



VERVE
TTC

Initial Testing



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Testing testing 123...

The world of fertility testing is a minefield, unfortunately quite often your GP will only carry out the bare minimum and even then it might not be interpreted correctly or even done on the correct day of your cycle. While proper blood tests are critical to diagnosing infertility issues, very few gp's, fertility nurses or consultants have actually taken the time to sit down with my patients to explain what they truly mean

Fertility clinics are great at running the test work required to make sure that you're a candidate for IVF, sometimes even looking simply if you've got enough chance of being successful so that it won't be too risky and bring down their success rates, as after all they are a business and their success stats matter to them. 90% of the time they leave out essential tests that make a huge difference when it comes to your ability to conceive naturally.

For example: I'm sure you've heard of the hormone progesterone. The test for this is often called the day 21 test, the thing about this test is it completely depends on the persons cycle as to what day it should actually be done on but they just go by the name and send you on day 21 regardless. I'm constantly surprised by the number of my patients that have been for blood tests yet they've never looked at the individuals cycle to get the testing done on the correct date rather than what is text book normal. I've also seen many fertility patients where a simple vitamin D test or vit b12 level would have saved them years of unnecessary fertility procedures.



The other potential problem with fertility (blood) testing is that the reference ranges are absolutely massive. This means that it's highly unlikely that your results will be deemed "abnormal", even if they're not within ideal range for conception.

If you have had some or all of these tests but it has been 12 months since having them, it may be worth asking for another test. It's often really useful to have two tests to compare & check if certain results were an anomaly or a true representation of what is happening in your body. Also things change. lifestyle changes etc.

Firstly I'll explain what we are looking at and why they are important to you and your fertility, This will give an overview of what tests you should be asking for and when you should be having them. The last page will be a printable list you can take to your gp.

So initially what are the first stage investigations we need to check -

- Are your hormones at the correct levels to work efficiently
- Are your fallopian tubes open
- Uterine receptiveness: Can an embryo implant in your uterus and can you sustain a pregnancy



ESTRADIOL

Estradiol, along with LH and FSH, help your body to mature and release an egg. Adequate levels are also required to help you build up your uterine lining for implantation. Most of the women I see have way too much estrogen and not enough progesterone to support pregnancy. This is due to the fact that estrogens are so abundant in our environment through plastics, personal care products and the foods we eat. These estrogens are called xenoestrogens, and they can have negative impacts on your fertility.

Day 3 estrogens: a high level is a sign that your body is trying way too hard to stimulate egg development, and that your ovaries are likely not responding as they should (check for an elevated day 3 FSH level as confirmation). Day 21 estradiol is important because it allows us to calculate your estrogen to progesterone ratio. A relative progesterone deficiency based on this calculation can impact fertility even if your estrogen falls within the “normal range”. Estradiol is likely elevated if you have estrogen dominate symptoms like PCOS, endometriosis or fibroids, or if you’re exposed to a ton of environment estrogens from non-organic meats, plastics and the pill.

When to Test: Day 3 + Day 21

PROGESTERONE

Progesterone is the hormone produced by your ovaries that prepares an embryo for implantation. You need sufficient levels of progesterone to maintain a pregnancy, which makes it an essential test if you've been experiencing recurrent miscarriage. Progesterone also stimulates the production of a thick mucous that covers the cervix after implantation so that no additional sperm can enter the uterus.

Progesterone levels can be affected by chronic stress and elevated estrogens.

A low level of mid-luteal progesterone tells us that you likely experience anovulation or a short luteal phase. Low levels are also associated with increased risk of implantation failure and can commonly lead to early miscarriage.

When to test: Day 21 (or approximately 7 days before your period is due)

FSH

Also known as follicle stimulating hormone, FSH is in charge of the development of ovarian follicles into mature oocytes. High levels likely indicate a lack of ovulation, non-responsive ovaries or early onset menopause. If you're not ovulating regularly your body will release higher than normal levels of FSH to try and stimulate a response from the ovaries. If your levels are quite low (especially in relationship to your LH levels – see below) it can mean that you have PCOS.

When to test: Day 3

LH

A rise in luteinizing hormone levels is called an “LH surge”. This surge triggers ovulation and can be measured by urine strips. On day 3 of your cycle an LH to FSH ratio greater than 2:1 can indicate that you have PCOS. It’s important to note that while LH is important for ovarian maturation high levels can actually inhibit ovulation.

When to test: Day 3

PROLACTIN

The main function of prolactin is to stimulate breast milk production. Levels can be elevated in non-pregnant women due to stress, hypothyroidism, PCOS and even a type of tumour called a prolactinoma. Prolactin is important to fertility because high prolactin levels inhibit the release of a pituitary hormone called GnRH, which then stops the release of LH and FSH. Without LH and FSH your ovarian follicles will not develop and you will not ovulate. This mechanism is the reason why breast feeding inhibits your ability to ovulate and menstruate.

When to test: Anytime. Prolactin does not fluctuate throughout your cycle and a one-time blood test should be sufficient.

DHEA-S

DHEA-s is a hormone produced by the adrenal glands, which intern stimulates the production of both estrogen and testosterone. DHEA will likely be elevated in patients with PCOS and high testosterone levels. It is often prescribed to improve ovarian reserve but comes with a ton of side effects due to hyper stimulation of estrogen and testosterone. DHEA-s should be tested via saliva since it has a diurnal rhythm in the blood stream, meaning it fluctuates dramatically throughout the day. Saliva testing reflects tissue stores of hormones and is ideal for testing of DHEA-s & progesterone due to the fact that blood levels change dramatically throughout the day.

