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JOURNAL ARTICLE

Effects of accessory sex gland fluid on viability, capacitation, and the acrosome reaction of cauda epididymal bull spermatozoa

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The effect of accessory sex gland fluid (AGF) on viability and acrosomal integrity of spermatozoa was examined with cauda epididymal spermatozoa and AGF from the same Holstein bull (n = 6). Surgical cannulation of the vasa deferentia enabled the separate collection of cauda epididymal effluent and AGF from each bull. Cauda epididymal effluent was incubated with either AGF collected from the same bull or medium alone. Following coincubation, spermatozoa (5 x 10(7) sperm/mL) were incubated in medium alone or under capacitating conditions (10 microg/mL heparin) for 16 hours. Every 2 hours, an aliquot of spermatozoa was exposed to lysophosphatidylcholine (100 microg/mL) to induce the acrosome reaction in capacitated spermatozoa. Sperm motility decreased over time regardless of treatment. Overall, spermatozoa incubated in AGF had fewer acrosome-intact live spermatozoa than did those not incubated in AGF. Viability was significantly (P < .05) compromised over time when spermatozoa were exposed to AGF, compared with those not preincubated in AGF. Significantly more (P < .05) acrosome-reacted live spermatozoa were seen following exposure to heparin and lysophosphatidylcholine when spermatozoa were not preincubated in AGF. We conclude that exposure of spermatozoa to AGF accelerates cell death and that rapid removal of spermatozoa from seminal plasma is critical for maximal viability.

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