

# About DUTCH Testing

How to choose the right panel

# A common question we get is “which panel should I order?”

## DUTCH Testing Panels

- DUTCH Complete™
- DUTCH Plus®
- DUTCH Cycle Mapping™
- DUTCH Cycle Mapping™ Plus (Cycle Mapping paired with DUTCH Plus®)
- DUTCH Cycle Mapping™ paired with a DUTCH Complete™
- DUTCH CAR (Cortisol Awakening Response)
- DUTCH Adrenal Panel
- DUTCH Sex Hormone Panel
- DUTCH OATs Panel

One of our most popular panels is usually sufficient, but there may be times when a different panel may be more indicated.

## DUTCH Testing Panels

- DUTCH Complete™
- DUTCH Plus®
- DUTCH Cycle Mapping™
- DUTCH Cycle Mapping™ Plus (Cycle Mapping paired with DUTCH Plus®)
- DUTCH Cycle Mapping™ paired with a DUTCH Complete™
- DUTCH CAR (Cortisol Awakening Response)
- DUTCH Adrenal Panel
- DUTCH Sex Hormone Panel
- DUTCH OATs Panel

**Most popular**

## Anyone with any of the following might benefit from a DUTCH Complete or DUTCH Plus:

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

# What's the difference between the DUTCH Complete™ and the DUTCH Plus®?

# DUTCH Complete™ vs. DUTCH Plus®

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- The only difference between these two panels is that the DUTCH Complete measures urinary free cortisol while the DUTCH Plus measures salivary free cortisol, and thus includes the CAR (cortisol awakening response).
- Both panels include sex hormones and metabolites.
- Both panels include free cortisol, free cortisone and cortisol metabolites.
- Both panels include 9 organic acids, melatonin, and 8OHdG (DNA damage marker).

# DUTCH Complete™ Sample Report



**dutchtest**®  
BY PRECISION ANALYTICAL INC.

# DUTCH Complete™ Sample Report

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**dutchtest** BY PRECISION ANALYTICAL INC. Accession # 00526586  
 Female Sample Report  
 123 A Street  
 Sometown, CA 90266

**PRECISION ANALYTICAL INC.** SIMPLY BETTER TESTING  
 Last Menstrual Period:

Ordering Provider: Precision Analytical DOB: 1976-01-01  
 Age: 46 Sex: Female  
 Collection Times:  
 2022-06-01 03:00AM  
 2022-06-01 06:00AM  
 2022-06-01 08:00AM  
 2022-06-01 05:00PM  
 2022-06-01 10:00PM

**Hormone Testing Summary**

**Sex Hormones** See Pages 2 and 3 for a thorough breakdown of sex hormone metabolites

Key (how to read the results):

**Progesterone Metabolites (Urine)**

b-Pregnanediol	Low end of luteal range	708.0	ng/mg	600 - 2000	60-200
a-Pregnanediol	Within luteal range	500.7	ng/mg	200 - 740	15-50

**Adrenal Hormones** See pages 4 and 5 for a more complete breakdown of adrenal hormones

**Daily Free Cortisol Pattern**

**Total DHEA Production**

Age	20-39	1300-3000
40-60	750-2000	
>60	500-1200	

24hr Free Cortisol (A+B+C) = 111

The following videos (which can also be found on the website under the listed names along with others) may aid your understanding:  
[DUTCH Complete Overview](#), [DUTCH Complete Tutorial](#), [Cortisol Tutorial](#)

**PLEASE BE SURE TO READ BELOW FOR ANY SPECIFIC LAB COMMENTS. More detailed comments can be found on page 9.**

The patient shows significantly higher free cortisol compared to metabolized cortisol. It may be advisable to check thyroid hormones if you have not. See comments in the notes for more details.

**Urinary free cortisol**

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**Sex Hormones and Metabolites**

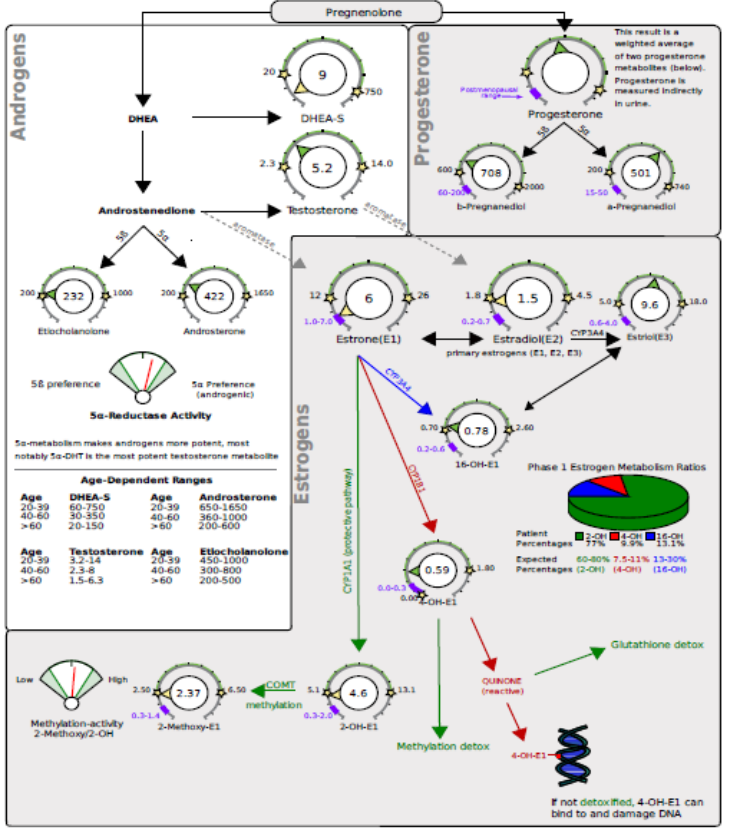
Test	Result	Units	Luteal* Range	Postmenopausal Range
<b>Progesterone Metabolites (Urine)</b>				
b-Pregnanediol	Low end of luteal range	708.0	ng/mg	600 - 2000
a-Pregnanediol	Within luteal range	500.7	ng/mg	200 - 740
<b>Estrogens and Metabolites (Urine)</b>				
Estrone (E1)	Below luteal range	5.8	ng/mg	12 - 26
Estradiol (E2)	Below luteal range	1.5	ng/mg	1.8 - 4.5
Estriol (E3)	Within luteal range	9.6	ng/mg	5 - 18
2-OH-E1	Below luteal range	4.6	ng/mg	5.1 - 13.1
4-OH-E1	Within luteal range	0.59	ng/mg	0 - 1.8
16-OH-E1	Low end of luteal range	0.78	ng/mg	0.7 - 2.6
2-Methoxy-E1	Below luteal range	2.37	ng/mg	2.5 - 6.5
2-OH-E2	Within luteal range	0.78	ng/mg	0 - 1.2
4-OH-E2	Within luteal range	0.23	ng/mg	0 - 0.5
Total Estrogen	Below range	26.3	ng/mg	35 - 70
<b>Androgens and Metabolites (Urine)</b>				
DHEA-S	Below range	9.0	ng/mg	20 - 750
Androsterone	Low end of range	422.0	ng/mg	200 - 1650
Etiocholanolone	Low end of range	232.0	ng/mg	200 - 1000
Testosterone	Within range	5.2	ng/mg	2.3 - 14
5a-DHT	Low end of range	1.04	ng/mg	0 - 6.6
5a-Androstanediol	Within range	12.7	ng/mg	6 - 30
5b-Androstanediol	Low end of range	24.2	ng/mg	20 - 75
Epi-Testosterone	Within range	9.3	ng/mg	2.3 - 14

\*The Luteal Range is the premenopausal range. When patients are taking oral progesterone this range for progesterone metabolites is not luteal and reflects the higher levels expected when patients take oral progesterone. This test is intended to be taken in the luteal phase of the menstrual cycle (days 19-22 of a 28 day cycle) for premenopausal women. The ranges in the table below may be used when samples are taken during the first few days (follicular) of the cycle, during ovulation (days 11-14) or when patients are on oral progesterone. See the following pages for age-dependent ranges for androgen metabolites.

**Additional Normal Ranges**

	Follicular	Ovulatory	Oral Pg (100mg)
b-Pregnanediol	100-300	100-300	2000-9000
a-Pregnanediol	25-100	25-100	580-3000
Estrone (E1)	4.0-12.0	22-68	N/A
Estradiol (E2)	1.0-2.0	4.0-12.0	N/A

Hormone metabolite results from the previous page are presented here as they are found in the steroid cascade. See the Provider Comments for more information on how to read the results.





