

Adrenal Fatigue

And other hormones
By Dr. Rachel West

Yes Dr. West...my child ...

- Loves sweets or simple carbs(bread, pasta, cereal)
- Licks salt off foods or his sweat
- Has poor weight gain, or is too heavy
- Has low muscle tone
- Has dark circles under eyes
- Has allergies, colitis, eczema, asthma
- Has insomnia, is hyper, is fatigued
- Does not heal from viruses quickly

Lets learn about adrenals

- These symptoms may be related to adrenal imbalance!
- So many of us have this fatigue—ever hear of Starbucks? Quite a successful company! So many of us depend on superficial forms of energy because our adrenals are imbalanced. This causes many other imbalances internally

Adrenals and cortisol

- The adrenal glands sit above the kidneys
- The adrenal cortex almost exclusively produces cortisol
- The cortisol levels are highest in the morning(6-8) to wake us up, so sunshine, activity and a bite of food stimulates cortisone production
- Cortisol is lowest in evening to prepare us for sleep. Growth hormone and melatonin suppress cortisol at night to help us sleep
- Being alive means experiencing the "stress" of waking every day, which takes cortisol
- It is important to have enough cortisol to handle the amount of stress in our life. If you sit in meditation all day, you need less cortisol.

Definition clarification

- Glucocorticoids—family name for hormones both natural and synthetic that can raise glucose and prevent hypoglycemia
- Cortisol—bodies most potent glucocorticoid (endogenous(also a mineralocorticoid))
- Hydrocortisone—medication containing exogenous cortisol
- Cortisone =natural precursor to cortisol and has 80% of cortisol activity. It is the storage form of cortisol. A cortisol/cortisone ratio of .7 or higher indicates adrenal reserve
- Prednisone, prednisolone, methylprednisone, dexamethasone and betamethasone—synthetic derivatives of cortisol to increase its properties

3 properties of cortisol that keep us alive

- Increases blood sugar, thus energy and blood pressure
- Neutralizes inflammation(the body's strongest antiinflammatory))thereby enhancing mood, dynamism, work capacity, stress resistance, anti-rheumatic, anti-pain,
- Calms excessive activity of the sympathetic nervous system that produces adrenaline, the stimulating neurotransmitter responsible for emotional outbursts

How the adrenals are stimulated in body

- The hypothalamus in the brain secretes CRH
- This stimulates pituitary gland in the brain
- Pituitary releases ACTH
- This stimulates the adrenal glands(above the kidneys)
- Adrenal cortex release cortisol
- The cortisol affects systemic organs and feeds back to the hypothalamus to say slow down

Stressors of the adrenal glands

- Anger/fear/worry/anxiety/depression/guilt
- Overwork physical or mental
- Sleep deprivation
- Excessive exercise
- Light cycle disruption/late hours
- Surgery/accidents/trauma/injury
- Noise
- Inflammation and pain
- Toxic exposure/chemical/heavy metals
- Malabsorption/maldigestion/nutritional deficiencies
- Allergies-food and environmental
- Mold
- Temperature extremes
- EMR/radiation/geophysical

General adaptation Syndrome-how we adapt to stress

Alarm reaction—first reaction to stressor—resistance diminished
Resistance stage—alarm gone and resistance increase as we adapt to the stress
Exhaustion stage—long exposure wears down body resistance, adaptation energy gone, alarm signs reappear, body closes down.

Progression of adrenal fatigue

- Stage 1—cortisol runs high, dhea(in adults) dives down and pregnenolone normal, so we start to steal pregnenolone to feed the cortisol pathway
- Stage 2-cortisol, dhea and pregnenolone are all lowering(bc we started stealing the pregnenolone)
- Stage 3-cortisol, dhea and pregnenolone are all low

Stage 1

- So we get these hormones from the breakdown of our fats, which, as we know may already be low in cases of malabsorption.
- As our need for cortisol goes high in response to stress we see: overvoltage, agitation, euphoria, creating stress and drama
- Cortisol too high causes bone loss, low growth hormones, low muscle strength, loss of calcium in urine from the bone

