

Physiological Roles of Relaxin on Prefertilizing Activities of Spermatozoa

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Abstract : Relaxin was first described in 1926 by Frederick Hisaw. Previously it was considered as only the hormone of pregnant mammals due to its important roles in pregnancy and parturition. From the last decade, the physiological role of relaxin in male reproduction has been given experimental attention, and the results have made it clear that relaxin can no longer be considered strictly as only the hormone of female reproduction. The accessory glands (specially, the prostate glands) of the male reproductive system are the source of seminal relaxin, which is secreted into the seminal plasma and saturated with spermatozoa just after ejaculation. Several studies have reported that relaxin has important roles in improving motility in human sperm. Thereafter, the growing interest on relaxin has intensified efforts to investigate the role of relaxin in other sperm physiological phenomena like, capacitation, acrosome reaction, and their mediating factors associated with successful fertilization. Therefore, this review aims to provide up-to-date information about the physiological roles of relaxin in sperm motility, capacitation, acrosome reaction, and their mediating factors, such as, utilization of glucose, cholesterol efflux, Ca²⁺-influx, intracellular cAMP and protein tyrosine phosphorylation. Some studies have shown relaxin to increase the percentage of progressive motility and induce capacitation and acrosome reaction through increasing the utilization of glucose and mediating the cholesterol efflux, Ca²⁺-influx, intracellular cAMP and protein tyrosine phosphorylation. Thus, the review suggests that the supplementation of relaxin into the capacitating medium may contribute the possible beneficial roles in fresh and cryopreserved spermatozoal prefertilization events.

Keywords : relaxin, physiological roles, prefertilizing activities, spermatozoa

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