

Comparison of Different Sperm Separation Devices on Human Sperm Motility and Viability

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Introduction

Effective sperm preparation protocols must produce viable and motile sperm not only on the day of egg retrieval but also on the following day to support procedures like second day ICSI. Optimizing this process can improve sperm quality and contribute to better clinical outcomes for patients.

Objective

The objective of this experiment in to evaluate various sperm separation devices and identify the one that maximizes both motility and viability on the day of collection and after overnight incubation.

Methods & Materials



A 70um Cell strainer was used as a control



Zymot
850uL of semen sample + 750uL fertilization media
30 mins



LensHooke
1mL of semen sample + 900uL media
30 mins



NovoSort
Minimum of 0.5mL sperm sample + 1mL media
15 minutes



Visual motility was assessed in all the groups



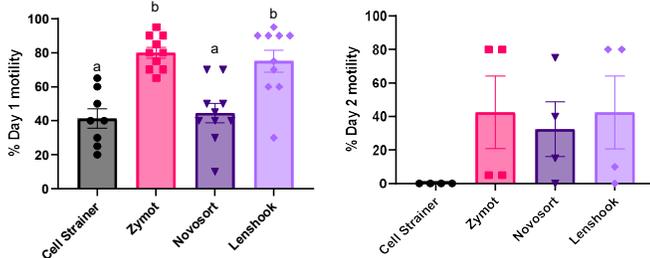
Viability (eBioscience Viability dye) and mitochondrial membrane potential (JC-1) were assessed using the CytoFLEX LX Flow Cytometer



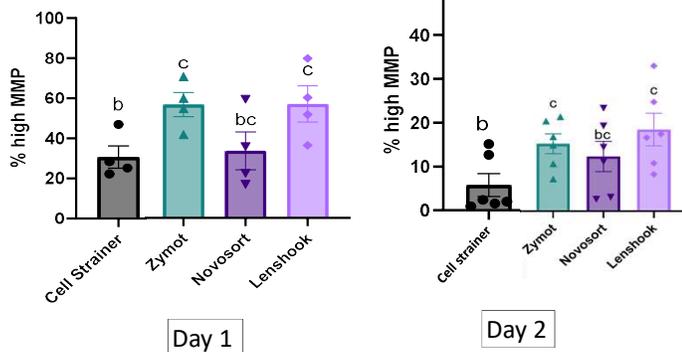
After a **23 hour** incubation, all groups were reassessed

Results

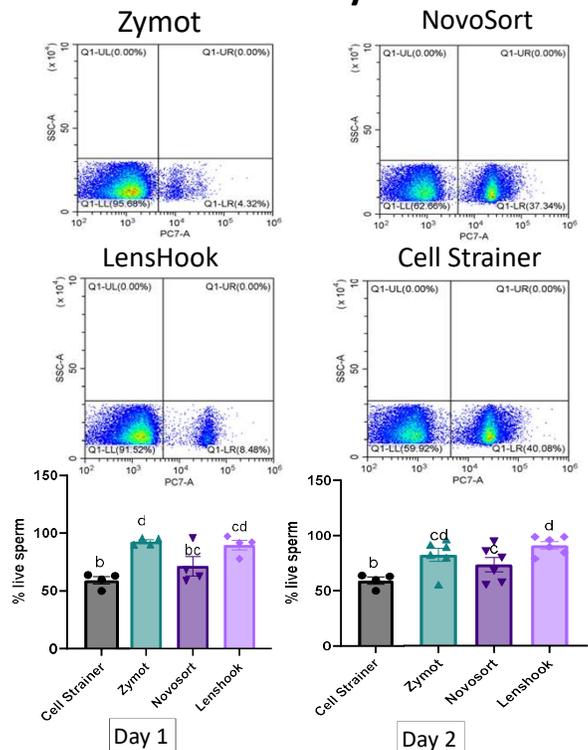
Motility



JC-1



Viability



Conclusions

NovoSort device consistently yielded the lowest percentages of motile and viable sperm on both days 1 and 2. The LensHooke and Zymot devices produced the highest percentage of sperm with intact Mitochondrial Membrane Potential (MMP) and viability. There were no significant differences between the LensHooke and Zymot devices.