

Adrenal Insufficiency – The Real & The Mythical

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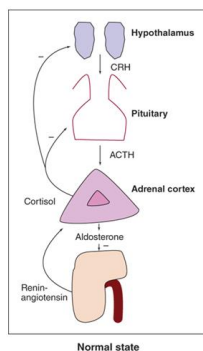
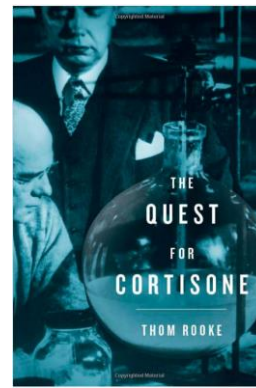
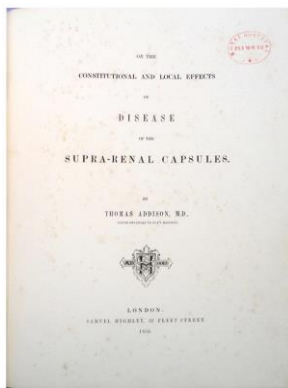
Outline

Adrenal Insufficiency

- Potential causes
- Who to screen
- Labs – what to check and when
- Interpreting results
- Treatment
- Exogenous Steroids

Adrenal Fatigue

- Evidence against
- Talking points with patients



Primary vs Secondary

1° → Problem **inside** adrenals

- Destruction of adrenal cortex: ↓ cortisol & MCs
 - Addison's disease
 - Infectious, TB
 - Malignant
 - Hemorrhage
 - Opportunistic infections
 - Drugs

2° → problem **outside** adrenals

- Pituitary/hypothalamic insufficiency
 - Tumors
 - Radiation
 - Trauma
 - Hemorrhage
 - Inflammation
 - Granuloma
 - Sheehan's syndrome

Exogenous steroids: suppress CRH/ACTH
atrophy of adrenal glands with long term usage

Other drugs causing AI

Inhibition of cortisol synthesis:

- Etomidate, ketoconazole, fluconazole, metyrapone
- AI may develop if limited pituitary/adrenal reserve - usually not with normal HPA axis

Acceleration of metabolism of cortisol and most synthetic GCs

- Phenytoin, barbiturates, rifampin
- AI seen if limited pituitary/adrenal reserve and those with AI on GC therapy

HIT

- Risk of bilateral adrenal hemorrhage that can cause AI

Ipilimumab

- CTLA-4 antibody used for advanced melanoma
- A/w secondary AI, hypogonadism, and hypothyroidism; Primary AI also described

Drugs that primarily suppress CRH or ACTH

• Glucocorticoids

• Megace

- High dose progestin with some GC activity via binding to GC receptor
- Increases appetite with cancer anorexia/cachexia, AIDS wasting
- Pts may be Cushingoid, withdrawal can occasionally cause secondary AI

• Opiates *****

- Chronic administration can cause secondary AI
- Mechanisms poorly understood
- ~ 70% of heroin addicts have impaired cortisol response to CST
- Primary theory → opioids act on neurotransmitters that regulate CRH → suppresses ACTH & cortisol
- Not clear whether and how this should be treated

Symptoms

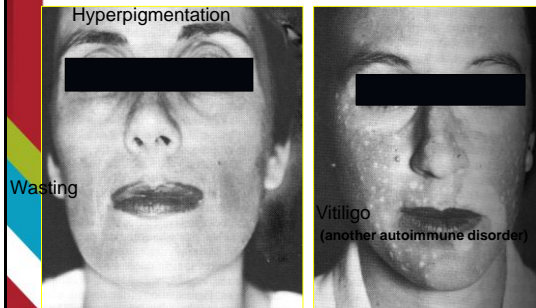
Table 1. Clinical Features of Adrenal Insufficiency and Adrenal Crisis

Symptoms	Signs	Routine Laboratory Tests
Adrenal insufficiency		
Fatigue	Hyperpigmentation (primary only), particularly of sun-exposed areas, skin creases, mucosal membranes, scars, areola of breast	Hyponatremia
Weight loss	Low blood pressure with increased postural drop	Hyperkalemia
Postural dizziness	Failure to thrive in children	Uncommon: hypoglycemia, hypercalcemia
Anorexia, abdominal discomfort		
Adrenal crisis		
Severe weakness	Hypotension	Hyponatremia
Syncope	Abdominal tenderness/guarding	Hyperkalemia
Abdominal pain, nausea, vomiting, may mimic acute abdomen	Reduced consciousness, delirium	Hypoglycemia
Back pain		Hypercalcemia
Confusion		

- Not very sensitive or specific
- Consider with unintentional weight loss, hypotension, or unexplained hyponatremia (esp if a/w hyperkalemia)
- In absence of concomitant conditions like renal/heart/liver failure, weight gain essentially excludes diagnosis of AI

