

The Dark Side of Adaptogens

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Notes and Supplemental Readings
<http://naimh.com/roots>

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Medical Herbalism journal
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The Chinese Emperor

- A cautionary tale in Chinese mythology
- The emperor used tonic herbs to attain sexual endurance with his harem of concubines.
- He became progressively debilitated, and took larger amounts of the herbs.
- After a final organism he “...disappeared in a puff of smoke, leaving behind one drop of blood and one drop of semen.”

Tonic herbs in traditional systems

- Have well-defined indications by syndrome
- Are directional in their action (tonifying), not “normalizing”
- Have well-defined side effects and contraindications
- Are prescribed for a short period then reevaluated
- Are accompanied by cautions about overuse or overstimulation
- Are prescribed in the context of rational lifestyle changes in nutrition, rest, meditation, breathing, etc.

Tonic herbs in traditional systems

“There is a tendency to suggest to debilitated patients that taking tonics is all that is needed for recovery. This is not true: physical and breathing exercises and diet are also important.”

“Tonifying herbs strengthen the processes of the body, including the pathogenic processes . . . Thus tonifying herbs should not be prescribed in cases where there are still signs of an exterior disorder. If they are, the exterior disorder will linger on.”

Bensky and Gamble *Chinese Materia Medica*

Tonic herbs in traditional systems

“The practitioner should be aware of a condition called 'deficient and unable to take tonification' . . . signs of fire from deficiency appear after taking tonics, including dry mouth and lips, irritability, insomnia, indigestion, and abdominal distention . . . or digestive problems develop, such as nausea, bloating, or loss of appetite.

Bensky and Gamble *Chinese Materia Medica*

The Russians find Chinese tonics

- In the World War II era, Russians experimented with these herbs, mainly *Panax* and *Schisandra*, and a few others.
- They also developed the indigenous *Eleutherococcus* as a medicine.
- The plants and their extracts were studied in acute doses or in short human trials with small numbers of subjects.
- They coined the term “adaptogen” for these herbs

Adaptogens original definition

- Reduce stress-induced damage
- Exhibit stimulating effects, increasing performance in conditions of fatigue and generalized stress.
- Do not possess a pharmacological drug withdrawal syndrome
- Are mild in effect, do not perturb body functions from normal level, possess normalizing function.

The definition is based on **acute** and **short term** effects, with very few published human trials.

Subsequent human research

- The foremost researchers into adaptogens in the last 20 years have been A. Panossian, G. Wikman, and H. Wagner. Access to unpublished Russian human trials, in addition to subsequent human trials.
- Panossian and Wikman state in a 2009 review: that “. . . only a few actually comply with requirements postulated for adaptogens.”
- And further explain: “Particular controversy is associated with . . . safety and side effects..”
- The theory broke down over the last part of the definition, that they are mild in effect, do not perturb bodily functions, or that they have a consistent normalizing effect.

Does Panax ginseng have side effects?

- “In **mild overdose** may cause dry mouth and lips, *excitation, fidgeting, irritability, tremor, palpitations, blurred vision, headache, insomnia, increased body temperature, increased blood pressure, edema, decreased appetite, increased sexual desire, dizziness, itching, eczema, early morning diarrhea, bleeding, and fatigue.*” (*Chinese Medical Herbology and Pharmacology*, by Chen and Chen)
- Italicized symptoms have all been observed in my practice or school community.

Panax species: common side effects

- Overstimulation,
- Stuck energy (constrained liver chi) and irritability
- Tension, neck tension
- Insomnia.
- Rebound crash lasting up to two weeks after 1-2 weeks of daily administration.

Eleutherococcus: common side effects*

- Anxiety
- Overstimulation
- Neck tension
- Insomnia
- Heart palpitations
- Rebound crash or burnout.
- Heat signs possible, may be dramatic with overdose of concentrated forms.
- Mania in overdose of a concentrated extract (See case).

