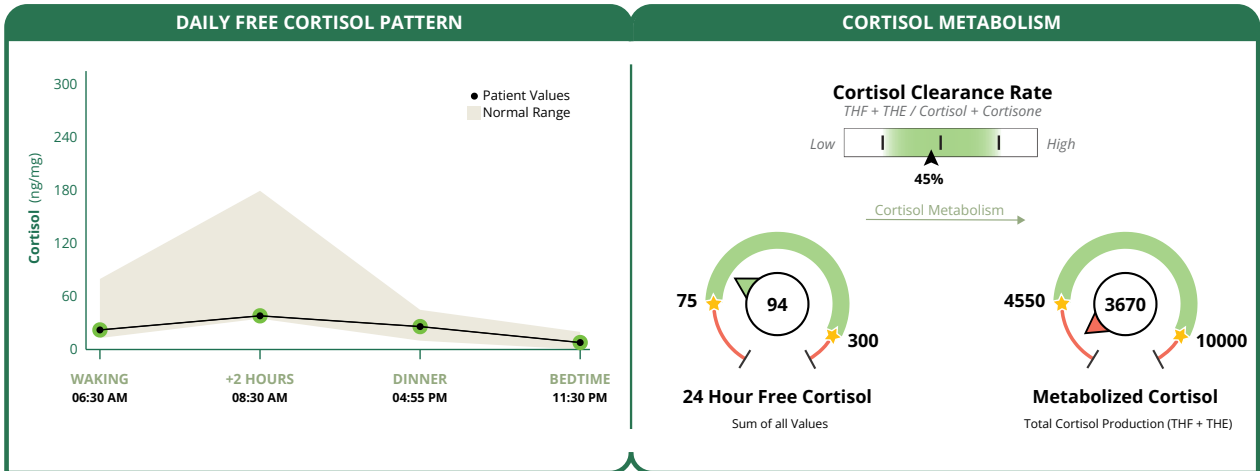
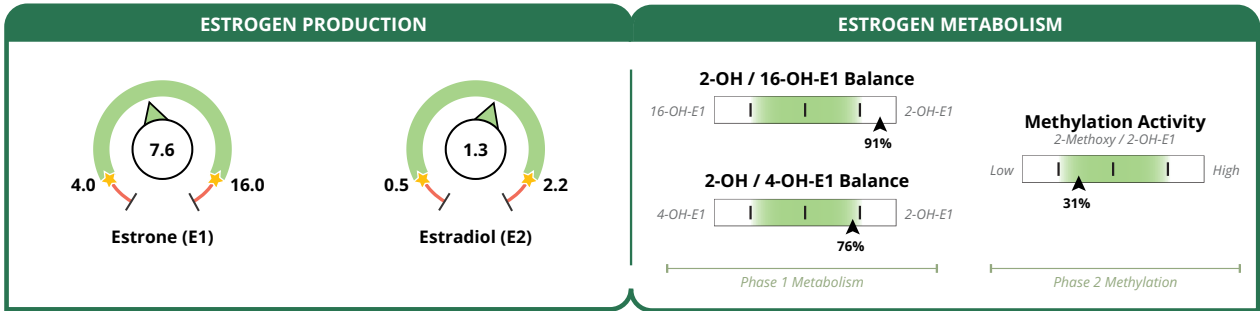
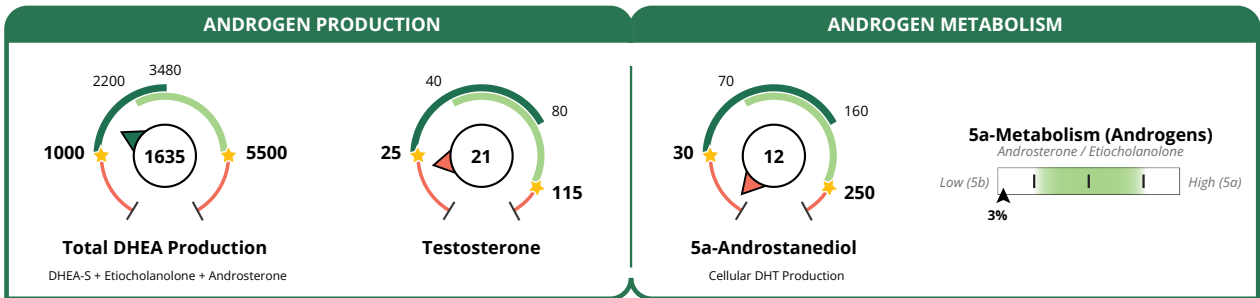


TEST NAME: DUTCH COMPLETE MALE

Hormone Testing Summary

● Normal, Age 18 - 40 (Androgens) ● Age 41 - 60+ (Androgens) ● Out of Range ★ Edge of Range