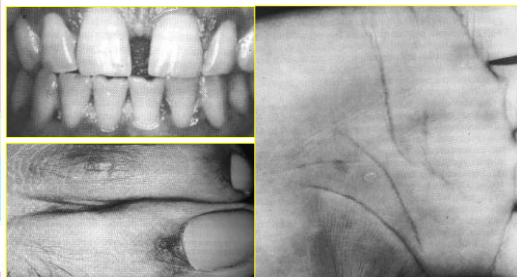
Diagnosis and Treatment of Primary Adrenal Insufficiency: An Endocrine Society Clinical Practice Guideline. JCEM 2016
Endo Society 2016 Meet the Professor. Adrenal Insufficiency, Subclinical and Adrenal Fatigue

Insufficient Cortisol: Signs



Insufficient Cortisol: Signs

Hyperpigmentation in skin creases and mucosa (gingiva)



Diagnosis

Challenging - often insidious onset of nonspecific sx over months – years

Keep the threshold for diagnostic evaluation low

Consider starting with 8AM cortisol

- > 14 → very unlikely
- < 5 suggestive of AI
- AM cortisol values 5-14 g/dL → inconclusive, require additional testing
- ACTH used to distinguish primary v secondary when AM cortisol is < 5

Diagnosis and Treatment of Primary Adrenal Insufficiency: An Endocrine Society Clinical Practice Guideline. JCEM 2016

ACTH Stim Test

- 250mcg cosyntropin
- Can definitively exclude primary AI or longstanding secondary AI
- Cortisol at 30 or 60 minutes > 18 is normal
- **Do not** use change in cortisol as diagnostic criteria –
 - Highly dependent on the basal value, which varies by time of day and clinical status
- Check ACTH with baseline cortisol during stim or with an AM cortisol



Diabetes Center
984100 Nebraska Medical Center
Omaha, NE 68198-4390
402-559-8790
FAX: 402-559-5080

Orders: Adrenocorticotrophic Hormone (ACTH) Stimulation Test

Patient Name: _____ DOB: _____

Indication: _____

1. Insert saline lock IV.
2. 10 mL saline syringe PRN for IV flush
3. Draw the following baseline labs:
 - a. ACTH (collect on ice)
 - b. Plasma cortisol
 - c. Other _____
4. Give cosyntropin 250 mcg IV once over 30 seconds to one minute
5. Patient to be monitored for hypersensitivity reaction for one hour
6. Draw plasma cortisol level at 30 minutes and 60 minutes after administration of medication
7. Discontinue IV and discharge patient

Provider Signature: _____ Date: _____

Printed Name: _____



Diagnosis, cont.

Severe AI sx or adrenal crisis → unstable, unresponsive to fluids/pressors

- Draw blood for random cortisol, ACTH – no stim test
- Immediate tx with stress dose IV hydrocortisone – don't wait for labs!



Insulin Tolerance Test

- Gold standard
- Primarily used for suspected secondary AI and equivocal basal testing
- Give IV bolus of regular, draw cortisol levels q 15 min x 75 min
- Need glc < 40 to interpret an abnormal test
- Normal cortisol responses is > 18 g/dL
- Contraindicated in seizure disorders, significant CVD, inability to verbalize symptoms of hypoglycemia
- Can also eval growth hormone deficiency



Other tests

AM salivary cortisol:

- > 16 nmol/L essentially excludes AI
- < 5 → High probability of AI
 - Has only been used for screening – not fully validated as the only diagnostic test
 - Patients in whom the clinical suspicion is higher or who have low or intermediate values require additional testing

Afternoon/evening serum cortisol measurements —

- At 4 PM, normal serum cortisol ranges from 3 to 10 mcg/dL
- Cortisol is lowest (<5) one hour after usual time of sleep (circadian rhythm in ACTH secretion)
- Of no value in establishing AI dx



Other things to consider

Plasma cortisol 80% bound to CBG, 10–15% to albumin, 5–10% free

Disorders that reduce (rare genetic disorders) or increase CBG levels (estrogen, pregnancy) need to be considered when interpreting plasma cortisol

- Exogenous estrogen (OCPs) → increased CBG → falsely increased cortisol levels – free cortisol levels preferred

Hypoproteinemia

- ↓ plasma cortisol binding, ↑ free cortisol fraction
- In critically ill patients with albumin < 2.5, cosyntropin stimulated total cortisol values as low as 7 can be normal – need free cortisol levels

Higher level of suspicion warranted in patients with compatible sx with autoimmune disorders or on relevant meds



