

Journal of Andrology, Vol 15, Issue 4 337-342, Copyright © 1994 by The American Society of Andrology

JOURNAL ARTICLE

A morphometric comparison of the nuclear morphology of fresh and frozen-thawed human zona-bound and unbound sperm

L. A. Thompson, P. F. Brook, M. A. Warren, C. L. Barratt and I. D. Cooke

University of Sheffield, Department of Obstetrics and Gynaecology, Jessop Hospital for Women, United Kingdom.

The role of sperm nuclear morphology in zona binding and the effect of cryopreservation on sperm nuclear morphology have been investigated using objective criteria. The nuclear dimensions of fresh and frozen-thawed sperm heads that had been prepared by the swim-up (SU) technique, and bound to human oocytes in vitro, were measured using a computer-assisted image analyzer. These were compared with each other and also to sperm in the SU samples and those that had not bound to the zona pellucida. The unbound (UB) sperm and SU sperm had very similar nuclear morphology. In contrast, the nuclear morphology of the zona-bound (ZB) sperm differed significantly ($P < 0.05$) from that of the SU and UB sperm. These differences were found specifically between area, breadth, and roundness in the SU and ZB sperm preparations, and between area and roundness in the UB and ZB sperm preparations; the ZB sperm had smaller but rounder nuclei than either the SU or UB sperm. In addition, the frozen-thawed sperm in the SU and UB groups showed a trend towards smaller nuclei than the corresponding fresh groups, whereas the frozen-thawed ZB sperm had significantly ($P < 0.05$) smaller nuclear dimensions than the fresh ZB sperm. From the present study it appears that the ZB sperm are a morphologically distinct population, although it is not yet clear whether these differences reflect functional events that occur in the sperm head during its maturation or changes at the level of the sperm's DNA after the initial stage of zona binding. (ABSTRACT TRUNCATED AT 250 WORDS)

This article has been cited by other articles:



Journal of ANDROLOGY

[HOME](#)

M. C. Estes, A. J. Soler, M. R. Fernandez-Santos, A. A. Quintero-Moreno, and J. J. Garde

Functional Significance of the Sperm Head Morphometric Size and Shape for Determining Freezability in Iberian Red Deer (*Cervus elaphus hispanicus*) Epididymal Sperm Samples

J Androl, September 1, 2006; 27(5): 662 - 670.

[\[Abstract\]](#) [\[Full Text\]](#) [\[PDF\]](#)

This Article

- ▶ [Full Text \(PDF\)](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)

Services

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)

Citing Articles

- ▶ [Citing Articles via HighWire](#)
- ▶ [Citing Articles via Google Scholar](#)

Google Scholar

- ▶ [Articles by Thompson, L. A.](#)
- ▶ [Articles by Cooke, I. D.](#)
- ▶ [Search for Related Content](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Thompson, L. A.](#)
- ▶ [Articles by Cooke, I. D.](#)

