

DOES FISH OIL SUPPLEMENTATION IMPROVE FRESH AND CHILLED SPERM QUALITY OF MINIATURE CASPIAN STALLION?

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ABSTRACT

The use of cooled and frozen semen offers many advantages to breeders. However, many stallions produce spermatozoa that are unable to tolerate the stresses associated with these preservation processes. Improving the quality and viability of equine spermatozoa via appropriate dietary alterations may render spermatozoa from these stallions commercially viable for preservation. One way to improve sperm quality may be through increasing dietary intake of PUFA, specifically docosahexaenoic acid (DHA), to enhance the plasma membrane of the sperm cell. Eight healthy caspian stallions were used to study if fish oil supplementation would improve fresh and chilled semen characteristics. Semen was collected at 0, 30, 60 and 90 day of experiment. Cooled diluted semen samples were evaluated in vitro by microscopic assessments of sperm motility, acrosomal and other abnormalities (head, mid-pieces, and tail), viability (evaluated by Eosin- negrosin) and plasma membrane integrity (evaluated by HOST) at 0, 24, and 48, hours after collection. Significant effect ($p<0.05$) of dietary treatment was observed for all parameters except for percent sperm with live and semen volume. Fish oil supplementation had a significant effect ($p<0.05$) on total and progressive motility, percentage viability and dead sperm. The stallions that received fish oil, it showed the greatest improvement in semen characteristics compared with control group ($p<0.05$). This study showed that fish oil supplementation may have a beneficial effect on the semen quality but more advance in vitro evaluations and artificial insemination (AI) are required to reveal the exact effects of fish oil on miniature Caspian stallion sperm quality and its fertilizing ability.

Keywords: miniature Caspian horse semen; Sperm quality; fish oil, viability



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