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# Sperm Motility in Men With Spinal Cord Injuries Is Enhanced by Inactivating Cytokines in the Seminal Plasma

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The goal of this study was to determine whether inactivating specific cytokines in seminal plasma improves sperm motility in men affected by spinal cord injury (SCI). For this purpose, we used monoclonal antibodies to interleukin 6 (IL6), interleukin 1 beta (IL1- $\beta$ ), and tumor necrosis factor alpha (TNF- $\alpha$ ), all 3 cytokines having been previously detected at high concentrations in the seminal plasma of patients with SCI. In a group of 17 SCI men with low sperm motility (mean  $\pm$  SE, 20.1%  $\pm$  3.1%), treatment with the 3 monoclonal antibodies at the median neutralization dose concentrations for 1.0 to 1.5 hours improved sperm motility in all cases. Effectiveness was higher in those specimens with a pretreatment sperm motility between 11% and 30% (from 19.3%  $\pm$  1.4% to 41.9%  $\pm$  4.9%,  $P < .0002$ ), suggesting that pretreatment sperm motility might represent an indicator of cell damage and, therefore, a factor that influences monoclonal antibody effectiveness. To the best of our knowledge, these results represent the first rational treatment for improving low sperm motility in these severely affected patients.

Key words: Infertility, ejaculation, semen, IL1- $\beta$ , IL6, TNF- $\alpha$

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