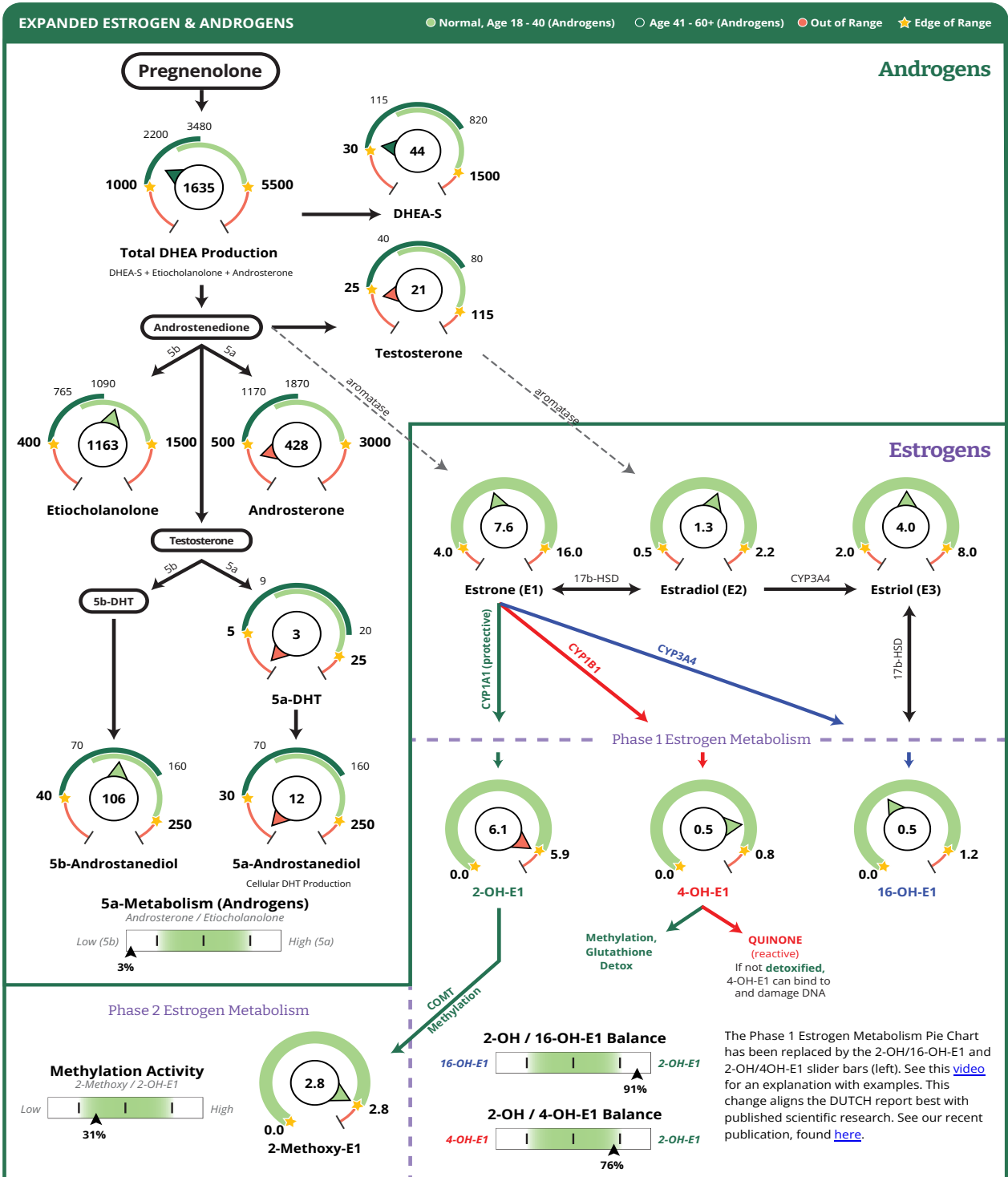
For an expanded view of results, see pages 2 through 6. For interpretive support, see *About Your Results* pages.



Organic Acid Tests (OATs) Suggests the Following Possible Imbalances | see page 6 for details ● Watch ● Needs Attention

