

## Cryopreserved Testicular Spermatozoa Among Patients with Azoospermia

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### Introduction

**Objective:** To investigate cryopreserved testicular spermatozoa among patients with azoospermia.

**Main outcome measure:** In this retrospective study spanning from October 1993 to December 2021, we examined men diagnosed with azoospermia who underwent testicular spermatozoa cryopreservation. Data from medical records included utilization and disposal of sperm samples, age at initial cryopreservation. We analyzed the data over 20 years using Kaplan-Meier curves, compared age with the log-rank test, and assessed hazard ratios (HR) with 95% confidence intervals (CI) using Cox regression analysis.

### Results

The cohort consist of 356 patients with a mean age of  $32.1 \pm 6$  at the time of cryopreservation. 225 patients utilized thawed semen for fertility treatments, with 118 patients using all their frozen straws and 107 patients partially using their stored straws. Additionally, 29 patients opted for disposal, resulting in 108 patients who neither used nor disposed of their straws. Kaplan-Meier analysis conducted over a 20-year follow-up period revealed that the usage rate of cryopreserved testicular spermatozoa among men was remarkably high at 67%, while 19.2% of patients opted for testicular spermatozoa disposal (Figure 1). From a laboratory standpoint, nearly 90% of patients contributed a single testicular sample, which was subsequently divided and cryopreserved as straws, with a median of 4 straws per sample. Notably, in the older age group ( $>35$  years old), there was a significantly lower usage rate and a higher disposal rate compared to the younger age groups ( $p < 0.05$  for both), a finding corroborated by univariable Cox analysis.

### Conclusions

This extensive study unveils unique patterns in the preservation and disposal of testicular spermatozoa among azoospermic patients. Most patients promptly utilize a significant portion of their stored samples, while older patients tend to preserve them for longer durations.

### Figure 1: Testicular cryopreserved spermatozoa usage and disposal requests