Diagnosis

- Primary AI → ACTH usually 2x ULN
 - Check 21-hydroxylase antibody
 - Consider adrenal imaging
- Secondary → ACTH low or normal
 - Broader pituitary eval to look for other abnormalities
 - Consider MRI pituitary
 - Review possible offending meds
 - Replace cortisol prior to thyroid hormone



Treatment

Hydrocortisone (15–25 mg) in 2-3 divided PO doses/day preferred

- Most physiologic, least likely to cause iatrogenic Cushing's
- Partial secondary AI may require less
- Prednisone not preferred – metabolized to active prednisolone in the liver, which is unpredictable at the smaller doses for AI
- Dexamethasone not advised - risk of Cushingoid sx, harder to titrate
- Sustained release preparations available in Europe
- Highest dose in AM at awakening, the next either in the early PM (2 dose regimen) or lunch and PM (3-dose regimen).
- Later doses can cause insomnia

Labs not suggested to adjust treatment – only clinical response



Diagnosis and Treatment of Primary Adrenal Insufficiency: An Endocrine Society Clinical Practice Guideline. JCEM 2016

Response to GC Therapy

- Use general clinical signs to assess adequacy of replacement
- Adequate tx should improve weakness, fatigue, anorexia, GI sx
- Weight should return to normal
- Hyperpigmentation improves, may not disappear
- Ideal dose → lowest amount needed to provide sense of well-being
- Urine free cortisol not helpful
- ACTH not helpful – often remains high - although low/normal or low suggests over-replacement
- Signs of Cushing's → overtreatment!
 - Supraclavicular fat pads, easy bruising, facial plethora, hyperglycemia
 - Risk of increased bone loss, osteoporosis



Additional Considerations with Primary AI

Mineralocorticoid Replacement

- Indicated if aldosterone deficiency confirmed (90%)
- Fludrocortisone taken qAM - 0.05 – 0.2 mg/day
- Monitor dose with clinical assessment (salt craving, postural hypotension, or edema), and electrolytes
- Adequate replacement → normal BP without orthostasis, normal Na and K
- Overtreatment → HTN, low K



Diagnosis and Treatment of Primary Adrenal Insufficiency: An Endocrine Society Clinical Practice Guideline. JCEM 2016

Additional Considerations with Primary AI

DHEA

- Consider 6 mo trial in women with low libido, depressive sx, and/or low energy levels despite optimized GC and MC tx
- Aim for mid-normal AM DHEA levels

Periodic screening for autoimmune diseases

- Optimal frequency of screening unknown
- Thyroid disease, DM, premature ovarian insufficiency, celiac disease, and autoimmune gastritis with B12 deficiency



Stress Dosing/Patient Education

- Educate about adjusting meds during stress
- Home management of illness with fever:
 - Double (>38°C) or triple (>39°C) until recovery (usually 2-3 days)
 - Increase electrolyte-containing fluids as tolerated
- If unable to tolerate PO – need home IM or IV GC replacement
 - All need a GC injection kit
- Steroid emergency card
- Medical alert ID



Stress Dosing

- Planned surgeries → 50mg IV HC, then 25mg IV q 6 until able to take PO
- MC dosing may be suspended during high dose HC
- Dental procedures, colonoscopies, and minor surgeries < 2 hours
 - Doubling AM oral dose preop usually sufficient
- Major surgery with general anesthesia, trauma, ICU stay → stress dose IV HC (50 IV q 6), IVF



Case #1

44 yo F with PMH pertinent for hypothyroidism

- November → hospitalized for N/V, noticed hands and face were darker
- December → lightheaded, nauseous, dizzy, could work only 1 hr
 - Put on Topamax for migraines, anxiety meds increased
 - Skin continued to darken, including stomach and chest
 - Lost 65 lbs in 3 months. Couldn't eat 2/2 nausea.
- Recurrent sinusitis – felt much better while on steroid bursts
- Father with RA, pulmonary fibrosis
- Hospitalized in Jan for N/V, AKI, dehydration, hypotension
- All cortisol < 3, but dex given in ED prior to labs
- Hyponatremic, hyperkalemic
- Discharged on HC 10-5-5 due to high suspicion – labs pending



Case #1, cont.

- ACTH returned > 900, 21-hydrox ab 19 (normal <1)
- HC continued. In f/u she endorsed persistent light headedness, dizzy spells, poor appetite, salt craving, nausea.
 - Started flornidol 0.1mg daily, increased to 0.2mg
 - Increased HC dose with no improvement
- Sx improved but not back to baseline until DHEA started, 25mg daily
- Backed HC down to 10-5-5
- Back to working full days



Case #2

70 yo M presents with worsening fatigue, joint pain, lightheadedness.

AM cortisol 3.1

Denies oral, topical steroids

Later mentions he sees a provider for regular back injections for the last 4 years, although he doesn't know what is in the shots.

