

How long a sperm sample can remain cryopreserved?

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BACKGROUND: Cryopreservation of sperm is an important method for preservation of gametes, widely used in young patients undergoing chemotherapy, radiotherapy and other immunosuppressive therapies and wanting fatherhood. The sperm biological activity can be stored indefinitely in liquid nitrogen, despite the potential morphological reactions occurring at a temperature of -196 °C.

HYPOTHESIS: In an attempt to exclude the effects of time on the quality of cryopreserved samples, the objective of this study was to compare the survival rate of spermatozoa with a prolonged period of cryopreservation. We defend the hypothesis that regardless of storage time, the fertile potential of the seminal sample does not vary.

METHODS: This retro-prospective study involved semen samples cryopreserved from patients in reproductive age with a cryopreservation protocol adopted according to the initial characteristics of the sample. The samples were divided in aliquots and evaluated in three moments: Fresh sample cryopreserved between 2000 and 2006 (sample I); thawing tests 24 hours after cryopreservation (sample II) and thawing tests in 2013 (sample III). Were calculated cryosurvival rates (CS)=[(total motile sperm post-thaw)×100/(total motile sperm/tube)] in post-thaw samples, that is an index of sperm viability after thawing. These samples were compared with samples cryopreserved and thawed in 2013 (sample III).

RESULTS: Ten samples cryopreserved were evaluated. When compared with samples frozen for only 24 hours, the samples cryopreserved by 7 to 13 years not presented significant difference in cryosurvival rates (sample II CS=25% *versus* sample III CS=30%; $p>0.05$). Thus, we concluded that the time in which samples remained cryopreserved did not interfere with cryosurvival rates. As advances in diagnosis and cancer treatment, the survival rate of young patients increased, and thus the possibility of future parenthood and fertility preservation of these patients should be discussed. Therefore, we consider that the results of this study are important and can be informed to young patients who will want the paternity many years after cancer treatment.

KEYWORDS: Cryopreservation, cryosurvival rates, sperm, sperm bank.