The influence of centrifugation on quality and freezability of stallion semen

Original title / Originaltitel
Einfluss der Zentrifugationsmethode auf Qualität und Kryokonservierung von Hengstsamen

Summary / Zusammenfassung
The aim of the present study was to investigate the influence of various centrifugation methods on sperm loss and quality of frozen-thawed semen. From a total of 8 Warmblood stallions of the National Stud Farm in Avenches, 3 ejaculates each were collected and seminal plasma was removed using 3 different centrifugation regimes. In method I (reference method) centrifugation occurred by a speed of 600 x g during 10 minutes. In method II 1000 x g was used during 2 minutes while in method III centrifugation was performed by 2000 x g during 2 minutes. After centrifugation 90% of the supernatant was removed and sperm loss calculated. After resuspension of the pellet with freezing medium, functional membrane integrity was evaluated by HOS-test and motility determined. In frozen-thawed semen motility, viability as well as functional membrane integrity (HOS-test) and acrosome status using chlortetracyclinassay (CTA) were assessed. Our results demonstrate that mean sperm loss (I, 1.9%; II, 8.7%; III, 3.7%) was significantly (P < 0.05) different between the three centrifugation regimes. Regarding semen quality of frozen-thawed semen, HOS in method III (52.1%) was significantly lower than in methods I (55.5%) and II (55.3%). Evaluation of the acrosome status by CTA showed that more than 70% of sperm cells were capacitated and 25% capacitated and acrosome reacted. From our results we conclude that sperm loss and functional membrane integrity (HOS-test) in frozen-thawed semen were significantly influenced by the centrifugation regime. Therefore, stallion semen should be centrifuged at 600 x g during 10 minutes before freezing in order to obtain low sperm loss and a good quality of frozen-thawed semen.

Publications / Publikationen

Keywords / Suchbegriffe
Stallion, cryopreservation, semen quality, centrifugation

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