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## JOURNAL ARTICLE

# The influence of semen analysis parameters on the fertility potential of infertile couples

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The objective of this study was to investigate the relationship between couples' fertility potential and several parameters of semen analysis (from a single semen sample/male partner) in a cohort of 1,055 infertile couples seen at the Texas Institute for Reproductive Medicine and Endocrinology for a total of 9,409 follow-up months. The medians of sperm concentrations (SC), total sperm counts (TSC), percent motility (MOT), motile sperm concentrations (MSC), and total motile sperm counts (TMSC) were significantly higher ( $P < 0.0001$ ) in the group that achieved pregnancy. When the entire group was divided into "high" and "low" groups on the basis of the various parameters of semen analysis, the relative risk ratios for conception for the "high" groups were as follows: SC, 1.5; MOT, 8.5; TSC, 8.1; MSC, 5.8; and TMSC, 6.1. Life table analysis showed a statistically significant difference ( $P < 0.0001$ ) in the initial rise and overall slope of the conception rates between the two groups for a number of the semen analysis parameters (TSC, MOT, MSC, and TMSC). This study showed that certain semen analysis parameters are positively correlated, with a high degree of statistical probability, with the time required for the occurrence of conception. The quantitative impact of the male fertility potential on conception rates was shown to correlate not solely with the SC or MOT values, but even more so with their derivatives (i.e., MSC and TMSC). Therefore, in an in vivo environment it is not only the number of sperm and their motility but also their derivatives that provide a quantitative insight into the male fertility potential. The data may provide a quantitative expression of the relative risk ratio for conception to occur and the time required until conception is achieved. Further studies will be necessary to clarify the effect of the other semen analysis parameters (i.e., morphology, velocity, linearity, and "efficient" MSC) on conception rates, cumulative conception rates, relative risk ratio for conception, and time until conception in a large population of infertile couples.

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