# DUTCH Complete™ Sample Report

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Page 6

**dutchtest** BY PRECISION ANALYTICAL INC. **Accession # 00526586**  
 Female Sample Report  
 123 A Street  
 Sometown, CA 90266

**PRECISION ANALYTICAL INC.**  
 SIMPLY BETTER TESTING

**Adrenal** **Last Menstrual Period:**

**Ordering Provider:** Precision Analytical **DOB:** 1976-01-01  
**Age:** 46 **Sex:** Female

**Collection Times:**  
 2022-06-01 03:00AM  
 2022-06-01 06:00AM  
 2022-06-01 08:00AM  
 2022-06-01 05:00PM  
 2022-06-01 10:00PM

Category	Test	Result	Units	Normal Range
Creatinine (Urine)	Creatinine A (Waking)	Within range	0.71 mg/ml	0.2 - 2
	Creatinine B (Morning)	Within range	0.74 mg/ml	0.2 - 2
	Creatinine C (Afternoon)	Within range	0.34 mg/ml	0.2 - 2
	Creatinine D (Night)	Within range	0.53 mg/ml	0.2 - 2
Daily Free Cortisol and Cortisone (Urine)	Cortisol A (Waking)	Within range	39.0 ng/mg	10 - 50
	Cortisol B (Morning)	Within range	61.9 ng/mg	30 - 130
	Cortisol C (Afternoon)	Low end of range	7.9 ng/mg	7 - 30
	Cortisol D (Night)	Low end of range	2.4 ng/mg	0 - 14
	Cortisone A (Waking)	Within range	85.5 ng/mg	40 - 120
	Cortisone B (Morning)	Within range	169.5 ng/mg	90 - 230
	Cortisone C (Afternoon)	Within range	68.7 ng/mg	32 - 110
	Cortisone D (Night)	Within range	27.7 ng/mg	0 - 55
Cortisol Metabolites and DHEA-S (Urine)	24hr Free Cortisol	Within range	111.0 ng/mg	65 - 200
	24hr Free Cortisone	Within range	351.0 ng/mg	220 - 450
	a-Tetrahydrocortisol (a-THF)	Within range	181.0 ng/mg	75 - 370
	b-Tetrahydrocortisol (b-THF)	Below range	920.0 ng/mg	1050 - 2500
b-Tetrahydrocortisone (b-THE)	Low end of range	1624.0 ng/mg	1550 - 3800	
Metabolized Cortisol (THF+THE)	Below range	2725.1 ng/mg	2750 - 6500	
DHEA-S	Below range	9.0 ng/mg	20 - 750	

**STRESS**  
 Hypothalamus (CRH) → Pituitary (ACTH) → Adrenal Gland (DHEA, Cortisol)

Stress (or inflammation) causes the brain to release ACTH, which stimulates the adrenal glands to make hormones.

**Total DHEA Production**  
 Age Range: 20-39 (1300-3000), 40-60 (750-2000), >60 (500-1200). Patient value: 663.

**Total Cortisol Production**  
 Metabolized Cortisol (THF+THE) (Total Cortisol Production): 2725.1. Patient value: 2725.1.

**Daily Free Cortisone Pattern**  
 Graph showing Cortisone (ng/mg) vs Time (Waking (A), Morning (B), Afternoon (C), Night (D)). High range line peaks at A2 (169.5), low range line peaks at A2 (85.5).

**Daily Free Cortisol Pattern**  
 Graph showing Cortisol (ng/mg) vs Time (Waking (A), Morning (B), Afternoon (C), Night (D)). High range line peaks at A1 (61.9), low range line peaks at A1 (39.0).

**24hr Free Cortisone (A+B+C+D): 351**  
**24hr Free Cortisol (A+B+C+D): 111**

**Urinary free cortisol**

**dutchtest** BY PRECISION ANALYTICAL INC. **Accession # 00526586**  
 Female Sample Report  
 123 A Street  
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**PRECISION ANALYTICAL INC.**  
 SIMPLY BETTER TESTING

**Organic Acid Tests (OATs)** **Last Menstrual Period:**

**Ordering Provider:** Precision Analytical **DOB:** 1976-01-01  
**Age:** 46 **Sex:** Female

**Collection Times:**  
 2022-06-01 03:00AM  
 2022-06-01 06:00AM  
 2022-06-01 08:00AM  
 2022-06-01 05:00PM  
 2022-06-01 10:00PM


Category	Test	Result	Units	Normal Range	
Vitamin B12 Marker (may be deficient if high) - (Urine)	Methylmalonate (MMA)	Within range	1.46 ug/mg	0 - 2.5	
	Vitamin B6 Markers (may be deficient if high) - (Urine)				
Xanthurenate	Xanthurenate	Within range	0.34 ug/mg	0.12 - 1.2	
	Kynurenate	Within range	2.03 ug/mg	0.8 - 4.5	
Biotin Marker (may be deficient if high) - (Urine)	b-Hydroxyisovalerate	Within range	6.1 ug/mg	0 - 12.5	
	Glutathione Marker (may be deficient if low or high) - (Urine)				
Pyroglutamate	Pyroglutamate	High end of range	54.7 ug/mg	28 - 58	
	Gut Marker (potential gut putrefaction or dysbiosis if high) - (Urine)				
Indican	Indican	Within range	29.7 ug/mg	0 - 100	
	Neuro-related Markers	Dopamine Metabolite - (Urine)			
Homovanillate (HVA)		Within range	6.3 ug/mg	3 - 11	
Norepinephrine/Epinephrine Metabolite - (Urine)					
Vanilmandelate (VMA)		Within range	4.0 ug/mg	2.2 - 5.5	
Neuroinflammation Marker - (Urine)					
Quinolinate		Within range	4.8 ug/mg	0 - 9.6	
Additional Markers		Melatonin (*measured as 6-OH-Melatonin-Sulfate) - (Urine)			
		Melatonin* (Waking)	High end of range	77.8 ng/mg	10 - 85
		Oxidative Stress / DNA Damage, measured as 8-Hydroxy-2-deoxyguanosine (8-OHdG) - (Urine)			
8-OHdG (Waking)		Within range	3.01 ng/mg	0 - 5.2	

# DUTCH Plus® Sample Report




**dutchplus**®  
COMPLETE WITH CORTISOL AWAKENING RESPONSE

# DUTCH Plus® Sample Report



**Accession # 00526587**  
Female Sample Report  
123 A Street  
Sometown, CA 90266



**PRECISION ANALYTICAL INC.**  
SIMPLY BETTER TESTING


**Last Menstrual Period:**

**Ordering Provider:**  
Precision Analytical

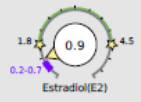
**DOB:** 1976-01-01  
**Age:** 46  
**Sex:** Female

**Collection Times:**  
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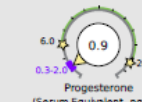
### Hormone Testing Summary

**Key (how to read the results):** 


**Sex Hormones** See Pages 2 and 3 for a thorough breakdown of sex hormone metabolites



Estradiol (E2)  
0.9

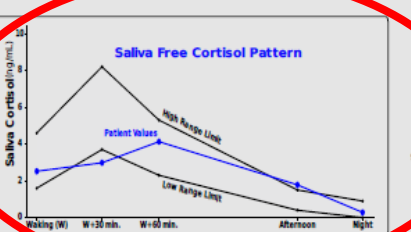


Progesterone  
(Serum Equivalent, ng/mL)  
0.9



Testosterone  
3.6

**Adrenal Hormones** See pages 4 and 5 for a more complete breakdown of adrenal hormones



**Saliva Free Cortisol Pattern**

Free cortisol best reflects tissue levels. Metabolized cortisol best reflects total cortisol production.

**Total DHEA Production**

Age	Range
20-39	1300-3000
40-59	750-2000
>60	500-1200


**Saliva Cortisol Total** (Sum of 5 values)

Age	Range
20-39	9.60-19.30
40-59	1.69-4.50
>60	0.60-1.50


The following videos (which are available on our website under the listed names along with others) may aid your understanding:  
[DUTCH Plus Overview \(quick overview\)](#) [Estrogen Tutorial](#) [Female Androgen Tutorial](#) [Cortisol/CAR Tutorial](#)  
**PLEASE BE SURE TO READ BELOW FOR ANY SPECIFIC LAB COMMENTS. More detailed comments can be found on page 9.**

- The patient collected an "Insomnia" salivary sample in the middle of the night. The cortisol result for this sample was 1.10ng/mL (expected range 0-0.9). Please see page 4 for cortisol and cortisone results for this sample.  
 The Cortisol Awakening Response (CAR) was 0.46ng/mL (expected range 1.5-4.0) or 18.3% (range 50-160%). See page 5 for more details.

