Cryopreserved donor sperm is routinely used in patients with male or female factors of infertility. We studied the relationship between donor semen quality and pregnancy rate in women undergoing artificial insemination by the intrauterine insemination. Data were analyzed from 203 women who became pregnant after more than one cycle as a result of artificial insemination using cryopreserved donor sperm (n=54) from a total of 422 women who underwent artificial insemination at our center from 1987 to 1994. A total of 299 pregnancies occurred (some women became pregnant more than once; n=75) but only data from first pregnancies were analyzed. The results of semen analysis (prefreeze and post-thaw) of donor semen used for artificial insemination in the pregnant women were analyzed. The women were divided in four groups based on the number of insemination cycles: Group I, 1 to 3 cycles; Group II, 4 to 5 cycles; Group III, 6 to 10 cycles; and Group IV, more than 10 cycles. Semen samples resulting in pregnancy were compared to samples from the same donor that did not result in a pregnancy in the same woman during the previous insemination cycle. The two inseminations were done in a 3-month period. Semen characteristics (motility, velocity, linearity, amplitude of lateral head displacement) abstinence time, and semen volume were analyzed. Most variables did not significantly differ between samples that led to pregnancy and samples that did not. However, the post-thaw velocity and linearity in Group I patients were the only semen characteristics for which the pregnant group was significantly higher (P=0.033, P=0.006) than the nonpregnant group. Semen quality was similarly high between the four groups. The maximum number of pregnancies occurred in Group I (42%) patients as compared to Group II (26%), Group III (22%), and Group IV (9%). Because distinct differences were not present in semen quality in specimens leading to pregnancy versus those that did not, we postulate that pregnancy in a donor insemination program is influenced more by female factors of infertility than by semen characteristics. In summary, good quality cryopreserved donor semen is a necessary but not sufficient requirement for induction of pregnancy in a donor insemination program.