PHARMACEUTICAL DOSAGE FORMS IN VETERINARY MEDICINE

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THE PATIENT

In veterinary medicine, drug delivery systems to animals can be conveniently divided into two broad categories:

FOOD-PRODUCING ANIMALS, which form the major sector of the total market with approximately 70% of total sales, and COMPANION ANIMALS, which account for the remaining 30%.

Food-producing animals

Companion animals

Food-Producing Animals

Food-production animals include cattle, sheep, and swine together with fish and other animal from which meat or other products such as eggs or milk are obtained.

Companion Animals

In many countries with aging populations, humans are increasingly seeking animal companionship and companion animals are now more likely to be considered as members of the family than they were previously.

Companion Animals

Companion animals are those that are considered pets and include dogs, cats, and horses.

Birds, rabbits, etc. can be considered companion animals; however, they are sometimes classified as exotic animals.

CLASSIFICATION OF ANIMALS

The dietary habit provides a broad basis for the classification of domestic animal species.

**Herbivorous species consist of horse and ruminant animals like cattle, sheep and goat.

**Carnivorous species consist of dog and cat.

**Omnivorous species consist of pig.

**The digestive system is the principal distinguishing feature between herbivorous and carnivorous species.

**Humans and animals having distinguishing digestive system main difference in the length of the intestinal tract.

- In terms of physiological function, the digestive system is the principal distinguishing feature between herbivorous and omnivorous species.
- Based on limited available information, it appears that the half-lives of drugs, which undergo extensive hepatic metabolism, are considerably shorter in herbivorous species than in carnivorous species.
- The urinary pH is determined by the diet. Carnivores excrete acidic urine, herbivores excrete alkaline urine and the pH of pigs may vary depending on the diet.

The digestive system of ruminants is very similar to that of other mammals, but the stomach is considerably different from the so-called ‘‘monogastric" condition.

The pig, dog, cat are monogastric (single-stomached) species.
The physiology of digestion and drug absorption process are, in general, similar in these species, and are not unlike those in the human.

In monogastric animals, the stomach's functions are limited to temporary storage and preliminary mastication of the food into a liquid mass; little or no absorption of nutrients takes place.

In ruminants, however, the stomach has an absorption function in addition to the usual functions of mastication and acidification.

The key to the ruminant digestive system's efficiency is the presence of symbiotic microorganisms in it, particularly in the forestomachs.

The forestomach, which refers to the rumen and reticulum (or reticulo-rumen) and omasum, is a voluminous compartment lined with stratified squamous epithelium in which microbial fermentation takes place continuously.

There are considerable anatomical and physiological differences between species.

Because of marked differences in the anatomical arrangement of the gastrointestinal tract and associated digestive physiology between herbivorous and non-herbivorous species of animals, variations can be expected to occur in both the rate and extent of absorption orally administered drugs.