## Salivary free cortisol



**Accession # 00526587**  
Female Sample Report  
123 A Street  
Sometown, CA 90266



**PRECISION ANALYTICAL INC.**  
SIMPLY BETTER TESTING

**Sex Hormones and Metabolites**

**Ordering Provider:**  
Precision Analytical

**DOB:** 1976-01-01  
**Age:** 46  
**Sex:** Female

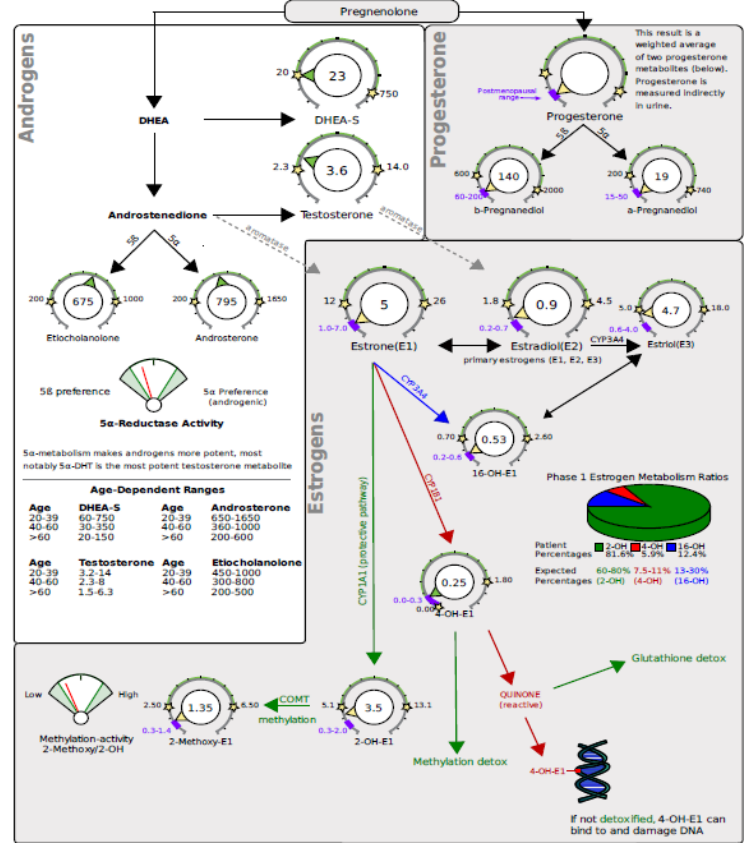
**Collection Times:**  
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2022-06-13 06:30AM (S)  
2022-06-13 07:00AM (S)  
2022-06-13 05:00PM (S)  
2022-06-13 10:00PM (S)  
2022-06-13 06:00AM (U)  
2022-06-13 08:00AM (U)  
2022-06-13 05:00PM (U)  
2022-06-13 10:00PM (U)

Test	Result	Units	Luteal*	Postmenopausal
<b>Progesterone Metabolites (Urine)</b>				
b-Pregnanediol	Below luteal range	140.0 ng/mg	600 - 2000	60-200
a-Pregnanediol	Below luteal range	19.4 ng/mg	200 - 740	15-50
<b>Estrogens and Metabolites (Urine)</b>				
Estrone (E1)	Below luteal range	5.0 ng/mg	12 - 26	1.0-7.0
Estradiol (E2)	Below luteal range	0.9 ng/mg	1.8 - 4.5	0.2-0.7
Estriol (E3)	Below luteal range	4.7 ng/mg	5 - 18	0.6-4.0
2-OH-E1	Below luteal range	3.5 ng/mg	5.1 - 13.1	0.3-2.0
4-OH-E1	Within luteal range	0.25 ng/mg	0 - 1.8	0-0.3
16-OH-E1	Below luteal range	0.53 ng/mg	0.7 - 2.6	0.2-0.6
2-Methoxy-E1	Below luteal range	1.35 ng/mg	2.5 - 6.5	0.3-1.4
2-OH-E2	Within luteal range	0.35 ng/mg	0 - 1.2	0-0.3
4-OH-E2	Within luteal range	0.26 ng/mg	0 - 0.5	0-0.1
Total Estrogen	Below range	16.9 ng/mg	35 - 70	4.0-15
<b>Androgens and Metabolites (Urine)</b>				
DHEA-S	Low end of range	23.4 ng/mg	20 - 750	
Androsterone	Within range	795.0 ng/mg	200 - 1650	
Etiocholanolone	Within range	675.0 ng/mg	200 - 1000	
Testosterone	Low end of range	3.6 ng/mg	2.3 - 14	
5a-DHT	Within range	2.51 ng/mg	0 - 6.6	
5a-Androstenediol	High end of range	26.1 ng/mg	6 - 30	
5b-Androstenediol	Within range	42.6 ng/mg	20 - 75	
Epi-Testosterone	Low end of range	2.7 ng/mg	2.3 - 14	

\*The Luteal Range is the premenopausal range. When patients are taking oral progesterone this range for progesterone metabolites is not luteal and reflects the higher levels expected when patients take oral progesterone. This test is intended to be taken in the luteal phase of the menstrual cycle (days 19-22 of a 28 day cycle) for premenopausal women. The ranges in the table below may be used when samples are taken during the first few days (follicular) of the cycle, during ovulation (days 11-14) or when patients are on oral progesterone. See the following pages for age-dependent ranges for androgen metabolites.

Additional Normal Ranges	Follicular	Ovulatory	Oral Pg (100mg)
b-Pregnanediol	100-300	100-300	2000-9000
a-Pregnanediol	25-100	25-100	580-3000
Estrone (E1)	4.0-12.0	22-68	N/A
Estradiol (E2)	1.0-2.0	4.0-12.0	N/A

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# DUTCH Plus® Sample Report

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**Accession # 00526587**  
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123 A Street  
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**Adrenal**

Ordering Provider:  
Precision Analytical



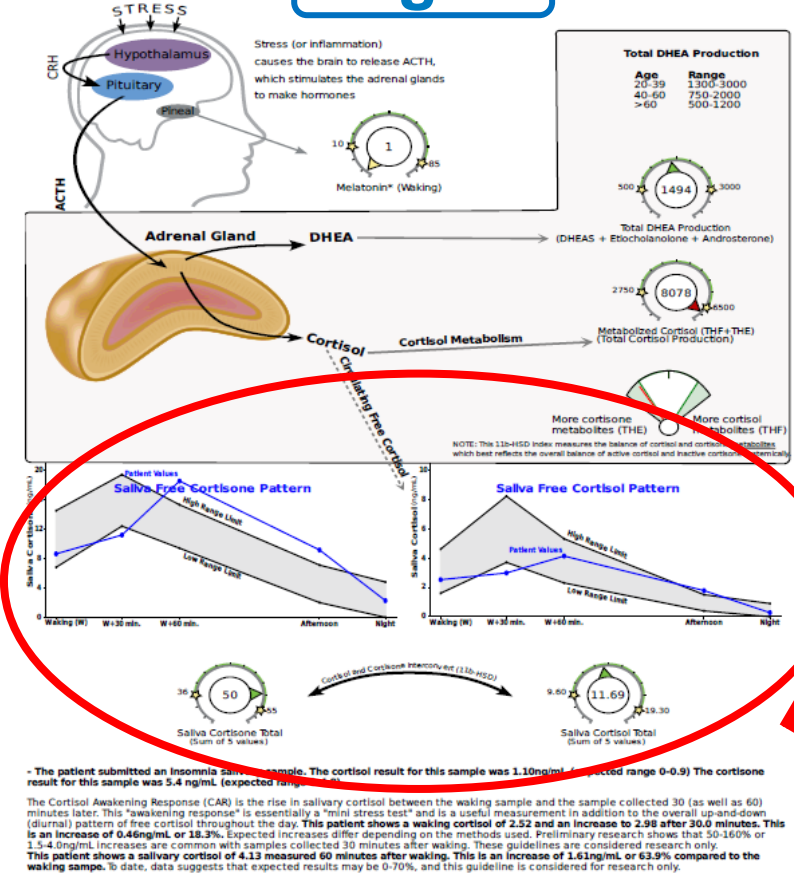
**PRECISION ANALYTICAL INC.**  
SIMPLY BETTER TESTING™


Last Menstrual Period:

DOB: 1976-01-01  
Age: 46  
Sex: Female

Collection Times:  
2022-06-13 06:00AM (S)  
2022-06-13 06:30AM (S)  
2022-06-13 07:00AM (S)  
2022-06-13 05:00PM (S)  
2022-06-13 10:00PM (S)  
2022-06-13 01:00AM (S\*)  
2022-06-13 06:00AM (U)  
2022-06-13 08:00AM (U)  
2022-06-13 05:00PM (U)  
2022-06-13 10:00PM (U)

Category	Test	Result	Units	Normal Range
<b>Free Cortisol and Cortisone (Saliva)</b>				
	Saliva Cortisol - Waking (W)	Within range	2.52	ng/mL 1.6 - 4.6
	Saliva Cortisol - W+30 min.	Below range	2.98	ng/mL 3.7 - 8.2
	Saliva Cortisol - W+60 min.	Within range	4.13	ng/mL 2.3 - 5.3
	Saliva Cortisol - Afternoon	Above range	1.78	ng/mL 0.4 - 1.5
	Saliva Cortisol - Night	Within range	0.28	ng/mL 0 - 0.9
	Saliva Cortisone - Waking (W)	Within range	8.63	ng/mL 6.8 - 14.5
	Saliva Cortisone - W+30 min.	Below range	11.19	ng/mL 12.4 - 19.4
	Saliva Cortisone - W+60 min.	Above range	18.53	ng/mL 9.4 - 15.3
	Saliva Cortisone - Afternoon	Above range	9.16	ng/mL 2 - 7.1
	Saliva Cortisone - Night	Within range	2.27	ng/mL 0 - 4.8
	Saliva Cortisol Total	Within range	11.69	ng/mL 9.6 - 19.3
	Saliva Cortisone Total	Within range	49.79	ng/mL 36 - 55
<b>Creatinine (Urine)</b>				
	Creatinine A (Waking)	Below Limit of Detection	0.0	mg/ml 0.2 - 2
	Creatinine B (Morning)	Within range	0.72	mg/ml 0.2 - 2
	Creatinine C (Afternoon)	Within range	0.48	mg/ml 0.2 - 2
	Creatinine D (Night)	Within range	0.34	mg/ml 0.2 - 2
<b>Cortisol Metabolites and DHEA-S (Urine)</b>				
	a-Tetrahydrocortisol (a-THF)	High end of range	364.0	ng/mg 75 - 370
	b-Tetrahydrocortisol (b-THF)	Above range	2619.0	ng/mg 1050 - 2500
	b-Tetrahydrocortisone (b-THE)	Above range	5095.0	ng/mg 1550 - 3800
	Metabolized Cortisol (THF+THE)	Above range	8078.2	ng/mg 2750 - 6500
	DHEA-S	Low end of range	23.0	ng/mg 20 - 750
<b>Additional Cortisol and Cortisone (Saliva)</b>				
	* Saliva Cortisol - Insomnia	Above range	1.1	ng/mL 0 - 0.9
	* Saliva Cortisone - Insomnia	Above range	5.43	ng/mL 0 - 4.8






