Effect of recurrent cycles of water deprivation on reproductive traits of mature Barbarine rams during summer season

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Résumé

This study aimed to investigate the effect of water deprivation (WD) on reproductive traits of rams. Ten mature rams were used and allocated to two groups balanced for body weight. Control (C) rams had free access to drinking water, while water-restricted rams (WD) were deprived from water for 3 consecutive days and early on the morning of day 4, they had ad libitum access to water for 24 h, similar to C animals. The experiment lasted 32 days, that is eight 4-day cycles of water deprivation and subsequent watering. Feed and water intake were significantly affected by water deprivation; in comparison with C rams, WD rams reduced their feed intake by 18%. During the watering day of the deprivation cycle, WD rams consumed more water than C rams on the same day (11.8 (SD = 3.37) and 8.4 (SD = 1.92) l respectively; $p < 0.05$). Glucose, total protein and creatinine were increased as a result of water deprivation. However, testosterone levels were lowered as a result of water deprivation and average values were 10.9 and 6.2 (SEM 1.23) ng/ml for C and WD rams respectively ($p < 0.05$). Semen traits were less affected by treatment; WD rams consistently had superior sperm concentrations than C animals; and statistical significances were reached in cycles 5 and 8 of water deprivation. Several mating behaviour traits were modified as a result of water deprivation. When compared to controls, WD rams had a more prolonged time to first mount attempt ($p < 0.001$), their frequency of mount attempts decreased [6.8 vs. 5.2 (SEM 0.1); $p < 0.001$] and their flehmen reaction intensity was negatively affected ($p < 0.05$). Water deprivation may have practical implications reducing the libido and therefore the serving capacity of rams under field conditions.

Key-words: rams, water deprivation, scrotum diameter, mating behaviour, semen traits