When to test: Anytime during your cycle

FREE TESTOSTERONE

Testosterone is often thought of as a “male hormone” but it’s also important to female reproductive health as it’s produced in the stromal cells of the ovaries to help mature your ovarian follicles. Testosterone is also important for libido; levels spike during ovulation as your body’s way of encouraging you to make a baby. While too little testosterone can impact egg development, too much can inhibit ovulation. High levels are seen in patients with PCOS and come with side effects like excessive body hair and acne. Make sure your doctor runs a free testosterone test which is more reflective of overall testosterone status in women.

When to test: Anytime during your cycle.

AMH

Anti-mulerian hormone is secreted by the primordial follicles of the ovaries. It can help determine whether or not you're a good candidate for IVF since ovulation-stimulating meds won't produce as many oocytes when numbers are low. For many years we thought that a low AMH meant a low chance of conception but new research has just recently debunked this myth. Many of my patients have been told that will not get pregnant naturally due to low AMH numbers when this couldn't be further from the truth. Low AMH reflects a lower number of remaining primordial follicles but this only means that you may have a difficult time getting pregnant into your late 30's and 40's. You only need 1 follicle to make a baby and if you're in your late 20's or early 30's having a low AMH doesn't significantly impact your current fertility status.

When to test: Anytime during your cycle

THYROID PANEL

A full thyroid panel consist of TSH, free T₃, free T₄, anti-TPO and anti-TG antibodies, but most fertility doctors only run TSH; a thyroid-releasing hormone secreted by the pituitary gland in the brain. A new study from the Journal of Clinical Endocrinology and Metabolism questions this methodology due to the fact that normal TSH levels do not necessarily equate with optimal thyroid function. All of my fertility patients with suspected hypothyroid or recurrent miscarriage are given a requisition for a full thyroid.

When to test: Anytime during your cycle as long as you're consistent with the time of day if repeated.

FERRITIN

Ferritin is an iron storage protein that most accurately reflects your overall iron status. Iron circulates oxygen around our body and it can be especially important in fertility since we need blood and oxygen circulating freely to the pelvis in order to have healthy ovaries and a robust uterine lining. Iron is also important to thyroid function (see above) and maintaining adequate levels while pregnant can improve the health of your future baby. One study showed that women taking iron supplements were 76% less likely to have a baby with low birth weight.

When to Test: Ideally test after your menses, since this is when levels will be at their lowest, BUT day 3 will give us a good enough reading and for ease this is probably the best time.

VITAMIN B₁₂

B₁₂ deficiencies can cause your blood to clot abnormally leading to increased risk of recurrent miscarriage and issues with implantation. Prolonged B₁₂ deficiencies can also increase your risk of infertility by causing changes in ovulation and implantation. Vitamin B₁₂ is critical for energy production, as well as the repair of your DNA – both of which are important to making a healthy baby. If your B₁₂ levels are extremely high it may mean that your body isn't using this vitamin effectively due to issues with methylation. High B₁₂ levels require further exploration since poor methylation status will have an impact on fertility.

Some individuals are not able to absorb vitamin B₁₂ from food or supplements, and in those cases B₁₂ injections are best.

When to test: Anytime during your cycle

(If you B₁₂ Levels are less than 500pmol/l I suggest you get a b₁₂ injection. I will be offering these at some point in the future but not as yet)

VITAMIN D

Vitamin D is an incredibly important lab that is almost always over looked by fertility clinics. I've seen a more than a few cases where patients could have avoided years of expensive fertility treatments had their doctor simply checked vitamin D lab values before recommending IUI/IVF.

Vitamin D isn't actually a vitamin at all. It's a hormone, and we need sufficient levels to regulate our immune system & overall hormone function. One study out of Yale found that 93% of infertile women studied had vitamin D deficiency. Vitamin D deficiency during pregnancy can also have long lasting impacts on your baby when you do get pregnant. Studies link mom's low vitamin D levels in pregnancy to an increased risk of asthma, diabetes and even MS in their babies. Women given vitamin D during pregnancy also reduced their number of infections throughout pregnancy by 50% and the babies born to moms getting the highest vitamin D levels had fewer colds and less eczema.

When to test: Anytime during your cycle. I recommend that my patients have their vitamin D tested twice a year to make sure that they're staying within the optimal reference range.

Physical checks

- A check to see if your fallopian tubes are clear, called a hysterosalpingogram (HSG). During this procedure, your doctor will inject dye through your cervix and use an X-ray to check for any blockages or any other problems, such as scar tissue and fibroids in your womb (uterus).
- An ultrasound scan, where the radiologist gently inserts a small sensor into your vagina (transvaginal scan). In some cases, your doctor will also inject a dye into your womb, to look for any blockages in your fallopian tubes or abnormalities of your womb.
- You may also need an operation to view your fallopian tubes, called a laparoscopy and dye. As above, your doctor will inject dye into your womb, but she'll then make a tiny cut in your stomach and insert a small probe containing a tiny camera. This will allow her to examine your womb, fallopian tubes and ovaries thoroughly. Although the procedure is fairly minor, it's more invasive than other tests, so usually only used if there is a strong suspicion that you have a problem, such as pelvic inflammatory disease, or endo.
- STI Test: You also need to check for sti's such a chlamydia

Tests for your GP

- Estrogen / When: Day 3 & 21
 - Progesterone / When: Day 21 (or 7 days before period is due is irregular)
 - FSH / When: Day 3
 - LH / When: Day 3
 - Prolactin / When: Day 3
 - DHEA - S / When: Anytime
 - Free Testosterone / When: Anytime
 - AMH / When: Anytime
 - Full Thyroid Panel including antibodies/ When: Anytime
 - Ferritin / When: Day 3
 - B12 / When: Anytime
 - Vitamin D / When: Anytime
-
- HSG
 - Ultrasound
 - Chlamydia