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**Organic Acid Tests (OATs)**

Ordering Provider:  
Precision Analytical



**PRECISION ANALYTICAL INC.**  
SIMPLY BETTER TESTING™

Last Menstrual Period:

DOB: 1976-01-01  
Age: 46  
Sex: Female

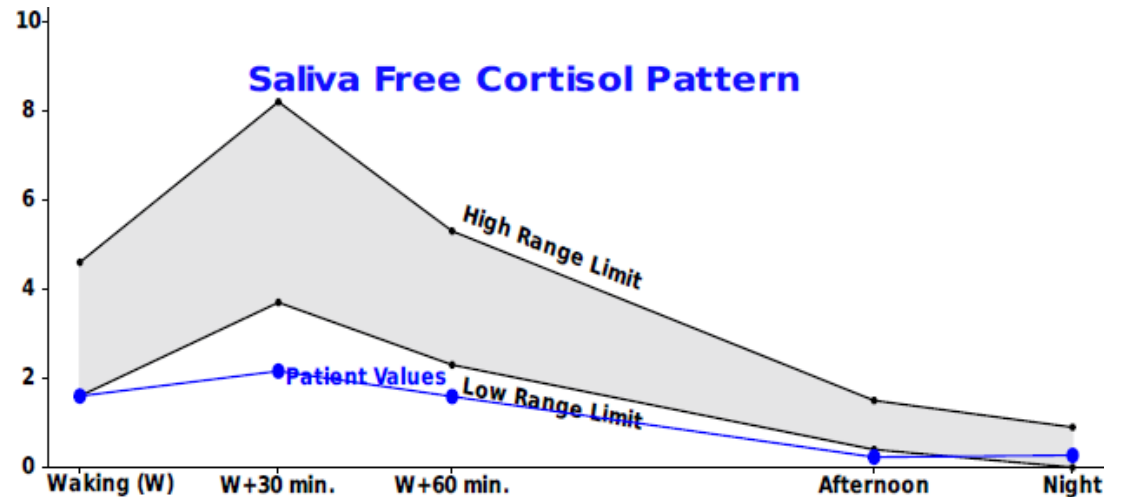
Collection Times:  
2022-06-13 06:00AM (S)  
2022-06-13 06:30AM (S)  
2022-06-13 07:00AM (S)  
2022-06-13 05:00PM (S)  
2022-06-13 10:00PM (S)  
2022-06-13 01:00AM (S\*)  
2022-06-13 06:00AM (U)  
2022-06-13 08:00AM (U)  
2022-06-13 05:00PM (U)  
2022-06-13 10:00PM (U)

Category	Test	Result	Units	Normal Range
<b>Nutritional Organic Acids</b>				
	Vitamin B12 Marker (may be deficient if high) - (Urine)			
	Methylmalonate (MMA)	Above range	4.89	ug/mg 0 - 2.5
<b>Vitamin B6 Markers (may be deficient if high) - (Urine)</b>				
	Xanthurenate	Above range	1.23	ug/mg 0.12 - 1.2
	Kynurenate	Above range	5.35	ug/mg 0.8 - 4.5
<b>Biotin Marker (may be deficient if high) - (Urine)</b>				
	b-Hydroxyisovalerate	Within range	7.9	ug/mg 0 - 12.5
<b>Glutathione Marker (may be deficient if low or high) - (Urine)</b>				
	Pyroglutamate	Below Limit of Detection	0.0	ug/mg 28 - 58
<b>Gut Marker (potential gut putrefaction or dysbiosis if high) - (Urine)</b>				
	Indican	High end of range	90.4	ug/mg 0 - 100
<b>Neuro-related Markers</b>				
<b>Dopamine Metabolite - (Urine)</b>				
	Homovanillate (HVA)	Low end of range	4.4	ug/mg 3 - 11
<b>Norepinephrine/Epinephrine Metabolite - (Urine)</b>				
	Vanilmandelate (VMA)	Above range	7.3	ug/mg 2.2 - 5.5
<b>Neuroinflammation Marker - (Urine)</b>				
	Quinolinate	Above range	13.2	ug/mg 0 - 9.6
<b>Additional Markers</b>				
<b>Melatonin (*measured as 6-OH-Melatonin-Sulfate) - (Urine)</b>				
	Melatonin* (Waking)	Below range	1.3	ng/mg 10 - 85
<b>Oxidative Stress / DNA Damage, measured as 8-Hydroxy-2-deoxyguanosine (8-OHdG) - (Urine)</b>				
	8-OHdG (Waking)	Within range	3.8	ng/mg 0 - 5.2

**Salivary free cortisol (includes the CAR)**

# Cortisol Awakening Response (CAR)

The DUTCH Plus includes the cortisol awakening response (CAR). The CAR is the cortisol rise from waking to 30 minutes after waking. It may be viewed as a hypothalamic-pituitary-adrenal (HPA) axis resiliency marker, an anticipatory marker of upcoming daily events, and a surrogate marker for HPA axis plasticity/reactivity.



Anyone with any of the following might benefit from a [DUTCH Plus](#) (that includes the CAR):

---

- Autoimmune disease
- Chronic fatigue
- Chronic pain
- Excessive psychological burnout
- General depression
- Gastrointestinal diseases
- Glycemic dysregulation
- Hypertension
- Insomnia
- Mood disturbances
- Poor sleep
- Postpartum depression
- PTSD
- Seasonal affective disorder (SAD)
- Sleep apnea
- Stressful lifestyle
- Symptomatic in the mornings

# When to order the DUTCH Cycle Mapping™



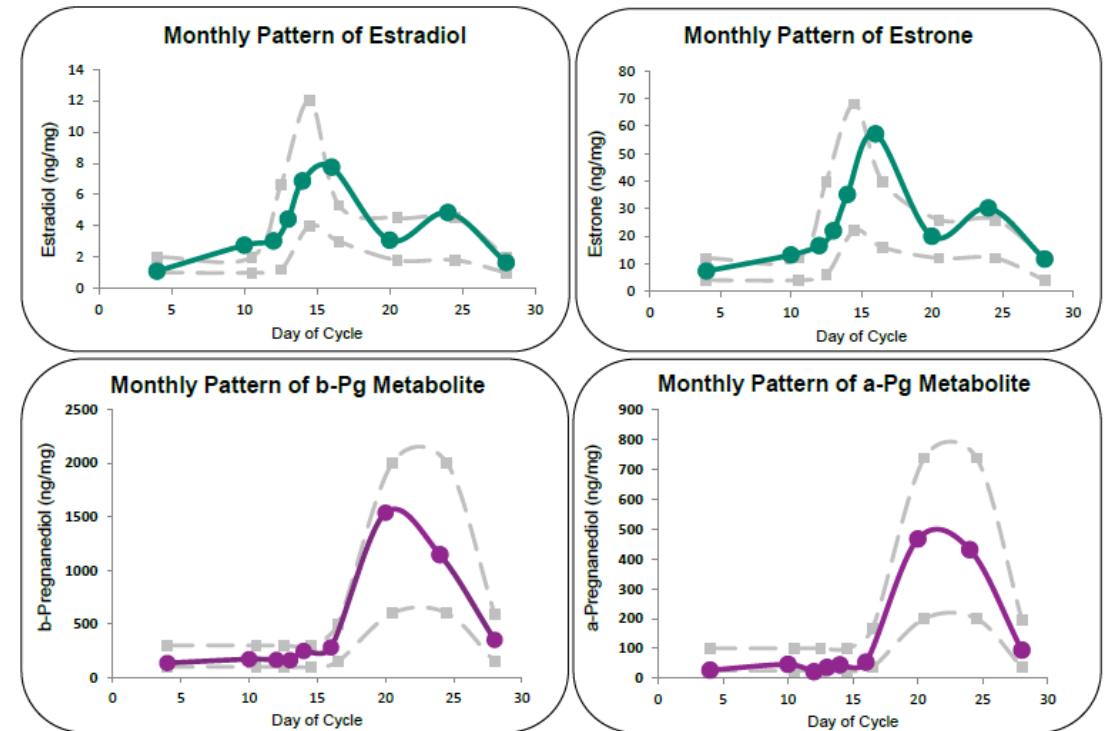
## DUTCH Testing Panels

- DUTCH Complete™
- DUTCH Plus®
- DUTCH Cycle Mapping™
- DUTCH Cycle Mapping™ Plus (Cycle Mapping paired with DUTCH Plus®)
- DUTCH Cycle Mapping™ paired with a DUTCH Complete™
- DUTCH CAR (Cortisol Awakening Response)
- DUTCH Adrenal Panel
- DUTCH Sex Hormone Panel
- DUTCH OATs Panel



# DUTCH Cycle Mapping™

- The DUTCH Cycle Mapping graphs out 9 data points for estrone, estradiol and two progesterone metabolites over the course of one collection time period.
- Many practitioners will pair a DUTCH Cycle Mapping with either a DUTCH Complete or DUTCH Plus.



