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USAGE OF USELESS ORGAN IN BODY MAKES IT JUDICIAL CUSTODY

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ABSTRACT

Vestigial organs could be defined as organs or parts of human, plant and animal bodies that do not have any clear function and are considered to be residual parts from their respective ancestors. Vestigial organs are proof that all living organisms have evolved over time and are also helpful in explaining adaptation. They have no apparent function and are residual parts from an ancestor. These structures can become detrimental but, in most cases, they are harmless. These organs take a long time to be phased out and eliminating them may require major alterations which can have negative effects on the body. The Evolution of Vestigial Organs: These organs are generally homologous to organs that function normally in other species, which is why they can be considered as evidence of evolution. The existence of vestigial traits can be attributed to changes in the environment or behaviour patterns of an organism. If a function of a trait is no longer beneficial for the survival of an organism, the chances of its future offspring inheriting the trait's normal form would be lower. The transition will take place over many generations and the trait may also be eliminated through genetic drift and other random events. It should be mentioned that gene mutation which can result in a change in protein structures can also give rise to vestigial organs. A good example is the degraded eyes of blind fish and salamanders. Mutation in genes have increased the number of taste buds in their tongue but have made them blind.

KEYWORDS: Sinuses, Appendix, Coccyx, External Ear, Nictitating Membrane, Tonsils, The Palmaris Longus muscle.

INTRODUCTION

In biology, an organ is a collection of tissues joined in a structural unit to serve a common function. In anatomy, a viscus is an internal organ, and viscera is the plural form. Organs are composed of main tissue, parenchyma, and "sporadic" tissues, stroma. The main tissue is that which is unique for the specific organ, such as the myocardium, the main tissue of the heart, while sporadic tissues include the nerves, blood vessels, and connective tissues. Functionally related organs often cooperate to form whole organ systems. Organs exist in all higher biological organisms, in particular they are not restricted to animals, but can also be identified in plants. In single-cell organisms like bacteria, the functional analogues of organs are called organelles. A hollow organ is a visceral organ that forms a hollow tube or pouch, such as the stomach or intestine, or that includes a cavity, like the heart or urinary bladder.[1]

Have you ever wondered why our bodies have organs that are seemingly pointless? The appendix doesn't appear to do anything except cause trouble, why can some people wiggle their ears and why do we have to go through the pain of wisdom teeth!? These 'useless' body-parts, otherwise known as vestigial organs, are remnants of lost functions that our ancestors possessed. They once represented a function that evolved out of a necessity for survival, but over time that function became non-existent. They provide some intriguing insight into the evolutionary history of our species.

What are Vestigial Organs? Vestigial organs are organs, tissues or cells in a body which are no more functional the way they were in their ancestral form of the trait. It is authentication of evolution and hence, were helpful in explaining adaptation. Such a structure can arise due to gene mutation which causes a change in the proteins. These mutated proteins result in the formation of vestigial structures. In the population, the occurrence of such structures may, however, increase if it is beneficial enough. For instance, snakes have evolved to slither as they no longer have legs excluding some snakes who still possess rear legs (the Boas). In humans, the appendix is a good example of a vestigial organ. This non-functioning organ eventually degenerates, shrinking in size and disappearing ultimately. Examining vestigial

should be governed by drawing similarities with their counterparts with respect to their homologous features. The exposure of this occurs through various processes of evolution, one of which is the loss of function of a feature that is not subjected to positive selection pressures in accordance with its surroundings.[2]

Sinuses are hollow spaces within the bones between your eyes, behind your cheekbones, and in your forehead. They make mucus, which keeps the inside of your nose moist. That, in turn, helps protect against dust, allergens, and pollutants. Healthy sinuses are filled with air.

Appendix is a narrow, finger-shaped pouch that projects out from the colon. Appendicitis occurs when the appendix becomes inflamed and filled with pus. Appendicitis is an inflammation of the appendix, a finger-shaped pouch that projects from your colon on the lower right side of your abdomen.

Coccyx is the triangular bony structure located at the bottom of the vertebral column. It is composed of three to five bony segments held in place by joints and ligaments. The majority of coccyx injuries occur in women, because the female pelvis is broader and the coccyx is more exposed.