- Neurotransmitters

TEST NAME: DUTCH COMPLETE MALE



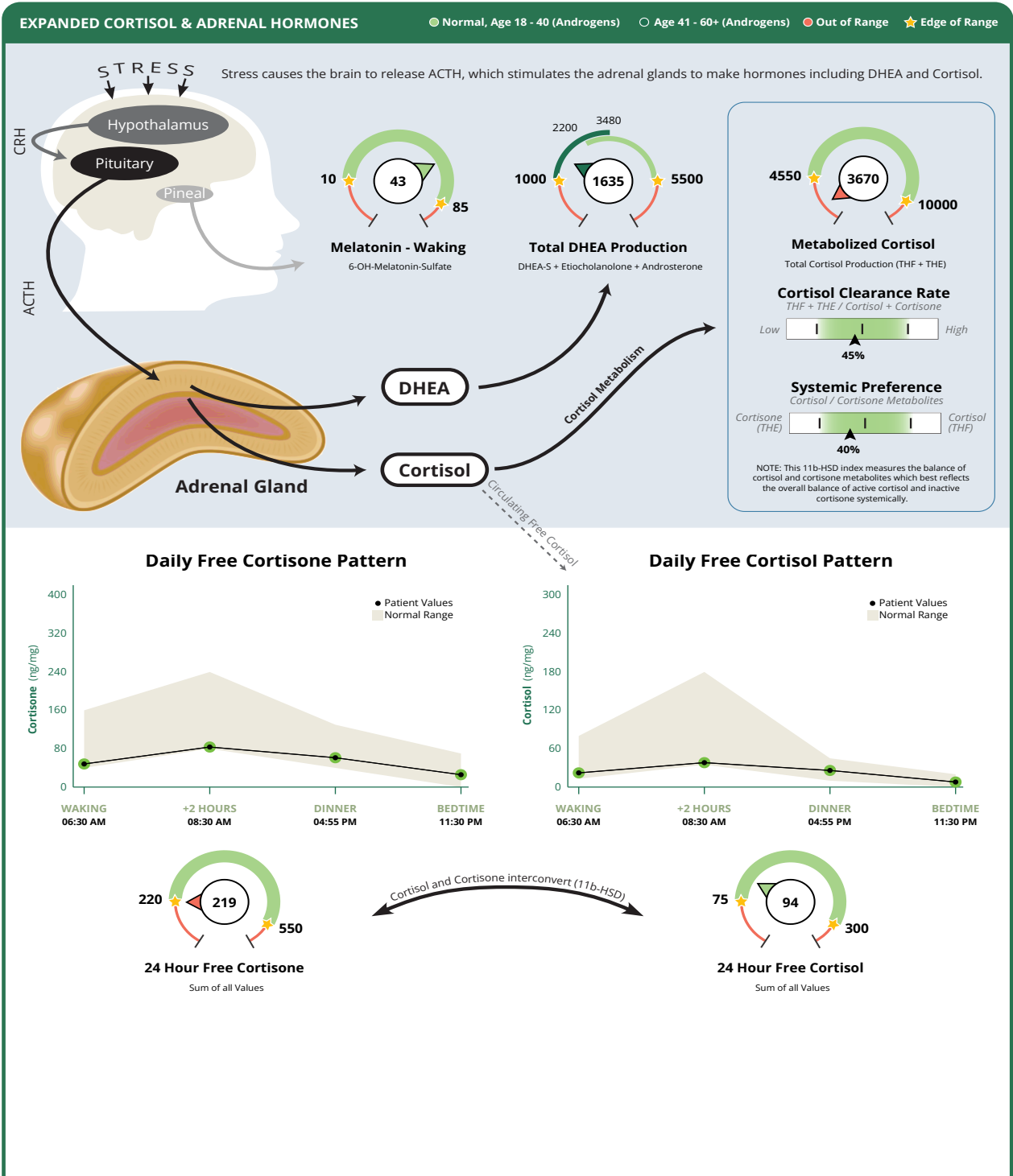
TEST NAME: DUTCH COMPLETE MALE

Sex Hormones & Metabolites

TEST		RESULT	UNITS	NORMAL RANGE
Progesterone Metabolites (Urine)				
b-Pregnanediol	Within range	222.4	ng/mg	75 - 400
a-Pregnanediol	Low end of range	24.0	ng/mg	20 - 130
Estrogens and Metabolites (Urine)				
Estrone (E1)	Within range	7.55	ng/mg	4 - 16
Estradiol (E2)	Within range	1.27	ng/mg	0.5 - 2.2
Estriol (E3)	Within range	4.0	ng/mg	2 - 8
2-OH-E1	Above range	6.13	ng/mg	0 - 5.9
4-OH-E1	Within range	0.51	ng/mg	0 - 0.8
16-OH-E1	Within range	0.45	ng/mg	0 - 1.2
2-Methoxy-E1	High end of range	2.78	ng/mg	0 - 2.8
2-OH-E2	High end of range	1.13	ng/mg	0 - 1.2
4-OH-E2	Within range	0.21	ng/mg	0 - 0.25
Total Estrogen	Within range	24.0	ng/mg	10 - 34
Metabolite Ratios (Urine)				
2-OH / 16-OH-E1 Balance	Above range	13.62	ratio	2.85 - 9.88
2-OH / 4-OH-E1 Balance	Within range	12.02	ratio	6.44 - 12.6
2-Methoxy / 2-OH Balance	Within range	0.45	ratio	0.4 - 0.7
Androgens and Metabolites (Urine)				
DHEA-S	Within range	44.4	ng/mg	30 - 1500
Androsterone	Below range	427.7	ng/mg	500 - 3000
Etiocholanolone	Within range	1162.8	ng/mg	400 - 1500
Testosterone	Below range	21.45	ng/mg	25 - 115
5a-DHT	Below range	2.6	ng/mg	5 - 25
5a-Androstanediol	Below range	11.8	ng/mg	30 - 250
5b-Androstanediol	Within range	106.0	ng/mg	40 - 250
Epi-Testosterone	Within range	33.3	ng/mg	25 - 115

"Normal range" shown above refers to the overall range across all ranges, which lands between the stars on the dials. Age-dependent ranges are now included on the DUTCH dials on page 2.

