

# Managing Mood Disorders

## Part 2: Botanical Nutritional Toolbox



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THE ECLECTIC TRIPHASIC  
MEDICAL SYSTEM (ETMS)



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## Plants Smarter than Humans?

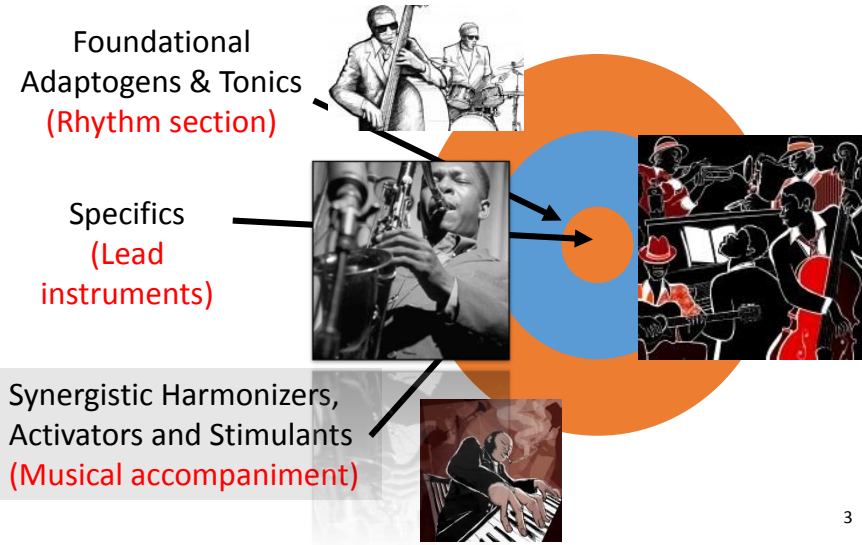
- "If you define intelligence as the capacity to solve problems, plants have a lot to teach us," Professor Stefano Mancuso



Plant compounds speak a common language and communicate with our genes, we go back a long time together

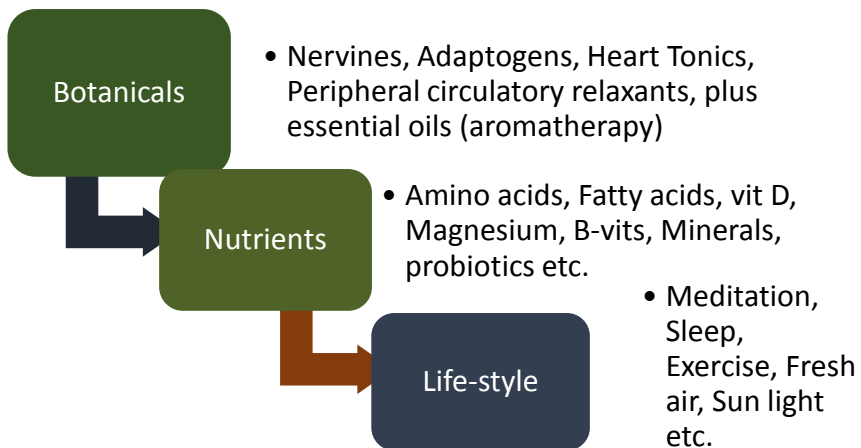
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# Building Botanical Formulations



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## Botanicals • Nutrients • Life-style



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## Multi-target Phytochemicals and Botanical Medicine

The 'magic bullet' paradigm of drug discovery relies on the concept of compounds, which bind specifically to a single target and show a high degree of potency.

Of recent interest, however, is the suggestion that it is non-specific and relatively weak patterns of activity, by contrast, which may ultimately prove of great importance in drug discovery.

The trouble is that everything in the body is in flux, in a trophic yin-yang responsive state that is modulating, non-specific and adaptive.

Drugs do not understand this but herbs do.

Bioorganic & Medicinal Chemistry 18 (2010) 2204–2218

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## Herbal Formulas Effective Against Depression

- A famous, Poria cocos-based Chinese formula (Xiao Yao Wan) was studied for its anti-depressive activity.
- Xiao Yao Wan was more effective than Amitriptyline in this regard.
- In another study, the combination of an herbal formula (Ban Xia Hou Po Tang) also featuring Poria cocos demonstrated antidepressant activity that was close to that of the common antidepressant drug Prozac.

J Ethnopharmacol. 2010 Mar 24;128(2): 482-9. Epub 2010 Jan 14. Journal of Ethnopharmacology 73 (2000) 277–281.

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## How Some Herbs May Work in Helping with Anxiety

- GABA receptors, melatonin, serotonin and dopamine play a big part in controlling mood (circadian rhythm, sleep latency, and duration)
- Certain herbs may decrease the degradation of GABA, therefore increasing GABA concentration at the synapse (similar to Rx drugs like barbituates and benzodiazepine) resulting in a calming or sedative effect.



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## Specific Herbs & Nutrients For Age-related Depression & Anxiety

### Herbs

- *Bacopa monniera*
- Saffron (*Crocus sativa*)
- *Ginkgo biloba*
- Periwinkle (*Vinca minor*) - Vinpocetine
- Gotu cola (*Centella a.*)
- Rosemary (*Rosmarinus off*)
- Night blooming cereus (*Cereus grandiflorus*)

### Nutrients

- AL-Carnitine
- Phos Serine
- NA-Tyrosine
- NADH
- Vitamin D
- Methyl donors
- Fatty acids (DHA/EPA)
- Creatine

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## Adaptogenic Formulations

- Herbs for strength, stamina, stress relief, protection from age-related decline and general well-being.
- Increase the state of non-specific stress resistance and decrease sensitivity to stressors, which results in stress protection, and prolong the phase of resistance (stimulatory effect).
- Are the backbone for “adding years to your life and life to your years” Support “Vitagenes,” which encode for heat shock proteins and are cellular stress protectors
- Are Life span-extending

Pharmaceuticals 2010, 3, 188-224; doi:10.3390/ph3010188; Plos ONE, February 2010 | Vol. 5 | Issue 2 | e9339; J Altern Complement Med. 2009 Aug;15(8):921-8; Biogerontology. 2009 Feb;10(1):27-42. Epub 2008 Jun 7.

