



The most complete line of endocrine testing

Estrogen Metabolism Assessment

sample type: **SERUM or URINE**

The **Estrogen Metabolism Assessment** (serum or urine) evaluates how estrogen is being processed in the body. The test yields clinical insight into many estrogen-dependent conditions and provides an important tool for monitoring dietary, lifestyle and hormone therapies.

The potential impact of estrogen on a person's health and well-being is enormous. Estrogen can exert a strong influence in diverse conditions such as:

- Breast cancer
- Prostate cancer
- Osteoporosis
- Heart disease
- Autoimmune disorders

Recent scientific advances into estrogen metabolism have shed new light on more effective clinical interventions in estrogen-dependent conditions.

Estrogen Metabolism

Estrogen metabolites provide valuable clinical information regarding cancer risk. Two significant metabolites that can be accurately assessed are **16 alpha-hydroxyestrone** (16 alpha-OHE1) and **2-hydroxyestrone** (2-OHE1).

- **16 alpha-OHE1** is a powerful metabolite that stimulates target tissues. Levels can rise in response to obesity, alcohol consumption, and toxic exposure. High levels of this potent metabolite are linked to increased risk and poorer prognosis in conditions linked to estrogen excess such as breast cancer and lupus.
- **2-OHE1** is a metabolite that binds weakly to cell receptors and may slow cell proliferation. Excessive levels of 2-OHE1 may increase the risk of osteoporosis in post-menopausal women with low estrogen.

The ratio between 2-OHE1 and 16 alpha-OHE1 is the key to optimizing health.

Treatments that increase the 2:16 alpha-OHE1 ratio help to reduce the risk of estrogen-dependent disease. Using this assessment, practitioners can monitor the impact of dietary intervention (flaxseed, soy products, cruciferous vegetables or derivatives like indole-3-carbinol and diindolylmethane, omega-3 fatty acids) and exercise. The ratio also allows for accurate monitoring of clinical safety and effectiveness of hormone replacement therapy (HRT).

The **Estrogen Metabolism Assessment** is designed for both premenopausal and postmenopausal women. It can be performed using serum or urine. Serum sampling provides a direct assessment of circulating estrogen metabolites. Urine testing offers convenient, noninvasive sample collection.

- **Analytes:**
2-OHE1, 16a-OHE1,
2-OHE1/16a-OHE1 ratio
Estrogen Metabolism Index
Creatinine (urine only)
- **Specimen Requirements:**
Serum—6ml serum in SST
Urine—10ml first morning urine sample
- **Before Taking This Test:**
 - Premenstrual women: Collect sample between days 19 and 25 of menstrual cycle
 - Women on HRT or oral contraceptives: Collect sample 8-10 hours after last dose
 - Urine: Patients should have normal kidney and urinary tract functions
 - Urine: Inform practitioner of diuretic use or excessive fluid intake
 - Schedule sample collection for Monday through Thursday
 - See instructions inside test kit for details

Estrogen Metabolism Assessment (Urine)

Menopausal



63 Zillicoa Street
Asheville, NC 28801
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Patient: **SAMPLE PATIENT** **Order Number:**
 Age: 50 Completed: February 21, 2008
 Sex: F Received: February 20, 2008
 MRN: Collected: February 13, 2008

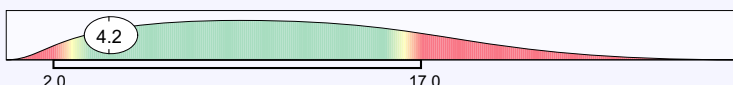
This test reveals important clinical information about:

- **Estrogen metabolism in premenopausal and postmenopausal women**, focusing on the critical balance between two primary hydroxyestrogens (active and inactive)
- **Hormonal imbalances** that may affect the risk and prognosis of estrogen-dependent health conditions, such as breast cancer, lupus, osteoporosis, and heart disease.
- **The physiological impact of hormone therapy**—including dietary, nutritional, lifestyle, and estrogen replacement interventions

Estrogen Metabolism

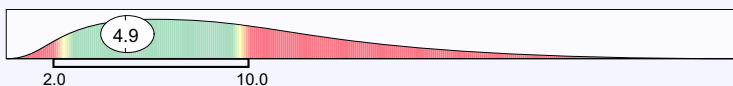
2-Hydroxyestrogen (2-OHE)

Ref Range
ng/mg creat



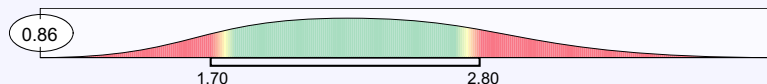
16-alpha-Hydroxyestrone (16-alpha-OHE1)

Ref Range
ng/mg creat



2-OHE:16-alpha-OHE1 Ratio

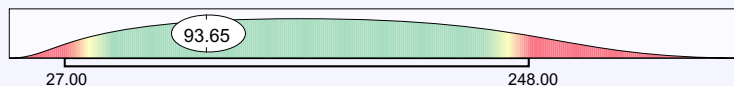
Ref Range



Creatinine

Creatinine

Ref Range
mg/dL



Reference Range Information

Reference ranges for 2-Hydroxyestrogen and 16alpha-Hydroxyestrone were determined with urine samples from menopausal women who were not using hormone-replacement therapy. The reference range for the 2-OHE: 16-alpha-OHE1 ratio was derived from the literature. The reference range for creatinine was derived from a population of pre- and post-menopausal women.

Reference Intervals for Menopausal Women

Analyte	Reproductive Range (Luteal)	Unsupplemented Menopausal Range	Patient Result
2-Hydroxyestrogen	3.0 - 33.0	2.0 - 17.0	4.2
16-alpha-hydroxyestrone	4.0 - 24.0	2.0 - 10.0	4.9

Histograms represent idealized data based upon large populations

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WEMA6 RMS 1585 Rev 1

For test kits, clinical support, or more information contact:

Client Services
Genova Diagnostics
63 Zillicoa St.
Asheville, NC 28801-1074
800-522-4762 • Fax: 828-252-9303 • www.GDX.net/cs

More detailed publications with references are also available: www.GDX.net