TEST NAME: DUTCH COMPLETE MALE



TEST NAME: DUTCH COMPLETE MALE

Adrenal Hormones & Metabolites

TEST	RESULT	UNITS	NORMAL RANGE
Daily Free Cortisol and Cortisone (Urine)			
Cortisol (U1) - Waking	Low end of range	22.2	ng/mg 13 - 80
Cortisol (U2) - +2 Hours	Low end of range	38.2	ng/mg 35 - 180
Cortisol (U3) - Dinner	Within range	26.0	ng/mg 10 - 45
Cortisol (U4) - Bedtime	Within range	7.9	ng/mg 0 - 20
Cortisone (U1) - Waking	Low end of range	48.2	ng/mg 40 - 160
Cortisone (U2) - +2 Hours	Low end of range	83.5	ng/mg 80 - 240
Cortisone (U3) - Dinner	Within range	61.2	ng/mg 40 - 130
Cortisone (U4) - Bedtime	Within range	25.8	ng/mg 0 - 70
24 Hour Free Cortisol (Sum of all Values)	Low end of range	94.3	ng/mg 75 - 300
24 Hour Free Cortisone (Sum of all Values)	Below range	218.7	ng/mg 220 - 550
Creatinine (Urine)			
Creatinine (U1) - Waking	Within range	1.02	mg/ml 0.3 - 3
Creatinine (U2) - +2 Hours	Within range	0.83	mg/ml 0.3 - 3
Creatinine (U3) - Dinner	Within range	0.68	mg/ml 0.3 - 3
Creatinine (U4) - Bedtime	Within range	0.90	mg/ml 0.3 - 3
Cortisol Metabolites and DHEA-S (Urine)			
a-Tetrahydrocortisol (a-THF)	Below range	19.9	ng/mg 175 - 700
b-Tetrahydrocortisol (b-THF)	Below range	1596.8	ng/mg 1750 - 4000
b-Tetrahydrocortisone (b-THE)	Below range	2053.7	ng/mg 2350 - 5800
Metabolized Cortisol (THF + THE)	Below range	3670.0	ng/mg 4550 - 10000
DHEA-S	Within range	44.4	ng/mg 30 - 1500
Cortisol Clearance Rate (CCR)	Within range	11.7	8.5 - 17.5

TEST NAME: DUTCH COMPLETE MALE

Organic Acid Tests (OATs)

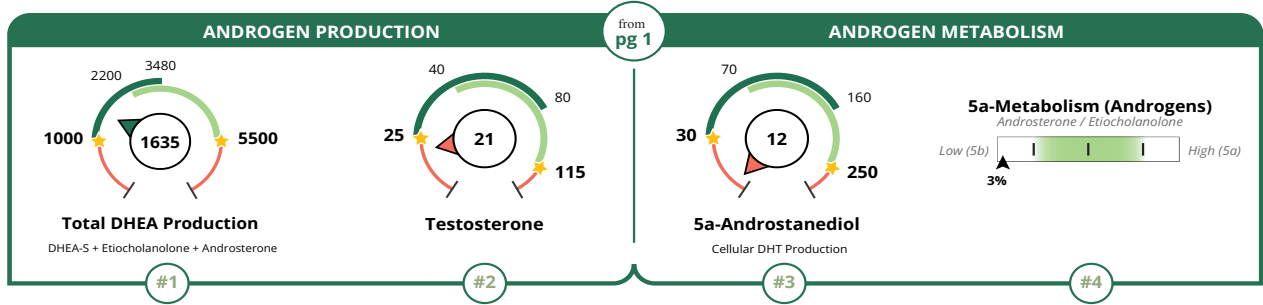
TEST	RESULT	UNITS	NORMAL RANGE
Nutritional Organic Acids (Urine)			
Vitamin B12 Marker - May be deficient if high			
Methylmalonate (MMA)	Within range	1.0	ug/mg 0 - 3.5
Vitamin B6 Markers - May be deficient if high			
Xanthurenate	Within range	0.80	ug/mg 0.2 - 1.9
Kynurenate	Within range	2.6	ug/mg 1 - 6.6
Biotin Marker - May be deficient if high			
b-Hydroxyisovalerate	Within range	13.2	ug/mg 0 - 18
Glutathione Marker - May be deficient if high			
Pyroglutamate	Below range	36.0	ug/mg 38 - 83
Gut Marker - Potential gut putrefaction or dysbiosis if high			
Indican	Within range	40.7	ug/mg 0 - 131
Neuro-Related Markers (Urine)			
Dopamine Metabolite			
Homovanillate (HVA)	Below range	2.6	ug/mg 4 - 16
Norepinephrine/Epinephrine Metabolite			
Vanilmandelate (VMA)	Below range	2.1	ug/mg 2.5 - 7.5
Neuroinflammation Marker			
Quinolinat	Within range	4.8	ug/mg 0 - 12.5
Additional Markers (Urine)			
Melatonin - Waking			
6-OH-Melatonin-Sulfate	Within range	42.7	ng/mg 10 - 85
Oxidative Stress / DNA Damage			
8-Hydroxy-2-deoxyguanosine (8-OHdG)	Within range	4.2	ng/mg 0 - 8.8

- The pyroglutamate is low. Although the majority of patients have higher levels than this result, the significance of low urinary pyroglutamate has not been established in scientific literature.
- The HVA, a metabolite of dopamine, is below the normal range. This may be seen with low dopamine or with slow methylation. Review dopamine-related symptoms before initiating treatment.
- The VMA, a metabolite of epinephrine/norepinephrine, is below the normal range. This may be seen with low adrenal output. Reviewing cortisol may help determine the root cause.