Usually goes every 3 months but had to miss his last appointment



Exogenous Steroids

- All exogenous glucocorticoids, regardless of dose and route, can suppress HPA axis
- Endogenous cortisol deficiency occurs in 50% receiving intra-articular or oral GCs
 - May even be present in 5–10% of patients on inhaled or topical steroids
- HPA axis suppression occurs with doses of prednisone > 5mg/day
- Degree of suppression varies, hard to predict
- Severity of side-effects usually relates to dose and duration of therapy, but there is marked individual variation



Greenspan's Basic & Clinical Endocrinology

Endo Society 2016 Meet the Professor: Adrenal Insufficiency, Subclinical and Adrenal Fatigue

Exogenous Steroids

- Assume clinically significant axis suppression if:
 - Clinical sx of Cushing's
 - Receiving 10-20mg of pred/day x > 3 weeks
- Even after doses have been decreased to physiologic levels, axis suppression persists average of 9-10 months, may continue for 1-2 years
- Taper steroids as the clinical situation permits – no clear guidelines available
- Disease recurrence may limit ability to taper
- Steroid withdrawal syndrome can present with fatigue, arthralgias
- Psychologic dependence has also been described
- Arthritis remedies purchased online may have various synthetic corticosteroids
- Synthetic glucocorticoid screen (Mayo) if suspect AI from exogenous steroids



Case #3

63 yo M with Churg Strauss, dx 2013. On Azathioprine and prednisone since dx, prednisone doses ranged 5-30mg daily. 5 mg daily was typical. Stopped completely in March 2017, rheum hoping to manage him with rituxan alone. Shortly experienced worsening fatigue, joint pain, eczema. Prednisone restarted, sx resolved.

Options

- Taper pred slowly by 1mg/month, or as tolerated
- Transition to HC equivalent in divided doses, taper based on 8AM cortisol after skipping PM dose

Assessing underlying axis

- HC 100% reflected in cortisol assay
- Dex 0%
- Prednisone 10-20%
- Switch to equivalent dose of HC (2-3x/day)
- Hold PM dose
- Check 8AM cortisol
- If > 10, continue to taper HC

Equivalent Dose	Steroid
1.2 mg	Betamethasone (long-acting)
1.5 mg	Dexamethasone (long-acting)
8 mg	Methylprednisolone (intermediate-acting)
8 mg	Triamcinolone (intermediate-acting)
10 mg	Prednisone (intermediate-acting)
10 mg	Prednisolone (intermediate-acting)
40 mg	Hydrocortisone (short-acting)
50 mg	Cortisone (short-acting)

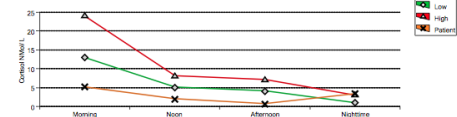
Case #4

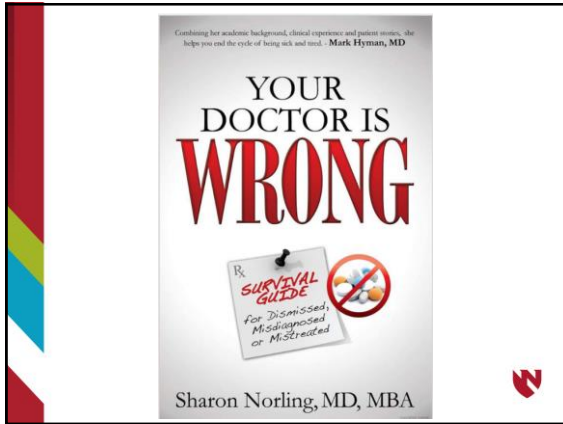
55 yo F with fatigue, poor sleep and weight gain presents for second opinion.

Another provider performed a salivary cortisol profile and 2 values were slightly out of range. Given diagnosis of adrenal fatigue. Supplements only available at their office were recommended.



