

Fertility Testing

Understanding Fertility Hormones,
Results & Collection Timing



AVAILABLE TESTS

B-244 | Fertility Basic

ECLIA: AMH, LH, FSH, TSH,
Prolactin, C

B-245 | Fertility Advanced

ECLIA: AMH, LH, FSH, TSH,
Prolactin, C,
LC-MS: E2, Pg, T, DHEAs

B-204 | LH/FSH

ECLIA: LH, FSH

B-205 | AMH

ECLIA: AMH Only

B-209 | Prolactin

ECLIA: Prolactin Only

ZRT Laboratory Fertility Testing offers follicular (day 3 testing) or luteal (day 21 testing) at-home dried blood spot sample collection to assess reproductive function. Basic and advanced fertility profiles are offered along with single analyte and add-on testing options, utilizing highly sensitive and specific electrochemiluminescence (ECLIA) and liquid chromatography - mass spectrometry (LC-MS) technology.

Analyte Overview

Pituitary & Fertility Markers

Anti-Mullerian Hormone (AMH) – marker of ovarian reserve; the ovarian follicle pool.

Follicle Stimulating Hormone (FSH) – pituitary hormone triggering ovarian follicle recruitment.

Luteinizing Hormone (LH) – pituitary hormone stimulating ovulation.

Prolactin – pituitary hormone that can suppress ovulation.

Thyroid Stimulating Hormone (TSH) – pituitary hormone triggering thyroid hormone production which supports regular ovulation and early pregnancy.

Adrenal Hormones

Cortisol (C) – the primary adrenal “stress” hormone. Both high and low can impact reproductive signaling.

Dehydroepiandrosterone Sulfate (DHEAs) – the adrenal androgen hormone. A precursor support for ovarian hormone production.

Ovarian Hormones

Estradiol (E2) – the main ovarian hormone which communicates with the brain. Estrogen also prepares the uterus for pregnancy.

Progesterone (Pg) – the primary marker of successful ovulation. Progesterone prepares the uterus for pregnancy.

Testosterone (T) – supports follicular development, but if too high may complicate fertility.

Analyte	Health Results May Suggest	Low Results May Suggest
AMH	Higher ovarian reserve; increased follicle count, PMOS/PCOS-type patterns. Higher likelihood to respond to ovulation stimulants.	Reduced ovarian reserve or age-related decline in ovarian function. A lower likelihood to respond to ovulation stimulants.
Cortisol	Physiologic stress response, suppression of pituitary LH and FSH signaling and impaired ovulation and testosterone production.	Reduced adrenal hormone production, and stress adaptation. Alterations in pituitary hormone signaling and ovarian hormone production.
DHEAs	Increased adrenal androgen production commonly associated with PMOS/PCOS and insulin resistance. Directly or indirectly may decrease egg quality.	Decreased egg quality and quantity, and decreased precursor for overall hormone production.
Estradiol	Day 3 collection: if >50; may cause FSH suppression which can mask poor ovarian reserves. Day 21 collection: robust ovulation or ovarian cyst.	Day 3: Normal. Luteal phase: Reduced ovarian activity, impaired follicular development, and decreased endometrial support.
FSH	Reduced ovarian egg reserves. High FSH is suggestive of poor ovarian estrogen production.	Reduced pituitary signaling for follicle/egg development and sperm production. Suggests hypothalamic or pituitary dysfunction or hormone supplementation.
LH	Decreased ovarian egg reserves. In PMOS/PCOS, LH is commonly twice as high as FSH.	Reduced pituitary signaling of ovulation. Suggests hypothalamic or pituitary dysfunction or hormone supplementation with estrogen or testosterone.
Progesterone	Consistent with strong ovulation and adequate corpus luteum function.	Anovulation, luteal insufficiency, inadequate corpus luteum function, or incorrect collection timing. Poor endometrial maturation.
Prolactin	Pituitary excess production, commonly produced by small benign tumors in the pituitary. Can also be stimulated by low thyroid, pregnancy/lactation, common mental health medications, liver and kidney dysfunction. High prolactin contributes to sex hormone disruptions with effects on fertility and sexual function.	Usually limited fertility significance; may occasionally reflect pituitary dysfunction.
Testosterone	Androgen excess, often symptomatic PMOS/PCOS. Decreased quality of ovulation, irregular or absent cycles, insulin resistance, and ovarian cysts.	Low libido, sign of poor ovulation and lower hormone production.
TSH	Hypothyroidism. Reduced thyroid gland function. Low thyroid triggers ovulatory disruption, menstrual irregularity, and decreased fertility.	Hyperthyroidism. Excess thyroid hormone production or supplementation. Hyperthyroidism may trigger decreased menstrual cycles and decreased fertility.

Understanding Testing

Day 3 Follicular Testing

“Does the reproductive system have the capacity and messages to develop good eggs?”

