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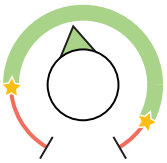
Female QuickStart Guide

This guide will help you understand how to read the DUTCH Test using the most common workflow of DUTCH experts. This first page orients you to the types of graphics seen on the report.

DUTCH Dials

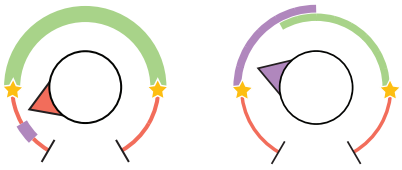
Some dials have one normal range



- In-range results are in green
- Out-of-range results are in red

Sex hormone dials for females have two normal ranges

- **Estrogen and progesterone** dials show the range for the Luteal phase of the menstrual cycle in green.
- The **androgen dials** show the premenopausal range in green, which has some overlap with the postmenopausal range.
- The postmenopausal range is purple
- Out-of-range results are in red



DUTCH Sliders

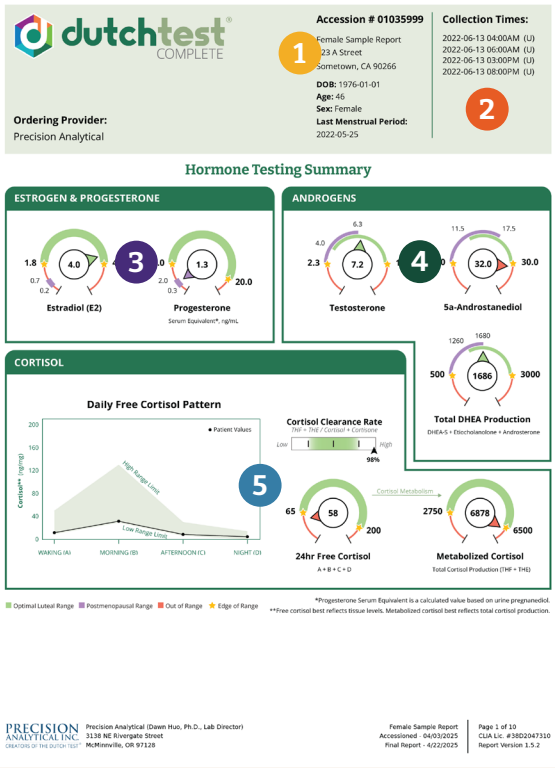
Sliders are used to report calculated ratios. The result is expressed in population percentiles, with a black arrow pointing to the patient's result. 0%–100% reads left to right across the slider. In the example, the patient's result is at the 80th percentile, indicating 80% of people have lower values than theirs.

The green shaded area is within range 20–80%. The white areas on the outside are out of range. Population perentiles are very similar to using a reference range with a patient result. The patient's result and the reference ranges for each calculated ratio are listed on the "table" pages of the report (pages 2 and 4).

Page 1 of the report

Female Hormone Testing Summary

Follow the numbered circles on each sample page for the ideal order to review the page.



1 Patient information

Personal information and last menstrual period. Cycle-timing is important for estrogen and progesterone levels.

2 Sample information

The date and time each sample was collected. The letter (U) indicates a urine sample.

3 Estrogen & Progesterone dials

Shows the female reproductive cycle hormones Estradiol and Progesterone (Serum Equivalent). The green area indicates the optimal range for the Luteal phase and the purple indicates postmenopausal range.

Estradiol

The most potent estrogen.

Progesterone

The progesterone DUTCH Dial reports the **Progesterone Serum Equivalent**. This is a calculated value based on urinary pregnanediol from DUTCH published validation studies. Page 3 shows the two urinary pregnanediol levels.

For cycling females in the Luteal phase, the Estradiol and Progesterone Serum Equivalent dials can be easily compared on this summary page to assess relative balance.

4 Androgens

Summarizes the most clinically relevant androgen analytes. The green area indicates the optimal premenopausal range and the purple indicates the postmenopausal range.

Testosterone

Reflects the bioavailable conjugated testosterone excreted in urine. For most patients, this result will parallel serum free testosterone.

> NOTE: If testosterone is very low on the DUTCH Test, test serum testosterone if considering treatment. This is because a genetic deletion polymorphism (UGT2B17) in some patients may cause very low levels of testosterone in urine while levels may be normal in serum.

