

## **HYPO-OSMOTIC SWELLING TEST (HOST)-BASED SPERM SELECTION: A SPECIFIC FLAGELLAR CONFIRMATION IS ASSOCIATED WITH HIGH QUALITY NUCLEAR PARAMETERS.**

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### **Abstract Body**

**Introduction :** Our team has recently shown that HOST-based sperm selection could help in selecting sperm with a balanced karyotype prior to ICSI in men with chromosomal rearrangements. In those men, a certain proportion (up to 80%) of spermatozoa carry an unbalanced chromosomal combination. We showed that after incubation in an hypo-osmotic solution a certain flagellar conformation, termed B+, was associated with a drastically lower proportion of genetic imbalances. The present study aimed at evaluating the interest of this selection process in men with a normal karyotype by analyzing spermatozoa from the different HOST classes through the lens of different sperm quality parameters, namely DNA fragmentation, DNA decondensation, and nuclear architecture. **Materials and Methods :** The subjects were recruited from the Reproductive Medicine department at Tenon hospital, Paris, France. They and their partners consulted for infertility of various etiologies. The sperm samples underwent incubation in a hypo-osmotic solution. DNA fragmentation (TUNEL assay) and DNA decondensation (chromomycin A3) were evaluated. Nuclear architecture was assessed through fluorescent in situ hybridization (FISH) by looking at the distance between the two telomeric ends of a given chromosome (inter-telomeric distance), and at the surface of the chromosomal territory of that same chromosome. **Results :** A correlation between HOST sperm morphology and DNA fragmentation, DNA decondensation, and nuclear architecture was shown. B+ spermatozoa appeared to be the ones with lowest proportions of fragmented and decondensed DNA, and with the most architecturally normal nuclear organization. **Discussion :** Those results suggest that HOST morphology reflects sperm nuclear quality. As suggested before, those results indicate that any type of sperm alteration may result in an early apoptosis process, which will in turn impact the membrane, thus altering its response to hypo-osmolarity. Further studies should aim at evaluating the reproductive impact of selecting HOST-B+ spermatozoa prior to ICSI.