Catalase improves motility, vitality and DNA integrity of cryopreserved human spermatozoa

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Abstract:

Cryopreservation of human spermatozoa offers a pre-therapeutic possibility of preserving progeny in patients with testicular tumours. We aimed to investigate effects of cryopreservation and addition of catalase on sperm motility, vitality and DNA integrity in fresh and swim-up spermatozoa. Semen samples were collected from 50 fertile men. Each sample was divided into two parts. First part was subdivided into two equal aliquots: both cryopreserved with and without catalase. The second part was subdivided into two equal aliquots: both processed by swim up and then cryopreserved with or without catalase. Semen analyses, sperm vitality and sperm DNA integrity were performed. Sperm concentration showed significant decrease while percentage of progressive motility, sperm vitality and % of DNA damage showed significant increase in processed and cryopreserved processed samples when compared with fresh and cryopreserved fresh samples. There was no significant difference in sperm concentration while there was significant increase in % of progressive motility and sperm vitality and % of DNA damage showed significant decrease in samples with catalase when compared with samples without catalase (either fresh or processed). Catalase supplementation (fresh and processed) during cryopreservation results in better post-thawing percentage of progressive motility and percentage of sperm vitality and improved DNA integrity.

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