TEST NAME: DUTCH COMPLETE MALE

About Your Results | Androgens

The following About Your Results sections include key DUTCH report elements from page 1 to aid your interpretation.



Androgen-related Patient or Sample Comments:

- The patient reports symptoms of both androgen deficiency and androgen excess.

#1. Assess adrenal androgen levels (Total DHEA). More information is available [here](#).

- The total DHEA production is **1,635 ng/mg**, which is within the range for men who are 41 and older, but towards the lower end of the overall range. If paired with low testosterone or low 5a-androstanediol, this may contribute to a low androgen picture.

#2. Assess testosterone levels. More information is available [here](#).

- Testosterone is **21.4 ng/mg**, which is below the optimal range for men of any age. Consider testing serum testosterone to confirm testosterone levels before initiating treatment.

#3. Assess cellular production of 5a-DHT via 5a-androstanediol. More information is available [here](#).

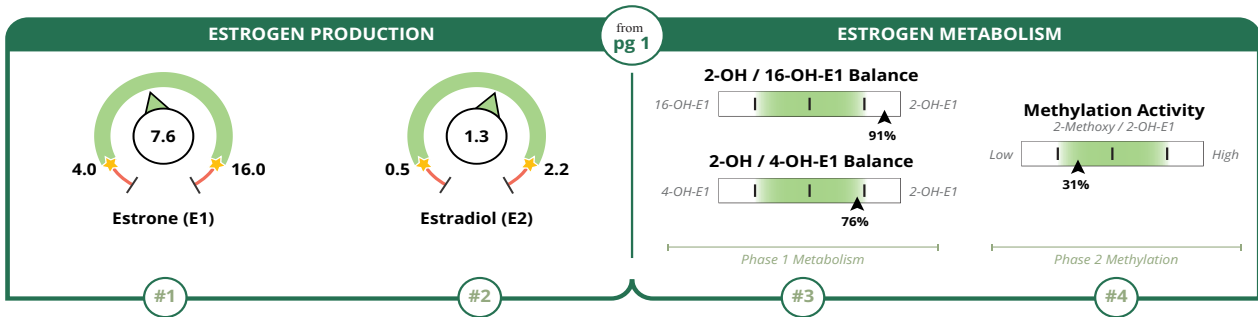
- 5a-Androstanediol is **11.8 ng/mg**, which is below the range for men of any age. 5a-Androstanediol reflects the tissue activity of 5a-DHT (the most potent androgen).

#4. Assess if there is a preference for the more potent alpha metabolism of the androgens. More information is available [here](#).

- 5a-Metabolism of androgens is higher than only **3.00%** of the population, which is below the range. This indicates a preference for less androgenic pathway. If paired with low androgens, this may contribute to low androgen symptoms.

TEST NAME: DUTCH COMPLETE MALE

About Your Results | Estrogen



Estrogen-related Patient or Sample Comments:

- The patient reported symptoms of excess estrogen.

#1. Assess estrogen levels. More information is available [here](#).

- The estrone (E1) is **7.5 ng/mg**, which is within the optimal range. E1 is the most abundant estrogen but is significantly less potent than estradiol (E2).
- Estradiol (E2) is **1.27 ng/mg**, which is within the optimal range. E2 is the most potent estrogen and its levels are often related to symptoms.

#2. Assess the conversion of testosterone to estradiol (via aromatase). More information is available [here](#).

- In males, E2 levels come from conversion of circulating testosterone via the aromatase enzyme. Reviewing the E2 level can give insight into circulating testosterone and aromatase activity. The strongest influence on aromatase activity is body fat percentage.

#3. Assess 2-OH preference in phase 1 estrogen metabolism. More information is available [here](#).