*Russian Pharmacopoeia preparation or concentrated extract

Russian Pharmacopoeia Eleuthero

- Extracted in 30% alcohol/70% water
- Evaporated to a 1:1 concentration
- Dose 7.5 to 15 mL
- HerbPharm product further evaporates it to a 2:1 concentration. Dose 3.25 to 7.4 mL
- Differs radically from a standard American tincture; Contains a different spectrum of constituents, and is 10 times more potent.
- Standard American tinctures have little tonic effect
- Standardized extracts may or may not.
- Some commercial products laced with caffeine.

Eleutherococcus overdose with rebound

- A male student with no personal or family history of bipolar disorder took 5 mL of an HerbPharm Eleuthero product in the morning. RP preparation, doubled in concentration to 1:2, recommended dose 1-7.5 mL. He also consumed mate' tea
- He took another 5mL in the afternoon, with more mate' tea
- An hour later he was found riding around the city on his bicycle screaming in a full manic fit. He said there was nothing wrong "It just feels good to scream."
- Five days later he was suicidally depressed and was taken to an emergency intervention center
- Ten years later he has exhibited no further bipolar symptoms.

Rhodiola: common side effects

- Anxiety
- Dry mouth
- Overstimulation
- Palpitations
- Insomnia, sometimes severe.
- Panic attacks
- Triggering of post-traumatic stress disorder

Schisandra common side effects

- Dry astringency, overstimulation
- In clinical trials, insomnia, excitability, loss of performance
- Schisandra is used as an astringent for deficiency sweating and diarrhea in Chinese medicine
- Dose in Chinese literature: 6-9 grams per day, as decoction. Taken as a simple this readily produces unpleasant astringency
- Russian Pharmacopoeia tincture: air-dried fruits and 95% ethanol (1:6, w/v) dose of 20–30 drops b.i.d.
- Russian Pharmacopoeia infusion: air-dried fruits and water (1:20, w/v) dose of 150mL twice per day

The contemporary herbalist's definition

- A plant medicine that gives energy *at no cost to the system*.
- That stimulates, but has *no crash or rebound depression*.
- That has *few or no side effects*.
- That increases tolerance of stress or *prevents its ill effects*.
- That can be taken long term with *no ill effects*.
- That can be given to almost anyone *without consideration of constitutional pattern*.
- That *supports adrenal function* or "*nourishes*" the adrenals..
- That is *restorative* to endocrine function.

*the italicized letters were not included in the original definition

Some plants designated as "adaptogens"

- *Panax ginseng*
- *Panax quinquefolius*
- *Astragalus membranaceus*
- *Codonopsis pilosula*
- *Eleutherococcus senticosus*
- *Glycyrrhiza glabra*
- *Polygonum multiflorum*
- *Cordyceps sinensis*
- *Ocimum sanctum*
- *Lycium chinensis*
- *Ganoderma lucidum*
- *Rhodiola rosea*
- *Schisandra chinensis*
- *Asparagus racemosus*

Each herb should be investigated for its own effects, side effects, contraindications, and mechanisms, and utilized for its uniqueness. *Ocimum*, *Chaga* mushroom, *Schisandra*, *Shatavari*, and *Cordyceps* have very little in common other than being traditionally-described tonics.

Problems with long term use

- Energy is expended at definite cost to the system, but in the early short term with reduced perception of effort rather than reduced expenditure. Enables overreaching and progression to burnout.
- Crash or rebound depression is nearly universal used to mask the effects of an unhealthy lifestyle.
- Side effects ranging from minor to severe are present for all of the herbs. These become more evident with higher doses or long term use.
- Adverse humoral effects are common without consideration of constitutional pattern.
- No evidence in humans that any of these herbs are “supportive” of adrenal function or “restorative” to the endocrine function.

