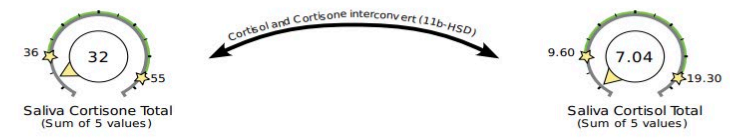
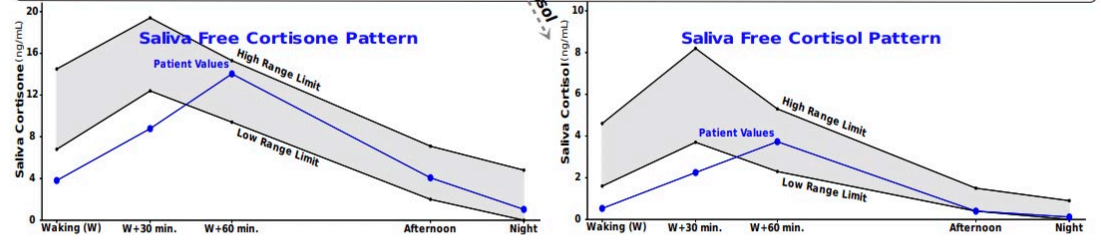
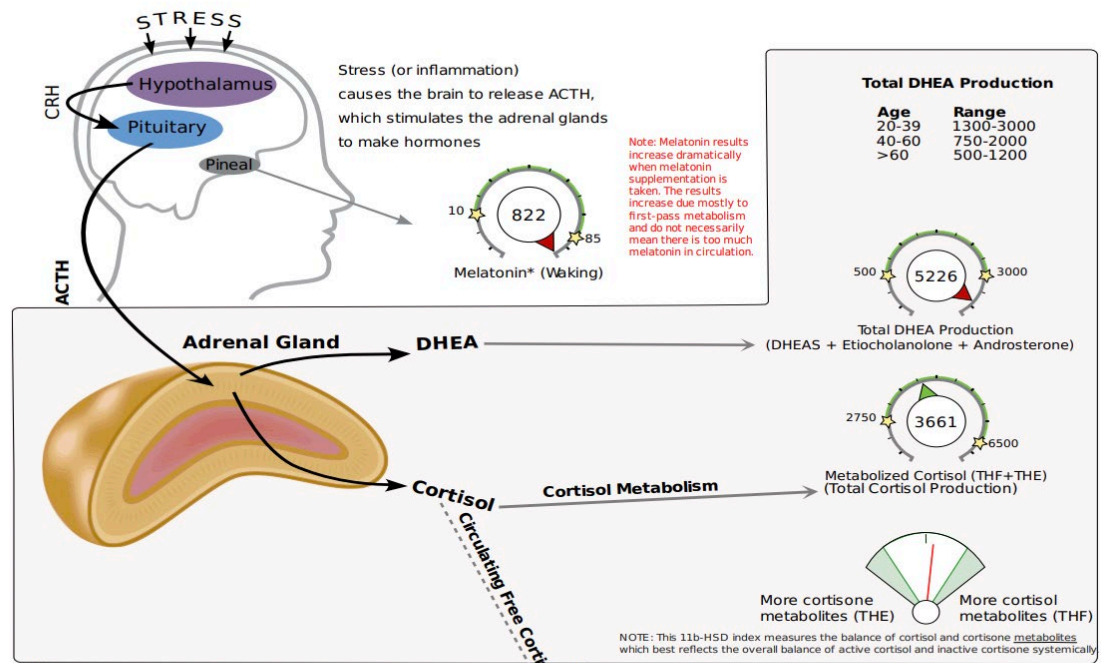
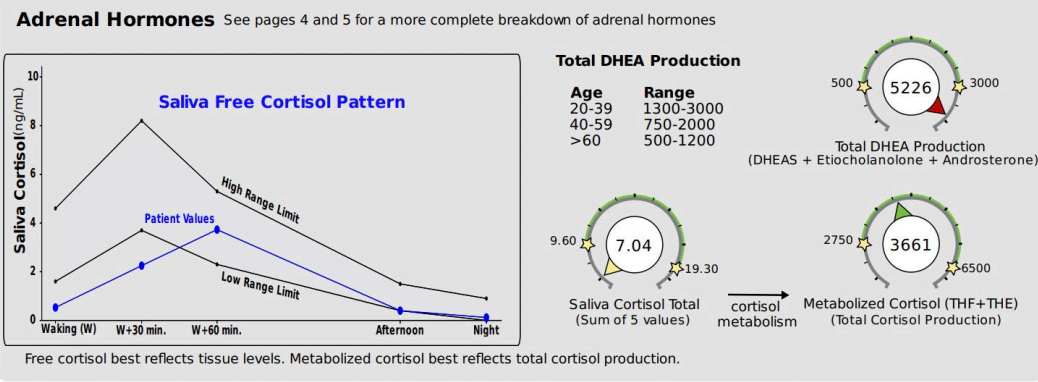
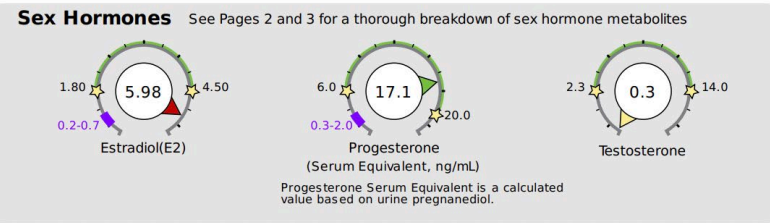
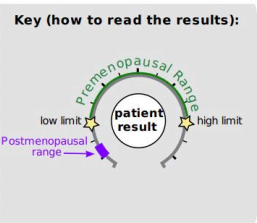


