

The Mammals

Since we are about to study the structures and functions of a type of mammal, we ought to consider this most highly developed animal form more closely.

Both the pig and man belong to the class of vertebrates known as Mammalia. Mammals are the most highly developed animal form. While our dissection subject is the pig, we will be making constant reference to man in both the text and in the diagrams presented.

Mammals are a class of *Vertebrates* or backboned animals, that also includes the:

Fish

Amphibians (frog, toads, and salamanders)

Reptiles (lizards, snakes, turtles, and crocodiles)

Birds

Mammals range in size from minute shrews, which weigh only about two grams (0.002 kg) to giant blue whales, which weigh up to 115 tons (115,000 kg).

The two chief mammalian characteristics which set these animals off from the other classes of Vertebrates are:

Skin covered with hair or fur.

Milk-producing glands (mammary glands) in the female to nurse the young.

The most primitive living mammals belong to the Order *Monotremata*. These animals, native to the Australian region, include the duck-billed platypus and the spiny anteater. They lay a reptilian type of egg. When hatched, the young receive nourishment from the mother's mammary glands.

A more advanced form of mammal, belonging to the order of the pouched mammals, the *Marsupialia*, gives birth to live young (viviparous). However, the young are born at a very early stage of development and continue their maturation in a pouch, where they attach to nipples of the mammary glands. Australian kangaroos and American opossums are members of this order.

The most familiar mammals belong to the subclass *Eutheria*, or *placental* mammals. They include the pig as well as man. Other members of this diverse group include the dogs, cats, cattle, rats, whales, lions, tigers, apes, monkeys, giraffes, and hippopotamuses, and many others.

Their embryos develop within the *uterus* (womb) and are nourished by a special structure, the *placenta*, until they emerge highly developed. Most can walk and even run within a few days of birth; man, however, is helpless for the longest period of time.

During *gestation* (the period during which the embryo develops within the uterus), there is an exchange of substances between the blood of the mother and the embryo across the placenta through the *umbilical cord*.

Students in the Health Sciences, please note that although your primary interest is the human organism, most organs and tissues of the pig are structurally and functionally similar to those of man. Even their names are quite similar, most often identical. Charts, models, and skeletons of human anatomy should be made available to you while you are studying comparable features of the pig.