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## Semen Parameters in Norwegian Fertile Men

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The World Health Organization (WHO) provides guidelines for assessing the various semen variables. A set of reference ranges is given in the WHO Laboratory Manual for the Examination of Human Semen and Sperm-Cervical Mucus Interaction, but several studies indicate that the values should be revised. Furthermore, semen parameters obtained at different laboratories are not directly comparable even if the same methods are used. Thus, it is recommended that each laboratory establish its own reference ranges. In this study, semen from 99 men who had recently achieved a pregnancy were analyzed to establish reference ranges for semen variables. The reference values were based on the group with time to pregnancy (TTP) 12 cycles or less (92%) and abstinence time from 2 to 7 days. The 5th and 10th percentiles for sperm concentration were 10.6 and 16.9 x 10<sup>6</sup>/mL, respectively, and 33% (5th percentile) and 43% (10th percentile) for spermatozoa with progressive motility. These values were below the WHO lower limit. The percentages of ideal spermatozoa (percentage with normal morphology according to WHO strict criteria) were 3 (5th percentile) and 4 (10th percentile). Thirty-nine percent reported that their partners became pregnant during the first cycle after they had stopped using contraception. The semen parameters in this group were compared with the others. Overall, the semen parameters were more favorable in the group with TTP = 1 cycle than in the group with TTP > 1. Sperm concentration, progressive motility, and percentage of ideal spermatozoa according to WHO strict criteria were significantly different in the 2 groups. However, when analyzed by multiple logistic regression, only "total numbers of sperm with progressive motility" remained in the model (P = .002). This is in accordance with previous studies indicating that a combination of semen characteristics provides a better predictor of male fertility potential than the single parameters. In conclusion, new reference ranges for semen variables deviating from the WHO values are established for our laboratory.

Key words: Semen variables, reference range, World Health Organization, partners to pregnant women

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