

An alternative to antibiotics in stallion semen extenders - centrifugation through a low density colloid

CONCLUSION

Single Layer Centrifugation with low density Equicoll could be a useful alternative to antibiotics in semen extenders.

Background

Antimicrobial resistance is still a global threat, despite efforts to reduce antibiotic usage. One non-therapeutic use of antibiotics is in semen extenders for artificial insemination. An alternative could be to separate spermatozoa from seminal plasma and bacteria by passing semen through a low density colloid. Previously, this method was tested with stallion semen *in vitro* but sperm fertility was not determined in that study[1].

Objective

To test stallion sperm fertility in artificial insemination (AI) after Single Layer Centrifugation (SLC) through low density Equicoll

Methods

- Pool ejaculates from 4 stallions
- Centrifuge through low density Equicoll [2]
- Resuspend sperm pellet in EquiPlus, either with or without antibiotics
- Prepare AI doses (200 million spermatozoa in 10 mL)
- Inseminate mares previously injected with 1000 iu hCG to induce ovulation;
- Ultrasound examination 14 days after AI
- Analyse results by the Chi-squared test



Figure 2: Mare and foal at INRAE

Results

For the group with antibiotics, 10 of 33 mares had an embryonic vesicle on ultrasound
 For the group without antibiotics, 9 of 24 mares had an embryonic vesicle on ultrasound
 These results were not different on a Chi-squared test ($p > 0.05$)
 No uterine infection was detected.

References

1. Malaluang et al. Theriogenology 2024;216:111-117
2. Morrell & Nunes, Equine Veterinary Education 2018: 30, 392-398

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a)

Figure 1: Single Layer Centrifugation through low density Equicoll: a) semen collection by artificial vagina; b) layering extended semen over 15 mL colloid; c) preparation ready to centrifuge @ 300 g for 20 min; d) removing the supernatant after centrifugation. Note the sperm pellet in the bottom of the tube.

