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JOURNAL ARTICLE

Comparison of glycerol and a zwitter ion buffer system as cryoprotective media for human spermatozoa. Effect on motility, penetration of zona-free hamster oocytes, and acrosin/proacrosin

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This study compared the cryoprotective effect of glycerol with that of a zwitter ion buffer system (TESTCY). Spermatozoa that are cryopreserved in the presence of glycerol possess a somewhat higher progressive motility immediately after thawing than those preserved in the presence of TESTCY. However, after a 1-hour incubation in glycerol-free medium, the progressive motilities of the glycerol- and TESTCY-treated spermatozoa become essentially identical. After 2 hours in culture medium, TESTCY-treated spermatozoa possess a higher motility than glycerol-treated spermatozoa, indicating that TESTCY is a better preservative than glycerol for the long-term motility of human spermatozoa. The fertilizing potential of the cryopreserved spermatozoa was assessed by their ability to penetrate zona-free hamster oocytes in vitro. Spermatozoa that are cryopreserved in the presence of TESTCY produce three- to four-fold higher penetration rates than glycerol-treated, cryopreserved spermatozoa. Cryopreservation in the presence of TESTCY also results in a higher stability of the acrosin/proacrosin system than when the spermatozoa are preserved in glycerol, since about two- to three-fold higher levels of proacrosin are retained. These results indicate that TESTCY is a better cryopreservative for human spermatozoa than glycerol.