

Journal of Andrology, Vol 8, Issue 5 349-353, Copyright © 1987 by The American Society of Andrology

JOURNAL ARTICLE

Correlation between defective motility (asthenospermia) and ATP reactivation of demembranated human spermatozoa

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Human spermatozoa treated with 0.05% Triton X-100 to remove the cell membranes became immotile but flagellar movement was reinitiated by addition of 0.06 to 1 mM adenosine triphosphate (ATP). The percentage of spermatozoa showing flagellar movement 2 minutes after addition of 1 mM ATP from men with idiopathic asthenospermia (mean +/- SD, 34 +/- 15%), oligozoospermia (17 +/- 21%), sperm autoimmunity (17 +/- 12%), vasoepididymostomy (20 +/- 22%), or idiopathic zero motility (0%) was significantly lower than with spermatozoa from normal men (54 +/- 12%). The percentage of reactivated spermatozoa was correlated with the proportion of live cells (Eosin Y stain, $r = 0.602$, P less than 0.001), percentage of motile cells ($r = 0.761$, P less than 0.001), and motility index ($r = 0.759$, P less than 0.001) in the same semen samples. When expressed relative to initial sperm motility, the proportion reactivated was similar for idiopathic asthenospermia (85%) and normospermia (82%). Thus, failure to produce ATP does not appear to be a frequent cause of low sperm motility in man.

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