BONUS: Interpreting the HPA Axis Section of the DUTCH Test

How Can The DUTCH Test Help?

HPA axis function evaluation

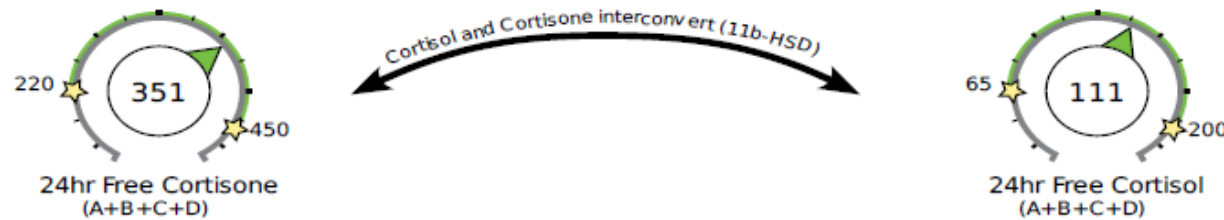
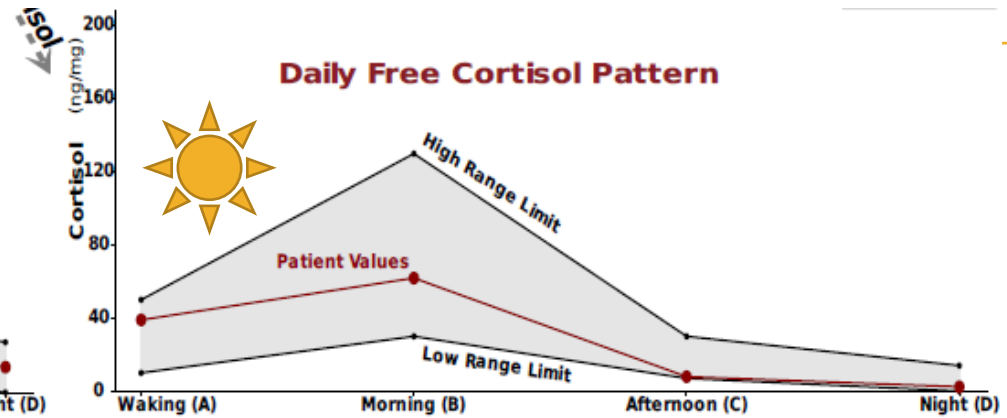
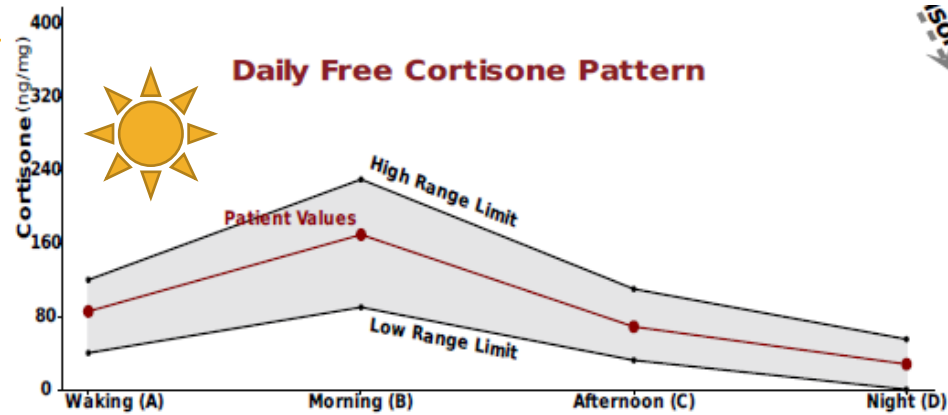
Hormone Testing Summary



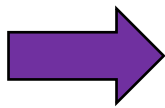
- Page 4 is simply quantitative values to match the pictorial representation of cortisol on page 5
- On page 5, there are two graphs representing free cortisone and free cortisol, metabolized cortisol, metabolized preference for cortisol vs cortisone, DHEA total, and melatonin values.

