

Glycine added to extender improves semen conservation at 5°C

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INTRODUCTION

It is well established that the plasma membrane of **boar spermatozoa** is highly **sensitive to cold shock** and dilution and damage is usually irreversible ¹. In some mammalian species, the use of LDL lipoproteins, egg-yolk, antioxidants or aminoacids can avoid this damage and improve sperm cooling at 5°C.

Therefore, the objective of this study was to evaluate the **effectiveness of glycine** in boar semen preservation at **5 °C**, preventing cold shock.

MATERIAL AND METHODS

Extenders used for semen conservation were a sugar based extender supplemented with **glycine** at two concentrations: 25 mM (**Low**;EL) and 50 mM (**High**; EH). No glycine-extender was used as **control** (E).

Six boars were used in this experiment. Semen was divided into several portions to be diluted into different extenders at 37°C. Then, samples were kept at **5°C**.

Semen samples were evaluated in terms of motility by means of Integrated Semen Analysis System (ISAS®;Proiser; Spain), viability, acrosomal integrity (NAR) and membrane functional status after **5 and 8 days** conservation at 5°C.

Data are expressed as the mean ± SEM, and variance was analysed by ANOVA 2x2 way, considering glycine treatment. Significant differences were considered when p<0.05.



5-8 Days semen evaluation

RESULTS

The addition of glycine to the cooling extender did **not** show any **significant effect** on any parameter analysed after **5 days** semen preservation at 5°C. Nevertheless, after **8 days**, **higher percentages of NAR** were observed in presence of **glycine** compared to control, reaching the significance at higher concentrations (Table 1). No significant differences were obtained in other parameters.

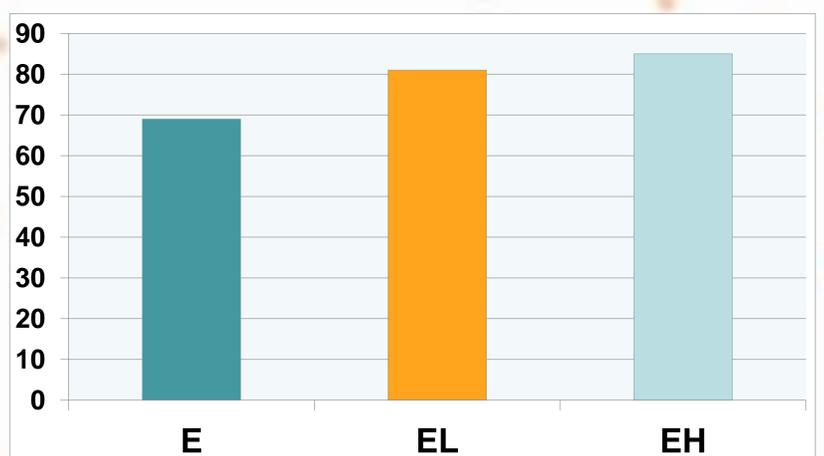


Table 1. Effect of glycine on NAR percentage after 8 days of storage at 5°C.

CONCLUSIONS

Glycine appears to play an important role in maintaining **acrosome integrity at low temperatures**, not affecting motility. Role of glycine receptors in acrosome reaction has been demonstrated ³. In previous studies with bovine semen, presence of glycine significantly improved the percentage of motile spermatozoa at 20°C, 5°C and 0°C ⁴. However, no beneficial effect was shown on post-thaw motility of stallion semen when glycine was added to extender ²The addition of glycine to the extender could mean an important benefit in **improving long-term semen conservation**.

References

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