5a-Androstanediol

Reflects intracellular production of DHT, the most potent androgen.

Total DHEA Production

5 Cortisol Summary

Cortisol

Free Cortisol best reflects tissue levels. It is reported in two ways:

- **Daily Free Cortisol Pattern** shows the patient's diurnal cortisol rhythm.
- **24hr Free Cortisol** sums the 4 points from the Daily Free Cortisol Pattern. Free Cortisol best reflects tissue levels.

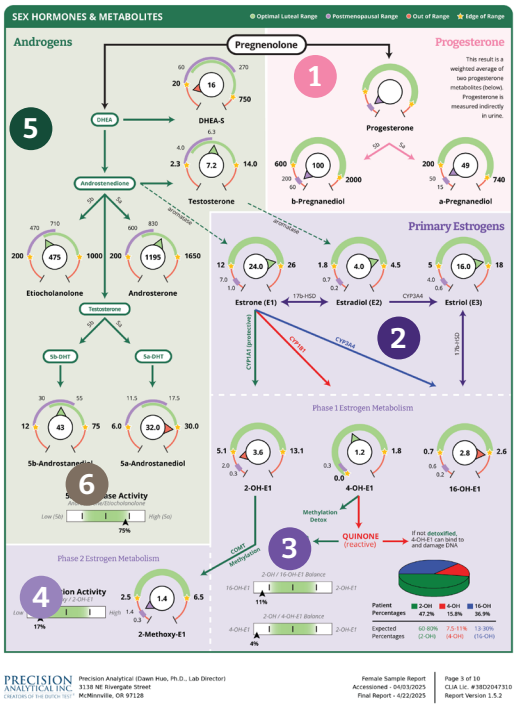
Cortisol Clearance Rate compares free cortisol to metabolized cortisol which can help identify if metabolic health may be negatively impacting cortisol levels.

Metabolized Cortisol is the sum of metabolized cortisol (THF) and cortisone (THE). This best reflects total cortisol production.

Page 3 of the report

Sex Hormones & Metabolites

Follow the numbered circles on each sample page for the ideal order to review the page.



1 Progesterone

A key reproductive hormone that, when in the Luteal phase, indicates ovulation occurred.

Progesterone

The "Progesterone" dial shows the weighted average of the two urinary progesterone analytes, a & b-Pregnanediol.

b-Pregnanediol

The beta pathway represents the most prominent metabolite in progesterone metabolism. Doesn't modulate GABA receptors.

a-Pregnanediol

The alpha pathway can assess the production of GABA neurosteroids, which can impact mood and sleep.

2 Primary Estrogens

Estrone (E1)

A weak estrogen. Can convert to estradiol.

Estradiol (E2)

Most potent estrogen. Estrogen symptoms are most likely associated with E2 levels.

Estriol (E3)

A weak estrogen. Phase I metabolite of estradiol that can convert to 16-OH-E1.

3 Phase 1 Estrogen Metabolism

2-OH-E1

2-OH-E1 is the most prominent estrogen metabolism pathway. 2-OH metabolite is stable with little-to-no estrogen receptor activity.

16-OH

16-OH is an estrogenic phase 1 metabolite. **2-OH/16-OH-E1** balance slider shows 2-OH-E1 relative to **16-OH-E1**. As the arrow moves to the left side of the slider, more 16-OH is present relative to 2-OH.

4-OH

4-OH is an oxidative metabolite. **2-OH/4-OH-E1** balance slider shows 2-OH-E1 relative to **4-OH-E1.** As the arrow moves to the left side of the slider, more 4-OH is present relative to 2-OH.

The **Pie Chart** shows the three metabolites and their relative levels.

4 Phase 2 Estrogen Methylation

2-OH-E1

- The **Methylation Activity** slider bar shows the ratio **2-Methoxy/2-OH-E1**. 2- Methoxy-E1 is a neutral, stable metabolite that is easily excreted from the body.
- The patient's result is shown by the black arrow. When results are to the left it indicates lower than average methylation activity, to the right indicates higher than average activity.

5 Androgens

DHEA-S

Inactive androgen precursor made by adrenal glands.

Testosterone

In urine is the bioavailable fraction.

REMINDER: If urine testosterone is low, consider confirming with serum testing.