Collection day: Samples are collected on days 2-4 of the menstrual cycle; day 1 is the first day of full menstrual flow (not spotting).

The early follicular phase is used to evaluate the baseline pituitary hormones and the ovarian egg reserve. At this time, the pituitary's communication with the ovaries is the least impacted by the sex hormones. Day 3 levels reflect the body's ease of recruiting eggs for development. Higher pituitary hormone levels suggest that the ovary isn't responding well and struggling to produce good eggs.

At this stage:

- Estrogen, progesterone, and testosterone should be low
- Pituitary hormones (LH and FSH) reflect true baseline output to the ovaries to recruit eggs for this menstrual cycle
- Ovarian reserve and androgen patterns are most visible

What Day 3 Testing Is Best For:

- Assessing ovarian reserve (AMH, FSH)
 - Baseline estrogen activity (E2)
 - Identifying PMOS (Polyendocrine Metabolic Ovarian Syndrome), formerly known as Polycystic Ovary Syndrome (PCOS) (LH, FSH)
 - Prolactin – least interference from estrogen
 - Establishing a baseline for fertility planning
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Day 21 Luteal Phase Testing

“Did ovulation occur, and is the body hormonally prepared for pregnancy?”

Collection day: Samples are collected around Day 21, depending on cycle length and regularity. Day 1 is the first day of full menstrual flow (not spotting).

Luteal phase testing evaluates what happened during the cycle, rather than what the system is theoretically capable of doing. At this time of the month, the results of ovulation should be seen hormonally. Hormone levels are being secreted by the corpus luteum during this time, including peak levels of progesterone.

At this stage:

- Ovulation should have occurred
- The corpus luteum should be producing estrogen, progesterone, and testosterone
- The uterus should be preparing for implantation

What Luteal Phase Testing Is Best For:

- Confirming ovulation (Pg)
- Corpus luteum health (E2, Pg)
- Diagnosing PMOS/PCOS – (E2, T)

AMH, TSH, DHEAs and C may be run at any time during the cycle but usually is done in the luteal phase for convenience.

Irregular Cycles (Variable Length, Skipping Periods, or Unpredictable Cycles)

In some individuals, ovulation may occur inconsistently or not at all, leading to irregular or absence of periods. This is commonly seen in conditions such as Polyendocrine Metabolic Ovarian Syndrome (PMOS)/Polycystic Ovarian Syndrome (PCOS), hypothalamic amenorrhea, insulin resistance, thyroid dysfunction, elevated prolactin, or chronic stress. While collecting both a day 3 and day 21 (luteal phase) sample are ideal, there may be times when cycles are so irregular or infrequent that testing on a random day may be required. For women without cycles a day 3 test may not be possible, and those tests may be done on any day. Signs and symptoms of ovulations (change in libido, cervical mucus, positive ovulation predictor kit) may help guide collection times.

For women who are alternating between short and longer cycles without pattern: aim to collect the luteal phase collection 7 days after ovulation (use other signs or symptoms).

For women skipping more than 45 days: test on any day.

Short Cycles (21–26 Days)

Short cycles reflect a shortened follicular phase, a shortened luteal phase, or both. The average ovulation occurs on day 14, but for individuals with short cycles, ovulation often occurs earlier than Day 14, and/or progesterone production declines prematurely creating a short luteal phase.

Day 3 testing is collected as usual in short cycles.

For **luteal testing** in short cycles, the sample should be collected 7 days after ovulation (or 7 days before the next menses), not strictly on Day 21. For example:

- If ovulation occurs on Day 10, progesterone should be measured around Day 17.
- If ovulation occurs on Day 12, progesterone should be measured around Day 19.
- If no signs or symptoms of ovulation – luteal phase collection should occur between days 14–19 (7 days prior to a 21–26 day cycle).

Long Regular Cycles (31+ Days)

Day 3 testing is collected as usual in short cycles.

Some women experience regular, but long menstrual cycles. In this situation, there is a follicular phase that is longer than 14 days (day 1 to ovulation). In these individuals, ovulation commonly occurs later than Day 14, which means that a fixed Day 21 progesterone test may be collected too early; before progesterone has peaked.

Long Regular Cycles (31+ Days) | *Continued*

For **luteal testing** in long cycles, the sample should be collected 7 days after ovulation (or 7 days before the next menses), not strictly on Day 21. For example:

- If ovulation occurs on Day 18, progesterone should be measured around Day 25.
- If ovulation occurs on Day 20, progesterone should be measured around Day 27.
- If no signs or symptoms of ovulation are identified, luteal collections should be collected on day 24 or later for a cycle that is 31+ days long.

For more information on when to collect your sample,
please see our **Luteal Phase Collection Reference Document** at

► www.zrtlab.com/luteal-collection