
Capacitation and acrosome reaction are a pre-requisite for fertilization. This process is synchronized in vivo, however, it may occur prematurely in patients with idiopathic infertility. The aim of this study was to examine how capacitation prior to cryopreservation influenced the acrosomal status of the spermatozoa. A highly motile sperm population was prepared from 15 normal donors by the swim-up technique. Each specimen was divided into two aliquots. The first portion was capacitated by incubating the sample in a HEPES modified BWW medium with 5% human serum albumin at 37°C under 5% CO₂ in air for 3 hours. The second aliquot received no subsequent treatment. TEST-yolk buffer was used as a cryoprotectant. The samples were stored in liquid nitrogen. Spontaneous acrosome reaction in non-capacitated and capacitated samples was assessed using fluorescent-peanut lectin labeling. Viability was assessed by Hoechst-33258 dye. Before freezing, spontaneous acrosome reaction was significantly higher in capacitated sperm preparations (P<0.02). However, the percentage of viable cells showing acrosome reaction significantly increased after cryopreservation (P<0.0025). The amount of increase in acrosome reaction was similar in both capacitated and non-capacitated samples (P<0.05). Incubation under capacitating conditions can optimize acrosome reaction; however, under in vitro conditions it may not be a prerequisite for normal human spermatozoa. Capacitation does not provide any added advantage in reducing spontaneous acrosome reaction after cryopreservation. Cryopreservation-induced spontaneous acrosome reaction may involve a complex mechanism rather than merely a physiological change.