HORMONE TESTING

HOW TO UNDERSTAND YOUR RESULTS

Hormone testing can be confusing! The results usually make no sense so women tend to just disregard them – especially when the results come back as "normal." There is nothing more frustrating than knowing there is something wrong, only to be told that all your tests are completely normal!

NORMAL RANGES VS. OPTIMAL RANGES?

If you take a look at your blood work you will see your result and then you should see a range next to it. These ranges tend to vary from lab to lab so they can be quite confusing. You want to focus on the optimal range. This is a narrower range that you should aim for in order to achieve better hormonal and overall health.

1. THYROID STIMULATING HORMONE T3 & T4, REVERSE T3 & TPO (THYROID PEROXIDASE)

Test TSH, free T3, free T4, reverse T3 & TPO to get an overall picture of your thyroid function. Thyroid Stimulating Hormone is secreted by the pituitary gland and tells the thyroid gland to make and release the hormones T4 (thyroxine) and T3 (triiodo-thyronine). When blood levels of TSH fall below normal this indicates hyperthyroidism (over-active thyroid) and when they are above normal, this suggests hypothythyroidism (under-active thyroid). TPO is an enzyme found in the thyroid gland.The presence of TPO antibodies in your blood suggests that the cause of thyroid disease is an autoimmune disorder, such as Hashimoto's disease or Graves' disease.
T4 is a precursor to T3. T3 is the active form of thyroid hormone that is used by the body. Important to know about thyroid hormone is that there are receptor sites on every single cell in your body for thyroid hormone. This means that it influences every cell in your body. Kind of a big deal! Reverse T3 is converted from T4 just like T3 is, and this conversion happens as a way of getting rid of any excess T4. The conversion to RT3 speeds up when there is trauma or ongoing stress or sickness so that the body can conserve energy.

Optimal Ranges (blood):

TSH = 0.3 - 2.5 mIU/L

Free T3 = 3.0 – 4.5 pg/mL

Free T4 = 0.7 - 2.5 ng/dL or it should be in the upper third of the reference range.

Reverse T3 = 50-150 pg/mL

TPO - should be less than 70 IU/ml

Low TSH/Hyperthyroidism: TSH is less than 0.3 mIU/L. High free T3 and free T4

Normal: 0.3 - 2.5 mIU/L. Normal free T3 and free T4.

Subclinical hypothyroidism: TSH more than 2.5. Low/normal free T3 and free T4

Overt Hypothyroidism: TSH above 5. Low free T3 and free T4

2. DHEA-S - DEHYDROEPIANDROSTERONE

DHEA-S, a hormone produced by the adrenal glands and is converted into DHEA. DHEA is a precursor to the sex hormones estrogen and testosterone. Blood levels of DHEA peak in our 20's and then decline with age, decreasing to 50% of peak youthful levels by the mid-40's. Low DHEA can be the reason behind low testosterone and subsequently low sex drive, low energy and decreased immune system function.

It is measured when there are signs of PCOS, amenorrhea or infertility. Low DHEA can also signify adrenal fatigue so you'll want to get your adrenals functioning properly if your DHEA is low.

Normal Range (blood):
65-380 mcg/dL

Optimal Range (blood):
Top half of normal range: approximately 200-380

Normal Range (Saliva):
2-23 ng/mL (Age dependent)

Optimal Ranges (Saliva):

Under 30: 6.4-18.6 ng/ml; 31-45: 3.9-11.4 ng/ml; 46-60: 2.7-8 ng/ml; 61-75: 2-6 ng/ml; on oral DHEA (5-10 mg, 12-24 hours after last dose): 2.8-8.6 ng/ml; transdermal DHEA (5 mg): 3-8 ng/ml

3. ANDROSTENEDIONE

Androstenedione is a male sex hormone produced by DHEA. Half of it is produced in the adrenals and half in the ovaries. This is often measured when testosterone is found to be abnormal and/or when there are clinical signs of PCOS or androgenicity.

Conventional Range (blood):
60-285 ng/dL at midcycle
30 - 235 ng/dL in the luteal phase of the cycle

3. VITAMIN D - 25 OH

Vitamind D deficiency is linked to numerous women's health conditions. A large number of the world population is deficient so it is important that you get test ed and get your levels to within the optimal ranges depending on the conditions you're currently experiencing.