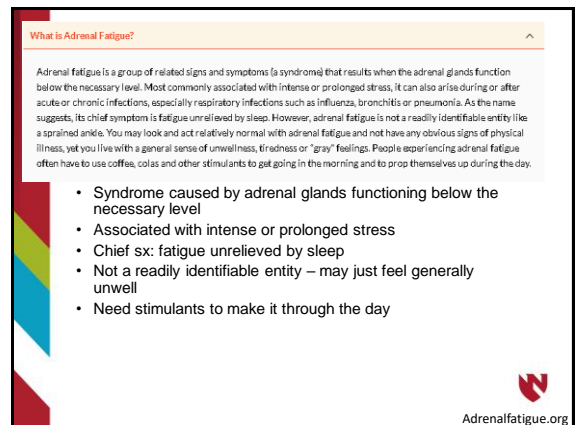
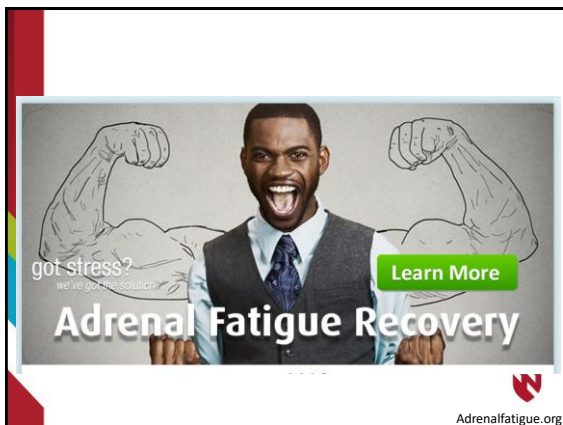
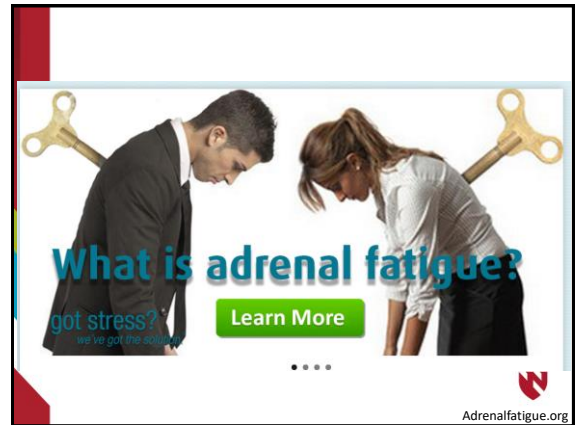
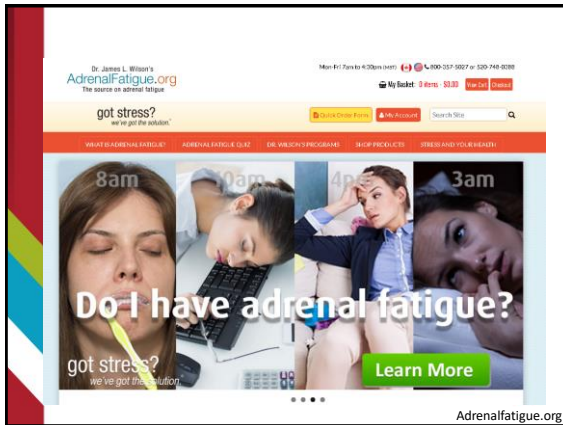
Parameter	Result	Reference Range	Units
Cortisol - Morning (6 - 8 AM)	5.2*	13.0 - 24.0	nM
Cortisol - Noon (12 - 1 PM)	1.9*	5.0 - 8.0	nM
Cortisol - Afternoon (4 - 5 PM)	0.6*	4.0 - 7.0	nM
Cortisol - Nighttime (10 PM - 12 AM)	3.4*	1.0 - 3.0	nM
Cortisol Sum	11.0*	23.0 - 42.0	nM
DHEA-S Average	2.86	2.0 - 10.0	ng/mL
Cortisol/DHEA-S Ratio	3.9*	5.0 - 6.0	Ratio





Adrenal Fatigue

- Website of chiropractor and naturopath James L. Wilson, DC, ND, PhD, says he coined the term adrenal fatigue in 1998 "to identify below optimal adrenal function resulting from stress and distinguish it from Addison's disease."
- Website notes that "conventional medicine does not yet recognize it as a distinct syndrome."



If a doctor says there is no such illness as adrenal fatigue, what options do patients have?

Unfortunately, this is the view of many conventional doctors, but they are not as well informed as they believe. Stress-related low adrenal function was recognized over one-hundred years ago and has been successfully treated for decades. However, for various reasons the medical community has ignored the existence of this problem over the past forty years. The best thing you can do is learn as much as possible about how to alleviate your adrenal fatigue and support your adrenals through lifestyle and nutritional modifications. There is a wealth of helpful information in the book, *Adrenal Fatigue: The 21st Century Stress Syndrome* and on this website. It may also help to switch to a doctor who is familiar with adrenal fatigue or give the uninformed doctor a copy of the book. Hopefully, within ten years many more physicians will know how to recognize and treat adrenal fatigue.

Is adrenal fatigue common?

Although there are no recent statistics available, Dr. John Tintera, a medical doctor who specialized in low adrenal function, said in 1969 that he estimated that approximately 16% of the public could be classified as severe, but that if all indications of low cortisol were included, the percentage would be more like 66%. This was before the extreme stress of 21st century living, 9/11, and the severe economic recession we are experiencing.

- Buy the book
- Buy your doctor a copy of the book
- In 1969, 66% were suffering from this – prior to stress of 21st century living, 9/11 and economic recession



Adrenalfatigue.org

What causes adrenal fatigue?

