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Relationship of Human Sperm Acrosin and Proacrosin to Semen Parameters. I. Comparisons Between Symptomatic Men of Infertile Couples and Asymptomatic Men, and Between Different Split Ejaculate Fractions

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Acrosin is a sperm serine proteinase whose activity appears to be essential for fertilization in mammals, although this has not been shown in man due to experimental limitations. The present study shows that the concentrations of acrosin and its precursor, proacrosin, are significantly higher ($P < 0.001$) in the spermatozoa of asymptomatic men (those having no seminal abnormalities or known fertility impairments) than of symptomatic men (those from infertile couples showing at least one abnormal seminal parameter). It is demonstrated additionally that the spermatozoa of the first fraction of split ejaculates contain significantly greater quantities of acrosin and proacrosin when compared to the spermatozoa from the second fraction of the same split ejaculates ($P < 0.001$). The fertility potential of the first fraction is generally accepted to be greater than that of the second fraction. These data, together with our earlier findings on the acrosin and proacrosin content of fresh and cryopreserved human spermatozoa (Goodpasture et al, 1981), suggest that subfertility or infertility in man may be related to a low acrosin/ proacrosin content of spermatozoa.

Key words: acrosin, proacrosin, semen, spermatozoa, split ejaculate, fertility, infertility

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