

Pregnancy trials using the device for improved semen improved semen collection

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SOURCE [https://www.fertstert.org/article/S0015-0282\(16\)62263-X/fulltext](https://www.fertstert.org/article/S0015-0282(16)62263-X/fulltext)

OBJECTIVE

It is well documented that sperm undergo significant physiological and biochemical processes, many of them brought on by changes in the environment at ejaculation. While the preponderance of the individual changes can be seen as positive and necessary for fertilization, collectively they set the cell on course for its eventual death. Previous research from this laboratory has demonstrated that modification of the collection environment using the Device for Improved Semen Collection (DISC), can lead to a delay in certain activation pathways and help provide a better quality sample for treatment procedures. A small human trial demonstrated superior semen parameters and equivalent pregnancy rates. The present study presents pregnancy data in two controlled trials in domestic animal species.

DESIGN

Controlled prospective trial.

MATERIALS AND METHODS

Two large scale pregnancy trials were conducted with the DISC in the equine and bovine. In both trials, semen was collected from the males in a real-time split collection where approximately half of the ejaculate was collected into the DISC or an appropriate control. Semen parameters were measured manually at the time of collection and time of insemination. In the equine trial mares were inseminated at ovulation with semen 24, 48, or 72 hrs old to mimic industry practice (49 total inseminations). In the bovine, 43 females were divided for insemination with semen from either control or DISC collections. Inseminations were timed to occur 12 hrs after semen collection using industry standard techniques. Pregnancy was determined by ultrasound.

RESULTS

Semen parameters were similar between controls and DISC samples at collection ($P = 0.832$). Further, as expected all parameters decrease with time ($P < 0.01$). However, semen collected in the DISC retained more motility at all other time points (Bull $P < 0.002$ and Stallion $P < 0.001$). Pregnancy rates in the mares were similar between treatments at 24 hrs, but higher at both 48

and 72 hrs ($P < .001$). Pregnancy rates in cattle trended higher in animals inseminated with DISC semen ($P = 0.06$).

CONCLUSIONS

Data continue to indicate semen collected in the DISC provides higher quality cells for reproductive purposes. Further, pregnancy rates appear higher in animals bred with semen from the DISC. Additional research is warranted to confirm these findings.

Supported by: Texas Tech University Office of Research Commercialization.