# DUTCH Cycle Mapping™ Panel Sample Report

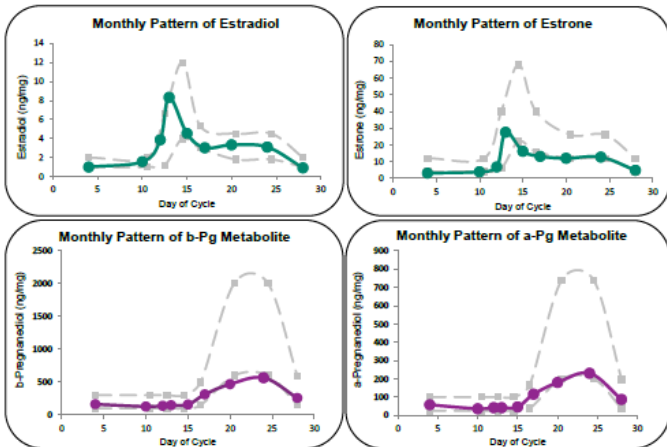
## Cycle Mapping Results



Name: Cycle Map Case  
 Provider: Precision Analytical  
 Accession #: 972341

D.O.B.: 1/1/1990  
 Collection Date: 12/6-12/27-2020

Estrogen (E) patterns can be seen below in green. Progesterone (Pg) patterns can be seen below in purple. Normal ranges are within the gray dashed lines. See page 2 for more information.



All values given in ng/mg creatinine

Measurement	1	2	3	4	5	6	7	8	9
Day(s) of Cycle	4	10	12	13	15	17	20	24	28
Estradiol (E2)	1.00	1.56	3.86	8.33	4.53	3.03	3.33	3.10	0.91
Estrone (E1)	3.1	3.9	6.8	27.5	16.2	13.2	12.0	12.7	4.8
a-Pregnanediol	57	35	41	42	45	115	179	230	86
b-Pregnanediol	162	127	138	147	157	312	467	565	256
b-Pregnanediol/E2 Ratio	161	81	36	18	35	103	140	182	282
Creatinine	1.00	1.75	1.90	1.65	2.41	1.23	1.11	0.87	0.86

The days listed above were used for measurements. Two samples are used and listed for long cycles or patients without a normal cycle.

Sample (#8) with the highest b-Pg value (565) is used for E and Pg metabolites for DUTCH Complete or Plus if ordered.

Normal Ranges	Follicular	Ovulatory	Luteal	Postmenopausal
Estradiol	1-2ng/mg	4-12ng/mg	1.8-4.5ng/mg	0.2-0.7ng/mg
Estrone	4-12ng/mg	22-68ng/mg	12-26ng/mg	3.0-7.0ng/mg
a-Pregnanediol	25-100ng/mg	25-100ng/mg	200-740ng/mg	15-50ng/mg
b-Pregnanediol	100-300ng/mg	100-300ng/mg	600-2000ng/mg	60-200ng/mg

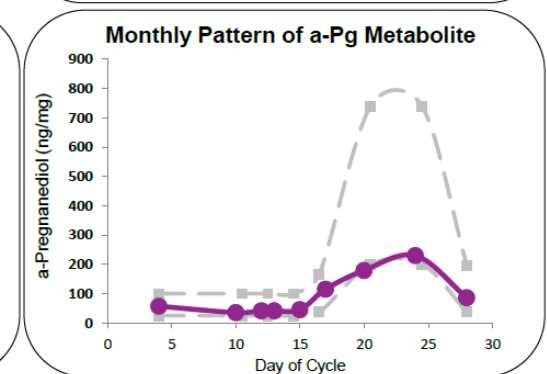
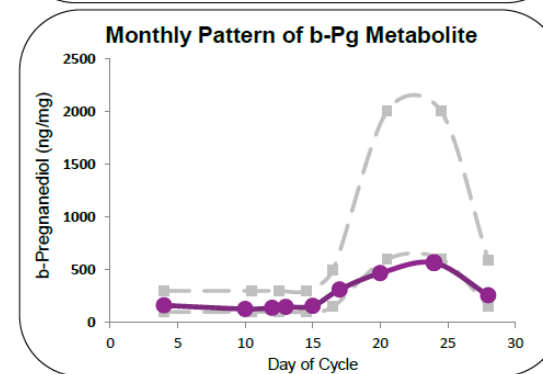
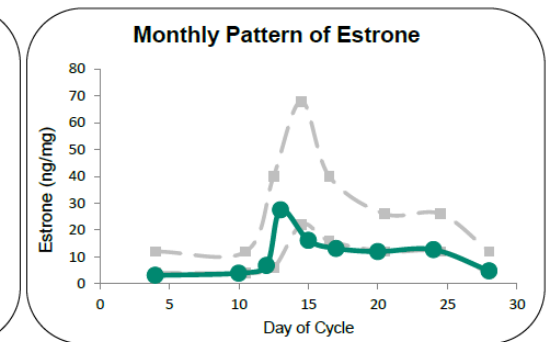
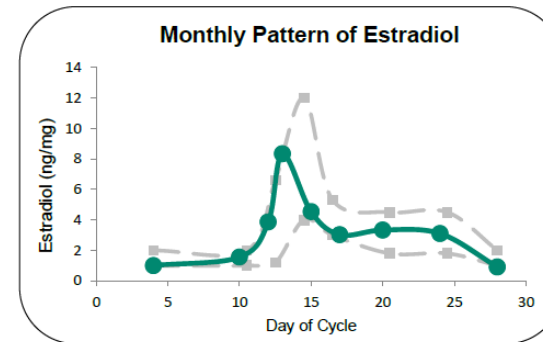
b-Pregnanediol/E2 ratio is typically 50-300 in the follicular phase, <100 during ovulation, and 100-500 in the luteal phase. Creatinine normal range, 0.2-2.0 mg/dL. Values outside this range may be less certain due to under or overhydration.

Precision Analytical Inc (Dawn Huo, PhD, Lab Director)  
 3136 NE Rivergate St #301C  
 McMinnville, OR 97128  
 dutchtest.com



# Why Add on a DUTCH Cycle Mapping?

- To get a better look at estrogen & progesterone fluctuations during an entire cycle!
- It can also be helpful when:
  - Timing the test in the mid-luteal phase is difficult
  - The patient is struggling with infertility
  - Perimenopause (to “catch” estrogen surges – it can be interesting to see how high estrogen surges and for how long).
  - When the DUTCH Complete or DUTCH Plus are not explaining the full symptom picture and the practitioner wants more data!
  - And more! (see next slide)



## Anyone with any of the following might benefit from a DUTCH Cycle Mapping:

---

- The DUTCH Cycle Mapping can also be run when more information is needed: for example, if estrogen comes back within range on a DUTCH Complete or DUTCH Plus, but the patient has many symptoms of estrogen excess, the DUTCH Cycle mapping may show estrogen excess during other times of the cycle (i.e., ovulatory phase, etc.)

- Absent bleeding due to partial hysterectomy, ablation, progestin IUD, etc.
- Desire to improve fertility
- Hormonal symptoms that fluctuate throughout the cycle
- Infertility
- Irregular cycles
- Luteal phase defect
- Menstrual migraines
- Mid-cycle spotting
- Not sure when to test due to long or short cycles
- PCOS
- PMS

## A DUTCH Cycle Mapping might not be appropriate in the following situations:

---

- Amenorrhea
- Combo oral birth control (or other birth control that suppresses ovarian output)
- Complete hysterectomy
- Postmenopausal women
- Surgically removed ovaries
- Women with cycles that follow the expected pattern/timing

# DUTCH cortisol only panels



**Sometimes people are mainly struggling with fatigue, poor sleep, mood issues, blood sugar dysregulation, etc. and a provider only wants to order a DUTCH panel that looks at cortisol.**

# What's the difference between the DUTCH CAR and the DUTCH Adrenal Panel?

## DUTCH Testing Panels

- DUTCH Complete™
- DUTCH Plus®
- DUTCH Cycle Mapping™
- DUTCH Cycle Mapping™ Plus (Cycle Mapping paired with DUTCH Plus®)
- DUTCH Cycle Mapping™ paired with a DUTCH Complete™
- DUTCH CAR (Cortisol Awakening Response)
- DUTCH Adrenal Panel
- DUTCH Sex Hormones Panel
- DUTCH OATs Panel

# DUTCH CAR vs. DUTCH Adrenal Panel

---

## • DUTCH Adrenal Panel

- Urine collection only
- Shows free cortisol and free cortisone patterns in the urine
- Urine shows average cortisol levels during the hours prior to collection.
- Samples collected upon waking, 2 hours after waking, afternoon and bedtime.
- Can add on overnight sample - it must be collected during the night prior to waking sample.
- Also includes DHEA-S, melatonin, metabolized cortisol, and the THE/THF preference, which the DUTCH CAR does not.