- disease states such as severe or recurrent infection or illness
- physical stress such as surgery, poor nutrition, addiction, injury or exhaustion
- emotional/psychological stress from relationships, work or other unavoidable situations
- continual and/or severe environmental stress from toxic chemicals and pollutants



Adrenalfatigue.org

Adrenal Fatigue Quiz

I often have difficulty getting up in the morning.	<input type="text" value="Select one"/>
I need caffeine to wake up and keep going all day.	<input type="text" value="Select one"/>
I'm tired for no reason.	<input type="text" value="Select one"/>
I'm not having fun anymore - everything seems like a chore.	<input type="text" value="Select one"/>
I crave salty and/or sweet snacks.	<input type="text" value="Select one"/>
My sex drive is noticeably less than it used to be.	<input type="text" value="Select one"/>
I feel run down and stressed.	<input type="text" value="Select one"/>
It's hard to bounce back from illness or other stresses.	<input type="text" value="Select one"/>
I'm having trouble keeping up with the demands of my daily life.	<input type="text" value="Select one"/>

Get My Result!

3 or more --> take a more detailed quiz



Adrenalfatigue.org

General Rules for Adrenal Fatigue

Below are some general rules to follow and things to avoid to help you recover from adrenal fatigue.

Do These Things

- Be in bed before 10:00 PM.
- Sleep in until 9:00 AM whenever possible.
- Look for things that make you laugh.
- Eliminate the energy robbers (things in your life that drain your energy).
- Make your lifestyle a healing one.
- Do something pleasurable every day.
- Notice at least one small, everyday thing that you are grateful for each day.
- Take your dietary supplements regularly.
- Move your body and breathe deeply.
- Believe in your ability to recover.
- Use your mind as a powerful healing tool.
- Keep a journal – jot down your experiences each day.
- Eat the foods your body needs.
- Learn which foods make you feel bad (keep a list) and avoid them.
- Try having a glass of water in the morning containing 1/4 to 1 teaspoon of salt (start in until dissolved).
- If you are to have fruit, have something with salt before or after the fruit and chew very well.
- Combine starchy carbohydrates, protein and fats at every meal.



Adrenalfatigue.org

- Eat an abundance of whole foods – those foods which are eaten like nature grows them.
- Eat lots of colored vegetables.
- Chew your food well.
- Take the power and responsibility of your health into your own hands.
- Make whatever lifestyle changes you need to make to regain your health.
- Laugh several times per day.
- Enjoy your recovery.
- Take 1,000 mg. of Vitamin C complex with 200 mg. magnesium and pantothenic acid at approximately 2:00 PM every day along with a small snack in order to help avoid the 3:00 to 4:00 PM lull.

** If this makes you feel better, continue doing it. Note on mornings when you exercise fully, you may not want as much salt. Be mindful of your cravings for salt and potassium containing foods during the day. These desires may serve as rough indicators of adrenal function during the day.*



Adrenalfatigue.org

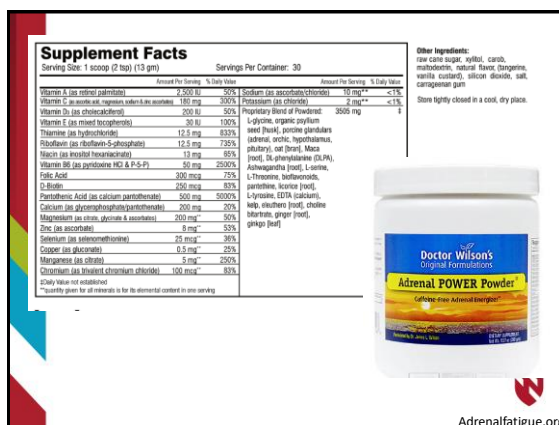
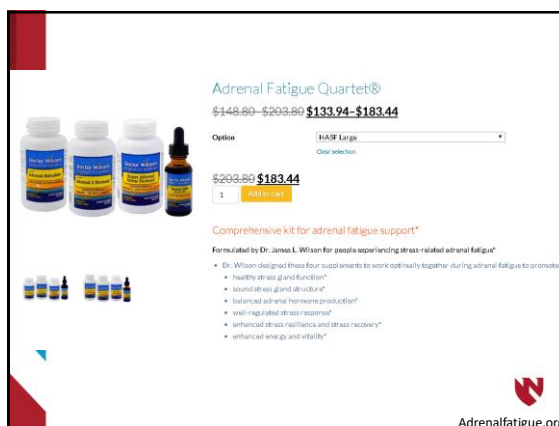
Avoid These Things

- Getting overtired
- Caffeine, sugar, alcohol, and white flour products
- Coffee, even decaf
- Staying up past 11:00 PM
- Pushing yourself
- Energy suckers (people, places and things that make you feel worse or discourage your recovery)
- Being harsh or negative with yourself
- Feeling sorry for yourself
- Foods you are addicted to
- Foods you suspect an allergy or sensitive to
- Foods that make you feel worse, cloud your thinking or pull you down in any way
- Never skip breakfast.
- Avoid fruit in the morning.
- Never eat starchy carbohydrates (breads, pastas) by themselves.
- Do not eat foods that adversely affect you in any way, no matter how good they taste or how much you crave them.

