

Test	Description	Result	Ref Values
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ASI Adrenal Stress Index (Original) - Saliva

TAP Free Cortisol Rhythm - Saliva

06:00 - 08:00 AM	29	Elevated	13-24 nM
11:00 - 1:00 PM	5	Normal	5-10 nM
04:00 - 05:00 PM	5	Normal	3-8 nM
10:00 - Midnight	7	Elevated	1-4 nM

Cortisol Load: 46 **22 - 46 nM**

The cortisol load reflects the area under the cortisol curve. This is an indicator of overall cortisol exposure, where high values favor a catabolic state, and low values are sign of adrenal deterioration.

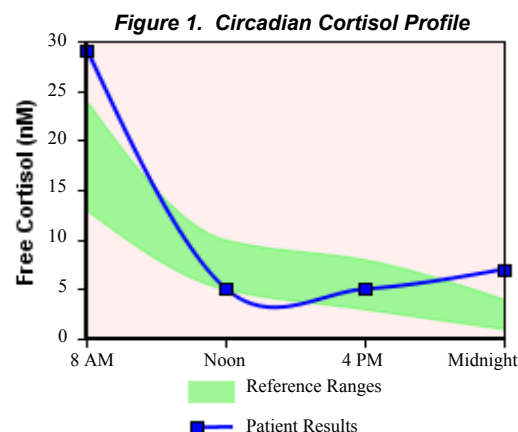


Figure 2.

The Cortisol release inducers fall into 4 broad categories shown in the adjacent flowchart. Long term adrenal axis maintenance and restoration, require optimization of all the cortisol inducers.

Remarks: An elevated morning/night free cortisol value may be associated with insomnia, and caused by a stress response to an emotional or mental situation, nocturnal hypoglycemia or chronic pain and overt/hidden inflammation.

What Next?

- Consider appropriate dietary modifications and glycemic control that include an insulin friendly carbohydrate-to-protein balance.
- Consider initiating a mild to moderate aerobic exercise program.
- The literature reports ACTH pulse height is attenuated by use of Phosphorylated serine supplement within 1 - 2 hours of time(s) of high cortisol.
- Consider the palliative use of a natural or pharmaceutical anti-histamine or anti-inflammatory.
- Consider balancing the sympathetic/parasympathetic systems using established techniques, examples: meditation and Tai Chi or heart rate variability coherence (Freeze Framing).
- If above changes do not yield the desired clinical and follow up test results, look for low grade or hidden inflammation and infections. Examples food intolerances, chronic gastrointestinal and other infections.

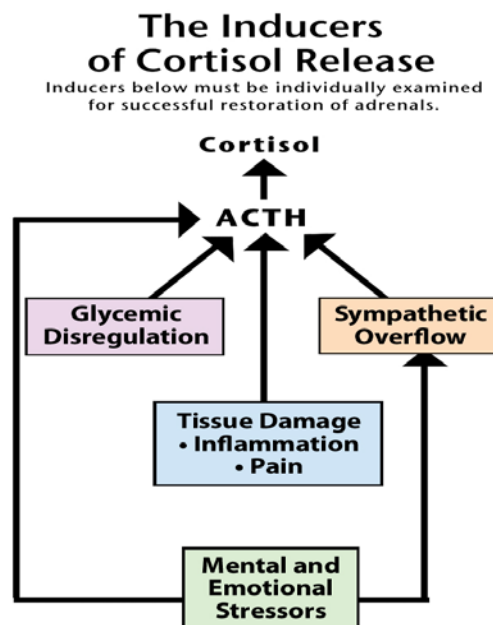


Figure 2.

