Journal of Andrology, Vol 14, Issue 3 222-228, Copyright © 1993 by The American Society of Andrology

JOURNAL ARTICLE

Performance and comparison of CASA systems equipped with different phase-contrast optics

C. H. Yeung and E. Nieschlag

Institute of Reproductive Medicine of the University, Munster, Germany.

Most computer-aided sperm analysis (CASA) systems for human spermatozoa use positive phase-contrast optics. In this study the performance of one of these (HTM) and two other systems using negative phase optics (IVOS and SM) were assessed by scrutinizing the video-playback of the analyzed images for errors in the recognition of motile and immotile spermatozoa and in the tracking of motile cells. Whereas both the HTM and IVOS provided accurate measurements of motile sperm concentrations, errors in total sperm concentrations and motility percentages were greater in the IVOS than the HTM. However, IVOS appeared to be more accurate in tracking motile spermatozoa. Individual sperm track data suggested that velocity measurements may be biased by the elimination of incomplete tracks from the analysis. With the SM system, discrimination of immotile spermatozoa from non-sperm particles in semen was poor despite an additional algorithm for tail detection. The use of negative phase optics in CASA may be superior to that of positive phase in the analysis of motile spermatozoa but inferior in the recognition of immotile spermatozoa.