Adrenalfatigue.org

- "Dr. Wilson's Original Formulations" adrenal supplements
- "Adrenal Fatigue Quartet" costs about \$200 for a 30-day supply at the minimum recommended doses

- Website notes in large print → products are “formulated by Dr. James L. Wilson for people experiencing stress-related adrenal fatigue.”
- Asterisks and small print:
 - “This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.”



Severe Adrenal Fatigue Protocol

Time	Adrenal Rebuilder®	Adrenal C Formula®	Super Adrenal Stress Formula®	Herbal Adrenal Support Formula®
On rising	2 caplets	2 caplets	2 caplet	15 drops in water or non-citrus juice
Noon meal	1 caplet	2 caplets	1 caplet	10 drops in water or non-citrus juice
2:30 PM	1 caplet	1 caplet	1 caplet	10 drops in water or non-citrus juice
Bedtime	2 caplets	1 caplet	1 caplet	15 drops in water or non-citrus juice

Adrenalfatigue.org

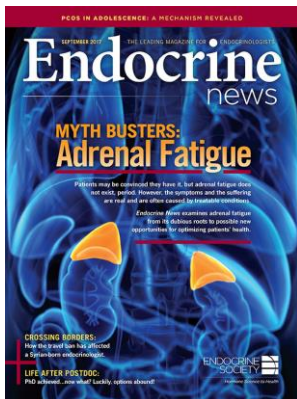
Adrenal Recovery Soup

The following vegetable soup recipe has proved helpful in adrenal support. It is rich in minerals and alkalizing to help balance the acidity that usually occurs in people experiencing adrenal fatigue and stress. It has a calming, settling effect. This soup, called "Taz," comes from Dolores S. Downey's "Balancing Body Chemistry with Nutrition" seminars.

- 16-oz. green beans
- 1 cup chopped celery
- 1 zucchini, sliced
- 1 medium onion, chopped
- 1 cup tomato juice
- 1 cup spring water
- 2 tbsp. raw honey
- 1 tsp. paprika
- 1 cup chicken broth

Combine ingredients and simmer for one hour until vegetables are tender. Pepper to taste.

Adrenalfatigue.org



Adrenal Fatigue

- Concept promoted by integrative and naturopathic medicine based on salivary cortisol day curves
- Reference ranges are arbitrary, very narrow - most have at least one measurement outside the "normal" range
- Patients often provided with "adrenal support," some actually given glucocorticoids based on salivary cortisol day curve results
- Few, if any, have any biochemical evidence of cortisol deficiency
- Premise → constant stress puts undue burden on the adrenal glands to produce hormones — especially cortisol — and the glands burn out
- Leads to fatigue and need for stimulants to get through the day

Endo Society 2016 Meet the Professor. Adrenal Insufficiency, Subclinical and Adrenal Fatigue
The Myth of Adrenal Fatigue. Endocrine News, Sept 2017

Adrenal Fatigue

- With many people feeling stressed and sleep-deprived, the appeal of this diagnosis is that it promises an explanation and treatment for fatigue
- No scientific evidence to support the existence of adrenal fatigue
- The idea that chronic stress - physical or psychological - may down regulate the HPA axis is not supported by any good clinical science
- Under stress, adrenals work harder and make more cortisol, not less

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Adrenal Fatigue

- Literature review published last year in *BMC Endocrine Disorders* found "no substantiation that 'adrenal fatigue' is an actual medical condition. Therefore, adrenal fatigue is still a myth."
- Not recognized by any endocrinology society
- Patients with chronic fatigue syndrome have not been shown to have any consistent dysregulation of pituitary-adrenal function
- Well-designed RCTs assessing the use of hydrocortisone in CFS have shown only short-term benefit

Endo Society 2016 Meet the Professor. Adrenal Insufficiency, Subclinical and Adrenal Fatigue

Adrenal Fatigue

- Reported symptoms of adrenal fatigue do not match those of adrenal insufficiency, although there is some overlap.
- Adrenal fatigue symptoms are mostly nonspecific:
 - Feeling tired or fatigued to the point of having trouble getting out of bed
 - Poor sleep
 - Feeling anxious, nervous, or rundown
 - Craving salty and sweet snacks
- Whereas sx of chronic adrenal insufficiency include:
 - Weight loss
 - Joint pain
 - Anorexia, N/V, diarrhea
 - Low BP
 - Fatigue

