Seasonal changes in semen quality and freezability in the Warmblood stallion

Summary / Zusammenfassung
The objective of this study was to investigate seasonal changes in stallion semen quality and to determine the best time for semen cryopreservation. Experiments were performed using 10 Warmblood stallions from the National Stud Farm in Avenches (Switzerland). Ejaculates were collected and frozen every other week during one year from January to December 1999. Volume, concentration, and motility, and the number of morphologically normal sperm and sperm with major defects (abnormal heads, acrosome defects, nuclear vacuoles, proximal droplets, abnormal midpieces) were evaluated. For all frozen-thawed semen samples motility as well as viability (SYBR-14/PI) was tested, and the hypoosmotic swelling test (HOS) was performed. To analyze seasonal differences 4 periods of 3 months each were defined: autumn (September, October, November), winter (December, January, February), spring (March, April, May) and summer (June, July, August). During the one year experiment all semen quality parameters showed a clear seasonal pattern. The volume, total sperm count and motility in fresh semen were significantly higher (P < 0.05) in summer than in winter, while sperm concentration was significantly lower in summer compared to the other seasons. Regarding morphology, normal sperm was significantly lower (P < 0.05) in summer than at any other time of the year and higher values (P < 0.05) were found for major defects in summer than in spring and autumn. In frozen-thawed semen motility was significantly (P < 0.05) improved in autumn when compared to spring and summer. Viability was lowest in summer and differed significantly (P < 0.05) from other seasons. The HOS test revealed significantly more (P < 0.05) membrane damaged spermatozoa in winter than in spring, summer and autumn. Our results demonstrate that in our climatic conditions clear seasonal differences occur in semen quality of fresh and frozen-thawed semen and that cryopreservation of stallion semen should preferably be performed in autumn.

Publications / Publikationen

Keywords / Suchbegriffe
Stallion, season, semen quality, sperm morphology, cryopreservation

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