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Department of Anatomy

ANA314

1. Comparative anatomy shows its relevance to the study of evolution through its involvment in comparisons of structural similarities of organisms to determine their evolutionary relationships. Organisms with similar anatomical features are assumed to be relatively closely related evolutionarily, and they are assumed to share a common ancestor. Comparative anatomy is an important tool that helps determine evolutionary relationships between organisms and to find out whether or not they share common ancestors.

2. Types of Comparative Anatomy

   Comparative Anatomy is classified based on:

a. Homologous structures
b. Analogous structures
c. Vestigial structures

Homologous Structures: These are organs with similar structure, but different functions

For example, the bones in the forelimb of the human, whale, cat, bat, bird, alligator are used for vastly different movement but they all have remarkably similar structure and organization in terms of bones, nerves, blood vessels.

Analogous Structures

These are anatomical structures of different species that share similar functions but are structurally different. They do not have a common ancestry.

For example, birds and insects both have wings but are structurally different.

Vestigial Structures

These are structures in the bodies of some animals which are of no use to them. While in some other species the same structure exists and are in use.

For example, in humans the appendix and coccyx are vestigial structures.