

Microfluidic sperm selection by the ZyMöt sperm separation device concentrates sperm with significantly less DNA damage for subsequent ART procedures.

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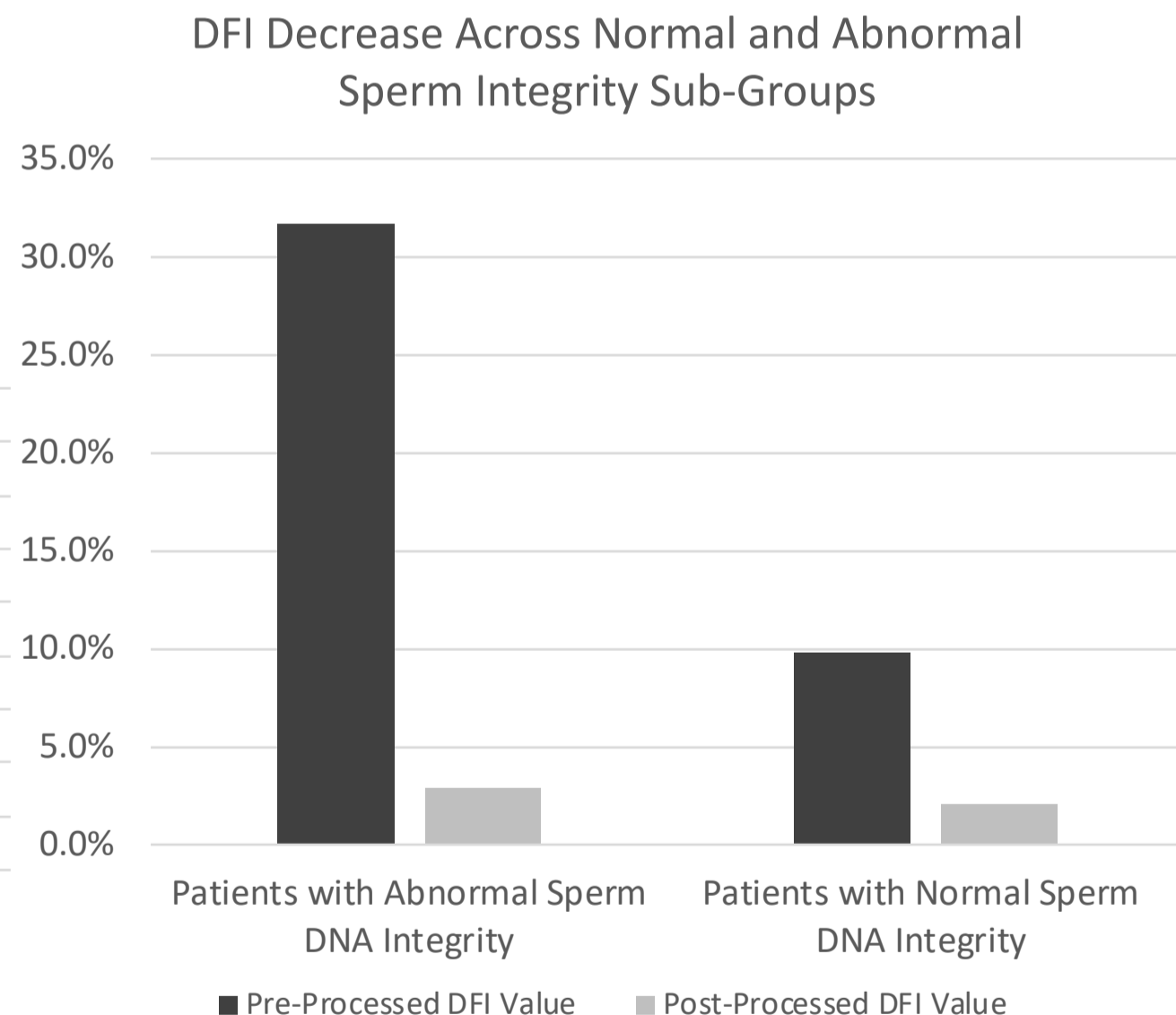
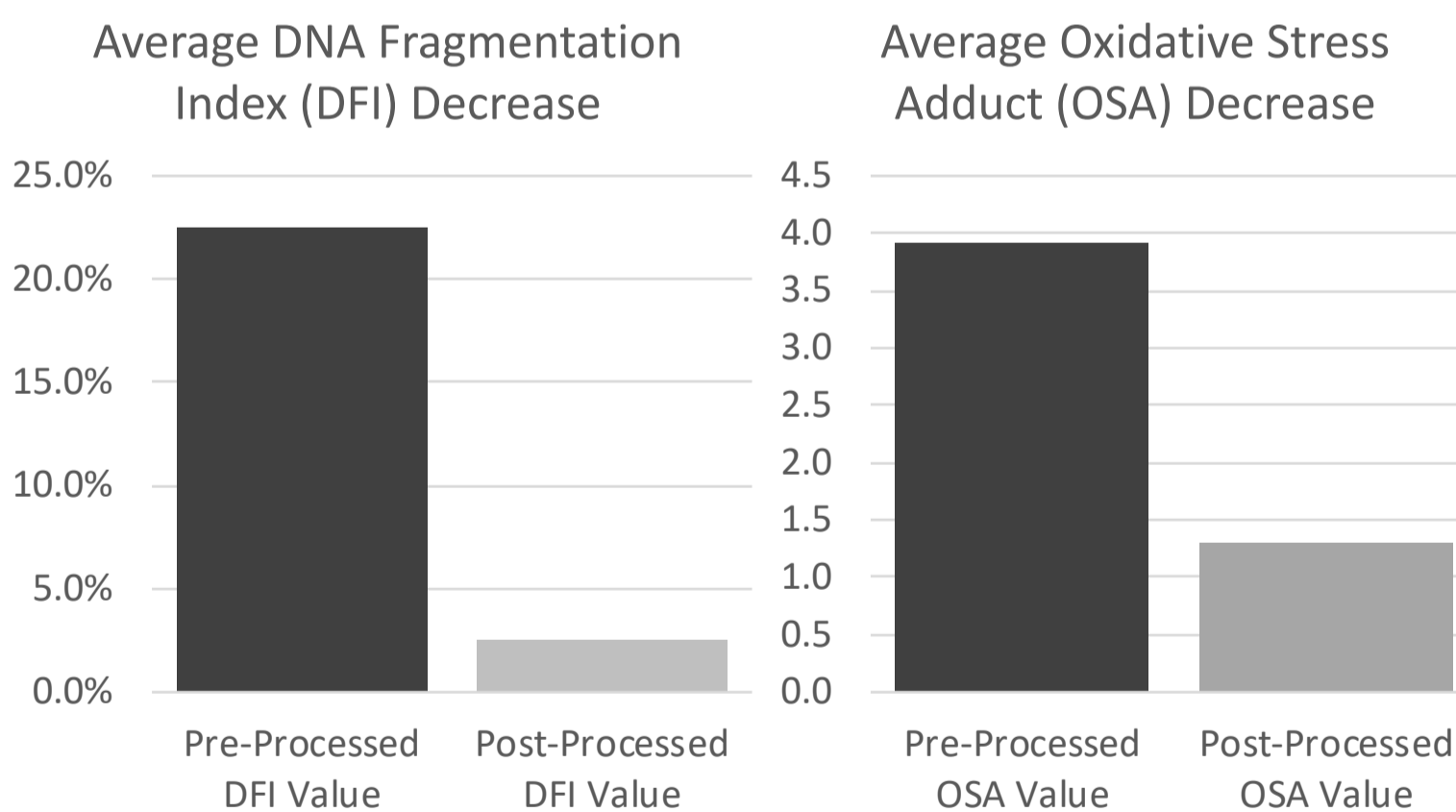
The sperm harvested from the ZyMöt™ sperm separation device demonstrated an average sperm DFI decrease of 20%.