The Myth of Adrenal Fatigue. Endocrine News, Sept 2017

Adrenal Fatigue

- When patients present claiming that stress has worn out their adrenals, it can be easy to discount their belief in "adrenal fatigue," but they often have real symptoms that require treatment
- Reported symptoms should be taken seriously
- Explain that while you are open to complementary medicine, the adrenal fatigue explanation does not fit your understanding of how the adrenal glands work and salivary tests are not considered reliable.
- Take a careful history, investigate the causes of each symptom or group of symptoms
- Exclude anemia, OSA, IBS, depression or anxiety, diabetes, other systemic illness, poor diet, stress at work or home

The Myth of Adrenal Fatigue. Endocrine News, Sept 2017

Adrenal Fatigue

- ACTH stim → if normal, shows that adrenals can respond to the stimulation by releasing cortisol, and disproves theory that glands are burned out
 - Do this off supplements!!
- Dr. Neiman →
 - Generalized symptoms can be 'couch potato syndrome,' – people get deconditioned if they don't exercise.
 - 'Life is hard syndrome.' People become stressed to the point of not taking care of themselves
- Recommendations of naturopaths have value when they emphasize eating a healthier diet, getting enough rest, exercising, and eliminating negative things from their lives

The Myth of Adrenal Fatigue. Endocrine News, Sept 2017

Adrenal Fatigue - Supplements

- Not regulated or approved by the FDA - no way to know what is in them
- Some contain ground up bovine adrenals
- Patients should be advised to discontinue these
- Use this visit to optimize a patient's health – focus on diet, exercise, sleep hygiene – which can improve these symptoms
- Listen and validate sx
- "I really don't think your adrenals are actually failing, but I think some of your problems are reversible."

Cadeagliani and Kater BMC Endocrine Disorders (2016) 16:48
DOI 10.1186/s12902-016-0128-4

BMC Endocrine Disorders

RESEARCH ARTICLE

Open Access

Adrenal fatigue does not exist: a systematic review

Flavio A. Cadeagliani and Claudio E. Kater*

Abstract

Hormone.org

- Hormone Health Network, affiliated with Endocrine Society

HHN pearls on adrenal fatigue

- No scientific proof exists to support adrenal fatigue as a true medical condition.
- If you are told you have this condition, the real cause of your symptoms may not be found and treated correctly.
- Treatment may be expensive; insurance companies are unlikely to cover the costs.
- If you are advised to improve your lifestyle, starting an exercise program, eating healthy foods, and following a daily routine for sleeping and waking will almost always make you feel better, no matter what the medical diagnosis.
- Supplements or vitamins sold as a treatment for adrenal fatigue could hurt you. Many of these supplements have not been tested for safety.

<http://www.hormone.org/diseases-and-conditions/adrenal/adrenal-fatigue>



HHN pearls on adrenal fatigue

- If you take adrenal hormone supplements when you don't need them, your adrenal glands may stop working and become unable to make the hormones you need when you are under physical stress.
- Symptoms of fatigue, weakness, or depression could indicate medical issues such as adrenal insufficiency, depression, sleep apnea, or other health problems.
- Getting a real diagnosis is very important to help you feel better and overcome your health problem.

<http://www.hormone.org/diseases-and-conditions/adrenal/adrenal-fatigue>



Mayo Clinic

"It's frustrating to have persistent symptoms your doctor can't readily explain. But accepting a medically unrecognized diagnosis from an unqualified practitioner could be worse. Unproven remedies for so-called adrenal fatigue may leave you feeling sicker, while the real cause — such as depression or fibromyalgia — continues to take its toll."

<http://www.mayoclinic.org/diseases-conditions/addisons-disease/expert-answers/adrenal-fatigue/faq-20057906>



Conclusions

- With the exception of axis suppression by exogenous steroids, AI is rare.
- Probability of AI is low in the absence of features like hyperpigmentation, hypotension, hypoglycemia, vitiligo, known pituitary disease, weight loss, and anorexia.
- If a diagnosis is made, the etiology needs to be pursued because this may have additional consequences
- A diagnosis of AI carries profound implications: life-long replacement therapy, medical alert identification, increased risk of death.
- Do not label someone with this diagnosis unless you are absolutely certain.
- Adrenal fatigue does not exist
- Sleeping more, eating better and exercise make everyone feel better
- It can be easy to discount beliefs in "adrenal fatigue," but patients often have real symptoms that require treatment - reported symptoms should be taken seriously

Endo Society 2016 Meet the Professor. Adrenal Insufficiency, Subclinical and Adrenal Fatigue