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## Adaptogenic Plants & Main Active Compounds

Adaptogenic Plant	Main Compound
<b><i>Panax ginseng</i></b> (ginseng) & <b><i>Panax q.</i></b>	Ginsenosides
<b><i>Withania somniferum</i></b> (ashwagandha)	Withanolides
<b><i>Eleutherococcus senticosus</i></b>	Eleutherosides
<b><i>Astragalus membranaceus</i></b>	Astragalosides
<b><i>Ocimum sanctum</i></b> (holy basil)	Triterpenic acids
<b><i>Rhodiola rosea</i></b> (rose crown)	Flavonoids
<b><i>Schisandra chinensis</i></b> (5 spice)	Lignans
<b><i>Oplopanax</i></b> (Devil's club)	Saponins
<b><i>Cordyceps sinensis</i></b>	Cordycepic acid, also rich in Vanadium,”

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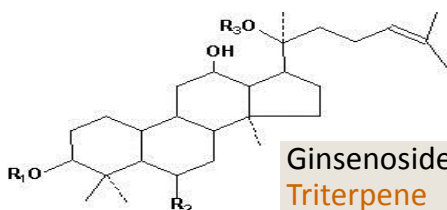
## Adaptogens are Trophorestorative

- Effective in the treatment of general asthenia, exhaustion and reduced physical and mental performance by increasing the capacity of the trophic state.
- The “trophic state” is representative of the vital capacity of a system or tissue in the body.
- This vital deficiency can have many causes, including environmental toxins (e.g. heavy metals), drug therapies, cancer, infection, or nutritional causes.
- Whenever organ or tissue are suffering from a vital deficiency, trophorestoration, with adaptogens and organ specific tonics, should be undertaken as a long-term measure to restore optimal health.

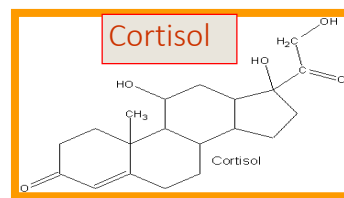
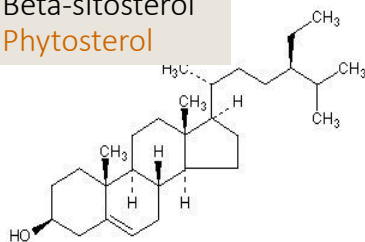
A.Panossian, G.Wikman Arquivos Brasileiros de Fitomedicina Científica, Vol. 3, número, april 2005

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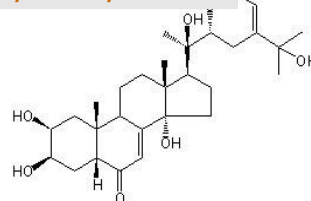
## 'Stress protective-anabolic' Plant Compounds (Triterpenes, Phytosterols & Phytoecdysteroids) Similar to Cortisol



**Beta-sitosterol**  
Phytosterol



**Leuzeasterone**  
Phytoecdysteroid



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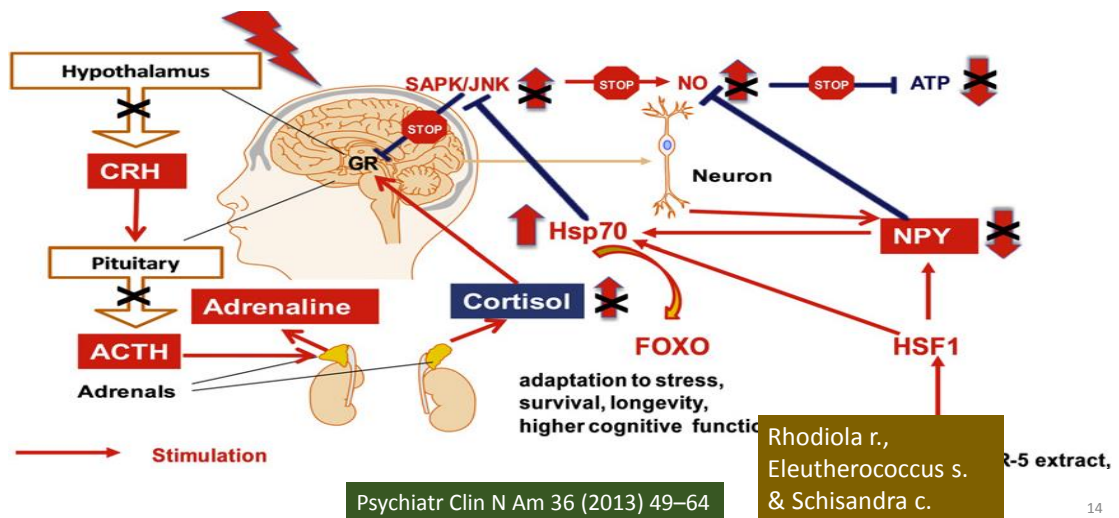
## Effect of Adaptogens on the Central Nervous System

- **Effects of Adaptogen combination: *Eleutherococcus senticosus*, *Rhodiola rosea*, and *Schisandra chinensis***
- Metabolic regulators that reduce the damaging effects of various stressors by virtue of a buffering of the reactivity of the host defense system.
- Increase the ability of the organism to cope with and adapt to stress, implying a curative effect on stress induced disorders.
- The primary site of action is thus the HPA axis where the key mediators are tropic hormones.
- The secondary sites of action are the liver, immune and cardiovascular systems (ameliorate oxidative and inflammatory damage).

