

What does DUTCH testing offer?

DUTCH offers comprehensive urine testing to help analyze hormones and hormone metabolites via easy at-home collection.

What makes DUTCH testing unique?

DUTCH Complete is a comprehensive dried urine test that evaluates sex and adrenal hormone production and metabolism. It measures downstream hormone metabolites that can help us understand the bigger picture.

DUTCH Complete offers insights into the overall diurnal pattern of free cortisol and the total distribution of cortisol metabolites.

DUTCH Complete includes additional markers that can illuminate other contributing factors to a person's symptoms – Organic Acid Testing. These markers provide insights into nutritional deficiencies, oxidative stress, gut dysbiosis, melatonin levels, and neuroinflammation. Organic acids related to nutrient deficiencies include biochemical intermediates that are proven to become elevated in the absence of sufficient nutrient status.

Is at-home urine testing as effective as blood or saliva sampling?

At-home urine testing is as effective as blood and saliva sampling. It is the only type of testing that allows providers to assess how the body metabolizes hormones. In addition, urine tests are also capable of measuring more types of estrogen hormones than blood tests.

How does an at-home urine test work?

The DUTCH Complete uses four dried urine samples collected over the course of one day, from waking to bedtime.

You'll get a kit that includes paper strips. Saturate the filter paper (the paper with two black lines) by urinating directly on or into a clean cup and dipping the filter paper for 5 seconds. Leave the sample open to dry in a clean location for at least 24 hours. Once dry, close each collection device and place them in the resealable plastic bag provided.



dutch
COMPLETE

BIOMARKERS

SEX HORMONES PANEL	a-Pregnanediol
	b-Pregnanediol
	DHEA-S**
	Androsterone
	Etiocholanolone
	Testosterone
	5a-DHT
	5a-Androstanediol
	5b-Androstanediol
	Epi-Testosterone
ADRENAL PANEL	Estrone (E1)*
	Estradiol (E2)*
	Estriol (E3 aka 16-OHE2)
	2-Hydroxyestrone (2-OHE1)
	4-Hydroxyestrone (4-OHE1)
	16-Hydroxyestrone (16-OHE1)
	2-Methoxyestrone (2-MeOE1)
	2-Hydroxyestradiol (2-OH-E2)
	4-Hydroxyestradiol (4-OH-E2)
	Diurnal Pattern of Free Cortisol
ORGANIC ACIDS TESTS (OATs) PANEL	Diurnal Pattern of Free Cortisone
	a-Tetrahydrocortisol (a-THF)
	b-Tetrahydrocortisol (b-THF)
	b-Tetrahydrocortisone (b-THE)
	Metabolized Cortisol (THF+THE)
	Dopamine (Homovanillate or HVA)
	Norepinephrine/Epinephrine (Vanilmandelate or VMA)
	Vitamin B6 (Kynurenate or KYNA)
	Vitamin B6 (Xanthurenate)
	Vitamin B12 (Methylmalonate or MMA)
	Glutathione (Pyroglutamate)
	Neuroinflammation (Quinolate)
	Gut Health (Indican)
	Biotin (b-Hydroxyisovalerate)
	8-OHdG (8-Hydroxy-2-deoxyguanosine)
	Melatonin (6-OH-Melatonin-Sulfate)



Who can benefit from DUTCH testing?

Anyone with any of the following complaints might benefit from DUTCH testing:

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|------------------------|-------------------------|-----------------------|--------------------|
| • Acne | • Dyspareunia | • Hot flashes | • Overweight |
| • Amenorrhea | • Endometriosis | • Impotence | • Pain with sex |
| • Anxiety | • Erectile issues | • Insomnia | • Panic attacks |
| • Brain fog | • Excessive body hair | • Irritability | • PCOS |
| • Breast cancer risk | • Excessive facial hair | • Long cycles | • Pelvic pain |
| • Breast tenderness | • Exercise endurance | • Low motivation | • PMDD |
| • Chronic pain | • Exercise intolerance | • Luteal phase defect | • PMS |
| • Cramping | • Fatigue | • Mastalgia | • Poor cognition |
| • Cycle irregularities | • Fibroids | • Menorrhagia | • Poor muscle mass |
| • Cysts | • Hair loss | • Moodiness | • Short cycles |
| • Depression | • Heavy bleeding | • Obesity | • Vaginal dryness |
| • Dysmenorrhea | • Hirsutism | • Osteoporosis | • Weight gain |

How can DUTCH Organic Acid (OATS) panel provide additional insights on nutrient deficiency?

Organic acids act as functional markers of nutrient deficiency. When the body has inadequate cellular levels of vitamin B12, vitamin B6 or glutathione, levels of their corresponding organic acid build up and spill into the urine. In some cases, these markers are more effective than measuring the nutrient directly.

B-HYDROXYISOVALERATE - Marker for Biotin

Symptoms of Biotin Deficiency: Hair loss, symptoms of other B-vitamin deficiencies.

INDICAN - Marker for Gut Health

Indican is a byproduct of tryptophan putrefaction by microbes in the gut. Accumulated levels of indican in the urine may suggest gastrointestinal dysbiosis or malabsorption.

KYNURENATE (KYNURENIC ACID OR KYNA)

- Marker for Vitamin B6

KYNA is a product of the metabolism of tryptophan if there is a deficiency of Vitamin B6. Chronic stress, reactive oxygen species (ROS) and possibility LPS from gram negative gut bacteria/leaky gut causing inflammation can increase KYNA as well.

Symptoms of Vitamin B6 Deficiency: Fatigue, shortness of breath, irritability, anxiety and depression, and low energy.

8-OHDG (8-HYDROXY-2-DEOXYGUANOSINE)

- Marker for Oxidative Stress

Oxidative stress refers to cellular damage or DNA damage. The body needs healthy and robust cells and DNA. Cell-signaling influences blood sugar, hormone production, detoxification, the creation of new cells, etc.

XANTHURENATE(XANTHURENICACID)

- Marker for Vitamin B6

If levels of estrogen or cortisol are high, it may exacerbate xanthurenate elevations and increase the need for B6. Xanthurenate complexes with insulin and decreases insulin sensitivity.

Xanthurenate can also bind to iron and create a complex that increases DNA oxidative damage resulting in higher 8-OHDG levels. If both markers are elevated, there is likely an antioxidant insufficiency.

METHYLMALONATE(METHYLMALONICACID OR MMA) - Marker for Vitamin B12

This marker is considered superior to measuring serum B12 levels directly.

Symptoms of Vitamin B12 Deficiency: Fatigue, brain fog, memory problems, muscle weakness, unsteady gait, numbness, tingling, depression, migraines/headaches and low blood pressure.

PYROGLUTAMATE (PYROGLUTAMIC ACID)

- Marker for Glutathione

Glutathione is one of the most potent antioxidants in the human body. It is especially important in getting rid of toxins and can protect against cancer, aging, heart problems and brain diseases.