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The Stimulatory Role of Estrogen on Sperm Motility in the Male Golden Hamster (*Mesocricetus auratus*)

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To clarify the physiological roles of estrogens in the regulation of sperm motility in the golden hamster, two different approaches were used. In the first experiment, silastic tubes containing either low (low E_2 group) or high (high E_2 group) amount of estradiol-17ß were implanted (Exp 1). In the second experiment, male golden hamsters were actively immunized against estradiol-17ß (Exp 2). In Exp 1, all sperm motility parameters (including motility, straight velocity, curvilinear velocity, beat/cross frequency, and mean amplitude of lateral head displacement) were significantly increased except linear index in the high E_2 group as compared with controls at 20 days after the treatment. In the high E_2 group, plasma concentrations of luteinizing hormone (LH) significantly increased, whereas levels of circulating testosterone decreased significantly. Plasma concentrations of follicle-stimulating hormone (FSH) and immunoreactive inhibin were not affected by the treatment with estradiol-17ß. In the Exp 2, titer of circulating antibodies to estradiol-17ß consistently increased after the second immunization until the end of experiment (16 weeks). The sperm motility, straight velocity, and curvilinear velocity were significantly decreased after active immunization to estradiol-17ß. Concentrations of circulating LH and FSH were also decreased significantly by the treatment. In conclusion, the current observations indicate that estradiol-17ß affects sperm motility in adult male golden hamsters.

Key words: Estrogen immunization, gonadotropin