

Rimamchatin Peculiar

17/MHS01/287

ANA 314

1. Comparative anatomy has long served as evidence for evolution; it indicates that organisms share a common ancestor. It also assists scientists in classifying organisms based on similar characteristics of their anatomical structures.

2. Homologous Structures

Homologous structures are those that are similar in multiple species and show that the organisms descended from a common ancestor. However, having the same ancestry does not mean that a bodily structure will always have the same function. Homologous structures can be anything from a specific skeletal structure to the nervous system to a body plan.

An example of a homologous structure is the forelimb in mammals. Dogs, whales, bats, humans, cats and other mammals have similar forelimb patterns. Although they look different on the outside, they are anatomically the same on the inside.

Another example of homologous structures is visible in vertebrate embryo development. Vertebrates have a gill slit and tail at similar developmental stages. However, these structures can change as the organism grows.

The foot of a mollusk is a homologous structure because it is common among gastropods, cephalopods and bivalves. Most mammals have similar vertebrate spine structures with giraffes, people and dogs all having the same number of vertebrae.

Analogous Structures

Analogous structures are those that are the same among different species that are not related. These organisms do not have a common ancestor, but their anatomical structures serve the same or similar purpose. A different ancestry can still lead to body parts with the same function.

An example of analogous structures are the wings of butterflies and bats. The wings are both similar in shape and function, but butterflies and bats are different species and do not share a common ancestor.

Fish and penguins both have fin structures to help them swim, but the animals are not related. Parrotfish have birdlike beaks to help them eat, but they are not part of the bird family.

Vestigial Structures

Vestigial structures are evolutionary leftovers. They are structures that have no function in an organism, but they come from a common ancestor that did need that structure. Over time, evolution and adaptation eliminated the need for these structures, yet they remain.

Examples of vestigial structures are the limb bones in snakes that cannot walk and whale sharks that have teeth but are filter feeders. There are flightless birds, like the emu, that have wings but cannot fly. There are also cave-dwelling fish and reptiles that live in the dark but still have eye structures.

Humans have many examples of vestigial structures in their bodies. For example, the tailbone is one body part that does not serve a function anymore. During development, the human embryo has a tail that disappears, so the vertebrae fuse to make the tailbone.

Wisdom teeth are another example of vestigial structures in humans. In the past, people needed wisdom teeth to eat because the extra teeth helped them grind food. However, modern humans do not need these third molars. These anatomical structures of the body remain but do not serve a purpose.