Cooling of goat buck sperm in refrigerated bath or *in itinere*: effects on *in vitro* sperm quality

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Goat buck sperm doses are kept at 4 ºC in refrigerated form. As a cold-shock sensitive species, chilling to 4 ºC must be slow, which delays the doses delivery and their insemination. However, the time of transportation could be used for chilling. We studied if the sperm quality was similar between a system developed for chilling the doses during transportation and the programmable water bath (WB) in the lab. Twelve Murciano-Granadina bucks were used. The concentration in each ejaculate (n = 12) was adjusted to 560 x 10^6 sperm/mL with skimmed milk-glucose (0.2%; w:v) and semen was loaded into 0.25 mL plastic straws that were split into two treatments: half were chilled in a WB (in 90 min; theoretical cooling rate: -0.18 ºC/min) and the other half in a cooler (C; during 3h 45min; average cooling rate: -0.09 ºC/min). Total motile (%TM) and progressively motile (%PM) sperm were evaluated with a CASA system and live sperm (%LS) were evaluated with SYBR14/propidium iodide in a flow cytometer, according to the protocols from Konyali et al. (2013. Cryobiology, 67: 124-131). Fresh semen presented an average quality of 74.1% ± 2.2 TM, 49.4% ± 2.8 PM and 64.1% ± 2.9 LS. Straws chilled in WB and C exhibited similar TM (72.0% ± 4.3 and 76.3% ± 4.3) and PM sperm (50.5% ± 5.7 and 49.5% ± 5.7). However, straws chilled in C presented higher ($P < 0.05$) LS (67.8% ± 5.2) than samples chilled in WB (55.4% ± 5.2). In conclusion, straws chilled in the system adapted to the cooler exhibited similar percentages of motile but higher percentages of live sperm than samples chilled in the programmable water bath. Acknowledgements: AMURVAL, ACRIMUR and INIA RTA2017-00049-C02-01 and FEDER funds.