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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 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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