Chronic stress(high cortisol) response causes

- Low insulin sensitivity
- Low glucose utilization
- Higher blood sugar
- Bone loss
- Fat accumulation
- Protein breakdown increased
- Salt and water retention(bloated in face)
- Low secretory IgA(stool test)
- Inc antigen penetration
- Inc IgG circulating
- Lower NK cell activity (to fight viruses)
- Low interleukin 2
- Low T lymphocytes

Stage 2

- So now we have been stressed for some time and are using up our stores of stress hormones. As cortisol and pregnenolone lower, it is important to begin to supplement them, to prevent failure

Stage 3 and failure

- As cortisol and pregnenolone are lowered, symptoms of low levels will be present
- They must be supplemented to correct the imbalance.

Low pregnenolone

- Pregnenolone is indicated for MEMORY
- It is the king of all the hormones
- It is the first hormone our fat(cholesterol) turns into.
- Cholesterol testing on many of the kids has proven to show low levels.
- I have tested many low pregnenolone levels on my kids, and they are often low
- Pregnenolone turns into progesterone which is calming, anti-anxiety and aids in sleep

LOW Cortisol—childhood symptoms

- Thinner narrow face
- Thinner narrow body
- Ear, nose and throat infections
- Allergies, including skin rashes, food all, asthma
- GI troubles including colitis and liver
- Excessive emotions, anger/irritability/outbursts
- Anorexia, difficulty to make eat except sweets

Low cortisol-mental and emotional

- Anxiety in stressful situations
- Depression in stressful situations
- Extreme moodiness
- Confusion, absentmindedness, especially in stress
- Poor resistance to stress, experiencing stress as too much, as unfair
- Excessive compassion for others pain, and sensitivity to human suffering
- Irritability
- Negativism
- Victimization
- Paranoid, quarrelsome, accusatory
- Excessive emotions, outbursts of anger/anxiety, panic attacks
- Frequent screaming or yelling
- Sharp verbal retorts, strong dramatized words
- ***remember these are due to adrenaline, high catecholamines, low blood sugar and inflammation

Physical complaints

- Thin, underweight, difficult to gain
- Sometimes obesity bc of sugar and salt cravings
- Hair loss
- Headaches w stress
- Skin rashes-eczema, psoriasis, vitiligo, cheloids, brown spots, Tan easily
- Myalgias(muscle cramps), tendinitis, arthritis
- Inflammatory diseases(acute allergies, conjunctivitis, otitis, rhinitis, pharyngitis, asthma, food allergies)(chronic rheumatic and connective tissue)
- Prone to bacterial and viral infections
- Intolerant to meds
- Excessive sensitivity to pain
- Digestive inflammation-nausea, colitis, bloating, diarrhea
- Hunger attacks, sweet and salty craving
- Decreased appetite, esp for meat
- Difficult to function after emotional outburst, burned out, empty, head distracted, absentminded, daydreaming, vertigo, fatigue, low energy during stressful situations

Signs of low cortisol

- Thin, but obese if after years of sugar craving
- Hair loss
- Painful sinuses, hollow cheeks, yellow-brown face, brown spots (from acth)
- Rhinitis, otitis, pharyngitis, tonsillitis
- Swollen lymph,
- Bloating abd, colitis
- Heavy sweating in armpit
- Brown elbow folds and armpits and skin folds in palms
- Wet palms and soles
- Hypermobile joints, sitting into joints
- Low blood pressure

Signs cont

- Nervous and irritable
- Victim language and accusatory
- Melodramatic sharp verbal negative/aggressive retorts (terrible, horrible, impossible)
- Wheezing, fast heart rate, low blood pressure, high if stressed
- Painful muscles and tendons, joints inflamed, rheumatoid
- Painful spleen
- Skin rashes inc eczema, psoriasis. Vitiligo, cheloids, dark scars, cheloids, brown spots in buccal mucosa, brown skin folds

