

## Ovarian Reserve Assessment

Ovarian Reserve assessment is commonly performed as part of an infertility evaluation. It is alternatively called an ovarian aging assessment or reproductive aging assessment. It consists of two simple tests, day 3 FSH/E2 and antral follicle count, which may be done during the same or separate menstrual cycles. Your primary physician will want to interpret these test results together when directing your care. Plan on scheduling a follow-up consultation with your primary MD after completing these two tests. We use the information from these tests to determine if you have an average, or possibly reduced egg number. This may direct how aggressive we are with infertility treatments. We also use this information to determine how much medication to prescribe during ovarian stimulation cycles.

Women are born with all the eggs they will ever have. By the time a woman enters puberty around age 12, she has about 200,000 eggs left. By the time she reaches menopause around age 50, she has no eggs. From puberty to menopause, if ovulation were not interrupted with birth control pills or pregnancy, a woman could expect to ovulate about 500 eggs. The remaining eggs (from the initial 200,000) are all pre-programmed to die naturally, a few hundred each month. Currently, there are no treatments to improve ovarian reserve or restore egg numbers. There are a few things known which will accelerate loss of eggs. This includes prior ovarian surgery, some chemotherapy agents, radiation to the pelvis, and smoking cigarettes. Smoking can decrease egg number and quality, so we advise all current smokers to quit.

### **Day 2-4 Labs, FSH and E2**

On the third day of your menstrual cycle, we will draw your blood and measure 2 hormones. The first is FSH, or Follicle Stimulating Hormone. This hormone is secreted by the pituitary gland in the brain. FSH is responsible for stimulating follicle growth in your ovaries.

Each egg in your ovary is surrounded by a small, fluid-filled sac called a follicle. As your menstrual cycle progresses from day 1 to mid-cycle, follicles grow in size. Eventually, one follicle gains dominance, and the other follicles begin to recede. That follicle contains the egg that will be released during ovulation.

As women age, their ovaries gradual "run out of eggs." Each month brings a new set of follicles containing eggs. One follicle releases its egg, but hundreds of others are pre-programmed to die off naturally and never ovulate. The fewer eggs you have in your ovaries, the higher the FSH level will need to be to

initiate follicle development. This is why FSH is able to tell us something about ovarian aging.

The second hormone we will measure is estradiol, a form of estrogen. It is frequently abbreviated and referred to as "E2." Estradiol is produced by the growing follicles in the ovary. Once growth has been initiated, the E2 sends a signal back to the pituitary gland to decrease the amount of FSH being secreted so additional follicles are not recruited. Sometimes an early elevation in estradiol indicates early follicle development, and that too can be a sign of advanced ovarian age.

This test may be performed on the 2nd, 3rd, or 4th day of your menstrual cycle, but is classically performed on day 3.

### **Antral Follicle Count (AFC) Ultrasound**

The second test to assess ovarian age is called an Antral Follicle Count (AFC). This test is complementary to the blood tests because we can see small antral follicles in the ovaries by ultrasound which directly correlates with your ovarian reserve.

During a transvaginal ultrasound, we will look at both ovaries and count the number of small follicles. Each follicle contains 1 egg. Counting the number of small follicles is a way to estimate ovarian reserve, which declines naturally with aging. The number of visible follicles reflects the larger number of non-visible eggs. A normal count is about 5-10 antral follicles per ovary. Women less than 30 frequently have 10 or more antral follicles per ovary, and women 40 and older frequently have fewer than 5 antral follicles per ovary.

This test may be performed any day of the menstrual cycle, but it is usually best performed during the first or second week of the cycle, before ovulation. Ultrasound examination during menstruation may be slightly more uncomfortable due to uterine cramping. However, it is sometimes performed the same day as the day 3 blood draw. An ultrasound in the second half of a cycle may provide less than ideal visualization if a normal corpus luteum cyst is present.

### **Scheduling**

To schedule day 3 labs and an AFC ultrasound, please call SRM on the first or second day of your menstrual period, Monday through Friday. If you are scheduling the AFC with your primary physician, you may want to combine this with a brief consultation, so please schedule 30 minutes. If your ultrasound is scheduled with one of the other providers, plan on a 15 minute visit for the ultrasound, and schedule an additional 30 minute follow-up consultation with your primary MD on a different day.