Androsterone and 5a-Androstanediol

- Androgens converted down the 5a-reductase pathway such as **Androsterone** and **5a-Androstanediol** are formed in target tissues, reflecting active androgens.
- Androsterone is a 5a metabolite, mostly from adrenal DHEA.
- **5a-Androstanediol** is the 5a metabolite that is made in the target tissues from the body's most potent androgen, 5a-DHT.
- **Etiocholanolone** and **5b-Androstanediol** are 5b-reductase metabolites which are inactive.

6 5a-Reductase

The 5a-Reductase slider shows Androsterone (5a) / Etiocholanolone (5b) ratio. Results on the left indicate relatively more inactive 5b metabolites. To the right indicates more active 5a metabolites, which typically indicates a higher potential for high androgen symptoms.

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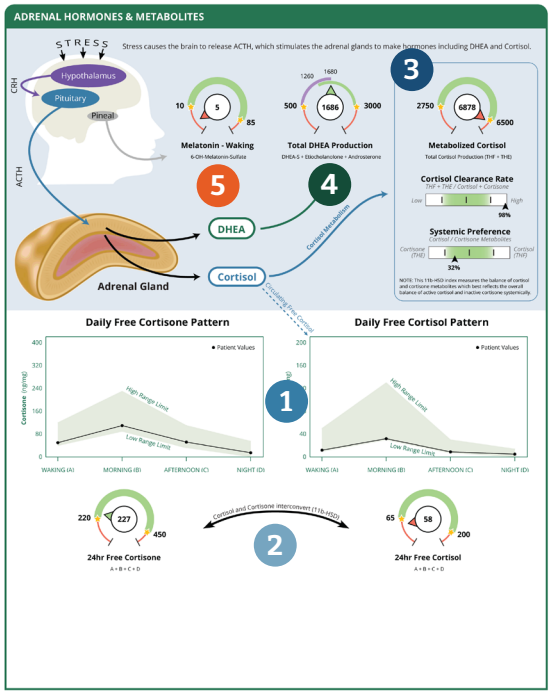
Adrenal Hormones & Metabolites

Follow the numbered circles on each sample page for the ideal order to review the page.



1 Daily Free Cortisol Pattern

Free cortisol measured from the individual urine samples taken throughout the day.

- The reference range is shown in the shaded area behind the patient's results, which are shown by the dark line.
- The first value reported (Waking A) represents the overnight period. The second value (Morning B) is the peak. Urine samples reflect cortisol levels in the hours before the sample was collected.
- Review **The Daily Free Cortisone Pattern**: Cortisone is a "shadow" of cortisol. It is made in the kidney and saliva gland from circulating free cortisol. It can provide additional insight into tissue cortisol levels.

2 24hr Free Cortisol

The 24hr Free Cortisol dial shows a sum of the 4 points on the **Daily Free Cortisol Pattern**.

- This dial shows overall cortisol exposure throughout the day.
- Review **The 24hr Free Cortisone** dial, which can provide additional insight into overall tissue cortisol levels.

3 Cortisol Metabolism

Metabolized Cortisol

Cortisol and cortisone are metabolized in the body into a-THF, b-THF, and b-THE. The sum of these can give additional insight into total adrenal cortisol output for the day.

Cortisol Clearance Rate

The ratio of THF + THE / Cortisol + Cortisone. This can help assess the rate at which cortisol is cleared from the body. Results on the left indicate slower cortisol clearance, and on the right indicate faster cortisol clearance.

Systemic Preference

Calculated from cortisol metabolites. If **THE** dominates in the urine, cortisone is favored over cortisol systemically. If **THF** dominates in the urine, cortisol is favored over cortisone systemically.

4 Total DHEA Production

Total DHEA is the sum of three urinary DHEA metabolites, DHEA-S, etiocholanolone, and androsterone.

- **Total DHEA shows** the total androgen production from the adrenal glands.

5 Melatonin

Waking urinary 6-OH-Melatonin-Sulfate captures overnight melatonin production.

- Oral melatonin taken the night before the waking sample typically results in extremely high results that do not match actual circulating melatonin. The result is not clinically useful in those cases.