Adaptogens and burnout

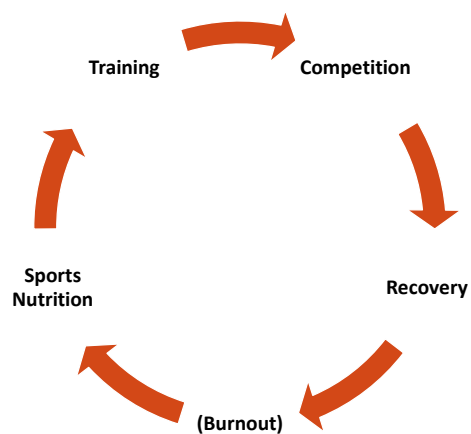
The maladaptation model of Selye

- Phase One. General alarm reaction (up to 48 hours). Multiple physiological changes.
- Phase Two: Beyond 48 hours. Hypertrophy of adrenals and thyroid; atrophy of gonads.
- Later Phase Two: Functions and organ appear near normal.
- Phase three: 1-3 months. Return of Stage I but now chronic. Atrophy of all endocrine glands. Recovery difficult or impossible.
- Chinese cancer researchers autopsied a number of patients who had been diagnosed with 'Kidney deficiency.' All had general atrophy of their endocrine glands.

Stages of athletic burnout

- Normal athletic activity. Short overreaching with adequate recovery for adaptation. Recovery in days.
- Functional overreaching. Plateaued/loss of performance, symptoms of burnout. Recovery in days to weeks.
- Non-functional overreaching. Symptoms of burnout not responsive to short term recovery. Recovery in weeks to months.
- Overtraining syndrome. Chronic burnout symptoms with loss of performance and adaptation. Recovery in months to years *or not at all*.
- Burnout is seen hormonally when cortisol increases and testosterone decreases, as in Selye's Phase 2.

The Athletic Cycle



Recovery and Nutrition are as Important for Performance as Training

To reverse the progression of burnout

- In Selye's model, the only way to prevent the progression or to reverse it is ***to remove the stressor***.
- In the athletic model, the only way to prevent progression or to reverse it, is ***to rest and recuperate*** with no intense exercise, complete exercise nutrition, and full sleep at night.

But what about that mouse swim test

- Mice given some herbs can swim longer before succumbing to exhaustion. This is mistaken by the uninformed to indicate "improved" adrenal function
- The name of the test is the Behavioral Despair Test.
- It is a standard screening test for the effects of substances on the neurotransmitter GABA.
- When the mouse swimming in a closed container perceives the futility of their situation, their brain floods with GABA and they give up.
- The mouse that swims further, due to GABA inhibition, expends more energy and progresses closer to or deeper into burnout.

Adaptogens and the stages of burnout

- Some adaptogens show increased endurance in some short term trials.
- None have ever been shown to delay the progression through Selye's stages of maladaptation when an unremitting stressor remains in place.
- Some adaptogens show increased athletic performance taken acutely in some trials.
- None have ever been shown to reduce burnout or the progression through the stages of burnout in the absence of rest and recovery.
- Recent human trials have shown the opposite in both situations.

Exercise and burnout

- In one trial of Rhodiola for exercise performance, the group receiving Rhodiola performed slightly better than the group receiving placebo. In the Rhodiola group, the participants *subjective perception* of the amount of energy they expended was lower than in the placebo group.
- A group of runners participated in a 30 day trial of Eleutherococcus. The portion of the group receiving the had increased performance at the end of the month. They also had elevated cortisol and reduced testosterone, relative to the placebo group, a marker of burnout. The Eleutherococcus **enabled them to over train** but did not prevent the ill effects.

Schisandra promoting burnout

- A single dose of Schisandra tea induced a tonic effect in sailors ($n = 200$) keeping watch at sea.
- Daily administration of the tea remained effective during the first 7–10 days of treatment
- Following 2 or 3 weeks of continuous use, some subjects suffered **from sleeplessness, excitability and a lowered sense of general well-being.**

Grigorenko, G.F., Berdishev, V.V., 1988. The use of tonic drinks and drugs increasing working capacity of sailors during night shifts. In: Abstract Book of the Scientific Practical Conference on Medical Social Aspects of the "Man-Ocean" Problem: 29–30 September 1988. Ministry of Health of Russian Federation, Vladivostok State Medical Institute, Vladivostok, pp. 29–30.