A.Panossian, G.Wikman Arquivos Brasileiros de Fitomedicina Científica, Vol. 3, número, abril 2005

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## Neuroendocrine Mechanism of Stress Protection by Adaptogenic Formula



## Rhodiola rosea (Arctic Rose)



Yance, D. Adaptogens  
in Medical  
Herbalism, Healing  
Arts Press, 2013,  
Rhodiola monograph,  
pg. 549-560

- Many classified Russian studies during Cold war
- Supports Endocrine, Central nervous system, & Immune system
- Enhances cognitive performance under stress
- Reduces mental fatigue
- Improves sexual function
- Improves overall well-being

Active compounds include two groups of phenylpropanoids: rosea (1) called "rosavins," which include rosavin, rosin, rosarin and tyrosol. The other (2) active compound is referred to as salidroside.

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## Rhodiola rosea extract (RRE)

- Exhibits a stress protective and adaptogenic effect by enhancing the levels of **inducible Heat shock protein 70** in liver, hippocampus and left heart ventricle.
- This demonstrates a stress-protective effect of nonspecific resistance and the activation of adaptogenic processes.
- Improves adrenal glands reserve, without causing hypertrophy.
- Alleviates depression and reduces fatigue, and may also be useful in anxiety and schizophrenia, and prevents stress-related damage, including heart damage.

Eksp Klin Farmakol. (2013);76(2):23-7; *Journal of Alternative and Complementary Medicine* 2008; 14(2): 175-180; *Phytomedicine* 2008; 15(1-2): 84-91;  
Int J Food Sci Nutr. 2012 Mar;63 Suppl 1:75-81 .

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## Ashwagandha (*Withania Somnifera*)



- Primary Adaptogen – induces “restful sleep” and makes us “strong as a horse.”
- Inhibits age-related chronic diseases including cancer, senile dementia and AD.
- Enhances work production, energy, learning and memory.
- Anxiolytic (GABA-like activity) and antidepressant.
- Active compounds: steroidal lactones (withanolides, withaferins)

Yance, D. Adaptogens in Medical Herbalism, Healing Arts Press, 2013, Ashwagandha monograph, pg. 361-368

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## *Schisandra chinensis* berry & seed extract



- Primary Adaptogen/stress modifying, anabolic
- Increases physical working capacity and affords a stress-protective effect against a broad spectrum of harmful factors such as heat shock, frostbite, immobilization, aseptic inflammation, irradiation, and heavy metal toxicity.
- Also exerts an effect on the central nervous, sympathetic, endocrine, immune, respiratory, cardiovascular, gastrointestinal systems, on blood sugar and acid-alkaline balance.
- In stressed guinea pigs the 95% ethanol extract demonstrated a relaxing effect.

Yance, D. Adaptogens in Medical Herbalism, Healing Arts Press, 2013, Schisandra monograph, pg. 379-386; Phytomedicine. 2011 Jul 15

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## *Ocimum sanctum* (Holy basil) 'Tulsi'



- **“Tulsi”** means “The Incomparable One,” a sacred herb, used traditionally for thousands of years in ceremonial worship and as a medicine - “rasayana” means “path of Essence”
- Most traditional homes and temples in India will have at least one tulsi plant.
- Builds Vital Force & Spirit
- Active compounds: eugenol, ursolic acid (triterpenoid), and rosmarinic acid

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## Modern Research on Holy Basil

- Has confirmed dozens of holy basil’s traditionally known actions and therapeutic uses, including its remarkable adaptogenic and anti-stress activities as well as its powerful support for the immune system
- Normalization of cortisol
- Enhances endocrine system, increases physical performance and endurance.
- Reduce stress and anxiety, eliminate toxins, balance and tone your body, calm your mind, and nurture your spirit.

*Indian Journal of Medical Research* 73 (1981): 443–51; *Proceedings of the Second International Symposium on Eleutherococcus, Moscow, 1984* (Vladivostok: Far East Academy of Sciences of the USSR, 1986), 60–65; *Indian Journal of Experimental Biology* 40(10) (2002): 1151–60; *Indian Journal of Experimental Biology*. 37(3) (1999): 262–68

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Example of Herbs that Enhance Vital Spirit, Reduce Anxiety & Suppress Chronic Disease & Aging

Herb	Active compounds
<b>Milky oat seed (<i>Avena sativa</i>)</b> <b>St. John's wort (<i>Hypericum perforatum</i>)</b>	Prolamines (avenins), Avenacosides Hyperforin and the hypercines
Rauwolfia ( <i>Rauwolfia serpentina</i> or <i>vomitaria</i> )	Reserpine & more - depletes catecholamines from peripheral sympathetic nerve endings
Passion flower ( <i>Passiflora</i> <i>incanata</i> )	Apigenin, luteolin, chlorogenic acid and chrysin
Albizzia ( <i>Albizzia julibrissin</i> ) <b>Bacopa (<i>Bacopa Monniera</i>)</b>	Triterpenoid saponins - julibroside J28 Bacosides A & B
Ziziphus ( <i>Ziziphus spinisa</i> ) seed	Protojubogenin type triterpene bisdesmosides, protojubosides A, B, B1
Kava Kava ( <i>Piper methysticum</i> )	Kavalactones - flavokawain B

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## HERBAL REMEDIES

### St. John's Wort

- Equivalent to low-dose tricyclic in mild-to-moderate depression
- Typical dose 600-1200 mg/day
- Watch for photo-toxicity (want this effect when being used for GBM, or other cancers)
- Profound neuro-protective effects and immune modulating, anti-viral
- A specific for bed wetting in children



*Hypericum perforatum*

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## St. John's wort (*Hypericum perforatum*)



Has been used in herbal medicine for centuries.