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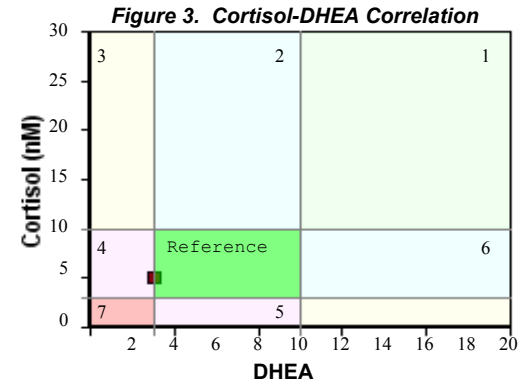
DHEA	Dehydroepiandrosterone Free	[DHEA + DHEA-S]	
	Pooled Value	3	Borderline Adults (M/F): 3-10 ng/ml

Figure 3 shows your cortisol-DHEA correlation was in:



Zone 4 - Maladapted phase II

This zone represents a marginal cortisol output with reduced DHEA levels reflecting a limited adrenal response. The utilization of the precursor pregnenolone is usually limited and the adrenal cortex may show hypertrophic changes. Under stress most patients in maladaptation phase II will have a suboptimal response to stress. This suboptimal response is any response not consistent with a normal diurnal cortisol production pattern. This condition is usually the outcome of chronic and protracted stress exposure.



CORTISOL-DHEA CORRELATION SPECTRUM

1. Adapted to stress.
2. Adapted with DHEA slump.
3. Maladapted Phase I.
- 4. Maladapted Phase II.**
5. Non-adapted, Low Reserves
6. High DHEA.
7. Adrenal Fatigue.

ISN	Insulin - Saliva		
	Fasting	<3	Normal: 3-12 uIU/mL
	Non-Fasting	<3 Depressed	Optimal: 5-20 uIU/mL

Depressed Non Fasting insulin within four hours after meal. This may be caused by a small carbohydrate load in the preceding challenge meal or a reduction in pancreatic insulin release or synthesis. Consider a closer examination of challenge meal composition to rule out pre-diabetic tendencies.

Why Test for Insulin?

Insulin activity is affected by the stress and cortisol responses. Chronic stress with cortisol elevation antagonizes insulin, and may cause functional insulin resistance. Furthermore, chronic hypercortisol causes hyperinsulin responses to carbohydrate intake. Chronic insulin resistance and overproduction lead to pancreatic exhaustion.

Basic facts about insulin values.

Fasting: This insulin value is elevated in cases of insulin resistance.

Non Fasting: This insulin value varies with type of meal and time of sample collection. See figure 4b. Adapted, Br. J. Nutr. 2003, 90:853 For an after meal insulin, instruct patient to eat 50g of carbohydrate or what is equivalent to 200 calories about 45-90 minutes before noon sample collection. Examples: 2 slices of white bread and 1 cup of orange juice OR 1 cup of cooked oatmeal and 1 cup of orange juice OR 2 ounces of corn flakes snack.

Figure 4a. Insulin Levels

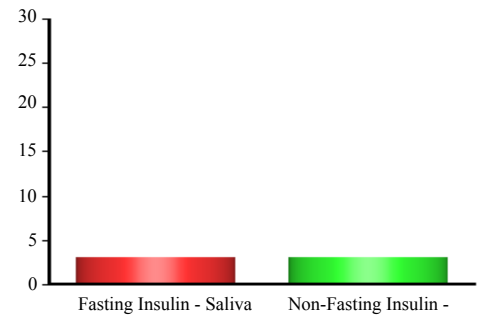
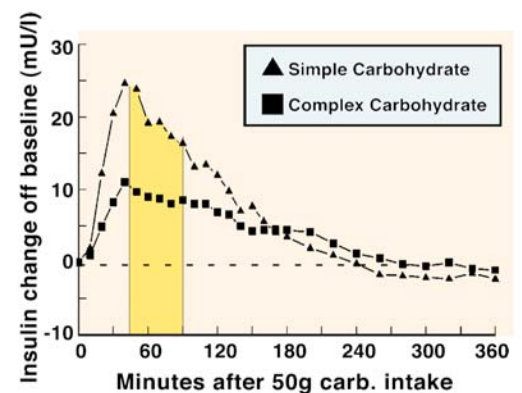


Figure 4b. Serum Insulin - Time Curve



Shaded area is optimal period of post-prandial collection.

