

# Comparison between SpermCool™, SpermCryo™, and TYB-medium as extenders in sperm cryopreservation.

## Aim

The aim of the study was to compare the new sperm cryoprotectant, SpermCool™, with the established SpermCryo™ medium (Cryos International) and TYB-medium (Egg Yolk-medium, Irvine, CA).

## Conclusion

This study showed improved performance of the new medium SpermCool™ compared to the SpermCryo™. 34% more spermatozoa and almost 1/3 of the motile sperms before freezing survived the freezing procedure in the new medium. When using purified spermatozoa comparable results were obtained between the egg yolk medium (TYB medium, Irvine Scientific, CA) normally used for freezing purified spermatozoa and testicular sperms and the new SpermCool™ medium. Better survival rates were obtained with purified spermatozoa compared to raw semen. It must be emphasized that SpermCool™ is a fully synthetic medium and does not contain egg yolk with possible avian contaminants.

## Discussion

Study 1 showed a 34% (34.7-25.9/25.9) better survival rate using SpermCool™ instead of SpermCryo™ (control). 30.3% of the initial motile spermatozoa survived the freezing/thawing procedure using SpermCool™ compared to 22.9% using SpermCryo™ (p<0.0002).

### Study 1: Raw Semen SpermCryo™ vs. SpermCool™.

	Motile Sperm (million)	Total Sperm (million)	Motile %	Survival %
SpermCryo™	25.9	110.0	23.5	22.9
SpermCool™	34.7	112.7	30,8	30.3
p-value	<0.002	ns	<0.005	<0.0002

ns: no significant differences

Study 2, showed comparable performance of TYB medium and SpermCool™ both with respect to percentage motile spermatozoa and survival of motile spermatozoa. From this study, it is also evident, that it is favourable to freeze purified spermatozoa instead of raw semen (Study 1 versus Study 2).

### Study 2: Purified spermatozoa TYB (Egg Yolk medium/Irvine) vs. SpermCool™.

	Motile Sperm (million)	Total Sperm (million)	Motile %	Survival %
TYB medium	34.7	79.5	43,6	54.9
SpermCool™	33.9	82.4	41.1	53.5
p-value	ns	ns	ns	ns

ns: no significant differences

## Material and methods

### Study 1.

20 semen samples from normal semen donors were included in this study. Each semen sample was divided into two equal aliquots and were frozen using either SpermCryo™ (control) or SpermCool™.

### Study 2

10 semen samples from normal semen donors were included in this part of the study. The semen samples were purified using 40%/80% SpermFilter® gradients according to standard procedures and were washed twice in SpermCean™. Finally, the samples were resuspended in two ml SpermCean™. Each purified semen sample was divided into two equal aliquots (1 ml) and were frozen using either TYB-medium (Egg Yolk-medium, Irvine Scientific, Ca, USA) or SpermCool™ as extenders.

After freezing, the semen was thawed in running water (30-35° C) for 30 seconds and counted in triplicates.

## Statistics

The data were compared using Student T-test for paired data. A p-value < 0.05 was considered statistically significant.