME

There are around 10.5 pints (5 liters) of blood in the average human adult body, although this will vary depending on various factors. During pregnancy, a woman may have up to 50% more blood. Blood volume refers to the total amount of fluid circulating within the arteries, capillaries, veins, venues, and chambers of the heart at any time. The components that add volume to blood include red blood cells (erythrocytes), white blood cells (leukocytes), platelets, and plasma. Plasma accounts for about 60% of total blood volume, while erythrocytes make up roughly 40%, along with leukocytes and platelets. The amount of blood circulating within an individual depends on their size and weight, but the average human adult has nearly 5 liters of circulating blood. Women tend to have a lower blood volume than men. However, a woman's blood volume increases by roughly 50% during pregnancy. Blood volume is tightly regulated and related to multiple organ systems. Furthermore, it is closely associated with sodium content and hydration status. The maintenance of blood volume is crucial to normal function as it is necessary for the constant perfusion of body tissues. Blood volume can be increased or decreased by systemic dysfunction. Changes in blood volume can result in various clinical scenarios such as hypovolemic shock or edema.

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