Test	Description	Result	Ref Values
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P17-OH

17-OH Progesterone

60

Normal

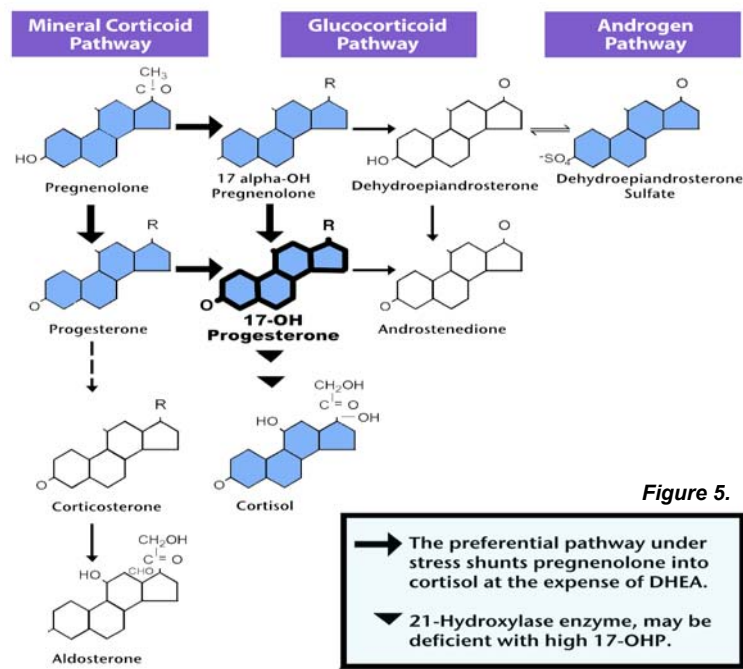
Adults

Optimal: 22-100 pg/ml

Borderline: 101-130 pg/ml

Elevated: >130 pg/ml

Figure 5. Adrenal Steroid Synthesis Pathway



MB2S

Total Salivary SIgA

14

Depressed

A depressed mucosal SIgA may be attributed to one or more of the following reasons:

- 1- Excessive chronic cortisol output causes reduction in SIgA production due to low counts of SIgA immunocytes. Appropriate restorative treatments have been shown to produce incremental improvements in SIgA.
- 2- A short imbalance in sympathetic to parasympathetic activity rapidly inhibits SIgA release from the mucosal immunocytes for several hours.
- 3- Chronic deficits in cortisol and/or DHEA levels.
- 4- Possible systemic deficit in capacity to produce IgA - an inherited problem. Rule out possibility with a serum IgA test. A normal finding rules out this possibility.

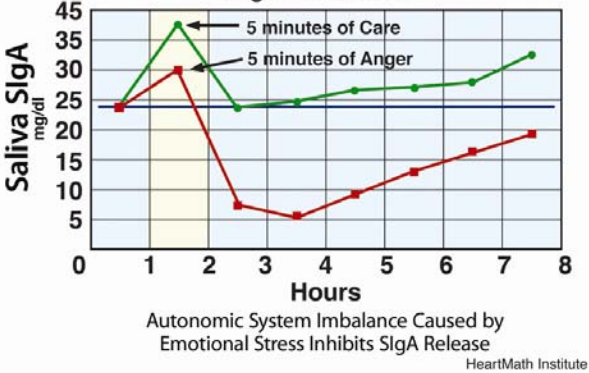
Normal: 25-60 mg/dl

Borderline: 20-25 mg/dl

Basic Facts About SIgA

1. Secretory IgA (SIgA) is secreted by the various mucosal surfaces. It is mostly a dimeric molecule. Less than 2% of Saliva is of serum origin. The secretory component of SIgA stabilizes it against enzymatic and bacterial degradation.
2. The main functions of SIgA include Immune Exclusion, Viral and Toxin Neutralization, Plasmid Elimination, and Inhibition of Bacterial Colonization. SIgA immune complexes are not inflammatory to the mucosal surfaces.