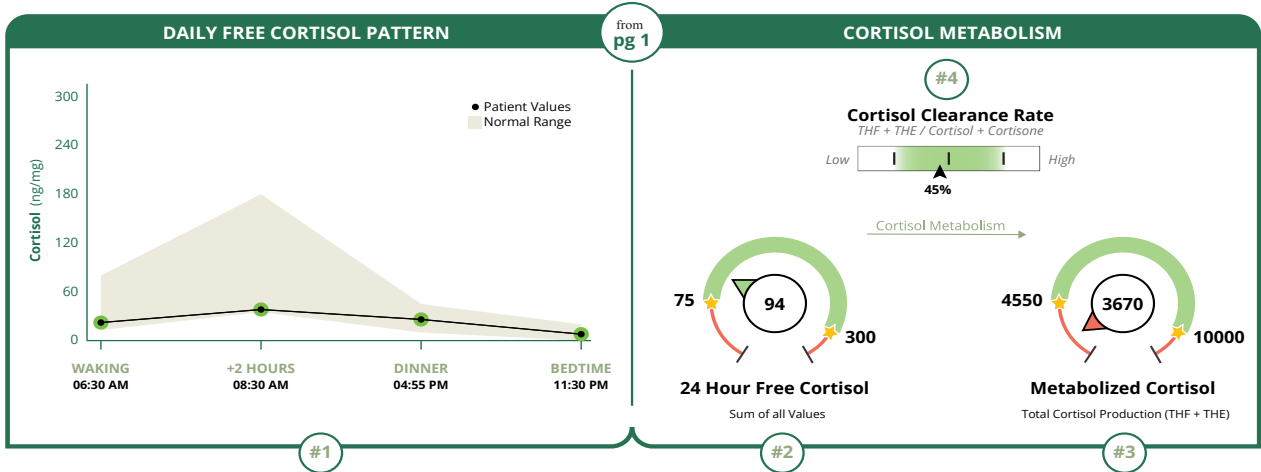
- The 2-OH/16-OH-E1 is higher than **91.0%** of the population, which is above the optimal range. This indicates a preference for the beneficial 2-OH-E1 metabolite compared to the estrogenic 16-OH-E1 metabolite.
- The 2-OH/4-OH-E1 is higher than **76.0%** of the population, which is in the optimal range, but towards the high end. This indicates a preference for the beneficial 2-OH-E1 metabolite compared to the potentially genotoxic (DNA damaging) 4-OH-E1 metabolite.

#4. Assess methylation of 2-OH catechol estrogens. More information is available [here](#).

- The methylation activity is higher than **31.0%** of the population, which is within the optimal range. This indicates optimal estrogen methylation, which is beneficial for efficient estrogen detoxification.

TEST NAME: DUTCH COMPLETE MALE

About Your Results | Cortisol



Cortisol-related Patient or Sample Comments:

#1. Assess the daily free cortisol pattern. More information is available [here](#).

- All points on the Daily Free Cortisol Pattern are within the optimal range. Cortisol levels should follow a rhythm that is higher in the morning and lower at night.

#2. Assess the daily total of free cortisol in circulation (24hr Free Cortisol). More information is available [here](#).

- The 24hr Free Cortisol is **94.3 ng/mg**, which is within the optimal range, but towards the low end. This may be relevant if the patient reported low cortisol symptoms or if Metabolized Cortisol is low.

#3. Assess the total cortisol produced by the adrenal glands (Metabolized Cortisol.) More information is available [here](#).

- The Metabolized Cortisol, which reflects the total cortisol output for the day, is **3,670 ng/mg**, which is below the optimal range.

#4. Assess the rate of cortisol clearance from the body. More information is available [here](#).

- The Cortisol Clearance Rate is higher than **45.0%** of the population, which is within the optimal range. This indicates that cortisol and cortisone are being metabolized at a normal rate.



PATIENT: XXXXXXXXXXXXXXXXXXXXX

TEST REF: TST-NL-XXXXX

TEST NUMBER: T-NL-XXXXXX

COLLECTED: 2026-XX-XX

GENDER: XXXXX

PRACTITIONER:
XXXXXXXXXXXXXXXXXXXX

AGE: XX

XXXXXXXXXXXXXXXXXXXX

TEST NAME: DUTCH COMPLETE MALE

About Your Results | Advanced Insights

The previous "About Your Results" pages look at core insights for the DUTCH report shown on the Hormone Testing Summary page, all of which are worth considering for most patients. Next, "Advanced Insights" cover additional features within the DUTCH test that require reviewing the pages after the summary page. These concepts are more complex but can be highly relevant for some patients. Review the concepts and look for patient-specific comments, when notable, in bullets.

ANDROGENS

#1. Assess if the DHEA-S is relatively lower than the Total DHEA. More information is available [here](#).

DHEA-S is primarily produced in the adrenals through sulfation. Inflammation can inhibit sulfation, lowering DHEA-S levels and diverting DHEA metabolism toward 5a- and 5b-reductase pathways, resulting in higher etiocholanolone (5b-metabolite) and androsterone (5a-metabolite) levels relative to DHEA-S. Review the patient's results to assess if this pattern is present.

#2. Assess the androgen pattern to determine if urine testosterone may not accurately reflect systemic levels (UGT2B17 deletion). More information is available [here](#).

- This advanced topic is usually only relevant if the patient has low testosterone on the DUTCH Test and may be relevant in this case. For information on this topic, see this [video](#).

The male gonads produce most of the body's testosterone as well as epi-testosterone (see page 3), an inactive metabolite. A specific enzyme called UGT2B17, is primarily responsible for the process (glucuronidation) of how testosterone, but not epi-testosterone is excreted in the urine. Some people have a genetic variation affecting this enzyme which impacts how the body gets rid of those metabolites in urine. This can mean urine tests might show low testosterone levels when actual testosterone levels in the body are normal.

If this variant enzyme is present, it does not mean anything is wrong. It just makes urine results less reliable in some people and serum testing (checking free and total testosterone) should be considered prior to initiating treatment of low testosterone. 5a-DHT and 5b-androstanediol are also excreted in the urine by the same enzyme/process as testosterone, so they may also be low. This phenomenon does not affect epi-testosterone or 5a-androstanediol so they may be particularly helpful in these cases and best reflect gonadal androgen levels in some cases.