“Neurological adaptogen” and stress-reliever/protector.

It is a neurological restorative plant that repairs nerve tissue damage and is among the best-suited agents available.

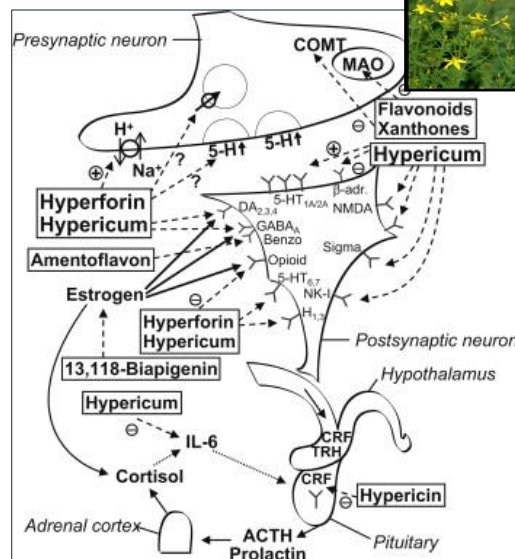
Arch Pharmacol. 2011 Apr;383(4):415-22. Epub 2011 Feb 19, BMC Complementary and Alternative Medicine 2011, 11:7; Eur J Pharm Biopharm. 2003 Jul;56(1):121-32, Clin Cancer Res. 1996 May;2(5):843-6, Oncol Res. 2000;12(9-10):409-18, PLoS One. 2010 Mar 9;5(3):e9558, Int J Cancer. 2009 Jul 1;125(1):34-42.

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## (Hypericum extract (HE))

A very effective antidepressant in mild to moderate depression.

The beneficial antidepressant actions of HE appear to be the result of the cooperation of several compounds within - hyperforin, the hypercines, amentoflavon, rutin, hyperosid, xanthones and proanthocyanidines.



Life Sci. 2006 Jun 6;79(2):105-11. Epub 2006 Jan 24, Eur Neuropsychopharmacol. 2010 Nov; 20(11):747-65. Epub 2010 Aug 14, Cochrane Database Syst Rev. 2008 Oct 8;(4):CD000448

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## *Albizia julibrissin* "Mimosa"



- A semitropical ornamental tree native to Asia.
- In China, it is known as the "**Tree of Happiness**" because of its calming properties; for it is known to 'nourish the heart, calm the spirit and promote joy.'"
- The bark and flowers enhance mental wellness, curb depression, and promote sound sleep.

D. Bensky and X. Gamble, *Chinese Herbal Medicine Materia Medica*, Eastland Press, Seattle, WA (1993)

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## *Albizia julibrissin* Extract (AJE) Modern Research

- Has demonstrated anxiolytic-like effects.
- ABE orally administered at 200 mg/kg to mice. showed an antidepressant-like effect
- Anxiolytic effects of Julibroside in mice
- Enhances all aspects of neurotransmitter secretion and regulation.
- Antidiabetic, renal/hepatic/pancreas/cardiac protective

Prog Neuropsychopharmacol Biol Psychiatry. 2013 Jul 1;44:184-92; *Pharmacol. Biochem. Behav.* **81** (2005), pp. 205–210; *Life Sci.* **75** (2004), pp. 2787–2795. *Pharmacol Biochem Behav.* 2007 May;87(1):41-7; *Altern Med.* 2014 Jul 16;14:243.

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## Milky Oat Seed (*Avena Sativa*) Nervine & General Relaxant



- Strengthens and nourishes the nervous system
- Builds energy, reduces stress and raises the mood
- Helps restore vital energy
- Aids in recovering from illness and/or prolonged times of stress
- Dr. Finley Ellingwood says, "Avena is a remedy of great utility in loss of nerve power and in muscular feebleness from lack of nerve force."
- Useful in combating various addictions (e.g., tobacco, cannabis, opiates, alcohol etc.)

Appl Biochem Biotechnol. 2010 Mar;160(6):1573-84. Epub 2009 Feb 18.

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## Kava Actions



Kava root extracts and the active components kavalactones and flavokawains

Anti-anxiety

Anti-inflammatory

Anti-tumor



Unusually low cancer incidences (men especially) in the Pacific Island nations despite a high portion of smokers in these populations ? **Kava drinking**

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## Kava Kava (*Piper Methysticum*)

- Very effective anxiolytic activity that creates a heightened sense of well-being and contentment.
- A Cochrane review of research found kava Extremely useful and safe in the treatment of anxiety, insomnia, nervous disorders.
- Aids people in withdrawing from anti-anxiety drugs.
- Anti-inflammatory evidenced by its inhibition of TNF-alpha and NF-kB -- over-activated in PD.
- **Caution** when combining it with L-dopa and/or benzodiazepines.
  - Start with small doses in combination with nervines and adaptogens
  - Kava extract as 10-20% of formulation is safe and effective for people with PD and anxiety

J Clin Psychopharmacol. 2000 Feb;20(1):84-9; Phytother Res. 2013 Nov;27(11):1723-8; Phytother Res. 2013 Nov;27(11):1723-8.