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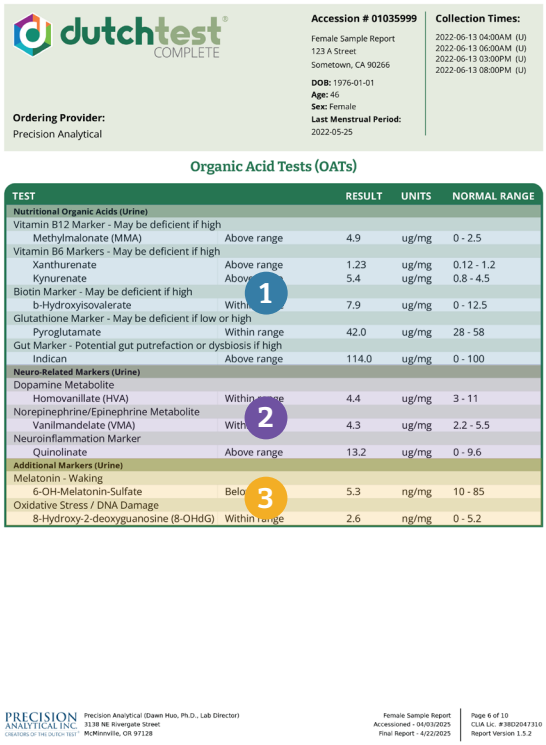
Organic Acid Tests (OATs)

Follow the numbered circles on each sample page for the ideal order to review the page.



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Ordering Provider:
Precision Analytical

Accession # 01035999
Female Sample Report
123 A Street
Sometown, CA 90266
DOB: 1976-01-01
Age: 46
Sex: Female
Last Menstrual Period: 2022-05-25

Collection Times:
2022-06-13 04:00AM (U)
2022-06-13 06:00AM (U)
2022-06-13 03:00PM (U)
2022-06-13 08:00PM (U)

Organic Acid Tests (OATs)

TEST		RESULT	UNITS	NORMAL RANGE
Nutritional Organic Acids (Urine)				
Vitamin B12 Marker - May be deficient if high				
Methylmalonate (MMA)	Above range	4.9	ug/mg	0 - 2.5
Vitamin B6 Markers - May be deficient if high				
Xanthurenate	Above range	1.23	ug/mg	0.12 - 1.2
Kynurenate	Above	5.4	ug/mg	0.8 - 4.5
Biotin Marker - May be deficient if high				
b-Hydroxyisovalerate	Within	7.9	ug/mg	0 - 12.5
Glutathione Marker - May be deficient if low or high				
Pyroglutamate	Within range	42.0	ug/mg	28 - 58
Gut Marker - Potential gut putrefaction or dysbiosis if high				
Indican	Above range	114.0	ug/mg	0 - 100
Neuro-Related Markers (Urine)				
Dopamine Metabolite				
Homovanillate (HVA)	Within	4.4	ug/mg	3 - 11
Norepinephrine/Epinephrine Metabolite				
Vanilmandelate (VMA)	With	4.3	ug/mg	2.2 - 5.5
Neuroinflammation Marker				
Quinolinate	Above range	13.2	ug/mg	0 - 9.6
Additional Markers (Urine)				
Melatonin - Waking				
6-OH-Melatonin-Sulfate	Belo	5.3	ng/mg	10 - 85
Oxidative Stress / DNA Damage				
8-Hydroxy-2-deoxyguanosine (8-OHdG)	Within range	2.6	ng/mg	0 - 5.2

PRECISION ANALYTICAL INC. CREATORS OF THE DUTCH TEST® Precision Analytical (Dawn Huo, Ph.D., Lab Director) 3138 NE Rivergate Street McMinnville, OR 97128

Female Sample Report Accessioned - 04/03/2025 Final Report - 4/22/2025 | Page 6 of 10 CLIA Lic. # 38D2047310 Report Version 1.5.2

Read carefully, as each item on this page is first listed with the nutrient it assesses and how to interpret.

1 Nutritional Organic Acids

Nutritional Organic Acids are five nutrient markers and a gut health marker. These analytes build up in the body and are excreted in the urine at high rates when there is a nutrient deficiency (or dysbiosis, as is the case with Indican).

2 Neuro-Related Markers

Neuro-Related Markers may be relevant to mood and sleep-related symptoms.

3 Additional Markers

Melatonin and 8-OHdG

Additional Markers: Including **Melatonin**, which is also described on page 5, and **8-OHdG**, a metabolite formed in the body when there is DNA damage due to oxidative stress.

Don't forget to read page 7 of the report for additional, patient-specific result comments and any pertinent comments from the lab.