Effects of Eleutherococcus and Schisandra on sailors following night watch duty

	Control	Eleuthero	Schisandra
Body temperature (°C)	36.30	36.30	36.60
Heart rate (bpm)	66.2	68.4	72.8
Systolic pressure (mmHg)	100	104	108
Diastolic pressure (mmHg)	60.5	62.0	70.0
Orthostatic test (bpm)	13.1	14.1	18.2
Respiration rate (breaths/min)	12.4	13.2	15.6
Diuresis (mL/h)	32.0	33.5	41.5
Vitamin C excreted (mg/h)	0.41	0.43	0.62
17-Ketosteroids excreted (mg/h)	0.59 0	0.52	0.75

Berdyshev, V.V., 1995. Some aspects of single doses of adaptogens (Eleutherococcus and Schisandra). In: Valeology: Diagnosis, Means and Practice in Health Care, International Collection of Scientific Papers. Far East Branch of the Academy of Science of the Russian Federation, Dalnauka, Vladivostok, pp. 105–117.

Case Studies

Ways tonic/adaptogens may cause harm

- Masking the fatigue of a serious illness
- Masking the effects of a nutrient deficiency
- Enabling burnout through overexertion: occupational, athletic
- Enabling burnout through relative over-exertion in a severely debilitated patient.
- Aggravation through humoral effects.
- Masking the ill effects of sleep debt. Facilitates the progression of adrenal dysfunction, insulin resistance, and immunodeficiency.

Case 1 Side effects

- A man came to an herbal clinic with a chief complaint of “overstimulation” (the patient’s words) which he said was getting worse for the past few months.
- He had generally disturbed sleep, of a restless quality and did not wake rested.
- He also had frequent anxiety, his secondary complaint.
- He also had work related stress.
- He had been taking a standardized Eleuthero extract for 3 months, 3 times a day.
- The overstimulation, anxiety, and insomnia were all side effects of the adaptogen.

Case 2: Masking and side effects

A middle aged man experienced fatigue, and self-diagnosed himself with “toxicity” and followed a vegan diet for several years. His increasing fatigue began to interfere with his work.

A full daily dose of *Eleutherococcus*, and also of *Panax ginseng* (Korean-red) gave him the energy he needed. He followed this protocol for several months, and eventually developed an incapacitating headache, and nose bleed. On examination he was found to have peripheral neuropathy in his feet, possibly indicating a serious vitamin B-12 deficiency, or other disease that may cause neuropathy.

Case 3: Overreaching and burnout

- 26 year old woman, chief complaint fatigue and stress.
- No relevant findings on medical exam.
- Diet looked good on examination. Full time student with job
- Patient chose to use a simple of RP *Eleutherococcus* (1:1) on a daily basis until graduation 2 months away.
- After 9 weeks, she reported a complete energy collapse, profound and disabling fatigue, which lasted for about two weeks.
- Not long after, she visited another nutritionist and increased food portions by one-third.
- Patient experienced a full recovery after increasing her nutrition.

Case 4: Overreaching and burnout

- A male student in his twenties with homework and project pressure causing sleep deprivation took a tincture of *Panax quinquefolius* for about ten days at a dose of 30-40 drops 3-4 times a day.
- After stopping, he crashed hard. He described that it was the worst exhaustion he had ever experienced in his life, and it lasted for about two weeks, with exhaustion mixed with insomnia.
- This is a typical and common pattern with this use of *Panax* or *Eleutherococcus*

Case 5: Overreaching and burnout

- A middle-aged man with regular healthy exercise habits decided to try a Cordyceps preparation
- On the first day of taking 2 Cordyceps pills, his distance performance increased by 33%, with less fatigue than usual.
- After 3 days of light recovery training, he stopped taking Cordyceps on day five. That day he ran two miles at a much faster pace than previously was possible
- The next day he took a day of rest, and collapsed in the afternoon and could not get out of bed.

Case 6: Facilitating burnout

- An alternative medical practitioner in his 50s had experienced increasing symptoms of burnout for several years. He had a food intolerance, but was non-compliant with avoiding it, and was in a constant state of stress and inflammation. To deal with his collapsed energy, he took a period of extended sabbatical. Over the period eight months, he took a combination of *Eleutherococcus* and *Glycyrrhiza* daily on the theory that they gave adrenal support, and said it helped him “to survive” that year. By the end of 12 months, he was completely collapsed, his lab tests showed deficient adrenal and reproductive hormones, and he had multiple chemical sensitivity.

