

# Diagnos-Techs, Inc.

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**Accession # 08-22990**

Received : 03/14/2008  
 Completed: 03/19/2008  
 Reported : 03/19/2008

D  
 P  
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Results For:  
 Number 20  
 Age:68 Sex:Male Dx Code:Not Provided  
 Patient's Tel:  
 Specimen Collected:03/08/2008

Test	Description	Result	Ref Values
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**ASI Adrenal Stress Index**

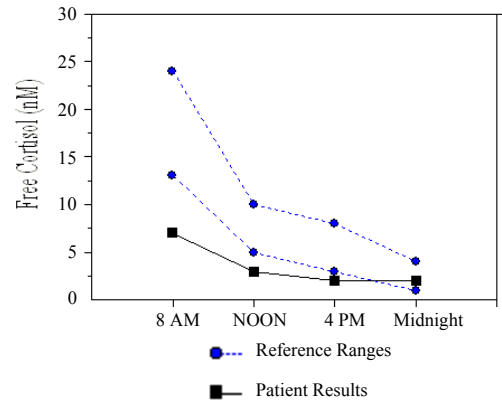
**TAP Free Cortisol Rhythm**

07:00 - 08:00 AM	7 Depressed	13-24 nM
11:00 - Noon	3 Depressed	5-10 nM
04:00 - 05:00 PM	2 Depressed	3-8 nM
11:00 - Midnight	2 Normal	1-4 nM

**Cortisol Burden:** 14 **23 - 42**

The cortisol burden 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 1. Circadian Cortisol Profile**

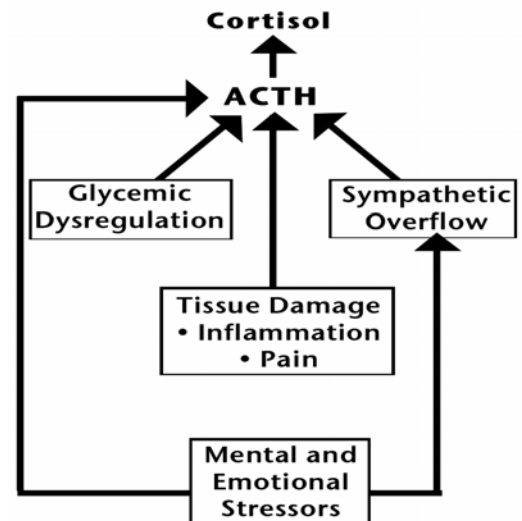


**Figure 2.**

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:** Depressed morning cortisol, < 13 nM, is suggestive of marginal HPA (Hypothalamic-Pituitary-Adrenal) performance. Normal rhythms exhibit highest cortisol value for the day at 7 - 8 AM.

**The Inducers of Cortisol Release**  
 Inducers below must be individually examined for successful restoration of adrenals.



**Figure 2.**

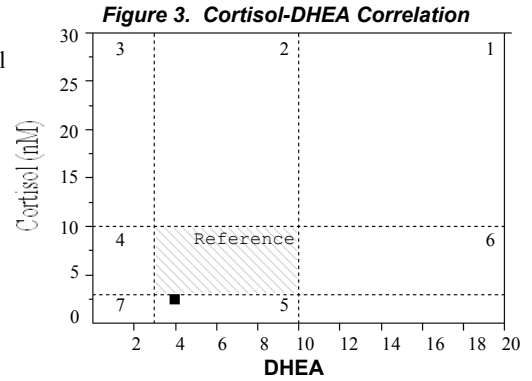
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**DHEA** Dehydroepiandrosterone  
 Pooled Value 4 Normal Adults (M/F): 3-10 ng/ml

Figure 3 shows your cortisol-DHEA correlation was in:

➡ **Zone 5 - Non-adapted, Low Reserves**

This zone represents a suboptimal cortisol output reflecting an adrenal decline or a depleted reserve. The reduced demand for pregnenolone precursor in the cortisol pathway may allow a normal DHEA production. This condition is usually the outcome of chronic and protracted exposure to stressors.



**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**  
 Fasting <3 Normal: 3-12 uIU/mL  
 Post-prandial <3 Depressed Optimal: 5-20 uIU/mL

Depressed Post-prandial 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.

General information about insulin values.

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

Post Prandial: This insulin value varies with type of meal and time of sample collection. See figure 4b. Adapted, Br. J. Nutr. 2003, 90:853 To obtain the most meaningful results, 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.