Free Cortisol and Free Cortisone

- Free cortisone **IS** free cortisol. These two hormones are ever-interchanging when in circulation. To know how much total free hormone there is at any given time, one must know how much free cortisone and free cortisol exist.
- These should follow a diurnal pattern, meaning that as the sun goes up in the sky, cortisol should rise. As the sun sets, cortisol should decrease.
- Most of free cortisol's release should occur in the morning. Spikes at other times during the day indicate an abnormal stress response.



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 woke during the night and collected (see the top of the report for the times collected). We call this value "A1" and the value from the sample collected at waking "A2." These values are used to create a "time-weighted average" to create the "A" value. However, there was no measurable cortisol found in the A2 sample, so the A1 sample has been used as the A sample for all values. This cortisol value represents the time between bed and the middle of the night collection and not the entirety of the overnight period.



- Any overnight samples will be recorded on this page, as the A1 sample.
- Waking sample will be labeled A2 sample.
- The first A point on the graph is a weighted average of these two samples.

Metabolized Cortisol

- The metabolized cortisol dial represents the total number of free cortisol and free cortisone metabolites processed by the liver on the day of testing (the primary sites of cortisol detoxification).
- The actual values that we add together can be found on page 4.
- More THF (cortisol) suggests that when free cortisol was circulating, the body had a high need for active cortisol.
 - This is seen in high stress states and with inflammation, or with habitual licorice use, as licorice prevents cortisol from becoming cortisone.

Metabolized Cortisol

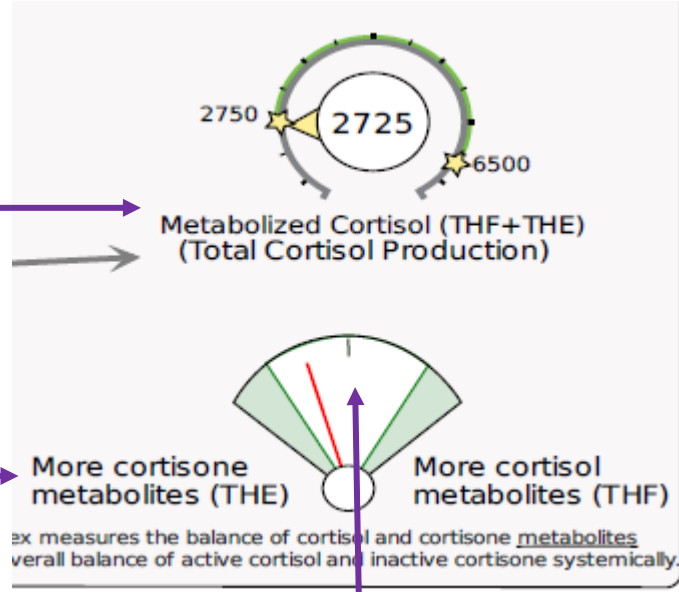
- More THE (cortisone) suggests that the free cortisol was circulating mainly as inactive hormone, not being readily used by the tissues before finally processed through the liver for clearance.
 - This is seen with chronic stress OR if when there is no inflammation

• Page 4- Cortisol’s main metabolites actual values

24hr Free Cortisol	Within range	111.0	ng/mg	65 - 200
24hr Free Cortisone	Within range	351.0	ng/mg	220 - 450
Cortisol Metabolites and DHEA-S (Urine)				
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

