EFFECT OF EXERCISE AND SUSPENSORY ON SCROTAL SURFACE TEMPERATURE IN THE STALLION

Summary / Zusammenfassung

Maintenance of testes at a temperature lower than body temperature is critical for normal spermatogenesis. Testicular thermoregulation in most mammals is accomplished by muscular contraction of the tunica dartos, scrotal sweat glands and the arterio-venous countercurrent heat exchange mechanism at the pampiniform plexus. Many studies in different species have shown that elevation of intratesticular temperature adversely affects spermatogenesis. In this study, the effect of exercise (treadmill, riding) on scrotal surface temperature (SST) in the stallion with and without suspensory was evaluated. Experiments were carried out between September and November 2004 using 12 Franches-Montagnes stallions from the National Stud in Avenches (Switzerland). Each stallion performed a standardized incremental treadmill and a ridden test with and without suspensory. The intensity of exercise was monitored by heart rate and blood lactate concentration. For SST measurements, special thermistors were developed and affixed to the most ventral part of the scrotum over each testis. SST was recorded telemetrically at 1 min intervals. Our results show that type of exercise (treadmill/ridden) and suspensory (with/without) significantly influenced SST. The mean SST level was higher during treadmill (32.2 ± 0.02°C) than during ridden exercise (30.4 ± 0.03°C) and mean SST differences between stallions with and without suspensory were smaller in treadmill (0.4°C) than in ridden (2°C) exercise. These findings clearly demonstrate that ambient air flow, which was higher during ridden exercise, is important and effective in SST regulation. In order to prevent possible thermal damage to spermatogenic cells we recommend removing the suspensory immediately after exercise.

Publications / Publikationen


Keywords / Suchbegriffe
Scrotal temperature, stallion, exercise, suspensory

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