Case seven: Masking /Enabling burnout

A woman in her 30s engaged in a high-stress academic program went to an herb shop complaining of fatigue. She was diagnosed first with parasites, and took a course of anti-parasitic herbs, and then became my patient. By this time she had a medical diagnosis of infection with *Entamoeba histolytica*. She was extremely stressed and fatigued, malnourished, deficient, and underweight. I treated her briefly with digestive herbs and dietary changes with some success, but not complete, and soon referred her to a licensed medical professional because of the possible serious complications of *E. histolytica* and other red flags. In order to help herself complete her academic program the patient took a commercial adaptogenic product on her own, resolving to set her life in order afterwards. Within the following year she was diagnosed with acute leukemia, and passed away rapidly after diagnosis.

Humoral effects/side effects

Humoral energetics of some stimulating adaptogens

Panax ginseng	warm, moist
Schisandra	warm, astringent
Panax quinquefolius	cool, moist
Glycyrrhiza	neutral, moistening
Withania	warm, (dry)
Rhodiola	slightly cool, very astringent
Cordyceps	warm
Atractylodes	warm, dry
Eleutherococcus	warm
Codonopsis	slightly warm
Astragalus	slightly warm

Humoral energetics of some restorative adaptogens

Dang gui	warm
Peony	cool
Rehmannia	slightly warm
Ho shou wu	slightly warm
Asparagus/Shatavari	very cold
Ophiopogon	cool, moist
Lycium	neutral, moist

Examples of humoral effects

- Astragalus is somewhat warm. A common sign in patients with heat syndromes is common to see aggravation of heat signs in the skin with use.
- Withania is warm, and in a warm patient can aggravate the heat that is there. For instance one woman with a warm and damp constitution took it in summer and became completely intolerant of summer heat.
- It is common for a cold a deficient patient to use Asparagus/shatavari and aggravate their cold signs.
- Both Rhodiola and Schisandra readily and often aggravate the dryness of a dry patient.

Deficient Yin/False heat

- This is a common pattern in Chinese medicine and is widely present in the U.S. population, including in teenagers and young adults.
- There is a deep deficiency, but with heat signs presents, such as rapid pulse, hot face, hands, and feet, feelings of heat, red or red tipped tongue, etc.
- The heat and dryness in such a patient may be easily aggravated by any tonic herbs, and in some cases even the designated Yin tonics which should help in fact aggravate.

Dose and overdose

Stimulating adaptogens*

Panax ginseng	1-9 g*	!
Schisandra	2-6 g	!
Panax quinquefolius	2-9 g	!
Glycyrrhiza	2-12 g	! Here lies overdose
Withania	3-6 g	!
Rhodiola	3-9 g	!
Cordyceps	5-10 g	!
Atractylodes	5-15 g	!
Eleutherococcus	9-27 g	!
Codonopsis	9-30 g	!
Astragalus	10-15 g	!

* Dried herb in decoction, daily dose. Chi and yang tonics.

Restorative adaptogens*

Dang gui	3-15 g
Peony	6-15 g
Rehmannia	10-30
Ho shou wu	10-30 g
Asparagus	6-15 g
Ophiopogon	6-15 g
Lycium	6-18 g

*“Blood” and “Yin” tonics

Adjusting for forms

- To take as powder, reduce the daily dose to 1/10 to 1/5 the dose for decoction.
- It is difficult to translate the doses into tincture droppers. In China most of these herbs are used in alcohol at a dose of ½ to 1 ounce 1-3 times a day. Doses smaller than this for some herbs have definite stimulating effects.
- Low doses of adaptogenic tinctures – 3-10 drops for instance – may be a new evolving way of using these herbs which may assist with energy but not over stimulate or produce abuse syndromes.

