

COMPARISON OF DIGESTIVE ORGAN SIZE OF THREE DEER SPECIES

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Abstract: The sizes of stomach compartments relative to total body weight and carcass weight were compared among roe (*Capreolus capreolus*), red (*Cervus elaphus*), and fallow deer (*Cervus dama*) collected in Hungary. The relative rumen-reticulum tissue weight as a percentage of body weight was similar for all three species. As the body size of the species increased, the relative weight of omasal tissue increased, and abomasum tissue decreased.

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Capacities of the different stomach compartments of the digestive tract have important implications in the nutrition of ruminant animals. The rumen capacity in relation to body weight influences the retention time of food in the rumen. Animals with a smaller rumen must have a higher turnover rate to secure their nutrient needs, whereas animals with a large rumen can retain ingesta for a longer time and consequently digest more fiber (Hungate 1966: 414). The food habits of ruminant animals are influenced to some degree by rumen capacity. Animals with a small rumen must select forage lower in fiber and higher in digestibility than animals with a large rumen in order to satisfy energy needs.

The relationships of rumen contents weight and rumen volume to total body weight have been reported for sheep by Purser and Moir (1966), for mule deer (*Odocoileus hemionus*) by Short et al. (1965), and for white-tailed deer (*O. virginianus*) by Short et al. (1969). The purpose of this paper is to report the size of the various organs of the digestive tract in relation to animal weight for three species of wild European ruminants: roe, fallow, and red deer.

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METHODS

Twenty-five roe deer and 23 red deer were collected between October 1973 and February 1974 from a variety of locations in Hungary. Forty-eight fallow deer were collected on the Fallow Deer Reservation near Gyulaj, Hungary, during January and February 1974. After being shot, the animals were transported to a central location for necropsy, where they were weighed to the nearest 0.5 kg. The animals were opened and all internal organs removed (tongue, esophagus, trachea, lungs, heart, kidneys, and the entire digestive tract). Each organ was weighed and then subtracted from the total body weight to obtain the carcass weight. Blood and urine were not collected, so carcass weights were slightly high.