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## Passion flower (*Passiflora incarnata*)



- Traditionally used for stress, nervousness, and insomnia.
- Important health-promoting compounds include: apigenin, luteolin, chlorogenic acid and chrysin.
- Animal and human studies have demonstrated that passiflora preparations have anxiolytic, antispasmodic, sedative, and blood pressure normalizing activity
- Melissa off. and Passiflora infusion decreased stress in animals, lowering plasma cortisol levels.
- Taken together with hypericum decreases menopausal symptoms after 4 weeks.

Pharmacol Biochem Behav. 1994 Jan;47(1):1-4; Biochem Behav. 1997 Dec;58(4):887-91; Biochem Pharmacol. 1990 Nov 15;40(10):2227-31; Int J Clin Exp Med. 2013 Jun 26;6(6):444-51; Iran J Nurs Midwifery Res. 2010 Autumn; 15(4): 202-207.

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## American Skullcap (*Scutellaria lateriflora*)

- Was used by both Native American Indians and the Eclectic physicians to ease anxiety and stress
- Two Eclectic uses:
  - 1) Where there is irritability of the nervous system, with restlessness and nervous excitability; inability to sleep without pain; general irritability with insomnia from local physical causes.
  - 2) where there is nervous disorder, characterized by irregular muscular action, twitching, tremors and restlessness, with or without incoordination.”

ELLINGWOOD, FINLEY M.D. American Materia Medica, Therapeutics and Pharmacognosy – Page 392, 1919.

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## American Skullcap Modern research

- In vivo animal behavior trials were performed to test anxiolytic effects in animals orally administered *S. laterifolia* extracts.
- The compounds, baicalin and baicalein, may play a role in the anxiolytic activity and are known to bind to the GABA A receptor (benzodiazepine site) which induces calmness.
- In a recent randomized, double-blind placebo-controlled crossover study on mood in healthy volunteers, American Skullcap extract significantly enhanced global mood without a reduction in energy or cognition.

Phytomedicine. 2003 Nov;10(8):640-9; Phytother Res. 2014 May;28(5):692-8. doi: 10.1002/ptr.5044. Epub 2013 Jul 22.

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## Ziziphus (*Ziziphus spinisa*) Seed



- According to TCM classified as sour and balanced, and is mainly used to drain the liver and gallbladder; nourish the blood, and to treat the heart, via “calm the spirit.”
- Usually stir-fried prior to use.
- It’s central action is for the treatment of Shen deficiency and insomnia.

Zhu Youping, Chinese Materia Medica: Chemistry, Pharmacology, and Applications, 1998  
Harwood Academic Publishers, Amsterdam.

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*Alfia*  
*ja and serpentina*



- Traditionally used to treat hypertension, anxiety, insomnia, and insanity.
- Contains at least 40 actives alkaloids of which the most noted is Reserpine - an old drug used to treat hypertension.
- Interferes with the function of the sympathetic nervous system, reducing catecholamines from peripheral sympathetic nerve ending. *Planta Medica* 1977 Aug;32(1):88-99
- Specific indications include full blooded, red flushed face and ears, prone to anger or anxiety, hypertension.
- **Warning:** can induce depression and do not give to asthmatics - best to use tiny amounts and in combination with other herbs

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## Lavender (*Lavandula angustifolia*)



- Lavender flower and its extracts have been used, internally, topically, in baths, and by olfaction, for centuries as a treatment for anxiety and depression, as well as for insomnia, and gastrointestinal distress, including “nervous stomach”
- Lifts the Vital Spirit

J Herb Pharmacother. 2004;4(2):63- 78.

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## Oral lavender oil

- An evidence-based review was recently conducted of an orally administered lavandula oil preparation for anxiety disorder and related conditions was published.
- Seven trials were included, among which four therapeutic trials had a treatment duration of 6 or 10 weeks
- The lavender oil had beneficial effects on typical co-morbidity symptoms of anxiety disorders, for example, disturbed sleep, somatic complaints, or decreased quality of life.

Pract. 2013 Nov;17 Suppl 1:15-22. doi: 10.3109/13651501.2013.813555. Epub 2013 Aug 3.

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## Lavender oil aromatherapy

- Demonstrated anxiolytic activity in patients in intensive care units
- A study of lavender oil in burner use was conducted on staff mood and stress in a hospital setting.
- A significant number of respondents (85%) believed that the lavender aroma improved the work environment.
- The effects of lavender aromatherapy was studied on depressed mood and anxiety in female patients being treated with chronic hemodialysis
- Lavender aroma significantly decreased anxiety and improved mood and sleep in this group as well.

J Adv Nursing. 1995;21:34-40; Int J Nurs Pract. 2000;6:110-112; J Altern Complement Med. 2005;11(4):631-637

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## Healing Baths



- I often recommend healing baths—including Epsom salt, aromatic baths, and herbal diaphoretic therapy—to my patients as part of their protocol.
- 2 cups of Epsom salts with 10-20 drops EO lavender oil
- Light some candles and read sacred/spiritual reading, relax and contemplate.