Concentrates

- For concentrates, it is impossible to compare to a traditional Chinese dose, in some cases they are much more potent, in others they are too weak
- Some “standardized” adaptogen products are composed of filler, caffeine, and a cheap marker chemical added for standardization.
- Concentrates of *Glycyrrhiza* frequently produce endocrine disruption, not only of adrenal function (pseudoaldosteronism, hypercortisolemia) but also can rapidly depress testosterone in males or females.

Case study: Eleuthero concentrate

- An herbalist bought a concentrated extract of Eleutherococcus in the form of a paste.
- The dose on the package said 1/8 tsp.
- He did not have anything of that size, so he took out a “scoop” with a popsicle stick.
- Within 3 minutes he had a panic attack, strong tachycardia, and at the ten minute an bright red butterfly rash spread across hi nose and cheeks.

Athletic performance

- Despite marketing promotions and misconceptions, most adaptogens studied have failed to improve athletic performance.
- Advocates and marketers frequently use selective citation, ignoring the negative trials.

Human trials of adaptogens and exercise

MEDLINE search	positive trials	negative trials
“rhodiola and exercise”	2	4
“panax and exercise”*	3	8
“eleuthero or acanthopanax and exercise”	1	4
“shisandra and exercise”	no clinical trials reported**	

*One trial on *Panax quinquefolius* showed evidence of harm (increased oxidative damage). Note that more trials may occur in Russian language publications

**Some positive trials occur in Russian language publications, see Panossian and Wikman, 2008 for a complete review

Disk 4 Adrenal function and the Krebs cycle

Evidence in humans for unequivocally beneficial effects of any proposed adaptogen on the functioning of the hypothalamic-pituitary-adrenal axis is lacking, and in some cases harm is suggested.

Adrenal vs. mitochondrial function

- A common error to equate fatigue with “adrenal exhaustion”
- Standards for adrenal tests in middle age are controversial.
- It is difficult to change adrenal test results with natural interventions including adaptogens.
- Reduction of fatigue with natural methods frequently shows no or only minor change in adrenal test results.
- For cerebral or muscle fatigue, ATP production via mitochondrial function is critical.

MEDLINE: “panax AND (adrenal OR adrenalin OR cortisol OR epinephrine)”

- In one of two controlled trials, 1125 mg of ginseng daily for 5 weeks in otherwise healthy sedentary men showed no effect on adrenal function in response to exercise (Biondo et al.)
- The second RCT showed no effect of a single 20 gram dose of *Panax ginseng* on post-exercise androgen or corticosteroid levels over the following 2 days. (Youl Kang et al.)

An uncontrolled trial of Panax and Eleutherococcus on endocrine function

- Either 4 grams of *Eleutherococcus* or 2 grams of *Panax ginseng* were given to semi-professional endurance athletes for six weeks.
- *Panax* showed no effect on testosterone, cortisol or the testosterone-cortisol-ratio
- *Eleutherococcus* aggravated the testosterone-cortisol-ratio (a marker of athletic burnout), both elevating the cortisol and reducing the testosterone.

(Gaffney et. al.)

Does Glycyrrhiza “support” adrenals

- Licorice in the amounts used in tinctures have no tonic effect. Powders, teas, and concentrates are required in doses equivalent to 2-12 grams dried root in tea.
- Glycyrrhizin in the root extends the half life of cortisol. This would seem to reduce the demand on the adrenals to produce cortisol, but in fact serum cortisol rises from the former baseline.
- Taken in higher doses or for prolonged periods, this causes pseudoaldosteronism, potassium disturbance, and hypertension
- This phenomenon has been observed in one patient taking the equivalent of 3-4 grams of the herb in tea per day for 3 months.

- It occurs much more rapidly with concentrates.
- Concentrates may also cause a depression of testosterone in males or females, through pharmacological effects.

Archetypal case

- A woman with chronic fatigue was under the care of an alternative physician.
- She was given a number of medications, which did not help.
- An herbalist suggested she just stop everything, eat good food and rest for a while, some herbs to support digestion and rest, which she did, and established a baseline, with borderline normal values of cortisol and DHEA on a saliva test.
- She was still fatigued and went back to the doctor, and received a concentrated form of licorice.
- Two months later her cortisol was out of range high and her DHEA was out of range low.