Tests

- 1) blood-total cortisol, CBG (transcortin), free cortisol, ACTH,
- -morning, afternoon eve
- -ACTH stim test (1ug of ACTH injected)
- 2) 24 hr urine for cortisol and total corticosteroids, 17-hydroxysteroids
- 3) saliva tests-morn, noon, eve, night
- 4) progesterone, pregnenolone
- 5) DNA gene test ACE mutation
- Dhea-sulfate in adults

Treatments for low cortisol to raise it

- Glandulars—adrenal gland—cortex
- Cortisone
- Prednisolone
- Methylprednisolone
- Dexamethasone
- Pulmicort (budesonide)
- Pregnenolone if low to feed the path, esp if memory problems
- Progesterone if low, esp if anxiety/hyper/insomnia
- Extra minerals throughout the day to help hydrate body and restore minerals lost in urine from high cortisol (why kids lick salt and sweat) dead sea salt baths and sea salt helpful. Potassium esp helpful
- Fix why the adrenals are tired (root cause)
- Patient will crave bites of carbs throughout the day to boost cortisol bc it is boosted every time we put food in our mouth (grator)—always hungry until levels of cortisol are sufficient
- Make sure patient rests—restore and renew—use melatonin

Alternative treatments

- Adaptogens help move cortisol throughout the pathways and can help adrenals.
- -ashwaganda
- B5-pantothenic acid
- Ginseng
- Rhodiola
- Schizandra berry
- Reishi mushrooms
- Maca root
- Balancing blood sugar in general (lipoic acid, chromium)

Balance blood sugar

- Exercise
- Fiber
- Phytonutrients
- Insulin sensitizing-lipoic acid, chromium, vanadium, cinnamon
- Eat meals

High dose prednisone treatment-a new option

- So we talked about prednisone as a form of cortisone above
- A website www.aheadwithautism.com writes of a protocol being used by some neurologists
- Daily protocol-2-3mg/kg 1-2x/day for 2 months then wean for 4 months
- Pulse-10mg/kg pill or suppository given over 24hrs every 4-5 days or 50-75-100mg fri and sat for 2-3 months then weaned over 4-6 months
- Check urine glucose, blood potassium, blood electrolytes throughout
- It may take 4-8 weeks for improvement
- It may be repeated again
- I have started 3 families on this who seem to have all been helped. Refer to the website for more details
- This is interesting, bc it is in line with the concepts of this lecture

Lowering cortisol for bedtime or too high values as in level 1

- Melatonin and growth hormone lowers it
- Phos serine
- Progesterone supports the pathway and is calming for bedtime
- L theanine
- Skull cap
- Ashwaganda (regulates it)
- Pregnenolone (bc being stolen)
- Dhea (if past puberty)
- Calming herbs
- Licorice (decrease cortisol and converts to cortisone for storage)
- Massage, relaxing stretching, relaxing music

Other regulators

- Sunlight (esp in am), small frequent meals, frequent mineral intake, paleolithic diet, protein
- Avoid milk, grains, sugar and sweets, vinegar, caffeine, alcohol, chronic stress, OCP

Too much

- Emotional, agitated, euphoric, insensitive to suffering, craves and creates stress for others, insomnia, swollen hands, face and feet, petechiae, high blood pressure, atrophic skin

Problem solving

- Lower dose if agitated versus others
- Make sure to have proper protein and anabolic hormone levels (growth hormone, sex hormones in adults)
- Longer acting treatment needed for inconsistent or variable effects with ups and downs
- Synthetic derivatives of cortisol have better activity for inflammatory conditions
- For vertigo or low blood pressure, you may want to add aldosterone or fludrocortisone
- For acute illness or skin rash, acute asthma, increase dose of cortisone for 1-7 days
- For persistent viral/bacterial and yeast infections, make sure to get enough proteins to boost thymus activity for the immune system

Other hormones

- Thyroid
- Pregnenolone
- Progesterone
- Growth hormone
- Melatonin
- Sex hormones for adults