## • DUTCH CAR

- Saliva collection only
- Shows free cortisol and free cortisone patterns in the saliva
- Salivary shows cortisol levels at that moment in time.
- Samples collected upon waking, +30 minutes, +60 minutes, afternoon and bedtime.
- Can add on insomnia sample, which can be collected on any night.
- Includes the cortisol awakening response (CAR), which the DUTCH Adrenal Panel does not.



# DUTCH CAR





Accession # 00268797  
Female Sample Report  
123 A Street  
Sometown, CA 90266



Last Menstrual Period:

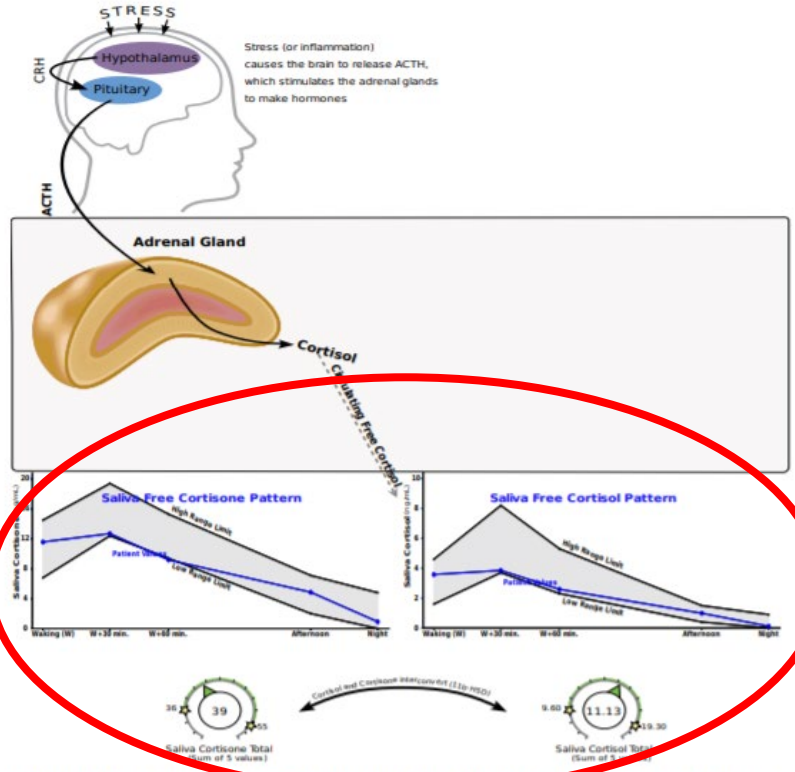
**Cortisol Awakening Response**

Ordering Physician:  
Precision Analytical

DOB: 1953-10-10  
Age: 63  
Gender: Female

Collection Times:  
2017-08-09 06:01AM (S)  
2017-08-09 06:31AM (S)  
2017-08-09 07:01AM (S)  
2017-08-09 05:01PM (S)  
2017-08-09 10:01PM (S)  
2017-08-09 01:30AM (S\*)

Category	Test	Result	Units	Normal Range
<b>Free Cortisol and Cortisone (Saliva)</b>				
	Saliva Cortisol - Waking (W)	Within range	3.58	ng/mL 1.6 - 4.6
	Saliva Cortisol - W+30 min.	Low end of range	3.85	ng/mL 3.7 - 8.2
	Saliva Cortisol - W+60 min.	Low end of range	2.59	ng/mL 2.3 - 5.3
	Saliva Cortisol - Afternoon	Within range	0.99	ng/mL 0.4 - 1.5
	Saliva Cortisol - Night	Low end of range	0.12	ng/mL 0 - 0.9
	Saliva Cortisone - Waking (W)	Within range	11.58	ng/mL 6.8 - 14.5
	Saliva Cortisone - W+30 min.	Low end of range	12.7	ng/mL 12.4 - 19.4
	Saliva Cortisone - W+60 min.	Below range	9.19	ng/mL 9.4 - 15.3
	Saliva Cortisone - Afternoon	Within range	4.86	ng/mL 2 - 7.1
	Saliva Cortisone - Night	Low end of range	0.91	ng/mL 0 - 4.8
	Saliva Cortisol Total	Low end of range	11.13	ng/mL 9.6 - 19.3
	Saliva Cortisone Total	Low end of range	39.24	ng/mL 36 - 55
<b>Additional Cortisol and Cortisone (Saliva)</b>				
	* Saliva Cortisol - Insomnia	Above range	2.1	ng/mL 0 - 0.9
	* Saliva Cortisone - Insomnia	Above range	10.4	ng/mL 0 - 4.8



Salivary free cortisol

The patient submitted an insomnia salivary sample. The cortisol result for this sample was 2.1 ng/mL (expected range 0-0.9). The cortisone result for this sample was 10.4 ng/mL (expected range 0-4.8).

The Cortisol Awakening Response (CAR) is the rise in salivary cortisol between the waking sample and the sample collected 30 (as well as 60) minutes later. This "awakening response" is essentially a "mini stress test" and is a useful measurement in addition to the overall up-and-down (diurnal) pattern of free cortisol throughout the day. **This patient shows a waking cortisol of 3.58 and an increase to 3.85 after 30.0 minutes. This is an increase of 0.27ng/mL, or 7.5%.** Expected increases differ depending on the methods used. Preliminary research shows that 50-160% or 1.5-4.0ng/mL increases are common with samples collected 30 minutes after waking. These guidelines are considered research only. **This patient shows a salivary cortisol of 2.59 measured 60 minutes after waking. Generally this result is a little higher than the waking sample but is not in this case. To date, data suggests that expected results may be 0-70% higher, and this guideline is considered for research only.**

# DUTCH Adrenal Panel



**dutchtest**<sup>®</sup>  
BY PRECISION ANALYTICAL INC.

# DUTCH Adrenal Only Panel

Page 1



**Accession # 00216507**  
Female Sample Report  
123 A Street  
Sometown, CA 90266



**PRECISION ANALYTICAL INC.**  
SIMPLY BETTER TESTING

**Adrenal**

**Ordering Physician:**  
Precision Analytical

**DOB:** 1976-01-01  
**Age:** 39  
**Gender:** Female

**Last Menstrual Period:**  
2015-11-09

**Collection Times:**  
2015-11-10 04:00AM  
2015-11-10 06:00AM  
2015-11-10 03:00PM  
2015-11-10 08:00PM

Category	Test	Result	Units	Normal Range
<b>Creatinine (Urine)</b>				
	Creatinine A (Waking)	Within range	0.4 mg/ml	0.2 - 2
	Creatinine B (Morning)	Within range	0.51 mg/ml	0.2 - 2
	Creatinine C (Afternoon)	Within range	0.92 mg/ml	0.2 - 2
	Creatinine D (Night)	Within range	1.01 mg/ml	0.2 - 2
<b>Daily Free Cortisol and Cortisone (Urine)</b>				
	Cortisol A (Waking)	Low end of range	12.0 ng/mg	10 - 50
	Cortisol B (Morning)	Below range	28.0 ng/mg	30 - 130
	Cortisol C (Afternoon)	Low end of range	9.4 ng/mg	7 - 30
	Cortisol D (Night)	Low end of range	2.6 ng/mg	0 - 14
	Cortisone A (Waking)	Below range	30.2 ng/mg	40 - 120
	Cortisone B (Morning)	Below range	61.2 ng/mg	90 - 230
	Cortisone C (Afternoon)	Below range	21.4 ng/mg	32 - 110
	Cortisone D (Night)	Within range	16.2 ng/mg	0 - 55
	24hr Free Cortisol	Below range	52.0 ng/mg	65 - 200
	24hr Free Cortisone	Below range	129.0 ng/mg	220 - 450
<b>Cortisol Metabolites and DHEA-S (Urine)</b>				
	a-Tetrahydrocortisol (a-THF)	Above range	400.0 ng/mg	75 - 370
	b-Tetrahydrocortisol (b-THF)	Above range	2500.0 ng/mg	1050 - 2500
	b-Tetrahydrocortisone (b-THE)	Within range	3030.0 ng/mg	1550 - 3800
	Metabolized Cortisol (THF+THE)	High end of range	5930.0 ng/mg	2750 - 6500
	DHEA-S	Low end of range	26.0 ng/mg	20 - 750

Page 2

**STRESS**  
Stress (or inflammation) causes the brain to release ACTH, which stimulates the adrenal glands to make hormones.