Archetypal case two

- A man with chronic fatigue spent about 4 months with an herbalist/nutritionist, and brought his subjective energy scores from 2/10 to 6/10 consistently.
- He obtained a product with multiple adaptogens in combination. His herbalist advised against him taking it, that he needed more rest and building.
- He took it according to the dose and recommendations on the bottle, which said to take a 4 day break every few weeks.
- By the six week point he completely collapsed when stopping the product, and again rated his subjective energy at 2-3/10

Contraindications

General contraindications for tonic herbs

- Lack of deficiency syndrome pattern
- Signs of excess
- Acute symptoms
- Signs of constrained chi – pain, tension
- Aggravation of heat signs in response to herb
- Overstimulation in response to herb

Specific contraindications for some herbs

- Panax ginseng heat signs, hypertension
- Panax quinquefolius cold signs with abdominal bloating
- Asparagus/shatavari cold signs
- Astragalus heat signs
- Codonopsis none noted beyond general cautions
- Cordyceps acute conditions
- Eleutherococcus heat signs, insomnia
- Ganoderma signs of excess, heat signs
- Polygonum multiflorum weak digestion, excessive mucous
- Lycium abdominal bloating, inflammation
- Rehmannia weak digestion, excess phlegm
- Withania heat signs, nightshade sensitivity

Disk 12 Tonic Herbs/Case Studies

The right use of tonic herbs

- With attention to traditional indications and contraindications
- To support normal activity, not to drive to unnatural levels of performance.
- To support recovery rather than performance.
- After assessing the possible causes of the deficiency, and in the context of correction of the root causes
- Use in a small to moderate dose with attention to any developing overstimulation
- As a short term intervention, with frequent reevaluation, or regular breaks.

- To break a vicious cycle of poor appetite in a deficient patient.
- To break a vicious cycle of low energy/will in a deficient patient
- As an adjunct to other herbal treatments in the deficient patient, in small doses.
- To motivate and assist in the fatigue that may accompany positive lifestyle changes such as caffeine withdrawal or the induction phase of a ketogenic diet.
- In the fatigue of serious chronic disease, such as cancer.

Descending cycle in fatigue #1

- Low energy produces low appetite and poor digestion
- Emphasize easy to digest foods
- Have proteins in easy to digest forms – soups or stews
- Includes herbs or spices to promote digestion
- *Panax (or Codonopsis) and Atractylodes*
- *Zingiber*
- *Astragalus*
- *Inula*
- Many more

Descending cycle in fatigue #2

- Low energy causes restless anxiety and disturbs sleep.
- Promote sleep recovery/bed rest as the initial primary strategy
- Appropriate use of milder tonic herbs *in support of* positive changes. Test low doses for intermittent periods, not as an ongoing strategy.
- *Withania, Panax quinquefolius, Ophiopogon, Asparagus racemosus (Shatavari), others.*

Descending cycle of fatigue 3

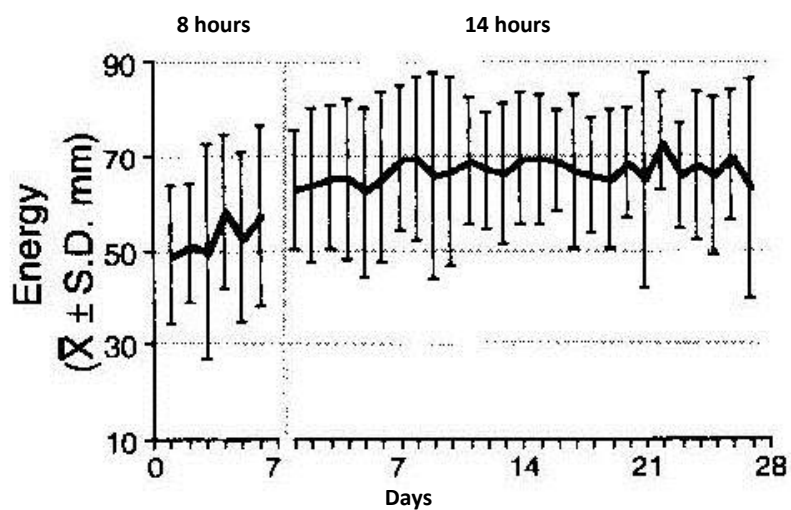
- Low energy gives low ability/motivation to make difficult but necessary changes.
- Strategy: Improve digestion and correct deficiency insomnia with the methods above.
- Introduce low doses of stimulating adaptogens for a few weeks at the beginning of a program.
- A Western supportive formula. Eleutherococcus (RP), Glycyrrhiza, Schisandra, and Turnera = parts with a small amount of ginger. 1-2 droppers 2-3 times per day for up to two weeks.