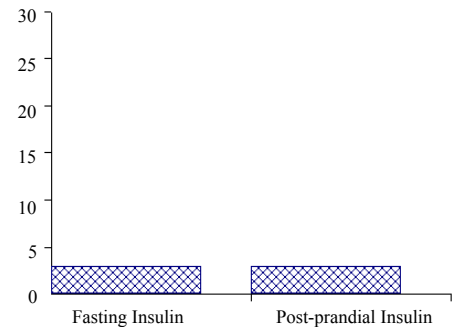


Figure 4a. Insulin Levels

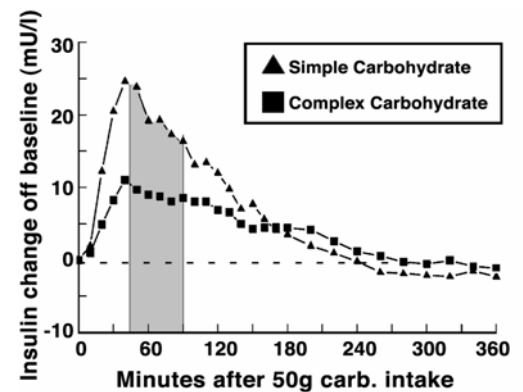


Figure 4b. Serum Insulin - Time Curve

Shaded area is optimal period of post-prandial collection.

Test	Description	Result	Ref Values
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P17-OH 17-OH Progesterone <15

Adults  
 Optimal: 22-100 pg/ml  
 Borderline: 101-130 pg/ml  
 Elevated: >130 pg/ml

Figure 5. Adrenal Steroid Synthesis Pathway

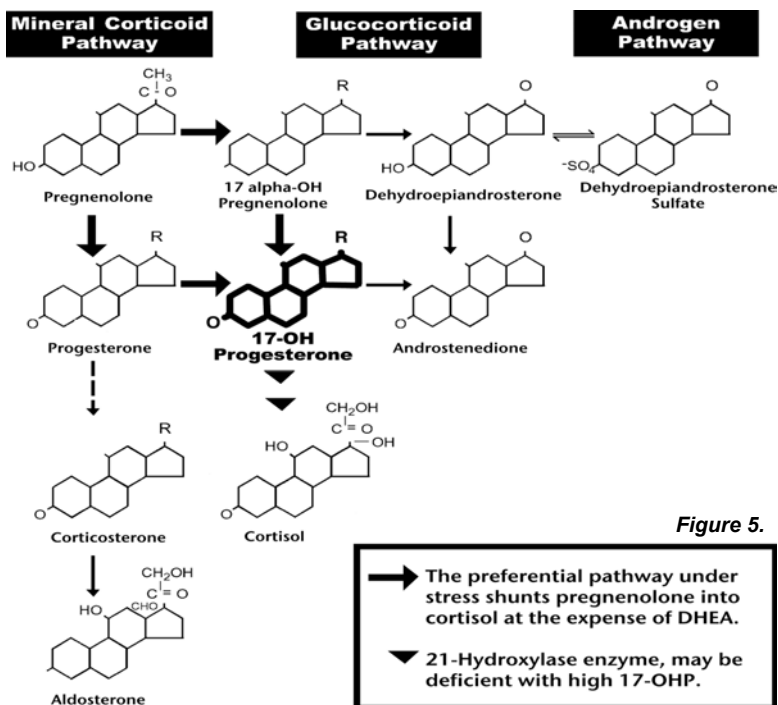


Figure 5.

MB2S Total Salivary SIgA <5 Depressed

Normal: 25-60 mg/dl  
 Borderline: 20-25 mg/dl

**Basic Facts About SIgA**

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

- 1- Excessive chronic cortisol output causes a reduction in the number of SIgA producing immunocytes. Appropriate restorative treatments have been shown to produce incremental improvements in SIgA.
- 2- Excessive sympathetic activity causes inhibition of SIgA release from the mucosal immunocytes.
- 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.

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.
3. Production of SIgA is adversely affected by stress which is mediated by increased cortisol and/or catecholamine levels.

FI4 Gliadin Ab, SIgA 7 Negative

Borderline: 13-15 U/ml  
 Positive: >15 U/ml

**Notes on Gliadin Ab Test**

There is an expected increase in the frequency of false-negatives to Gliadin with decreasing total secretory IgA levels that occurs in IgA suppressed individuals. Contextualize findings into overall clinical picture.

Gliadins are polypeptides found in wheat, rye, oat, barley, and other grain glutes, 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).

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## Example of restoration Plan

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

Consider use of Pregnenolone, the pivotal precursor in production of cortisol and other steroids to replenish adrenal reserves in anticipation of adrenal output recovery. Typical supplementation dose is: 1 mg/kg/day split in two divided doses.

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.

## Example- Cortisol Augmentation or Licorice Supplementation

Observed Cortisol Value(nM)	Intake Time	Typical Cortisol Dose	-OR-	Whole Licorice Extract Glycyrrhizic Acid Content
<b>Morning Value</b>	<b>6-7AM</b>			<b>10-15mg</b>
10-13		5mg		
5-9		7.5mg		
less than 5		12.5mg		
<b>Noon Value</b>	<b>11AM-12PM</b>	7.5mg		<b>5-10mg</b>
less than 4				
<b>Afternoon Value</b>	<b>3-4PM</b>	5mg		<b>5-10mg</b>
less than 3				

\*Do not use licorice in overtly hypertensive individuals. Do not exceed a total daily dose of 25-35mg of glycyrrhizic acid. Re-test by 8th week of use. Avoid use of licorice in pregnant women.

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 supplementation
  - c. Botanical adaptogen supplementation.

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