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## JOURNAL ARTICLE

# Real-time fine morphology of motile human sperm cells is associated with IVF-ICSI outcome

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The aim of the present prospective study was to determine whether subtle sperm morphological characteristics affect the outcome of intracytoplasmic sperm injection (ICSI), and if so, to identify those that are relevant. For this purpose, we developed a new method, the motile sperm organelle morphology examination (MSOME). The examination is performed in real time using an inverted light microscope equipped with high-power Nomarski optics enhanced by digital imaging to achieve a magnification up to 6300x. MSOME was applied to the leftover sperm fraction selected for microinjection in 100 random couples referred for ICSI treatment at 3 major in vitro fertilization centers. We found that the morphological normalcy of the entire sperm cell, according to MSOME criteria, was positively associated with ICSI fertilization rate (area under the receiver operating characteristics [ROC] curve, 88%) but not with pregnancy outcome. The morphological normalcy of the sperm nucleus, defined by MSOME, was significantly and positively associated with both fertilization rate and pregnancy outcome (areas under the ROC curve, 72% and 74%, respectively). These findings indicate that ICSI-associated pregnancy rate may be affected by subtle morphological malformations of the sperm nucleus, which may remain undetected by the embryologist during the routine selection procedure.

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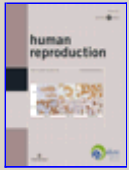
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