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## Melissa officinalis



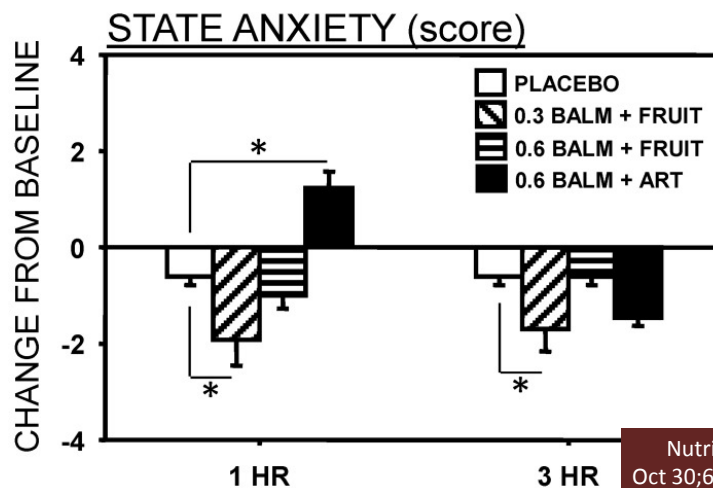
- Has been used historically and contemporarily as a modulator of mood and cognitive function, with anxiolytic effects following administration of capsules, coated tablets and topical application.
- Lemon balm treatments is generally associated with improvements in mood and/or cognitive performance.
- Several studies of a lemon extract performed on animals showed that it is able to reduce the restless state of the animals in a significant way.

Nutrients. 2014 Oct 30;6(11):4805-21. doi: 10.3390/nu6114805; *Psychosom Med.* 2004 Jul-Aug;66(4):607-13; *Neuropsychopharmacology.* 2003;28(10):1871-81.

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### Anti-stress effects of lemon balm-containing

There was a significant reduction in state anxiety following the 0.3 g lemon balm/fruit drink at both 1 and 3 h post drink



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## Melissa officinalis and Passiflora infusion as physiological stress deceiver

- A study was conducted to determine the effect of a Lemon balm and Passion flower infusion on the severity of physiological chronic stress induced by movement restriction in mice.
- The mice given the herbal infusion had lower plasma corticosterone levels, which is the most important biomarker associated with physiological stress, demonstrating an anti-stress effect.
- A combination of Lemon balm and valerian (600 mg. total) possesses profound anxiolytic properties.

Int J Clin Exp Med. 2013 Jun 26;6(6):444-51; Phytother Res. 2006 Feb;20(2):96-102.

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## Rose (*Rosa rugosa*) petals

- Are very relaxing and also remind us of the feelings of love.
- A specific for grief
- A gentle liver tonic (cooling)
- Contains phenolic compounds including, flavonoid, phenolic acid, and tannins, carotenoids, polysaccharides and terpenes (geraniol)
- Cytotoxic, redox-antioxidant, and antimicrobial properties
- Geraniol has cancer chemopreventive efficacy by modulation of multiple molecular pathways including the control of cell cycle and apoptosis

J Sci Food Agric. 2013 Jul 1. doi: 10.1002/jsfa.629; Toxicology (2011), doi:10.1016/j.tox.2011.08.020; Biochemical and Biophysical Research Communications 407 (2011) 129–134

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## Magnolia bark (*Magnolia grandiflora/officinalis*)



- Has been used in TCM for centuries for treating “stagnation of qi” as well as a variety of syndromes, such as digestive disturbances caused by emotional distress.
- Contains compounds (honokiol, magnanolol and eudesmol) that have anxiolytic effects, enabling better control of the stress hormone cortisol, modifying the stress response.
- In a 2007 study, honokiol was compared with diazepam (Valium).
- Honokiol was found to be 5x stronger than diazepam in reducing anxiety without the side effects of diazepam.

Prog Neuropsychopharmacol Biol Psychiatry. 2007 Nov 28.

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## Poria Cocos



- Used in Traditional Chinese Medicine (TCM) to improve memory and cognition in old age
- Enhances Vital Spirit - used by Taoist adepts to help attain enlightenment.
- Helps overcome anxiety, worry, and fear
- Immune system tonic (Spleen)

The bark is used mostly to strengthen the Vital Spirit (Spirit Poria), and nervous system, and the inner core, which is more for the Spleen and to drain dampness (fluid retention).

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## Poria cocos (continued)

- Used in combination with other herbs
  - Improves learning and memory
  - Inhibits dementia in animals by effecting the M-cholinergic transmitters of the CNS
- A study of 21 depressed patients found that the symptoms of depression had been improved after 6 weeks of treatment of Xiaoyaosan, which consist of *Bupleurum chinense*, *Paeonia lactiflora*, **Poria cocos**, *Angelica sinensis*, *Zingiber off.*, *Atractylodes macrocephala*, *Glycyrrhiza uralensis*, and *Mentha haplocalyx*.

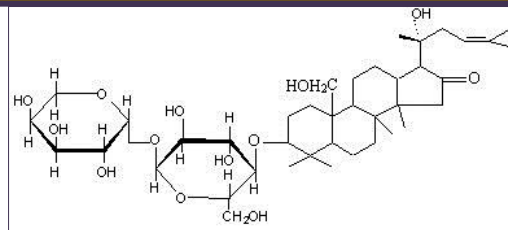
*Phytomedicine* 2004; 11(6): 544-548;  
*Zhongguo Zhong Xi Yi Jie He Za Zhi* 1993;  
 13(11): 675-676, 646.

*J Ethnopharmacol.* 2014 Oct 15;158PA:  
 1-10. doi: 10.1016/j.jep.2014.10.005.

