

Chewing Behaviour in the Domestic Donkey

Visaria Gitelman*

Department of Veterinary Medicine, Iowa State University, Iowa, USA

Commentary

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***For Correspondence:**

Visaria Gitelman, Department of Veterinary Medicine, Iowa State University, Iowa, USA

E-mail: visaria.gitelmen@gmail.com

DESCRIPTION

The domestic donkey is a hoofed animal belonging to the Equidae family which includes horses. *Equus africanus asinus*, a subspecies of *Equus africanus* or *Equus asinus* is a distinct species which are descended from the African wild ass, *Equus africanus*. It was domesticated in Africa which is most likely around 5,000 or 6,000 years ago and has been primarily utilised as a working animal.

There are around 40 million donkeys in the world. Most of them live in developing nations and are utilised primarily as draught or pack animals. While working donkeys are frequently linked with those living on or below the poverty line, in developed countries and limited numbers of donkeys or asses are kept for breeding or as pets.

A jack or jackass is a male donkey or ass, a jenny or jennet is a female donkey or ass and a foal is an immature donkey or ass of any sex. Mules are frequently produced by mating jacks with mares. The biological equivalent of a mule is a hinny which is produced by mating a stallion with a jenny.

The Nubian and Somalian subspecies of African wild ass are the modern donkey's progenitors. Domestic donkey remains dating have been discovered Lower Egypt. The donkey was assumed to have been domesticated far later than cattle, sheep and goats. Donkeys eventually replaced the ox as the culture's primary pack animal.

The domestication of donkeys increased the mobility of pastoral societies by eliminating the need for ruminants to chew their cud and it was crucial in the development of long-distance trade across Egypt. Over 1,000 donkeys were used in agriculture as dairy and meat animals and as pack animals. The skeletons of ten donkeys were discovered buried in the same manner as high-ranking humans. The importance of donkeys to the early Egyptian kingdom and may be seen in these graves.

Chewing action is a crucial part of donkey eating behaviour (*Equus asinus*). All herbivorous mammals must chew their food to prepare it for digestion especially those that get their energy from microbial fermentation of cellulose. Chewing breaks down plant cells lowers the size of feed particles increases saliva production and wets the meal. Ruminants chew when they first eat (mastication) and again when they ruminate. Non-ruminant herbivores such as donkeys have only one chance to finish the physical processing of grain during mastication.

A multitude of factors influence how long an individual herbivore spends chewing a given amount of food including the animal's species, body size, physiologic state, degree of consumption, amount of fibre in the diet, physical shape of the feed and feed particle size. Chewing activity has been studied extensively in cattle particularly dairy cattle as well as sheep and goats.

Food resources are generally scarce and of poor quality in the semi-arid regions where the donkey developed and is now most regularly seen. To survive and compete with other species, animals must be efficient consumers and processors of these limited resources. During the dry season, when food is scarce, donkeys appear to be able to maintain bodily condition better than cattle. Reduced metabolic requirements, increased choice for highly nutritious plant components, tolerance of unpalatable foods or enhanced ingestion and passage of fibrous foods may all contribute to this ability to retain body reserves.

To compete with ruminants in high-fiber environments and utilise a strategy of high intake, rapid transit and low nutritional extraction per unit of feed should be there. Feed particles in ruminants must be reduced to a size small enough to pass through the rumen. One feeding approach that could be used to attain a high rate of intake is fast chewing. We reasoned that because donkeys will chew and absorb feed more quickly than ruminants. To provide baseline data for this species, we evaluated the pace at which donkeys chew and the rate at which feed is swallowed.

Horses are thought to chew their food more thoroughly during ingestion than cattle. Horses have more robust mandibles, greater masseter insertion regions and larger masseter muscles than cattle and other grazing ruminants according to this theory. The findings of comparative feeding trials with three horses (338–629 kg) and three cows (404–786 kg) on four different roughages are evaluated in this study. Ingestion time (s/g dry matter) and chewing intensity (chews/g dry matter) vary significantly between forages and between animals within a species indicating a role for body mass.