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## Cryoprotective effect of L-carnitine on motility, vitality and DNA oxidation of human spermatozoa

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**Abstract:** Successful cryopreservation for human spermatozoa markedly influences the reproductive outcomes of assisted reproductive technologies. But in spite of its usefulness, cryopreservation significantly decreases sperm quality. l-carnitine has been found to improve the quality of spermatozoa in selected cases with male infertility. Here, we examined the efficacy of l-carnitine in improving sperm motility and vitality and reducing sperm DNA oxidation during cryopreservation. Semen samples from infertile patients (n = 22) were collected and analysed. Cryopreservation medium supplemented with l-carnitine was mixed with the semen at a ratio of 1 : 1 (v/v). The final l-carnitine concentration in each cryovial was 0.5 mg ml(-1) per 5 ? 10(6) cell ml(-1) . Controls were cryopreserved without addition of l-carnitine. After 24 h of cryopreservation, thawed sperm samples were analysed for motility, vitality and DNA oxidation. Sperm vitality was assessed by the eosin-nigrosin test, while sperm DNA oxidation was measured by flow cytometry. Addition of l-carnitine significantly improved sperm motility and vitality ($P < 0.05$) compared with the control. The flow cytometry experiment showed no statistical difference ($P > 0.05$) in the levels of DNA oxidation between samples and controls. In conclusion, l-carnitine improves human sperm motility and vitality, but has no effect on sperm DNA oxidation after cryopreservation.