1 Intro:

With activation of the paternal genome during embryogenesis, subsequent development of a normal embryo is dependent upon sperm DNA integrity. Studies correlate an elevated DFI with male sub-fertility and reduced probability of a successful pregnancy. Although DFI analysis of sperm is becoming more routine for male fertility assessment, there have been minimal advancements regarding the isolation and concentration of sperm with normal DFI from the ejaculate.

2 Methods:

Between July 2018 and January 2019, 30 patients scheduled for advanced semen testing by their referring physician voluntarily provided fresh semen specimens at California Fertility Partners. Sperm from fresh semen and sperm harvested from the ZyMöt™ sperm separation device were analyzed respectively at an outside testing facility.



3 Results:

In our controlled comparison, the study showed that sperm DNA fragmentation index was significantly different between sperm from fresh semen specimens and sperm processed via the ZyMöt™ device ($p < 0.0001$). The sperm harvested from the ZyMöt™ sperm separation device demonstrated an average sperm DFI decrease of 20% and an OSA decrease of 2.6%.



4 Conclusion:

Further validation with larger patient populations is required to definitively establish the significant difference in sperm DFI, however, our preliminary results establish a trend supporting the benefit of using the ZyMöt™ microfluidic device. Additional investigation is needed to confirm that this difference improves embryonic development and clinical outcomes. The present study has indicated a compelling decrease in sperm DNA fragmentation; it is likely that the ZyMöt™ microfluidic device may be beneficial across a broad range of male infertility etiologies.