

Jordan University of Science and Technology

Human semen cryopreservation reduces the seminal antioxidant reservoir

Authors: Banihani SA, Alawneh RF, Abu-Awad A.

Abstract: Background The effect of cryopreservation on particular antioxidants in human semen has been examined in a number of published studies. However, the effect of cryopreservation on total antioxidant capacity of human semen has not yet been investigated. Aim: To study how total antioxidant capacity of human semen samples, from males of couples who failed to achieve a clinical pregnancy after at least one year, is affected by cryopreservation. Methods: Semen samples (n = 77), with and without the addition of cryoprotectant medium, were cryopreserved for at least 72 hr and tested for total antioxidant capacity before and after cryopreservation using the cupric ion reducing antioxidant capacity method. Results: Cryopreservation of human semen samples significantly decreased ($P < 0.05$) their total antioxidant capacity levels. In addition, cryopreservation of the cyroprotectant medium decreased its total antioxidant capacity. No significant correlation was found between seminal total antioxidant capacity before cryopreservation and the decrease in seminal cryopreservation after cryopreservation, and male age. Conclusions: cryopreservation of human semen reduces the seminal total antioxidant reservoir, and this reduction was found not to correlate with age. Further studies are required to standardise the level of total antioxidant capacity for uppermost sperm quality after cryopreservation.