Total calculated metabolites

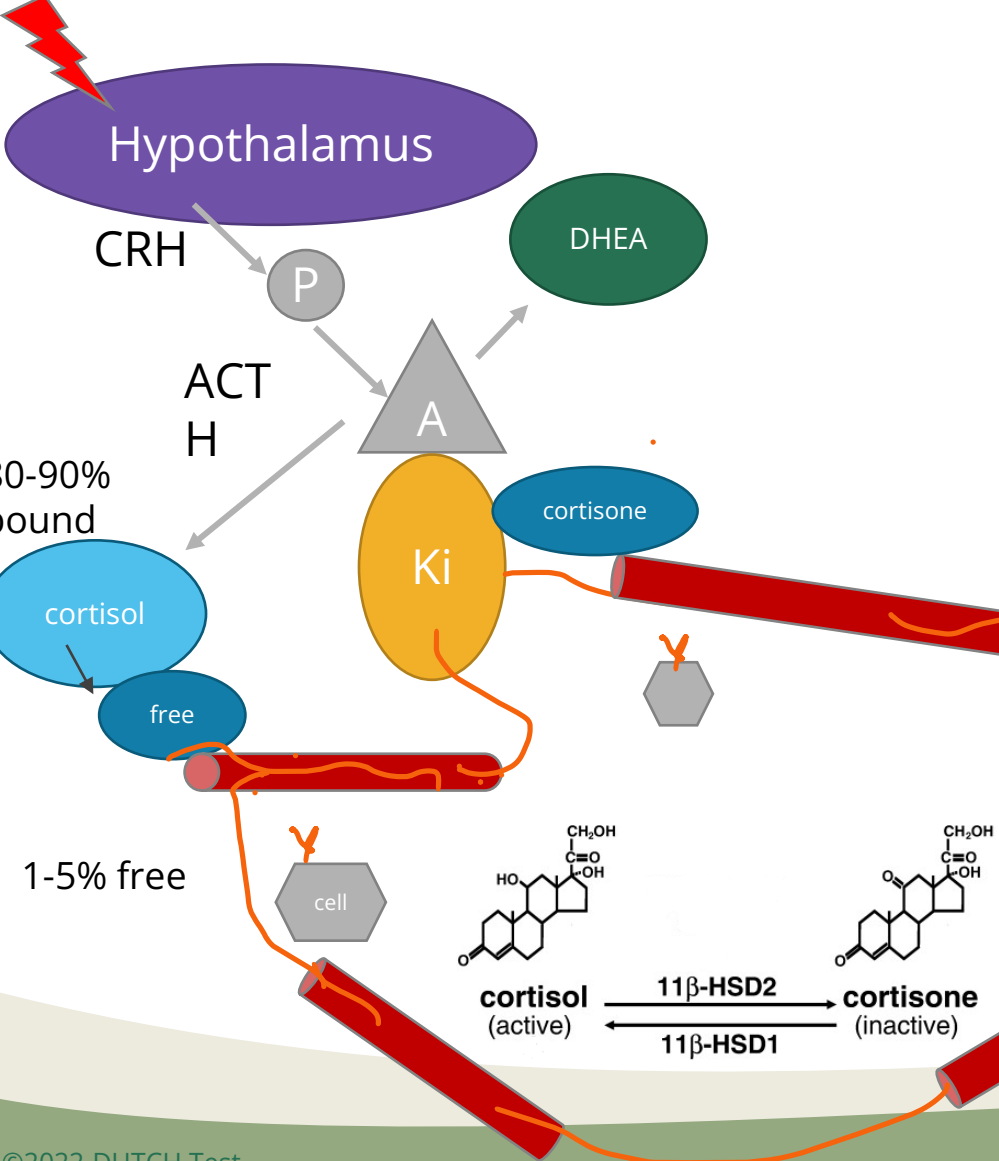
Preference for THE vs THF



- We expect an even balance of both active and inert cortisol upon excretion.
- Anywhere in the “white zone” is preferred.

Notes About Cortisol

Stress triggers



Metabolism:
increased by high free T3, inflammation

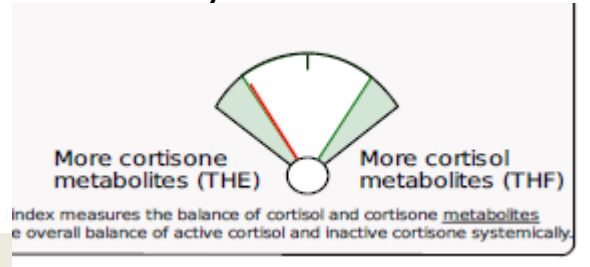
Metabolism:
decreased by low T3, poor sulfation

In body

Excreted waste products

Metabolized cortisol = total free cortisol excreted by body throughout the day

Free cortisol and cortisone = available free hormone; half-life ~ 30-60 minutes



*5 α -Reductase/5 β -Reductase

5 α -Reductase is best known because it makes androgens like testosterone more potent. It is also responsible for metabolizing progesterone and cortisol. If up-regulated, it may cause high androgen symptoms in men (thinning hair, prostate) and women (as in PCOS, thinning hair, acne, facial hair growth). 5 β -Metabolites are less androgenic (weaker).