**DHEA-S Ranges**

Age	Range
20-39	60-750
40-60	30-350
>60	20-150

**DHEA-S**  
**Metabolized cortisol**  
**THE/THF preference**

**Daily Free Cortisone Pattern**

**High Range Line**  
**Low Range Line**  
**Patient Values**

**24hr Free Cortisone (A+B+C+D)**  
129 (Normal Range: 220 - 450)

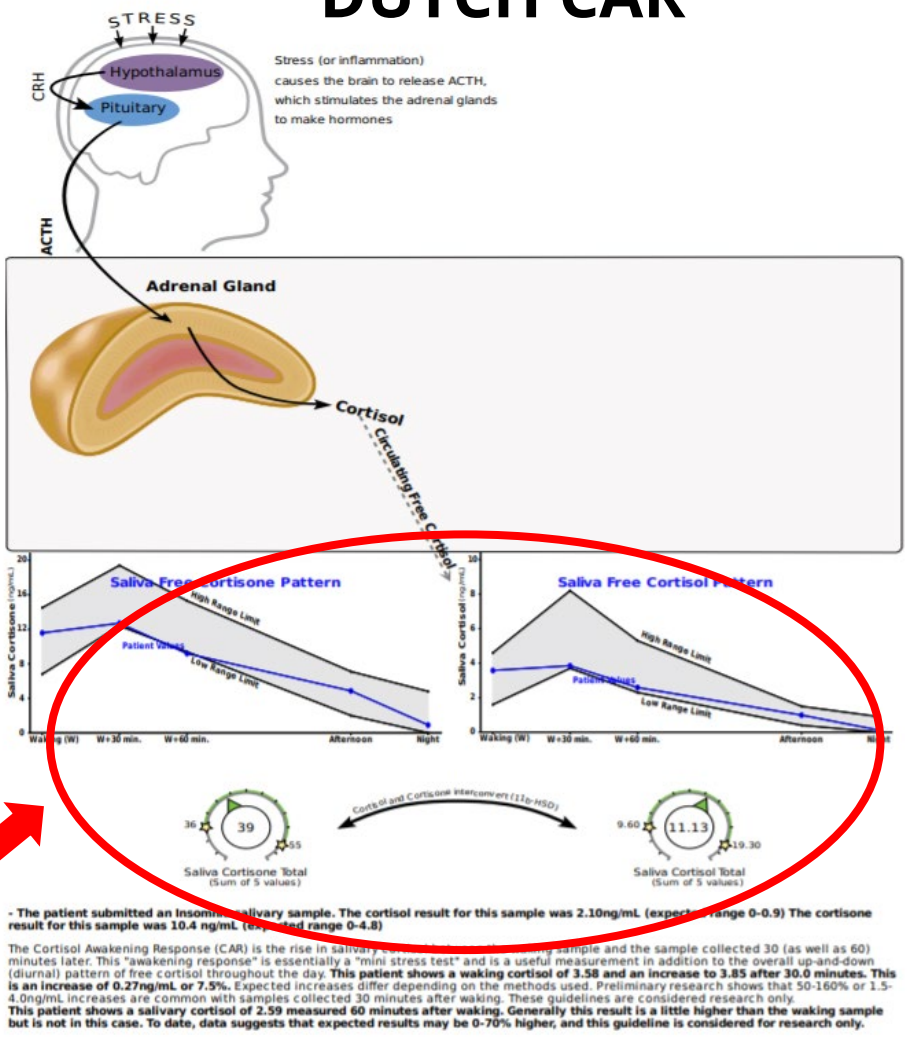
**24hr Free Cortisol (A+B+C+D)**  
52 (Normal Range: 65 - 200)

**Urinary free cortisol**

NOTE: This 11β-HSD index measures the balance of cortisol and cortisone production, which best reflects the overall balance of active and inactive cortisone systemically.

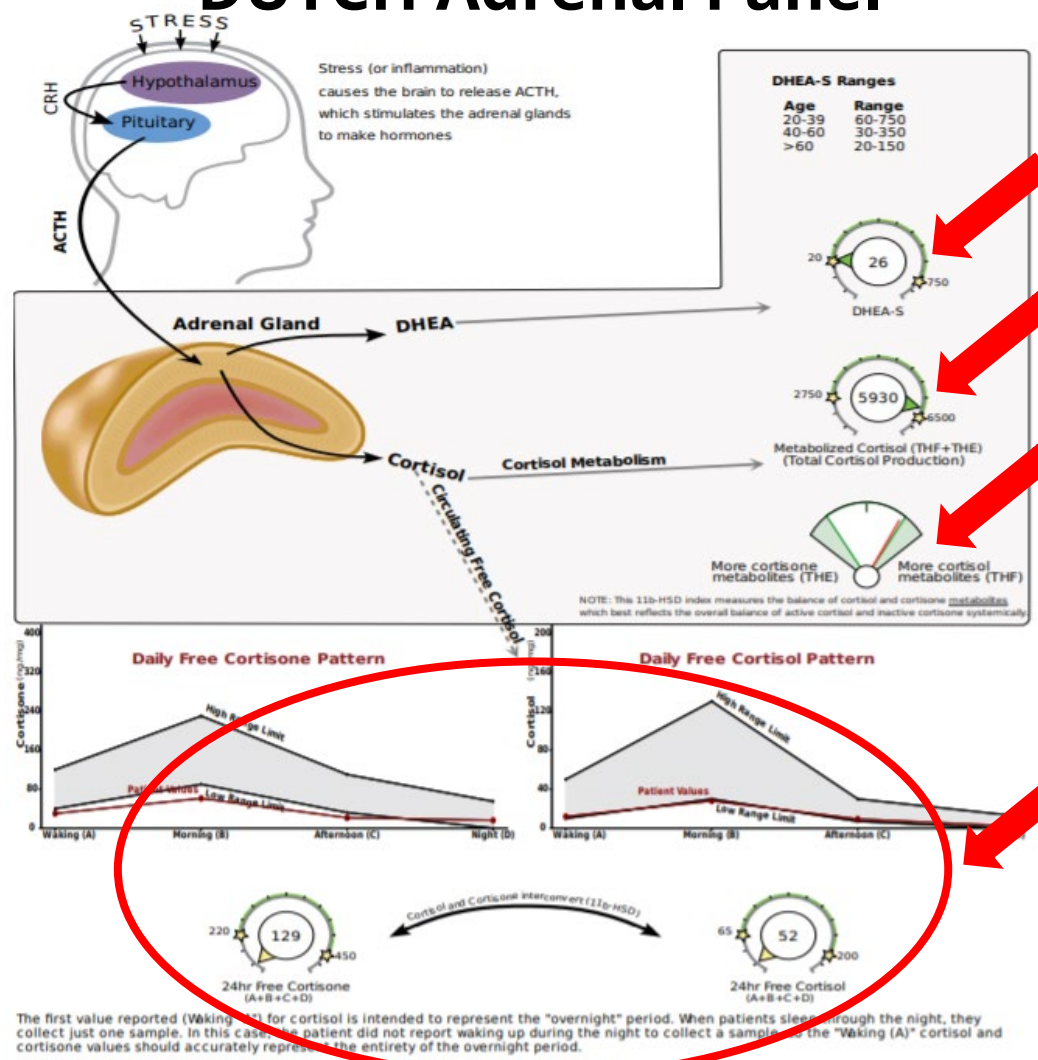
# DUTCH CAR vs. DUTCH Adrenal Panel: Side by Side Comparison

## DUTCH CAR



Salivary

## DUTCH Adrenal Panel



DHEA-S

Metabolized cortisol

THE/THF preference

Urinary

The first value reported (Waking (A)) for cortisol is intended to represent the "overnight" period. When patients sleep through the night, they collect just one sample. In this case, the patient did not report waking up during the night to collect a sample during the "Waking (A)" cortisol and cortisone values should accurately represent the entirety of the overnight period.

Remember, anyone with any of the following might benefit from a [DUTCH CAR](#) (to see the cortisol awakening response):

---

- Autoimmune disease
- Chronic fatigue
- Chronic pain
- Excessive psychological burnout
- General depression
- Gastrointestinal diseases
- Glycemic dysregulation
- Hypertension
- Insomnia
- Mood disturbances
- Poor sleep
- Postpartum depression
- PTSD
- Seasonal affective disorder (SAD)
- Sleep apnea
- Stressful lifestyle
- Symptomatic in the mornings

# DUTCH Sex Hormones Panel



**dutchtest**<sup>®</sup>  
BY PRECISION ANALYTICAL INC.

# DUTCH Sex Hormones Panel



Accession # 00216506  
Female Sample Report  
123 A Street  
Somertown, CA 90266



### Sex Hormones and Metabolites

Ordering Physician:  
Dr. Dutch

DOB: 1976-01-01  
Age: 39  
Gender: Female

### Last Menstrual Period:

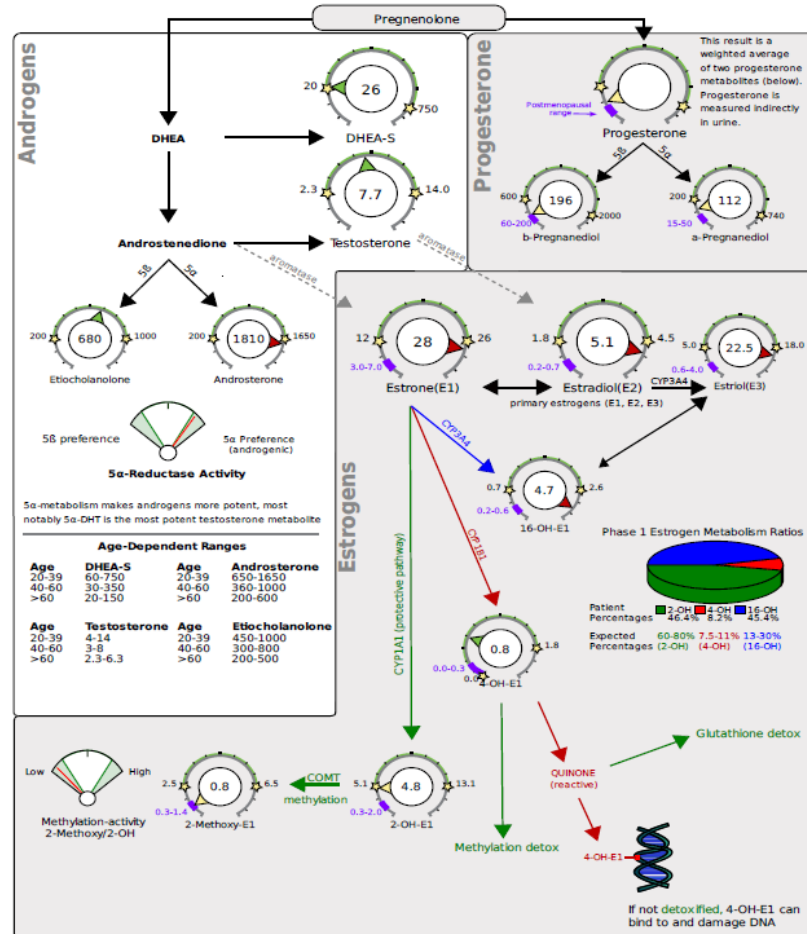
2015-10-12  
Collection Times:  
2015-11-10 04:00AM  
2015-11-10 06:00AM  
2015-11-10 03:00PM  
2015-11-10 09:00PM

