



Urine Metabolites Hormone Testing

*Discover True Clinical Utility with the
Industry's Best Testing*



Why Test Urinary Metabolites?

Metabolites testing provides a unique diagnostic view that no other hormone testing offers. It shows how a patient is breaking down a variety of hormones – like estrogens, progestogens, androgens, cortisol and melatonin.

Urinary Metabolite testing also gives practitioners insight into whether a patient is fully detoxifying their hormones, making them more or less at risk for a variety of diseases – like cancer.

“...provides a unique diagnostic view unlike any other hormone testing.”

Urinary Metabolites testing would be beneficial for patients who:

- ▶ Have a risk of hormone-dependent cancers.
- ▶ Have a family history of hormone-dependent cancers.
- ▶ Have symptoms of estrogen dominance.
- ▶ Are considering hormone replacement therapy.
- ▶ Are experiencing stress-related symptoms or symptoms of cortisol imbalance.
- ▶ Have normal saliva cortisol levels but are still experiencing symptoms of adrenal dysfunction.



MOST CONVENIENT

Discreet dried urine collection eliminates the hassle of jug urine collection



MOST COMPLETE

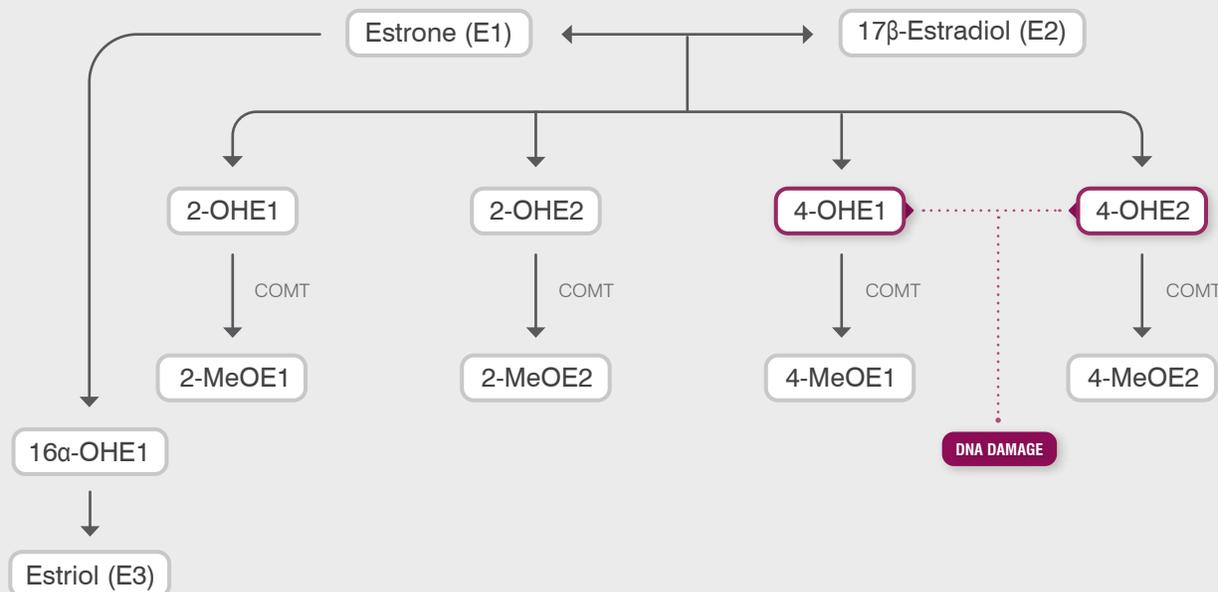
More Estrogens (13), More Cortisols (6), Diurnal Melatonin



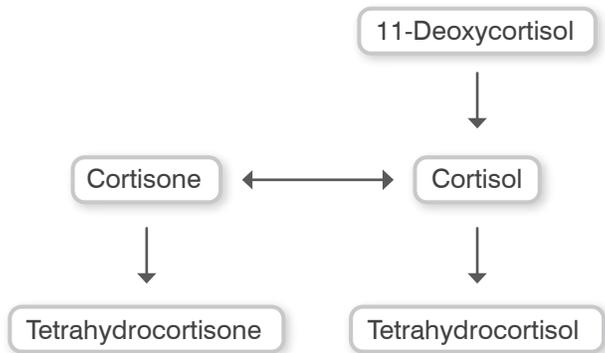
BEST VALUE

ZRT has the largest commercial profile at the lowest cost per test of any lab

ESTROGEN CASCADE



CORTISOL CASCADE

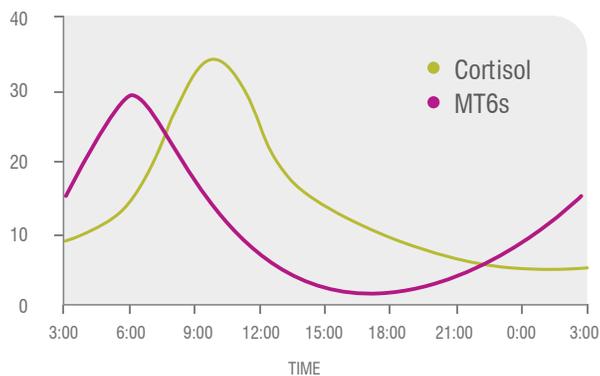


Total Cortisol, Total Cortisone | Free Cortisol x4, Free Cortisone x4 | Tetrahydrocortisol (ThC) Tetrahydrocortisone (ThCn)

Total cortisol and cortisone, plus levels of their principal metabolites tetrahydrocortisol (THF) and tetrahydrocortisone (THE), indicate the extent of cortisol output from the adrenals.

