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**MATRIC NO: 17/MHS01/112**

**DEPARTMENT: ANATOMY**

**COURSE CODE : ANA314**

## **QUESTIONS**

- 1. Comment on the relevance of comparative anatomy to evolution**
- 2. Discuss the types of comparative anatomy with relevant examples**

## ANSWER

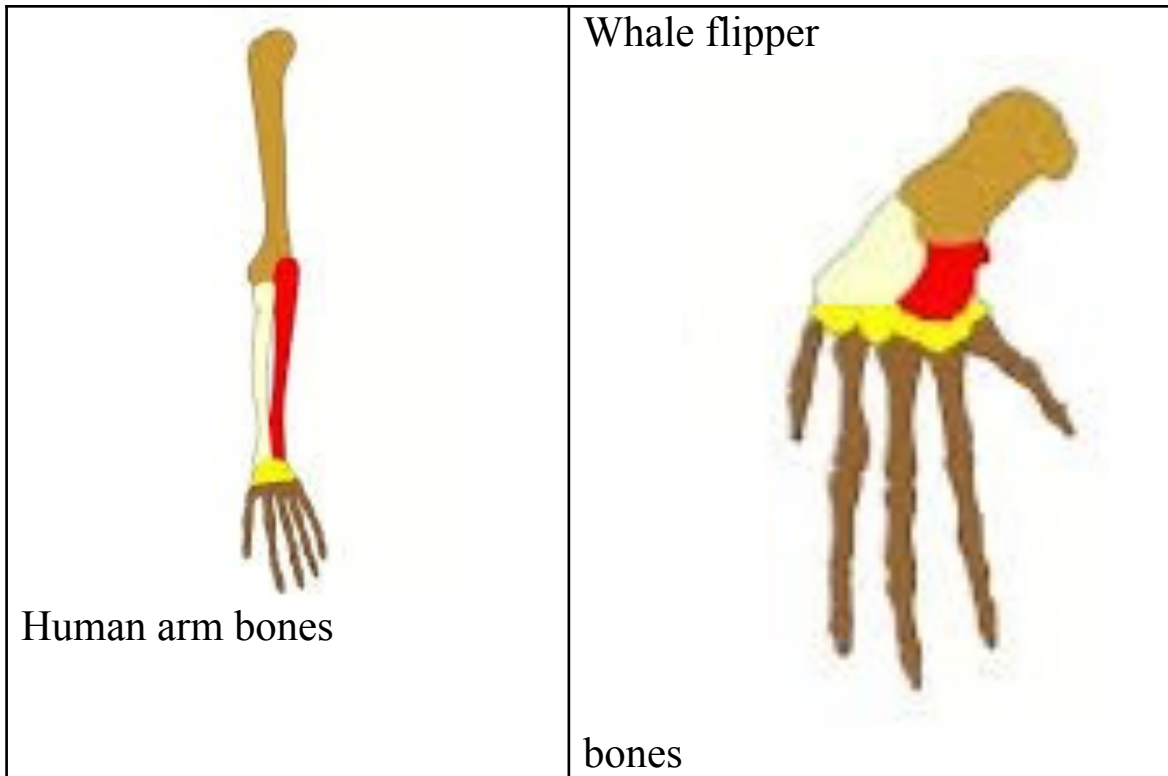
### 1) Relevance of comparative anatomy to evolution

Comparative anatomy (evidence for evolution) deals with comparing structural similarities of organisms to determine their evolutionary relationships. There are many forms of evidence for evolution. One of the strongest forms of evidence is comparative anatomy. Organisms with similar anatomical features are assumed to be relatively closely related evolutionarily, and they are assumed to share a common ancestor. As a result of the study of evolutionary relationships, anatomical similarities and differences are important factors in determining and establishing classification of organisms.

### 2) Types of comparative anatomy with relevant examples

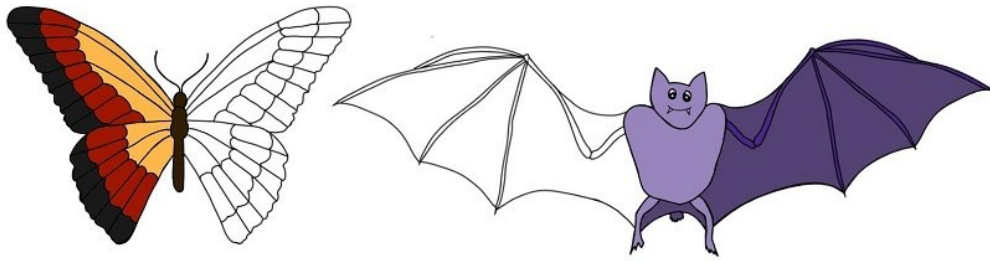
There are three types of comparative anatomy, the include;

- homologous structure.
  - Analogous structure.
  - Vestigial structure.
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- **homologous structure:** this deals with the comparative anatomy of structures with similar structure but different functions. For example, a human arm and a whale flipper are used for completely different purposes but are made of very similar bones. They are homologous to each other.



**Analogous structure;** this is the comparative anatomy of structures with similar function but different structure usually of no common ancestry. Example The wings of a butterfly and the wings of a bat have the same function, to fly. However, the structures look nothing alike. Similar function does not mean that two species have evolved together. If the function is the same but the structures are not similar, then there probably is no recent common ancestor.

Analogous structures are important because they show how similar functions evolved **independently** among different species.



*Analogous Structures*

- **Vestigial structure;** these are structures found in the body that no longer serve an important function. The human tail bone is an example. It suggests that humans evolved from a species that had a tail.