



# FERTILITY FACT SHEET

San Ramon / Orinda / San Jose

## OVARIAN RESERVE EVALUATION TO HELP GUIDE INFERTILITY TREATMENT

There are many factors to consider when [deciding](#) which [infertility](#) treatment option(s) to [pursue](#). Ovarian reserve, as well as the age of the woman, [are two of the most important factors](#).

A woman's chronologic age and her ovarian reserve are independent predictors of fertility. Ovarian reserve describes a woman's reproductive potential with respect to egg quantity. One method we have readily available to measure ovarian reserve is a cycle day 2 or 3 blood Follicle Stimulating Hormone (FSH) and Estradiol (E2) level. These measurements may be very important in evaluating how aggressively to treat women approaching the age of 40 and also to give that woman a realistic idea of her chance for a successful pregnancy.

The levels of FSH that are considered in the normal range are dependent on the lab where the test is performed. With modern techniques for measuring FSH, a level of less than 10 is normal ([to some extent the lower the better](#)), 10-14 borderline, and greater than 15 suggests a very low chance for successful pregnancy with fertility treatment with a woman's own eggs. The Estradiol level measured along with the FSH level on cycle day 2 or 3 is also helpful. There is evidence that if the Estradiol level on cycle day 2 or 3 [is](#) above 70, even with a normal FSH level, ovarian [response](#) is compromised.

A Clomiphene Challenge Test (CCCT) may provide additional information about a patient's ovarian reserve than a day 3 FSH and E2 level. For this test, blood testing is done on day 3 for FSH & Estradiol, Clomiphene pills are taken 100 mg day 5-9, and a blood test for FSH level is taken on day 10. If either FSH level (day 3 or day 10) is elevated, this is a poor prognostic sign. In a general infertility population, an abnormal CCCT predicts that a successful pregnancy will be achieved only about 3- 5% of the time.

Blood FSH levels vary from cycle to cycle, however it seems as though your ovarian reserve and response to medications is predicted by your highest [ever](#) FSH level. A single elevated FSH level predicts a poor prognosis even when subsequent FSH levels are normal.

In practical terms an abnormal FSH level usually, but not always, predicts a poor response to fertility medication. More importantly, it predicts a very low chance for a successful pregnancy when using fertility medication or in vitro fertilization. [Even a high FSH level is however age related, so that an abnormal FSH level in a 30 year old is not as predictive of low pregnancy rate as in a 40 year old.](#)

A well-done study from [a large and well respected](#) IVF program reported on the outcome of IVF cycles in more than 1000 patients with abnormal FSH levels. The pregnancy rate with IVF in these patients was less than 3% and more than two thirds of these pregnancies miscarried, resulting in a delivery rate of less than 1%. Women who get pregnant with an elevated FSH level have a high likelihood of miscarrying. Some studies have suggested that an abnormal FSH level is associated with a high percentage of genetically abnormal embryos.

It is important to note that abnormal FSH levels are not absolutely predictive of the chances for a successful pregnancy. All of us in the field have had patients with markedly abnormal FSH levels who have gone on to deliver healthy babies. These situations are however, uncommon.

Other tests have also been studied to evaluate ovarian reserve. Antral follicle Count, measurement of the number of small follicles (Antral Follicles) on the ovaries early in the menstrual cycle, may reflect the underlying egg supply. A normal total antral follicle (AF) count would be 10 or greater. If fewer than 10 AF are present this may indicate decreased ovarian reserve. Women with more than 20 AF may have Polycystic Ovaries.

A newer test to evaluate ovarian reserve is a blood test for Anti Mullerian Hormone (AMH). This test can be done at any time during a woman's cycle. An AMH level greater than 2.0 is normal; between 1.9 and 1.0 is slightly borderline; and less than 1.0 predicts a lower response to fertility stimulation. An AMH level of less than 0.1 predicts a very low likelihood for success with infertility treatment. A high AMH level is probably more predictive of good ovarian reserve than is a normal FSH.

Risk factors for early loss of ovarian reserve include smoking, family history of early menopause, shortening menstrual cycle interval and previous ovarian surgery.

While FSH levels are helpful in predicting egg quantity, there are no good tests to predict egg quality. Age is the best single predictor of egg quality. Egg quality can be loosely translated to the genetic normalcy of the egg/embryo. [We know from abundant research that more than 50% of embryos produced in an IVF cycle in women in their late thirties are genetically abnormal; 80-90% of embryos in 40 year old women are genetically abnormal.](#)

In summary, early cycle FSH, E2 and AMH levels and the Clomiphene Challenge Test) are useful tests to help guide patients how to proceed with treatment. Borderline test results suggest the need for prompt and aggressive treatment if using your own eggs. Abnormal results will provide important (even if unwelcome) information about your chances of having a successful pregnancy with infertility treatment, hopefully saving time, money and emotional trauma.