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## Bacopa monniera

“Brahmi,”



bacoside a (*Bacopa m.*)



Adaptogenic,  
 neuroprotective,  
 relaxing (GABA), d  
 elevating, chelates  
 heavy metals,  
 mooliver and GI  
 protective, immune  
 enhancing, anti-tumor

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## Bacopa (*Bacopa Monniera*)



- Clinically proven to improve memory and mood in AD
- Increases gaba-aminobutyric acid (GABA) and cholinergic systems
- Has calming effect on the brain
- Increases ability to concentrate and retain information
- Contains the steroidal saponins Bacosides A & B

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## Bacopa continued

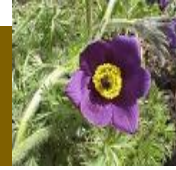
- Modulates stress hormones released from the brain
- Prevents aluminum neurotoxicity
- Antidepressant and antioxidative actions
- Potent free-radical scavenging effects
- Protects the mitochondrial membrane from oxidative damage induced by cigarette smoke
- Anticholinesterase and antidementic properties
- Ameliorates hypobaric hypoxia induced spatial memory impairment
- Anti-Parkinsonian
- Amelioration of age associated neuroinflammation

Neurobiol Dis. 2009 Apr;34(1):23-39; Biochem Biophys Res Commun. 2011 Oct 7;413(4):605-10; Neurochem Res. 2012 Apr;37(4):869-74.

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## *Pulsatilla vulgaris/chinensis/koreana* (Pasque-flower)



### • **Traditional usage and specific indications (drop dosing of the fresh extract):**

- Melancholic, nervousness with despondency, sadness and disposition to weep.
- For worry and fear in the pale (anemic) shy types; in women passing through menopause. For morbid mental excitation associated with physical debility; marked depression of spirits; insomnia, with nervous exhaustion; pain, with debility.
- A remedy for nervous headaches, especially if of the anemic variety.

Ellingwood, F., Amer. Materia Medica Therapeutics and Pharmacognosy, Cincinnati, OH, 1919, Pg. 149-152

49

## Valerian (*Valeriana officinalis*)

- From the Latin word *valere*, which means *to be in good health*.
- The herb was first discovered and used by Greek physicians, who recommended it for a host of medicinal uses:
  - Insomnia – with deficient blood (cerebral anemia)
  - Anxiety
  - Spasm



50

## Valerian research



- Modulate GABA-A receptors and induced an anxiolytic activity,
- Valerian with its active valerenic acid, interacts with the GABA(A)-ergic system, a mechanism of action similar to the benzodiazepines.
- Animals studies have found that a significant reduction in anxious behavior when valerian extract is administered.
- Valerian is a circulatory stimulant

*BMC Complementary and Alternative Medicine* 2014;14(1):267; *Neuropharmacology*. 2009;56(1):174–181; *Br J Pharmacol*. 2010;161(1):65–78; *Phytomedicine*. 2010;17:674–678.

51

## *Pedicularis densiflora* & other spp. (Wood betony, Lousewort, Elephant Head)



- Active compounds phenylethanoids and flavonoids including acacetin, apigenin, kaempferol, scutellarein and pedicutricone.
- Antimicrobial and redox-antioxidant activity
- Indications: 1) Excessive worry – a mind that races; anger and anxiety. (Combine with passion flower, gotu cola, skullcap and bacopa)
- 2) Neck and shoulder tension, skeletal muscle relaxants (For Fibromyalgia combine with Black cohosh, kava, and Jamaican Dogwood).

*Zhongguo Zhong Yao Za Zhi*. 2011 Oct;36(19):2672-5, *Adv Pharm Bull*. 2012;2(1):89-92.

52

## Blue Vervain

*Verbena officinalis*



- Has been used in traditional herbal medicine by many diverse cultures from the ancient Romans and Celtic cultures to the American Indians.
- Has been considered a heal-all, being used to treat ailments of several body systems.
- Assist digestion having an overall calming effect, bitter compounds enhance liver health.
- It is well-known for it's relaxing effect on the nervous system.
- Has novel neuroprotective effects, exerts cytoprotective effects on cells of the central nervous system.
- Significantly attenuated the toxicity of  $\beta$ -amyloid ( $A\beta$ ) peptide and reducing the accumulation of  $A\beta$  peptide is an important cytotoxic factor involved in Alzheimer's disease.

Owen N . *Verbena officinalis* L , British Journal of Phytotherapy, (2001;5, No. 3:114-117.);  
Neuropharmacology Volume 50, Issue 6, May 2006, Pages 641-650

53

## Saffron (*Crocus sativa*)



- Used for medicinal purposes for millennia to treat various health conditions including: cough, flatulence, stomach disorders, colic, insomnia, chronic uterine hemorrhage, amenorrhea, dysmenorrhea, menstruation, scarlet fever, smallpox, colds, asthma, and cardiovascular disorders.

In TCM it is used as an anodyne, and emmenagogue.  
Is a rich source of carotenoids and is a potent cell oxygenator.

54

## Saffron Antidepressive Effects

- Based on five randomized controlled trials (n = 2 placebo controlled trials, n = 3 antidepressant controlled trials) saffron extract (200-400 mg. daily) improved symptoms of depression in adults with major depressive disorder.
- Crocins are effective in different models of psychiatric disorders including anxiety and depression, and even obsessive compulsive disorders.

