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## JOURNAL ARTICLE

# Analysis of human sperm function following exposure to the ionophore A23187. Comparison of normospermic and oligozoospermic men

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Time exposure photomicrography and interspecific in vitro fertilization techniques have been used to compare the responses to the divalent cation ionophore A23187 of spermatozoa from normal fertile and oligozoospermic men. The fertilizing capacity of spermatozoa from the fertile controls produced a bell-shaped dose response curve when assessed in the presence of ionophore. The optimal responses occurred in the presence of 50 and 100 microM A23187. At this concentration, a mean penetration rate of about 75%, in association with multiple polyspermy, was observed without significant changes in motility patterns. At higher doses of A23187, there was a decline in fertilization rates, an independent reduction in sperm motility, and a significant decrease in the amplitude of lateral sperm head displacement. In contrast to the fertile controls, spermatozoa recovered from patients with oligozoospermia failed to exhibit a significant change in their fertilizing potential following exposure to A23187. Calculations based on the Poisson distribution theory indicated that this lack of responsiveness was not related to any differences in the motility of the spermatozoa from the oligozoospermic patients compared to the controls. These results suggest that calcium ionophores may be of value in providing a rapid and sensitive indicator of the functional competence of human spermatozoa, which circumvents problems concerning the rate and efficiency of sperm capacitation encountered with conventional protocols.

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