4-point diurnal free cortisol and cortisone, graphed on test reports, indicates effects of stress and HPA axis dysfunction. High levels throughout the day show **HPA axis hyperactivation**, while loss of the morning peak indicates **adrenal suppression**.

URINARY FREE CORTISOL & MELATONIN



Melatonin (MT6s) | Melatonin (MT6s) x4

High melatonin metabolite (MT6) levels during the day can reflect melatonin supplementation or increased melatonin synthesis. **Poor sleep quality** can be the result of low evening melatonin or high night cortisol.

Low levels of melatonin are associated with **increased risk of cancer, type 2 diabetes and obesity**.

2-MeO Estrogens | 4-MeO Estrogens

Healthy Phase II metabolism methylates 2-hydroxy (2-OH) estrogens to the more cancer-protective 2-methoxy (2-MeO) forms, and neutralizes the potentially carcinogenic 4-OH estrogens to their 4-MeO forms.

Low ratios 2-MeO E1/2-OH E1, 4-MeO E1/4-OH E1, and 4-MeO E2/4-OH E2 can indicate inadequate methylation and therefore may be associated with an **increased breast cancer risk**.

2-OH Estrogens | 4-OH Estrogens | 16 β -OH Estrone

Healthy Phase I metabolism produces higher levels of 2-OH E2 and 2-OH E1 compared to 4-OH E2 and 4-OH E1. Excess of the 4-OH forms, particularly 4-OH E2, is associated with **increased breast cancer risk**. High 16-OH E1 relative to 2-OH E2 and 2-OH E1 may be linked with increased breast cancer risk in premenopausal women, but decreased risk in postmenopausal women.



YOUR LAB *of* CHOICE

Metabolites you should know...

▶ Parent Estrogens

Estrone predominates in urine, followed by estriol then estradiol. Excessive estrone and estradiol compared to estriol can mean an increase in breast cancer risk.

▶ Hydroxy Estrogens

Excess hydroxy estrogens – in particular 4-OH E2, not tested by some other labs – signify increased breast cancer risk. Healthy metabolism methylates these estrogens to the more cancer-protective methoxy forms.

▶ Methoxy Estrogens

Low ratios of 2-MeO E1/2-OH E1, 4-MeO E1/4-OH E1, and 4-MeO E2/4-OH E2 can indicate inadequate methylation and therefore increased breast cancer risk.

▶ Bisphenol A

High levels indicate excessive exposure to this environmental endocrine disruptor, particularly dangerous to the unborn fetus and young children.

▶ Progestogens

The predominant metabolite of progesterone (Pg), Pgdiol is a surrogate marker of endogenous Pg synthesis, but is not increased by topical progesterone treatment.

A low Pgdiol/E2 ratio indicates estrogen dominance. Allopregnanolone is well known for sleep-inducing and calming effects on the brain. 3 α and 20 α -dihydroprogesterone, have tumor-inhibitory properties in breast cancer. DOC is a weak mineralocorticoid; both DOC and corticosterone are precursors to aldosterone, which regulates water balance and blood pressure. High levels could lead to water retention symptoms/increased blood pressure.

▶ Androgens

DHEA and androstenedione are androgen precursors; low DHEA suggest inadequate production by the adrenals. T and Epi-T are produced in relatively equal amounts endogenously, so a high T/Epi-T ratio indicates exogenous testosterone supplementation. High aromatase activity in fat tissue leads to excessive conversion of T to E2, increasing cancer risk.

Excess DHT contributes to scalp hair loss, acne, and hirsutism, and raises risk for prostate cancer in men when estrogens are excessive. 5 α ,3 α -androstenediol is a neuroactive steroid that enhances dopamine activity, important for mood elevation.

▶ Glucocorticoids

Relative amounts of total cortisol and cortisone and levels of their principal metabolites THF and THE indicate the extent of cortisol output from the adrenals. 4-point diurnal free cortisol and cortisone are graphed on test reports to show whether daily fluctuations are being affected by stress or adrenal dysfunction.

▶ Melatonin

First morning MT6s levels reflect night-time melatonin secretion, capturing the early morning peak. Low levels are associated with increased risk of cancer, type 2 diabetes and obesity. Diurnal MT6s tracks levels throughout the day and is graphed on test reports.

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