

Water requirements of African goats and haired-sheep

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Abstract

A number of species of desert- dwelling ungulates (e.g. Grant's gazelle and oryx) can apparently survive desert conditions without drinking. We were interested in finding out whether goats and sheep herded in the arid Northern Frontier Region of Kenya utilized the same physiological strategies for reducing water requirements as the wild ungulates. Using simulated desert conditions (12 hper day at 22°C alternating with 12 hper day at 40°0) we found: (a) both goats and sheep used water amounting to about 8% of their body weight per day when water was available ad libitum; and (b) this was reduced to about half (or 4% body weight per day) when the water intake was restricted. Evaporation was the major avenue of water loss under all experimental conditions. It was reduced from over 6 % of body weight per day to about 3 % in the simulated desert by restricting water intake. Restricting water intake had no effect on the temperature regulation of goats and sheep as had been observed in the wild desert-dwelling ungulates. It would appear that African goats and haired-sheep lack the physiological mechanisms and are not free to utilize the behavioural mechanisms involved in freeing wild desert-dwelling ungulates from their dependence on drinking water.