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In Vitro Sperm Capacitation and In Vitro Fertilization with Normal Development in the Rabbit

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The objective was to obtain *in vitro* sperm capacitation and fertilization to approximate the normal *in vivo* processes. Rabbit oocytes from follicles, ovarian surfaces, and oviducts were fertilized *in vitro* with ejaculated spermatozoa which were treated with high ionic strength followed by preincubation in defined conditions for 12 to 22 hours. Five bucks were studied and, in general, high

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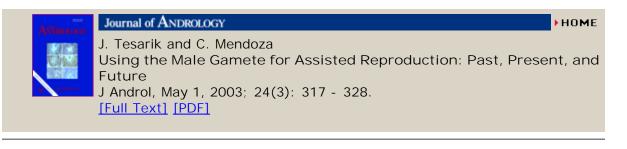
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sperm motility scores favored high levels of fertilization. In all, 305 (55%) of 553 oocytes were fertilized and 244 (80% of those fertilized) developed to the four-cell stage within 24 hours; early blastocysts developed in culture. Transfer of 39 four-cell embryos into three recipients resulted in seven live young. Marked improvement both in percentages of fertilization and in four-cell stage development within 24 hours followed the transfer of oocytes from sperm suspensions after 6 hours. *In vitro* capacitated spermatozoa fertilized 62% of ova *in vivo* after tubal insemination 13 hours after Human Chorionic Gonadotropin (HCG). Thus, *in vitro* capacitation and *in vitro* fertilization approximate the normal *in vivo* events.

Key words: sperm capacitation, *in vitro* fertilization, embryo culture, embryo transfer, spermatozoa, oocytes, rabbit, normal development of offspring, high ionic strength treatment, defined medium

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