#3. While 5a-androstanediol best represents cellular 5a-DHT production, assess if 5a-DHT offers additional insight into androgenic activity More information is available [here](#).

5a-DHT is testosterone's active metabolite and is three times more potent than testosterone. If elevated it may contribute to androgen excess symptoms. Research shows 5a-androstanediol may be a better marker of 5a-DHT tissue activity, but the 5a-DHT result may provide additional insight. Review the 5a-DHT result in context of other androgens and androgenic symptoms for a deeper understanding of the androgen results.

#4. Assess whether any of the androgen-related organic acids are out of range. More information is available [here](#).

Androgen levels can be influenced by sleep and oxidative stress. Imbalances in glutathione, melatonin, and oxidative stress markers, if present, will be commented on here. This may help identify contributing factors affecting androgen markers.

ESTROGEN & PROGESTERONE

#1. Assess whether E1, E3, or Total Estrogen levels add more insight into overall estrogenic activity.

TEST NAME: DUTCH COMPLETE MALE

About Your Results | Advanced Insights (continued)

While E2 is the most potent estrogen, other estrogens such as estrone (E1), also contribute to overall estrogenic activity. Additionally, examining Total Estrogens (listed on the Sex Hormones & Metabolites page) can provide insight into overall estrogen production, which may not be fully reflected in the E2 result alone.

E1 is 10% as potent as E2 but is typically more abundant. This makes it a significant contributor to estrogenic symptoms (high or low). While all estrogens are potent immune stimulators, E1 may promote more inflammatory cytokine production than other estrogens. In cases where E1 is significantly different from E2, a note will be here describing the potential impact.

E3 is a weak estrogen that may have anti-inflammatory properties. For those using E3 therapy, since the route of administration can influence how the test result is interpreted, notes on E3 supplements (such as creams or pills) will be shown here.

The Total Estrogen level should be viewed secondarily to the most potent estrogen levels like E1 and E2, which typically match the patient presentation best. For example, Total Estrogen can be high with robust, healthy estrogen metabolism. Therefore, its levels do not always indicate a cause for high or low estrogen-related symptoms. If out of range, the Total Estrogen level will be noted here.

#2. Assess progesterone production. More information is available [here](#).

In males, progesterone metabolites measured in urine are primarily of adrenal origin. B-pregnenediol is the best marker of total progesterone. High b-pregnenediol may be associated with increased stress or inflammation. Low b-pregnenediol may accompany reduced adrenal cortisol output, although the clinical significance of low progesterone in men is not well understood.

#3. Assess estrogen clearance through phase 1 and 2. More information is available [here](#).

By looking at the parent estrogens (E1, E2) and their breakdown products (2OH, 4OH, 16OH, and 2MeOHE1), we can see how quickly estrogen is being metabolized. If the parent estrogens are higher than the breakdown products, it means estrogen is clearing more slowly, which increases risk of estrogen excess symptoms. Balanced levels show normal clearance, while lower parent estrogens compared to breakdown products suggest faster clearance, decreasing the risk of estrogen excess symptoms.

- The phase 1 estrogen metabolites are higher than the primary estrogens (E1, E2). This indicates primary estrogens may be metabolized more efficiently through phase 1, which can be associated with a lower risk of estrogen excess conditions.

#4. Assess whether any of the estrogen-related organic acids are out of range. More information is available [here](#).

Estrogen levels, metabolites, and metabolism patterns can be influenced by nutrient status, oxidative stress, and gut health. Imbalances in glutathione, B12, B6, gut dybiosis, and oxidative stress markers will be commented on here, if relevant for the patient. This may help identify contributing factors affecting estrogens.

ADRENAL

#1. Assess if cortisone (inactive) adds more insight to the free cortisol assessment. More information is available [here](#).

Cortisol is an active adrenal glucocorticoid, while cortisone is an inactive "storage" form. In the kidney, a significant amount of cortisol is converted to cortisone before excretion into urine. Therefore, urinary cortisone should be considered a reflection or "shadow" of systemic cortisol. The degree to which this happens in an individual may vary. If free cortisone is significantly higher than free cortisol, it may indicate free cortisol levels were higher in circulation (serum) than the urinary free cortisol implies. If free cortisone is lower than free cortisol, this may indicate free cortisol levels were not as high in circulation (serum) as urinary free cortisol implies.

If the cortisone is significantly different from cortisol, there will be a bulleted comment below.



PATIENT: XXXXXXXXXXXXXXXXXXXXX

TEST REF: TST-NL-XXXXX

TEST NUMBER: T-NL-XXXXXX

COLLECTED: 2026-XX-XX

GENDER: XXXXX
AGE: XX

PRACTITIONER:
XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

TEST NAME: DUTCH COMPLETE MALE

About Your Results | Advanced Insights (continued)

#2. Assess if there is a whole-body preference for (inactive) cortisone or (active) cortisol. More information is available [here](#).