Wisdom teeth are the third and final set of molars that most people get in their late teens or early twenties. Sometimes these teeth can be a valuable asset to the mouth when healthy and properly aligned, but more often, they are misaligned and require removal.

Outer ear is the auricle or pinna. The outer ear is made up of cartilage and skin. There are three different parts to the outer ear; the tragus, helix and the lobule. EAR CANAL. The ear canal starts at the outer ear and ends at the ear drum.

Nictitating membrane (from Latin nictare, to blink) is a transparent or translucent third eyelid present in some animals that can be drawn across the eye from the medial canthus to protect and moisten it while maintaining vision.

Tonsils (palatine tonsils) are a pair of soft tissue masses located at the rear of the throat (pharynx). Each tonsil is composed of tissue similar to lymph nodes, covered by pink mucosa (like on the adjacent mouth lining). Running through the mucosa of each tonsil are pits, called crypts.

Palmaris longus (PL) muscle is a long, slender muscle which is usually present in the superficial volar compartment of the forearm, interposed between the Flexor Carpi Ulnaris and the Flexor Carpi Radialis muscles. ... The absence of the palmaris longus does not have an effect on grip strength.[3]

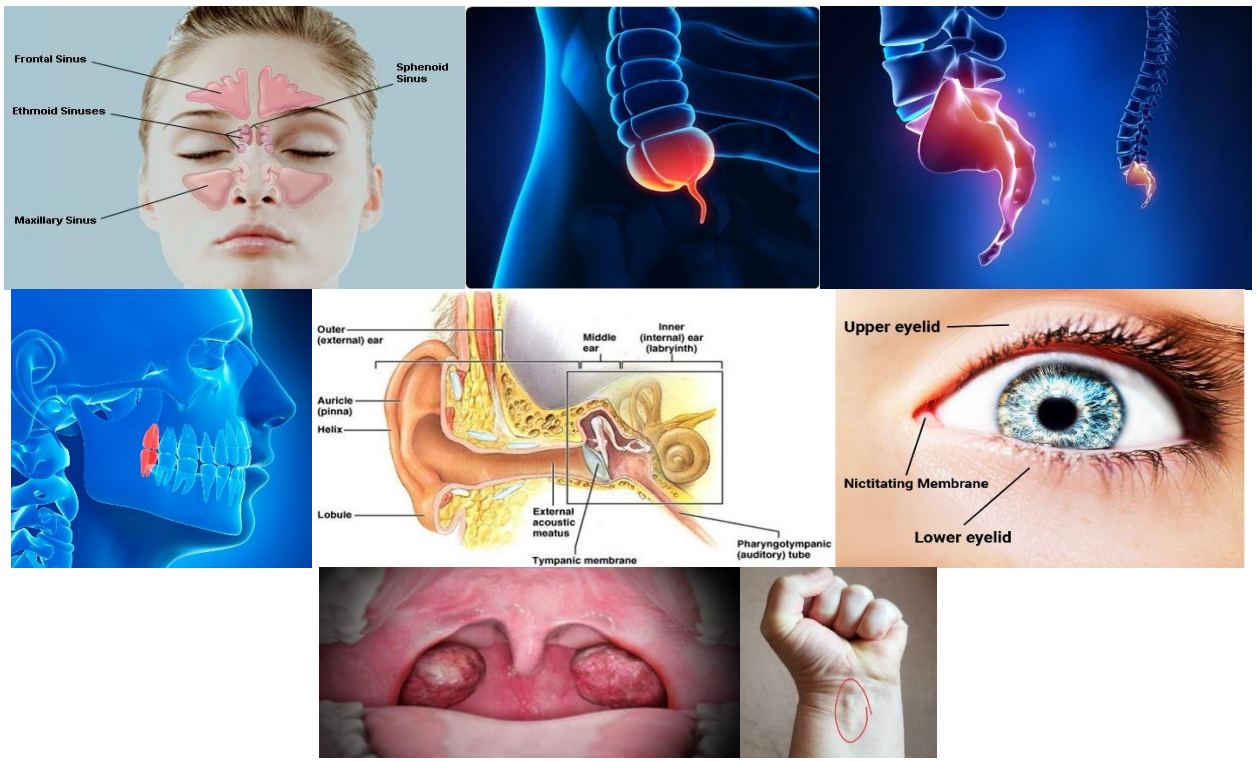

Figure-1: Vestigial Organs.