Test	Result	Units	Luteal* Range	Postmenopausal Range
<b>Progesterone Metabolites (Urine)</b>				
b-Pregnanediol	Below luteal range	196.0	600 - 2000	60-200
a-Pregnanediol	Below luteal range	112.0	200 - 740	15-50
<b>Estrogens and Metabolites (Urine)</b>				
Estrone(E1)	Above luteal range	28.2	12 - 26	3.0-7.0
Estradiol(E2)	Above luteal range	5.1	1.8 - 4.5	0.2-0.7
Estriol(E3)	Above luteal range	22.5	5 - 18	0.6-4.0
2-OH-E1	Below luteal range	4.8	5.1 - 13.1	0.3-2.0
4-OH-E1	Wthin luteal range	0.8	0 - 1.8	0-0.3
16-OH-E1	Above luteal range	4.7	0.7 - 2.6	0.2-0.6
2-Methoxy-E1	Below luteal range	0.8	2.5 - 6.5	0.3-1.4
2-OH-E2	Low end of luteal range	0.19	0 - 1.2	0-0.3
4-OH-E2	Wthin luteal range	0.30	0 - 0.5	0-0.1
2-Methoxy-E2	Wthin luteal range	0.5	0 - 0.7	0-0.4
<b>Androgens and Metabolites (Urine)</b>				
DHEA-S	Low end of range	26.0	20 - 750	
Androsterone	Above range	1810.0	200 - 1650	
Etiocanolone	Wthin range	680.0	200 - 1000	
Testosterone	Wthin range	7.7	2.3 - 14	
5a-DHT	Above range	7.2	0 - 6.6	
5a-Androstanediol	Above range	42.0	12 - 30	
5b-Androstanediol	Wthin range	32.0	20 - 75	
Epi-Testosterone	Wthin range	8.8	2.3 - 14	

\*the Luteal Range is the premenopausal range. When patients are taking oral progesterone this range for progesterone metabolites is not luteal and reflects the higher levels expected when patients take oral progesterone. This test is intended to be taken in the luteal phase of the menstrual cycle (days 19-22 of a 28 day cycle) for premenopausal women. The ranges in the table below may be used when samples are taken during the first few days (follicular) of the cycle, during ovulation (days 11-14) or when patients are on oral progesterone. See the following pages for age-dependent ranges for androgen metabolites.

Additional Normal Ranges	Follicular	Ovulatory	Oral Pg (100mg)
b-Pregnanediol	100-300	100-300	2000-9000
a-Pregnanediol	25-100	25-100	580-3000
Estrone (E1)	4.0-12.0	22-68	N/A
Estradiol (E2)	1.0-2.0	4.0-12.0	N/A

Hormone metabolite results from the previous page are presented here as they are found in the steroid cascade. See the Provider Comments for more information on how to read the results.





# DUTCH Sex Hormones Panel

---

Someone may want to order a DUTCH Sex Hormone Panel for the following reasons:

- Focus is on ensuring healthy estrogen metabolism patterns
- Follow-up testing: may only want to check in on hormones before running a DUTCH Complete or DUTCH Plus again in the future
- Monitor certain forms of hormone replacement therapy (HRT)
- Panel cost (less expensive)

# DUTCH OATs Panel



# DUTCH OATs Panel

Category	Test	Result	Units	Normal Range
<b>Nutritional Organic Acids</b>				
Vitamin B12 Marker (may be deficient if high) - (Urine)				
	Methylmalonate (MMA)	High end of range	2.3	ug/mg 0 - 2.5
Vitamin B6 Markers (may be deficient if high) - (Urine)				
	Xanthurenate	Above range	1.72	ug/mg 0.12 - 1.2
	Kynurenate	Above range	6.27	ug/mg 0.8 - 4.5
Glutathione Marker (may be deficient if low or high) - (Urine)				
	Pyroglutamate	Within range	50.0	ug/mg 28 - 58
Biotin Marker (may be deficient if high) - (Urine)				
	b-Hydroxyisovalerate	Above range	13.1	ug/mg 0 - 12.5
Gut Marker (potential gut putrefaction or dysbiosis if high) - (Urine)				
	Indican	Within range	29.1	ug/mg 0 - 100
<b>Neuro-related Markers</b>				
Dopamine Metabolite - (Urine)				
	Homovanillate (HVA)	Within range	5.2	ug/mg 3 - 11
Norepinephrine/Epinephrine Metabolite - (Urine)				
	Vanilmandelate (VMA)	Within range	3.4	ug/mg 2.2 - 5.5
Neuroinflammation Marker - (Urine)				
	Quinolinatate	High end of range	8.8	ug/mg 0 - 9.6
<b>Additional Markers</b>				
Melatonin (*measured as 6-OH-Melatonin-Sulfate) - (Urine)				
	Melatonin* (Waking)	Low end of range	23.6	ng/mg 10 - 85
Oxidative Stress / DNA Damage, measured as 8-Hydroxy-2-deoxyguanosine (8-OHdG) - (Urine)				
	8-OHdG (Waking)	Within range	2.17	ng/mg 0 - 5.2

Someone may want to order a DUTCH OATs Panel for the following reasons:

- Follow-up testing to check in on organic acids, melatonin or 8OHdG (DNA damage marker)
- Only interested in specific nutrient deficiencies
- Panel cost (less expensive)
- Evaluate specifically for inflammation. These OATs markers elevate with inflammation:
  - Kynurenate
  - Pyroglutamate
  - Indican
  - Quinolate
  - 8OHdG

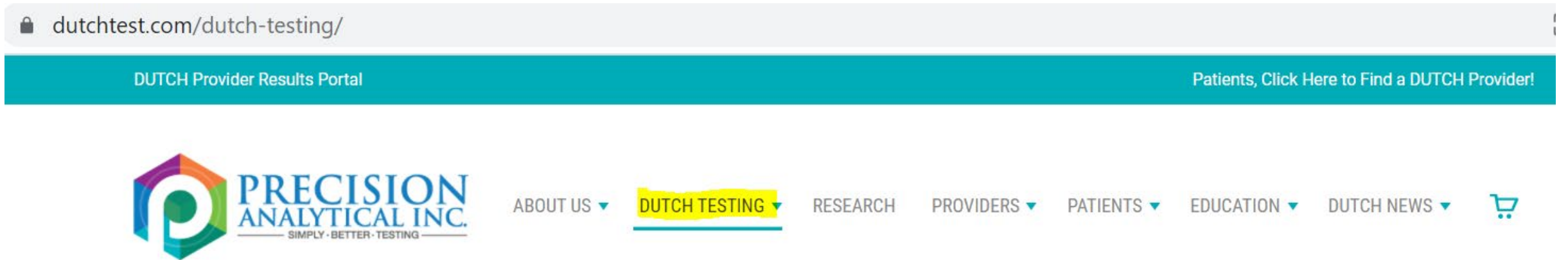
# Check out our "Biomarker Comparison Chart"

## BIOMARKER COMPARISON CHART

	DUTCH Sex Hormones	DUTCH Adrenal	DUTCH Complete™	Cortisol Awakening Response	DUTCH Plus®	DUTCH Cycle Mapping™	DUTCH Cycle Mapping™ + DUTCH Complete™	DUTCH Cycle Mapping™ PLUS
<b>PROGESTERONE METABOLITES</b>								
b-Pregnanediol	•		•		•		•	•
a-Pregnanediol	•		•		•		•	•
<b>ANDROGEN METABOLITES</b>								
DHEA-S	•	•	•		•		•	•
Androsterone	•		•		•		•	•
Etiocholanolone	•		•		•		•	•
Testosterone	•		•		•		•	•
5a-DHT	•		•		•		•	•
5a-Androstanediol	•		•		•		•	•
5b-Androstanediol	•		•		•		•	•
Epi-Testosterone	•		•		•		•	•
<b>ESTROGEN METABOLITES</b>								

Also, check out the sample reports on our website:

[www.dutchtest.com!](http://www.dutchtest.com)



<https://dutchtest.com/dutch-testing/>

# Thank You!

If you are interested in learning more about hormones, each week we hold one-hour long mentorship sessions! Once you are a registered DUTCH provider, you can book these through our online scheduling link. Please call to get registered today.

**For questions, contact:**

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