The Systemic Preference slider reflects the balance between cortisol (THF) and cortisone (THE) metabolites and is influenced by systemic cortisol needs. The balance between THF and THE is the best estimation of the systemic balance of cortisol to cortisone. As these metabolites are processed through the liver, the body may shift to cortisol (THF) in response to acute stressors (e.g., immune activation or infection), or toward cortisone (THE) with chronic stress (e.g., long-term inflammation or illness). Review the patient's result to determine if they are out of range.

- The Systemic Preference slider is higher than **40.0%** of the population, which is within the optimal range. This indicates the balance between systemic cortisone and cortisol is normal.

#3. Assess for anabolic-catabolic balance

Androgens such as DHEA (assessed as Total DHEA Production) support tissue growth and repair, while cortisol promotes tissue breakdown. When DHEA is significantly higher than cortisol, it may suggest an anabolic state (favoring tissue building and repair). When DHEA is significantly lower than cortisol, it may suggest a catabolic state (favoring tissue breakdown).

- The Total DHEA Production is balanced compared to the Total Cortisol Production. This indicates a balanced state for tissue repair and maintenance.

#4. Assess whether any of the cortisol-related organic acids are out of range. More information is available [here](#).

Cortisol can be impacted by inflammation, nutrient status, and sleep. Imbalances in B12, B6, melatonin, and neuroinflammation markers will be commented on here if relevant for the patient. This may help identify contributing factors affecting cortisol results.

Finally, please review the patient's results along with their requisition form. It is designed to capture relevant medications, symptoms, diagnoses, sample collection, and notes that may be helpful in interpreting the results.

Additional Comments

TEST NAME: DUTCH COMPLETE MALE

About Your Results | Advanced Insights (continued)

Reference Range Percentiles

Reference ranges are developed by testing thousands of healthy individuals, while excluding results from outliers or those on impactful medications. A percentile approach is applied, as is done with most labs. Classic reference ranges use the 95th percentile as the upper end of range and the 5th percentile as the lower end of range. Our DUTCH ranges use the percentiles found in the table below. We feel these ranges reflect the more optimal range sought in functional medicine practices. The table below shows the percentiles used for the reference range of each analyte on the DUTCH report:

Male Reference Ranges (Updated 10.15.2025)									
	Low%	High%	Low	High		Low%	High%	Low	High
b-Pregnanediol	10%	90%	75	400	Cortisol U0 (Mid-Sleep)	0	90%	0	23
a-Pregnanediol	10%	90%	20	130	Cortisol U1 (Waking)	20%	90%	25	130
Estrone (E1)	10%	90%	4	16	Cortisol U2 (+2 Hours)	20%	90%	35	180
Estradiol (E2)	10%	90%	0.5	2.2	Cortisol U3 (Dinner)	20%	90%	10	45
Estriol (E3)	10%	90%	2	8	Cortisol U4 (Bedtime)	0	90%	0	20
2-OH-E1	0	90%	0	5.9	Cortisone U0 (Mid-Sleep)	0	90%	0	70
4-OH-E1	0	90%	0	0.8	Cortisone U1 (Waking)	20%	90%	75	215
16-OH-E1	0	90%	0	1.2	Cortisone U2 (+2 Hours)	20%	90%	80	240
2-Methoxy-E1	0	90%	0	2.8	Cortisone U3 (Dinner)	20%	90%	40	130
2-OH-E2	0	90%	0	1.2	Cortisone U4 (Bedtime)	0	90%	0	70
4-OH-E2	0	90%	0	0.25	Cortisol Clearance Rate (CCR)	20%	80%	8.5	17.5
2-16-ratio	20%	80%	2.85	9.88	Melatonin (6-OHMS)	20%	90%	10	85
2-4-ratio	20%	80%	6.44	12.6	8-OHdG	0	90%	0	8.8
2Me-2OH-ratio	20%	80%	0.4	0.7	Methylmalonate	0	90%	0	3.5
DHEA-5	20%	90%	30	1500	Xanthurenate	0	90%	0.2	1.9
Androsterone	20%	80%	500	3000	Kynurenate	0	90%	1	6.6
Etiocholanolone	20%	80%	400	1500	b-Hydroxyisovalerate	0	90%	0	18
Testosterone	20%	90%	25	115	Pyroglutamate	10%	90%	38	83
5a-DHT	20%	90%	5	25	Indican	0	90%	0	131
5a-Androstanediol	20%	90%	30	250	Homovanillate	10%	95%	4	16
5b-Androstanediol	20%	90%	40	250	Vanilmandelate	10%	95%	2.5	7.5
Epi-Testosterone	20%	90%	25	115	Quinolate	0	90%	0	12.5
a-THF	20%	90%	175	700	Calculated Values				
b-THF	20%	90%	1750	4000	Total DHEA Production	20%	80%	1000	5500
b-THE	20%	90%	2350	5800	Total Estrogens	10%	90%	10	34
					Metabolized Cortisol	20%	90%	4550	10000
					24hr Free Cortisol	20%	90%	75	300
					24hr Free Cortisone	20%	90%	220	550

% = population percentile: Example - a high limit of 90% means results higher than 90% of the men tested for the reference range will be designated as "high."