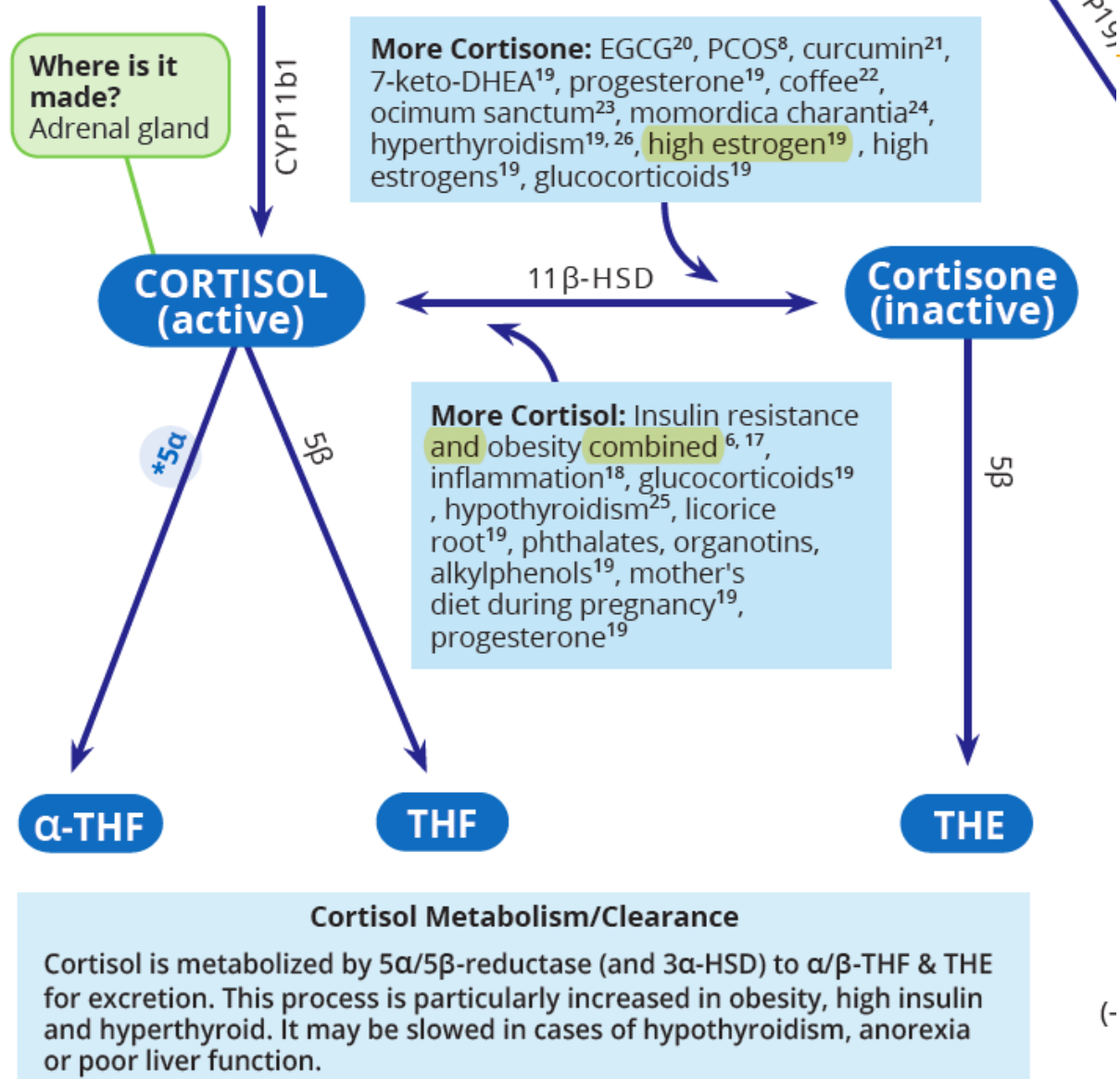
5 α -Reductase is increased in particular by: Insulin resistance and obesity⁶, DHEA supplementation⁷, PCOS⁸

5 α -Reductase may be decreased by: Serenoa repens and Beta-Sitosterol⁹, Reishi/Ganoderma lucidum¹⁰, nettle root¹¹, Pygeum africanum¹², PUFA and EGCG¹³

5 β -Reductase may be affected by some of the above listed things as well (often to a lesser degree).

5 β -Reductase may be increased by: Insulin resistance, high triglycerides¹⁴, PCOS¹⁵

5 β -Reductase may be decreased by: Licorice¹⁶



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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