

# 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].

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

## 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)

b)

- Inseminate mares previously injected with 1000 iu hCG to induce ovulation;
- Ultrasound examination 14 days after AI
- Analyse results by the Chi-squared test

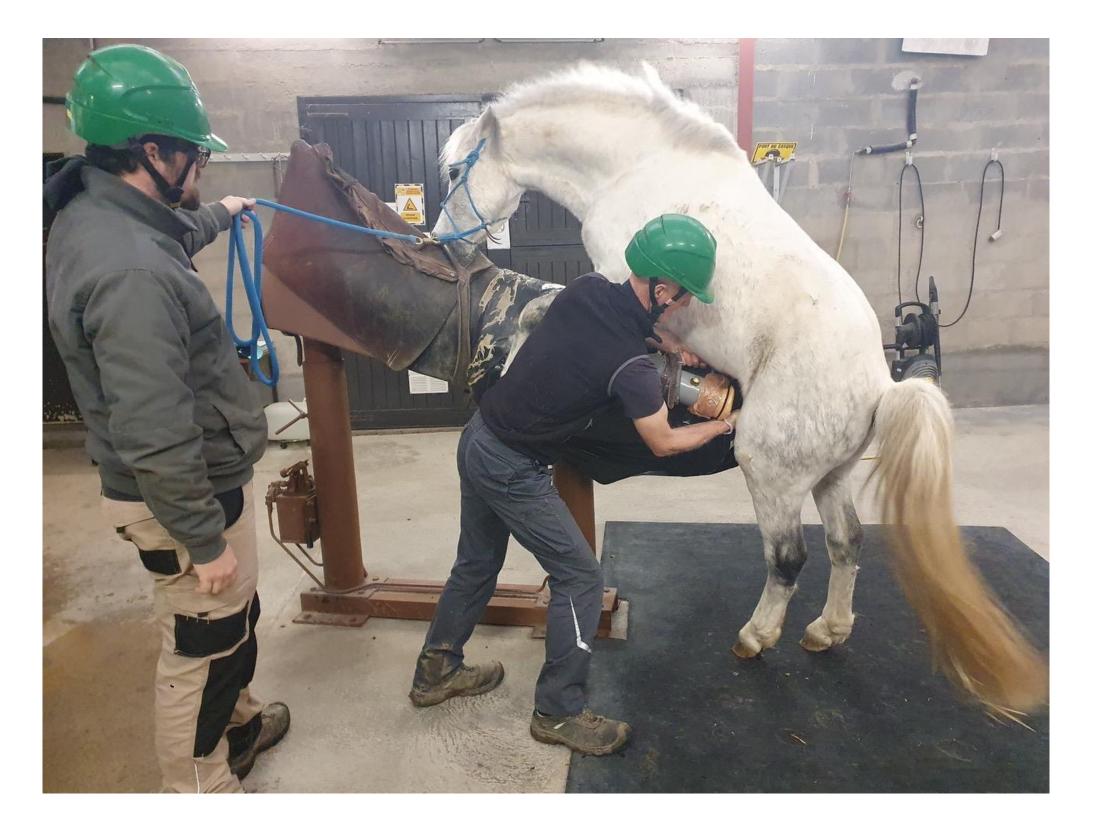
C)

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



#### a)

Figure 1: Single Layer Centrifugtion through low density Equicoll: a) semen collection by artifical 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.

24 mares had an embryonic vesicle on ultrasound

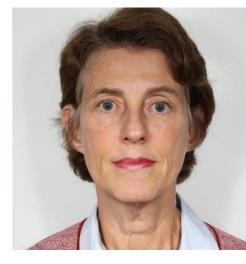
These results were not different on a Chi-squared test (p > 0.05) No uterine infection was detected.

#### References

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

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