Normal Range:
32-100 ng/ml (80-250 nmol/L)

New research suggests that the optimal range is lower than what many alterna tive and functional doctors and recommending.

Optimal Range for people who are healthy is:
50 - 70 ng/mL

However, people who are dealing with an auto-immune disorders or gut/digestion issues, then your optimal range might need to be higher:

Optimal Range:
80 ng/mL and above

Vitamin D toxicity is a real problem and signs and symptoms of it include: kidney stones (also a sign of vitamin K2 deficiency), nausea, vomiting, low appetite, thirst, excessive urination, nervousness and weakness.

4. TESTOSTERONE – FREE AND TOTAL

Testosterone is produced in the ovaries and in the adrenal glands. Testosterone is primarily responsible for a healthy sex drive. Low levels have been associated with decreased libido, energy and well being, while too high levels may cause hirsutism (excessive hair growth on the face) and acne or Polycystic Ovarian Syndrome. Fact: 82% of women with excess androgens have PCOS – the top cause of infertility.

Normal Range (Blood)

Free testosterone - 0 - 2.2 pg/mL

Optimal Range (Blood):

Free testosterone - top half of the normal range or 1.1 - 2.2 pg/mL

Normal Range (Saliva):

16-55 pg/mL (age dependent)

Optimal Range (Saliva):

Top half of the normal range or 36-55 pg/mL

5. ESTRADIOL

Estradiol is the most common estrogen in women who are still getting their period. It is produced in the ovaries and adrenal glands and is responsible for the growth of the uterus and breasts. Estrogen in general builds the uterine lining, regulates the menstrual cycle and keeps the vagina lubricated. Levels of estradiol vary throughout the menstrual cycle (higher in the first half of the cycle and lower in the second half), and drop to lower more constant levels after menopause.

It's important to test estradiol on certain days in your cycle. If you just want to determine your baseline estrogen levels, you want to test either at ovulation or approximately 7 days after ovulation has occurred. If you ovulate on day 14 then you would test on day 21. This will also help you determine your estrogen to progesterone ratio. For fertility purposes, you will want to test between days 2 and 4 of your cycle along with FSH to determine your egg quantity/quality. Higher estrogen during this time could be artificially suppressing your FSH, so it's important to test both.

Normal Range depending on age/cycle day (blood):

15 - 350 pg/mL

Optimal Ranges (Blood):

Day 3: less than 80 and Day 14: 150-350

Normal Range (women still cycling) Day 21/22 (Saliva):

1.3 – 3.3 pg/mL

Optimal Range (women still cycling) Day 21/22 (Saliva):

1.3 – 1.7 pg/mL

6. PROGESTERONE

It is important to maintain the right ratio between progesterone and estrogen. Progesterone and estrogen have a yin and yang relationship and their respective roles typically complement each other.

Progesterone should be tested 7 days after ovulation to determine the ratio. During the luteal phase, you want the ratio of your progesterone to your estradiol to be about 300:1. The progesterone level in a woman who is ovulating normally is 300 times the concentration of estradiol, when measured approximately 7 days after ovulation. Ratios under 100 are considered to represent estrogen dominant states.

Normal Range - Luteal phase (blood):

8 - 33 ng/mL

Optimal Range - Luteal phase (blood):

15 -33 ng/mL

Optimal Range - Luteal phase (saliva):

75 - 270 pg/mL

Optimal Ratio: Progesterone/Estradiol - Pg/E2 (Saliva)

100-500 with 300-500 being ideal

7. CORTISOL - SALIVA TESTING

As you know I can't stop talking about your adrenals and cortisol and their connection to all your sex hormones. Adrenal and cortisol dysregulation is the most common underlying cause for most hormonal imbalances because of cortisol's dominating effect on the other hormones in your body. Cortisol should be measured by a saliva test called a Diurnal Cortisol test. This means that cortisol is measured morning, noon, afternoon and evening.

Cortisol morning:	**Cortisol noon:**	**Cortisol evening:**	**Cortisol night:**
3.7 – 9.5 ng/mL	1.2 – 3.0 ng/mL	0.6 – 1.9 ng/mL	0.4 – 1.0 ng/mL

CORTISOL - BLOOD TESTING

Normal ranges:

7-28 mcg/dL morning, 2-18 mcg/dL afternoon

Optimal ranges:

10-15 mcg/dL morning, 6-10 mcg/dL afternoon