The Best adaptogen: Rest

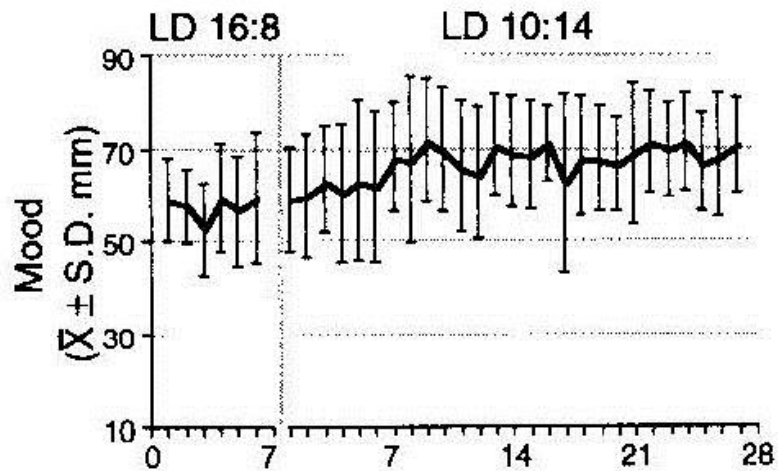
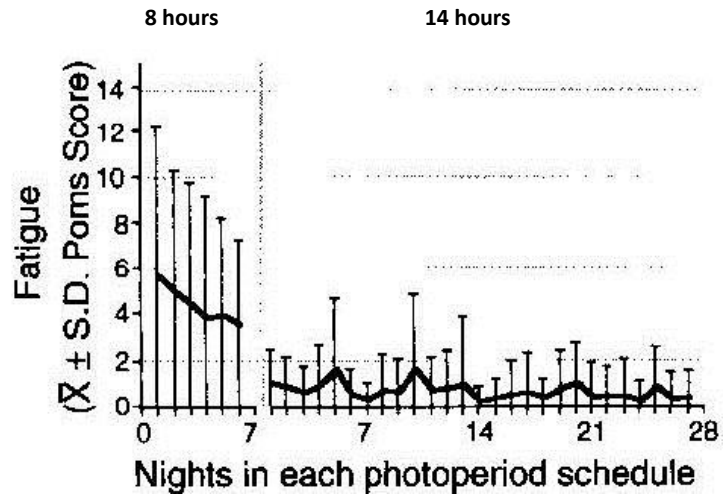
Supports adrenals, no withdrawal syndrome, no side effects, normalizes the system, improves immunity, improves general resistance to stress.

- Sleep debt depresses immunity, elevates cortisol and distorts pattern of daily cycle, promoting insomnia.
- Sleep debt induces insulin resistance
- Sleep debt induces immunodeficiency.
- Occurs in most people at 6 hours sleep per night, and in a few people at 8 hours of sleep a night.
- The average human sleep requirement for baseline health is about 8.5 hours.

Energy Improvement with bed rest with lights out



Fatigue Improvement with bed rest and lights out



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Case studies

- 50 y.o. career police official with exhaustion and full body rash.
- 58 year old surgeon with exhaustion and full body rash
- 28 year old woman, chronic nicotine and cannabis addict.

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Notes and Supplemental Readings
<http://naimh.com/roots>

North American Institute of Medical Herbalism
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Medical Herbalism journal
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