Figure 6. Effect of Emotion on SIgA Release
Anger versus Care



Test	Description	Result	Ref Values
FI4	Gliadin Ab, SIgA (Saliva) 26	Positive	Borderline: 13-15 U/ml Positive: >15 U/ml
	Patient shows mild intolerance or reactivity to Gliadin and may be clinically asymptomatic, however an ongoing low-grade intestinal inflammation following Gliadin intake has been demonstrated.		<u>Notes on Gliadin Ab Test</u> Gliadins are polypeptides found in wheat, rye, oat, barley, and other grain glutens, and are toxic to the intestinal mucosa in susceptible individuals. Healthy adults and children may have a positive antigliadin test because of subclinical gliadin intolerance. Some of their symptoms include mild enteritis, occasional loose stools, fat intolerance, marginal vitamin and mineral status, fatigue, or accelerated osteoporosis. Scan. J. Gastroenterol. 29:248(1994).

Example of restoration Plan

All Examples of Restoration Plans are for Illustrative/Educational Purpose Only. Actual report data should be used within clinical context.

To reduce high cortisol, consider using ACTH-dampening Phosphorylated serine supplements, take one or two capsules between or 15 to 20 minutes before meals within 1 to 2 hours of elevated cortisol time(s).

Consider use of Pantothenic acid, Pyridoxine, zinc, copper, ascorbic acid and free form bioflavonoids as a nutritional support of the adrenal gland. A typical example of a 3 months daily supplementation schedule is:

Pantothenic acid: 500 mg BID

Pyridoxine: 50 mg BID

Elemental Zinc: 10 mg BID

Copper: 1 mg BID

Ascorbic Acid: 1000 mg BID

Free Form Flavonoids: 500 mg BID

Consider use of Biotin, an important cofactor in the maintenance of enzymatic production of cortisol from pregnenolone. Biotin also plays a role in blood sugar stabilization through optimization of glucose phosphokinase activity. A typical example of Biotin supplementation course is:

2000 microg. BID for 3 - 5 months.

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Example of DHEA Augmentation: Female


Weekly Protocol	Oral DHEA		-OR- Sublingual DHEA
	AM Dosage	PM Dosage	Daily Dosage
1st-3rd week	5mg	None	2-3mg <i>once</i> a day
4th-12th week	5mg	5mg	2-3mg <i>twice</i> a day
13th week	Retest DHEA		

Note: DHEA augmentation not applicable in cases of Testosterone & Estrogen associated diseases. Patient-specific treatments to be determined by healthcare providers.

To improve SIgA levels consider two aspects:

- 1) Reduction in suppression when applicable:
 - a. Optimize cortisol/DHEA balance
 - b. Balance sympathetic/parasympathetic activity
 - c. Rule out inherited IgA production deficit
- 2) Production Enhancement may include:
 - a. Exercise program
 - b. Vitamin E complex e.g. wheat germ oil
 - c. Botanical adaptogen supplementation

Example of Gluten Intolerance Management

Positive Gliadin: 15-30 U/ml	Positive Gliadin: >30 U/ml
<ul style="list-style-type: none"> Initially, avoid offending grains for 3-4 months Afterwards, 5th-7th day rotation is permitted 	<ul style="list-style-type: none"> Avoid offending grains altogether Take Vitamin B12 supplements for 1-3 months Take Folic Acid, 5mg/day oral, for 1-3 months
<div> Low tolerance foods:</div> <div> <div>✗ Wheat</div> <div>✗ Oats</div> <div>✗ Barley</div> <div>✗ Rye</div> <div>✗ Spelt</div> <div>✗ Triticale</div> <div>✗ Kamut</div> </div>	<div>Tolerable foods:</div> <div> <div>✓ Corn</div> <div>✓ Arrowroot</div> <div>✓ Barley Malt</div> <div>✓ Millet</div> <div>✓ Tapioca</div> <div>✓ Wheat Grass</div> <div>✓ Rice</div> <div>✓ Wild Rice</div> <div>✓ Barley Grass</div> <div>✓ Taro</div> <div>✓ Buckwheat</div> <div>✓ Amaranth</div> <div>✓ Teff</div> <div>✓ Quinoa</div> </div>

GLUTintol-D10-3-3-05

COURTESY INTERPRETATION of test and technical support are available upon request, to Physicians Only