



Primary Ovarian Insufficiency (POI) Panel

MDL Test Number: 692, Tests Included: 18

Specimen Requirements

Specimen	Collection Platform	Stability	Turnaround Time
Serum	2 Serum Separator Tube (SST)	Room Temperature	24 – 72 hrs.

Special handling and timing

This panel is drawn into serum separator tubes, but two of its requirements are worth setting out separately.

- **The day of the cycle should be recorded.** Several hormones in this panel are interpreted against where the patient is in her cycle, and are best drawn in the first few days of it, counting the first day of bleeding as day 1. If periods are irregular or absent, the request should say so rather than leave a cycle day to be assumed.
- **A morning draw is preferred.** Testosterone is highest in the morning and falls throughout the day, and prolactin rises with sleep, stress, and the draw itself. The time of collection should be recorded on the request.

What is the Primary Ovarian Insufficiency (POI) Panel?

Primary ovarian insufficiency (POI) is the loss of normal ovarian function before the age of 40. It is not early menopause in the ordinary sense: ovarian activity can come and go, periods may return, and pregnancy remains possible in a minority of women, which is why the condition is defined and followed differently.

The diagnosis rests on a characteristic hormone pattern rather than on symptoms alone — a raised pituitary signal driving ovaries that are no longer responding, with a low estradiol and a markedly reduced marker of the remaining egg supply. This panel measures that pattern, and measures it alongside the conditions that produce the same picture for other reasons.

POI also travels with other autoimmune conditions, most often of the thyroid and the adrenal glands, so the panel includes the thyroid antibodies and the adrenal hormone that would identify them.

Why order the Primary Ovarian Insufficiency (POI) Panel?

It is commonly used to:

- Investigate periods that have become irregular or stopped before the age of 40, together with hot flushes, night sweats, poor sleep,

or vaginal dryness in a younger woman.

- Establish the hormone pattern that the diagnosis depends on, which requires the pituitary hormones and estradiol measured together rather than separately.
- Distinguish ovarian failure from a cause higher up. A markedly low marker of ovarian reserve points to the ovary; a normal one with low pituitary signals points instead to the hypothalamus, as in functional hypothalamic amenorrhea.
- Exclude the conditions that imitate it — thyroid disease, a raised prolactin, and androgen excess — each of which is treated quite differently.
- Screen for the autoimmune conditions that occur alongside POI, particularly autoimmune thyroid disease.
- Establish a baseline before hormone replacement begins, which is recommended in POI until the usual age of menopause.

Special Instructions

- **Hormonal contraception and hormone treatment:** Combined pills, patches, rings, hormonal intrauterine devices, and menopausal hormone therapy change several of these results. Current or recently stopped treatment, and what form it takes, should be listed on the request.
- **Fertility medicines:** The manufacturer of the anti-Müllerian hormone test directs that it not be used on samples from patients who have received certain fertility medicines within one to two weeks of testing. Any recent fertility treatment should be listed on the request.
- **Biotin supplements:** Biotin is sold on its own and is present in many hair, skin, and nail products, often at high doses. Several tests in this panel can be affected, and the most sensitive of them was tested by its manufacturer only up to a level that a high-dose supplement can exceed. Patients should tell the ordering provider what they take and at what dose.
- **Medicines and recent illness:** Steroids, some psychiatric medicines, and any recent significant illness can affect these results. A current medication list should accompany the request.



Which tests are included in this panel?

Each test below is also available individually, and a separate fact sheet for each one gives its reference ranges, limitations, and the conditions it is used to assess.

Free testosterone and the free androgen index, where included, are calculated from the total testosterone and SHBG results already in this panel. They are not separately charged.

Test No.	Analyte	CPT Code	Method
610	Follicle-Stimulating Hormone (FSH)	83001	Immunoassay
611	Estradiol (E2)	82670	Immunoassay
612	Thyroid-Stimulating Hormone (TSH)	84443	Immunoassay
614	Luteinizing Hormone (LH)	83002	Immunoassay
616	Triiodothyronine, Free (Free T3)	84481	Immunoassay
617	Thyroxine, Free (Free T4)	84439	Immunoassay
622	Testosterone, Total	84403	Immunoassay
630	Progesterone	84144	Immunoassay
631	DHEA-Sulfate (DHEA-S)	82627	Immunoassay
638	Anti-Thyroid Peroxidase Antibody (Anti-TPO)	86376	Immunoassay
639	Sex Hormone-Binding Globulin (SHBG)	84270	Immunoassay
641	Cortisol	82533	Immunoassay
652	Anti-Thyroglobulin Antibody (Anti-TG)	86800	Immunoassay
653	Anti-Müllerian Hormone (AMH)	82166	Immunoassay
654	Prolactin	84146	Immunoassay
659	Vitamin D, 25-OH	82306	Immunoassay
685	Free Testosterone	—	Calculated
696	Free Androgen Index (FAI)	—	Calculated

Limitations:

Every laboratory panel has limits. For this one, the main ones are:

- Each result is a snapshot of one moment. Several of these hormones change substantially across the menstrual cycle and through the day, so a single set of results should be interpreted against when the sample was taken.
- A normal panel does not exclude a diagnosis, and a single abnormal result does not establish one. The pattern across the panel is what carries the meaning.
- The diagnosis of POI requires the hormone pattern to be confirmed on a repeat sample, usually at least four weeks later, because ovarian activity in this condition fluctuates.
- Results are interpreted against the reference range printed on the report for each individual test. Those ranges differ by age and, for several of these tests, by where the patient is in her cycle.
- These results are one piece of a larger picture. They are meant to be read together with the patient's symptoms, medical history, and examination — never on their own.

What are some references that discuss the medical necessity of this panel?

1. Panay, N. et al. Evidence-based guideline: premature ovarian insufficiency. *Hum. Reprod. Open* **2024**, hoae065 (2024).
2. Practice Committee of the American Society for Reproductive Medicine. Current evaluation of amenorrhea: a committee opinion. *Fertil. Steril.* **122**, 52–61 (2024).
3. Gordon, C. M. et al. Functional hypothalamic amenorrhea: an Endocrine Society clinical practice guideline. *J. Clin. Endocrinol. Metab.* **102**, 1413–1439 (2017).
4. Practice Committee of the American Society for Reproductive Medicine. Testing and interpreting measures of ovarian reserve: a committee opinion. *Fertil. Steril.* **114**, 1151–1157 (2020).
5. Harlow, S. D. et al. Executive summary of the Stages of Reproductive Aging Workshop +10: addressing the unfinished agenda of staging reproductive aging. *J. Clin. Endocrinol. Metab.* **97**, 1159–1168 (2012).

