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Cryopreservation of cock semen with different freezing methods

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Statement of the Problem: Cryopreserved cock semen has a limited on-farm use, due to its presumably low sperm motility rate recovery post-thaw with the primary role of the sperm being to fertilize the ovum. The purposes of this study was to compare two cryopreservation methods (slow freezing and vitrification) and the effect of different thawing/warming temperatures (5 °C, 25 °C and 41 °C) on cock sperm motility traits.

Methodology & Theoretical Orientation: The abdominal massage technique was used for semen collection. The sperm motility and the velocity traits were evaluated using a Sperm Class Analyzer® system. Semen sample for slow freezing group was diluted with modified Kobidil+ extender supplemented with 8% DMSO and equilibrated at 5 °C. It was then loaded into 0.25 ml straws and placed in a programmable freezer. Semen straws were transferred into a liquid nitrogen container (-196 °C) for storage. After three months, the straws were thawed at 5 °C for 5 minutes, at 25 °C for 1 minute and at 41 °C for 1 minute. The precooling procedures were also used for the solid surface vitrification (SSV) method. Following an equilibration period, 5 µl of diluted semen were dropped into a pre-cooled SSV device. The drops were loaded into a cooled cryovial and stored in a liquid nitrogen container. Vitrified semen drops were warmed at 5 °C for 5 minutes, 25 °C for 1 minute and at 41 °C for 1 minute. **Findings:** Cock sperm cryopreserved by slow freezing (43%) and thawed at 5 °C had a significantly higher survival and motility rate compared to vitrification (2.5%) method. **Conclusion & Significance:** Cryopreservation process reduces sperm motility and velocity traits regardless of cryopreservation method and thawing or warming temperatures. However, slow freezing was a better method to maintain sperm motility. Recommendations are made for further studies to conduct artificial insemination for quantification of the better sperm fertility obtained following freezing.

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