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Assessment of Semen Quality in Animal Reproduction

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Introduction

For successful conception and embryonic development, sperm quality is crucial. The search for more precise methods of semen assessment using ever-newer methods has been prompted by issues with animal reproduction. In order to predict male fertility and maximize fertilization capacity under both natural conditions and assisted reproductive technology, precise semen assessments are required. Spermatozoa have a highly variable morphology and a unique structure that is not found in other animal cells. They are extremely sensitive to a wide range of factors and count among the most diverse cell types.

The objective of the special issue titled "Animal Reproduction: The purpose of "Semen Quality Assessment" is to present the most recent scientific advancements in the application of cutting-edge methods for evaluating animal sperm, including precise sperm cell structure analyses. The majority of the studies that are included in the Special Issue are primarily concerned with how various factors affect the quality of sperm, such as how antioxidants affect the quality of sperm that has been cryopreserved and sperm that has been stored at room temperature; the effects of breed, testing technique, and location; the effect of time spent storing sperm; as well as the impact of a semen extender. Topical issues in animal reproduction are the focus of these studies, which are based on analyses of the sperm of a variety of animal species, including horses, ostriches, sheep, pigs, cattle, and others [1].

Description

Riesco and others Crocin, GSH, and Trolox, three antioxidants that had previously been tested, were the subjects of a multiparametric investigation into how they affected the quality of cryopreserved ram sperm. The addition of antioxidants to semen extenders for cryopreservation of sheep sperm had positive effects, according to the study. Following the artificial insemination procedure, for the first time, an analysis of fertility was combined with an analysis of semen quality in vitro.A ram semen extender containing 1 mM Trolox improved the quality of the thawed sperm, reduced cryodamage, and increased fertility. An integrated and multiparametric approach that combined in vivo and in vitro analyses and cutting-edge methods like Redox SYS were used to test the effectiveness of antioxidant treatments for the first time in sheep. Various types of damage to sperm are caused by cryopreservation. As a result, enhancing the cryopreservation of sheep semen and optimizing artificial insemination can be made easier by adding antioxidants to semen extenders.

The effects of taurines various concentrations on the quality of sperm stored at room temperature in a study. The Hu breed of sheep was the subjects of this study. During storage at room temperature, this breed's semen is extremely sensitive to reactive oxygen species (ROS). At room temperature, the semen was diluted with an extender containing various taurine concentrations (0, 10, 20, 40, 80, or 100 mm).The quality of the sperm was better when taurine was added, especially at 20 mm, than when the extender was used to dilute the sperm (the control).When compared to the control semen, the motility, cell membrane integrity, and mitochondrial membrane potential of the sperm in the semen diluted with the extender and 20 mm taurine were all higher. Investigated how horse sperm progressive motility was affected by breed, testing method, and geographical location. A crucial determinant of a horse's suitability for reproduction and fertility is sperm motility, or sperm quality. According to the authors, horse breed, testing method and geographical location can have a significant impact on horse semen quality and, as a result, reproductive potential. A meta-analysis and a comprehensive review of data from 280 studies conducted between 1990 and 2018 served as the foundation for the evaluation of the progressive motility of the stallion sperm. The temporal trends in sperm motility analysis suggest that horse ejaculate's fertilization capacity has remained high for the past three decades. The way this parameter is evaluated, geographic differences, and individual variation between stallions may all have an impact on the observed variations in sperm motility parameters. In order to lessen the variation that results from testing methods, the authors emphasize the need for standardization of the methodology for assessing sperm motility [2-5].

Conclusion

Changes in the cell membrane integrity of sperm that occur during semen storage were examined using the sperm of Duroc x Pietrain crossbred boars and purebred boars of the parent breeds. Comparing the cell membrane integrity of the sperm heads of crossbred and purebred boars yielded estimates of heterosis effects. The researchers discovered that the cell membrane integrity of sperm heads deteriorated over time for diluted semen, but in varying degrees across breed groups. The heterosis effects confirmed their observation that the semen of Duroc x Pietrain crossbreeds was less sensitive to storage conditions than that of parent breed boars. Compared to purebred boars, the percentage of sperm in the crossbred boars' sperm with an intact cell membrane was higher. Additionally, the number of dead and damaged sperm in crossbred boar sperm was significantly lower. In comparison to the sperm of Duroc x Pietrain crossbreeds, the authors suggest that sperm cell membrane integrity should be evaluated more frequently during storage. The research presented in these published papers is very promising, offers a lot of useful information, and has the potential to significantly advance animal reproduction.

References

1. Riesco, Marta F., Mercedes Alvarez, Luis Anel-Lopez and Marta Neila-Montero, et al. "Multiparametric study of antioxidant effect on ram sperm cryopreservation from field trials to research bench." *Animals* 11 (2021): 283.
2. Zhang, Liuming, Yanhu Wang, Tariq Sohail and Yan Kang, et al. "Effects of taurine on sperm quality during room temperature storage in hu sheep." *Animals* 11 (2021): 2725.
3. Perrett, Jodie, Imogen Thea Harris, Christy Maddock and Mark Farnworth, et al. "Systematic analysis of breed, methodological and geographical impact on equine sperm progressive motility." *Animals* 11 (2021): 3088.
4. Wysokińska, Anna and Dorota Szablicka. "Integrity of sperm cell membrane in the semen of crossbred and purebred boars during storage at 17°C: Heterosis effects." *Animals* 11 (2021): 3373.

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5. Van der Horst, Gerhard and Liana Maree. "Origin, migration and reproduction of indigenous domestic animals with special reference to their sperm quality." *Animals* 12 (2022): 657.

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