
Pregnancy rate in assisted reproductive procedures is higher with freshly ejaculated semen samples. However, fear of AIDS and other infectious diseases has replaced the use of freshly ejaculated spermatozoa in most artificial inseminations and other assisted reproductive programs with frozen spermatozoa. Cryopreservation results in a significant decrease in post-thaw sperm motility as cryopreservation medium has to be removed before the insemination procedure. This results in a further reduction in sperm motility of the washed specimen due to osmotic shock and centrifugation. Semen samples from 16 healthy normal volunteers were analyzed for routine semen analysis by a computer assisted semen analyzer for motion characteristics. Samples were frozen using the liquid nitrogen vapor method and divided into 6 aliquots. We compared the effect of an intermediate buffer (TEST yolk-buffer without glycerol) and three centrifugation speeds (X 800, 1200 and 1600 rpm) with modified human tubal fluid with 5% human serum albumin (mHTF) on sperm motility, viability and other motion characteristics. Results were analyzed for improvement in motility, viability, and other motion characteristics. Compared with HTF alone, the addition of the TEST yolk-buffer medium did not result in improved sperm motion characteristics. However, HTF alone resulted in a significant improvement in curvilinear velocity and amplitude of lateral head displacement at 1200 rpm compared to other centrifugation speeds (P<0.05). No improvement was seen in other semen characteristics. Reduction in sperm motility and other motion characteristics is an intrinsic outcome of cryopreservation. This change cannot be reversed by speed of centrifugation alone or by using an intermediate buffer. Cryopreservation techniques that result in a higher recovery of motile spermatozoa are needed.