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JOURNAL ARTICLE

The taurine and hypotaurine content of human semen

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Taurine and hypotaurine levels were measured in human sperm and seminal fluid. Sperm taurine ranged from 17 nmol/mg DNA to 348 nmol/mg DNA, and hypotaurine from 0 nmol/mg DNA to 251 nmol/mg DNA. Seminal fluid contained 319 μ mol/L to 1590 μ mol/L of taurine, but no detectable hypotaurine. The coefficient of variation in multiple ejaculates from a single man for these components ranged from 12% for hypotaurine to 24% for seminal fluid taurine, indicating a relative constancy in their concentrations. Sperm hypotaurine content was significantly correlated with sperm morphology, sperm relative forward progression, the percentage of motile sperm, and the total number of sperm in the ejaculate. By contrast, sperm taurine content was negatively correlated with these parameters. The mean hypotaurine content of sperm from 8 fertile men was 149 \pm 92 nmol/mg DNA, four times higher than that of sperm from 9 infertile men, which was 35 \pm 19 nmol/mg DNA ($P = 0.011$). In contrast, the mean sperm taurine content of the fertile men was lower than that of the infertile men (83 \pm 33 nmol/mg DNA versus 168 \pm 119 nmol/mg DNA, respectively; $P = 0.07$). Seminal fluid taurine concentrations, however, were similar for both groups. Hypotaurine, an antioxidant, may play an important role in protecting sperm from reactive oxygen species. Higher concentrations of taurine in the sperm of infertile men suggest that accelerated oxidation of hypotaurine to taurine may accompany the observed decline in other sperm parameters.

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