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## JOURNAL ARTICLE

# Specific binding of the glycosaminoglycan 3H-heparin to bull, monkey, and rabbit spermatozoa in vitro

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In Vitro binding and some binding parameters of the glycosaminoglycan heparin to viable epididymal or ejaculated bull spermatozoa, ejaculated rabbit spermatozoa, and frozen-thawed rhesus monkey spermatozoa were investigated. Nonspecific binding was affected only by the concentration of 3H-heparin, whereas specific binding was saturable, reversible, and dependent on the pH, temperature, and calcium concentration of the incubation medium. Magnesium concentration dependence was observed in the presence of calcium but could not be detected in the absence of calcium. Bound 3H-heparin was displaced by several orders of magnitude greater concentrations of chondroitin sulfate. Scatchard plot analysis suggested multiple binding affinities for 3H-heparin to spermatozoa. 3H-heparin was shown to bind to sperm heads and flagella. Fluorescein-labeled heparin bound to acrosomal, postacrosomal, and flagellar membranes. It was concluded that the specific binding of heparin involved a proteinaceous component on, or intercalated with, spermatozoal membranes. Thus, glycosaminoglycans present in the female reproductive tract may contribute to sperm capacitation and enhance the likelihood of successful fertilization in mammals.

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