Vestigial organs vary from being pointless to favourable based on the selection. Some structures, due to less or no utility, degenerate over a period of time to avoid consequences of genetic drift or selective pressures.

Following are a few examples of vestigial organs:
Sinuses: Human cheekbones hold the maxillary sinuses. The face consists of pockets of air called sinuses. They are lined by a thin layer of mucosa. It has no significant use but infection can lead to sinusitis.[4]

Appendix: It is one of the most commonly known vestigial organs. This finger-like tube closed at one end arises from the vermiform process. In prime ancestors, the appendix is believed to have brought about the digestion of cellulose. Today, scientists predict that the appendix may play a role in digestion by bacteria. The appendix looks like a narrow tube that joins to the end of the colon. It's thought to have come from our herbivorous ancestors where it played a role in digesting tough plant-based food. Thousands of years ago human hunter-gatherers ate a wide variety of vegetation, the appendix also helped them to digest complex plant materials. As our diet changed the digestive role of the appendix became useless. However, natural selection prevented the human appendix from shrinking and leaving the body; appendixes that are smaller are more likely to become infected. This means people with larger appendixes were the ones that survived and contributed to our gene pool.

Coccyx: It forms the last part of the vertebral column, the residue of the lost tail and is often termed as the tailbone. It is observed during human embryogenesis. This formed as the centrepiece of the 'theory of recapitulation'.[5]

Wisdom Tooth: Forms the third set of molars in our buccal cavity. They may have been significant in the past (chewing rough and raw food) but in modern times, as they are inaccessible and remote, it causes pain and infection. In the past these molars were useful for grinding down plant tissue, especially as other teeth were worn down more quickly from tough vegetation and grit. Larger jaws were needed to help chew down foliage and compensate for the ineffective digestion of cellulose. When we began cooking our food chewing became much easier, our jaws became smaller and our teeth remained in better shape. Today, when wisdom teeth finally decide to come through, long after we stop receiving change from the tooth fairy, they force themselves into a jaw that is too small, often causing a lot of pain.[6]

External Ear: The Helix (outer rim of the ear) is known to be a vestigial structure. Underdeveloped muscles in the ear make us incapable to bring about the movement of ears. Darwin's tubercle is a vestigial feature present on the juncture of the upper part of the ear. The auricle muscle helps to perk up ears in animals when they are alerted to danger or in search of prey. Only some humans are able to still use these muscles. This function was particularly useful in primates that weren't able to move their head on a horizontal plane. As Darwin proposed, since humans are able to capture sound effectively by moving their head, the need for these muscles has been eliminated. Apart from having comedy value, wiggling our ears has no functional use.[7]

Nictitating Membrane: Nictitating membrane is the third eyelid found in a few animals that protect and keep the eyes moist and also helps in vision. In humans, it is replaced by plica semilunaris. The Plica Semilunaris, or your third eyelid, is a small fold of tissue located in your inner eye. It sits just by your tear duct. It is thought to be a remnant of nictitating membranes found in birds, reptiles and amphibians. These membranes keep their eyes moist and offer protection enabling them to maintain visibility while their eyes are still open. Unlike our upper and lower eyelids, these move horizontally rather than vertically across the eyeball, hence the position of this vestigial remnant in the human eye.[8]

Tonsils: The tonsils remain as vestigial organs in the human body. They act as the first line of defence and protect the body from harmful microorganisms that are either inhaled or ingested by the body.[9]

The Palmaris Longus muscle: About 16% of the human population does not have this muscle. Scientists think that this muscle helped early humans with their grip. Since we've begun to walk straight, over generations it has lost its purpose because we did not need to hand one to something for a very long while.[10]

CONCLUSION

In the context of human evolution, human vestigial involves those traits (such as organs or behaviours) occurring in humans that have lost all or most of their original function through evolution. Although structures called vestigial often appear functionless, a vestigial structure may retain lesser functions or develop minor new ones. In some cases, structures once identified as vestigial simply had an unrecognized function. Vestigial organs are sometimes called rudimentary organs. The examples of human vestigial are numerous, including the anatomical (such as the human tailbone, wisdom teeth, and inside corner of the eye), the behavioural (goose bumps and palmar grasp reflex), and molecular (pseudogenes). Many human characteristics are also vestigial in other primates and related animals.

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