

**Less NO production and better motion parameter in human sperm
by swim-up processing**

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INTRODUCTION: To compare two different spermatozoa preparation methods: direct swim-up and IxaPrep method with respect to the recovery rate, percent motility, path and progressive velocities (VAP, VSL), nitric oxide (NO) production and their changes among different culture time courses.

MATERIAL AND METHODS: Fifteen semen specimens were obtained from men who presented for semen analysis and each of them was divided into two aliquots for preparation. The motile sperm recovery rate, percentage motility and motion parameters were measured for each semen specimens (n=15) before and after preparation with the use of the two methods and cultured with different time courses (1 hour, 3 hours, and 6 hours). NO was measured using the chemiluminescence method after centrifugation.

RESULTS: Recovery rate of motile cell was significantly higher in direct swim-up method ($59.3 \pm 28.7\%$ versus $41.2 \pm 22.7\%$, $p < 0.05$). In motility, direct swim-up method in the different time courses was significantly better than Ixaprep method. (1hr: $91.1 \pm 5.2\%$ vs $65.6 \pm 16.4\%$, 3hr: $87.2 \pm 7.9\%$ vs $65.2 \pm 16.5\%$, 6hr: $86.1 \pm 7.5\%$ vs $60.8 \pm 17.6\%$ and prewash: $61.6 \pm 16.2\%$, $p < 0.05$). In VAP and VSL, the sperm prepared by the above two methods all improved than pre-wash sperm ($p < 0.05$), but no statistical significance between the two methods. NO production in the direct swim-up group was significantly lower than IxaPrep group in the first hour of culture ($0.09 \pm 0.09 \mu\text{M}$ vs $0.15 \pm 0.09 \mu\text{M}$, $p < 0.05$). NO production increased as the culture time increased in swim-up group, but conversed in Ixaprep group.

CONCLUSIONS: Our data suggested that sperm prepared by direct swim-up method had a better motile sperm recovery rate and motility. The lower level of NO produced in the swim-up group may suggest that better sperm quality achieved is due to the decreased NO production.