J Integr Med. 2013 Nov;11(6):377-83. doi: 10.3736/jintegrmed2013056;  
Neurosci Lett. 2012 Oct 18;528(1):27-30

55

## Rosemary (*Rosemarinus off.*)



J Cancer Prev. 2014 Sep;19(3):170-8, J Med Food. 2013 Aug;16(8):765-71; Sci Pharm. 2013 Jun;81(2):531-42. Thromb Res. 2008;122(4):517-22. Epub 2008 Apr 18; Nutrition. 2005 May;21(5):580-7

- “Herb of remembrance”
- Cascade of redox-anti-oxidants
  - Normalize cell behavior
  - Potent quencher of free radicals
  - **Anti-thrombotic**
  - Acetylcholinesterase inhibition
  - Neuroprotective/Regenerates neurons
  - Improves peripheral circulation
  - Enhances mood and memory
- Anti-toxin/anti-mutagenic

56

## The inhalation of the rosemary oil

- A study investigated the effects of the inhalation of rosemary oil on 20 test subjects' feelings, as well as its effects on various physiological parameters of the nervous system.
- Rosemary significantly enhanced brain wave activity, autonomic nervous system activity, as well as mood states – feeling more active and stated that they felt "fresher"

Sci Pharm. 2013 Jun;81(2):531-42.

57

## Marapuama [Muirá Puama] (*Ptychopetalum olacoides*)



- Regarded as a "nerve tonic" in the Amazon, and is used as an aphrodisiac. It increases sexual vitality and can help with impotence and erectile dysfunction, especially when caused from nerve exhaustion.
- A specific for states of lassitude with noticeable lack of desire/motivation, and to manage particularly stressful (physical and/or psychological) circumstances.
- Several studies have confirmed Marapuama to possess anti-stress, adaptogen-like properties, nootropic, neuroprotective (Acetylcholinesterase inhibition), and redox/anti-OX effects.

Phytomedicine. 2010 Mar;17(3-4):248-53. Epub

58

## Mucuna pruriens Extract (MPE)

- Is well-known with dopaminergic action and has several therapeutic applications in folk medicine in curing or managing a wide range of diseases including Parkinsonism.
- Nourish Kidney (yang) Essence
- MPE has antidepressant action, which appears to be mediated by an interaction with the dopaminergic system.

Rana DG, Galani VJ. Dopamine mediated antidepressant effect of Mucuna pruriens seeds in various experimental models of depression, Ayu. 2014 Jan;35(1):90-7. doi: 10.4103/0974-8520.141949.

59

## Shatavari (*Asparagus racemosus*)



- Traditionally referred to as 'Queen of Herbs'
- Primary Female Tonic in Ayurvedic medicine.
- Powerful reproductive system enriching effects, pregnancy tonic, as a galactagogue.
- Renowned for its moistening and nourishing properties
- Promotes well-being, increasing cellular vitality and resistance.
- Ayurvedic practitioners use for **nervous disorders**, inflammation, liver disease and infectious diseases. [Phytother Res. 2005 Aug;19\(8\):721-4.](#)

60

## Antistress activity of Shatavari extract

- Improved the stress tolerance swimming endurance test compared to stress control group.
- Stress induced variations in levels of lipid peroxidation, nitric oxide, protein and glutathione content in mouse brain were significantly ameliorated by pretreatment with extract.
- The extract attenuated the elevated weight of adrenal glands and increased the reduced weight of the spleen during stress.
- Inhibits stress induced pro-inflammatory cytokines Gastric protective effects and anti-ulcer effects
- Inhibited gastric ulcers in animals given indomethacin.

Indian J Exp Biol. 2012 Jun;50(6):419-24; [Phytother Res.](#) 2010 Oct;24(10):1562-6  
J Postgrad Med. 1990 Apr;36(2):91-4.

61

## Milky Oat-seed (*Avena sativa*)

- The fresh extract made from the milky seed of *avena sativa* (oats) strengthens and nourishes the nervous system.
- Used by the Eclectic's for neurasthenia (nervous exhaustion, "stressed out feeling"), anxiety, impaired sleep patterns, weakness, poor libido, and as a tonic over doing it.
- Useful to combat various addictions including tobacco, cannabis and opium, and raises the mood.
- Oats contain phenolic compounds called **Avenanthramides** (as well as Beta glucans), which possess potent anti-inflammation effects including down regulation of COX-2, and inhibition of colon cancer.

Finley Ellingwood M.D., American Materia Medica, Therapeutics; Eclectic Medical Publications 1919, pg. 204-6; [Nutr Cancer.](#) 2010;62(8):1007-16.

62

## Gotu kola (*Centella Asiatica*)



- A Rasayana herb that rejuvenate and revitalize mind-body-spirit
- Mood elevating/calming - Anti-depressive effects
- Extract is rich in triterpenes including Asiatic acid
- Increases brain levels of GABA, inducing a relaxing effect on the nervous system
- A brain tonic that improves memory and strengthens the CNS
- Neuroprotective (Dementia, AD, and Parkinson's)
- Improves memory and inhibits the uptake of glutamate by the brain (brain toxin - causative factor in dementia)
- Increases peripheral and cerebral circulation
- Improves the health of collagen and connective tissue

Yance, D. *Adaptogens in MedicalHerbalism*, Healing Arts Press, 2013, Gotu kola monograph, pg. 452-457

63

## N-Acetyl-L-tyrosine

- Is a precursor to numerous important substances in the body, most notably the dopamine (DA) and norepinephrine (NE).
- Is part of the molecular structure of the thyroid hormone (T-4); assist in mitochondrial energy production, which contributes to it's mood enhancing ability.
- Supplementation (250-1000 mg. daily) can help to improve mood, memory and performance under psychological stress.

*Avait Space Environ Med* (1995), pp. 313–319.

64



# NADH

(nicotinamide adenine dinucleotide)

- Is an activated form of the B vitamin niacin
- An essential component of enzymes necessary for many metabolic reactions in the cell, including energy production.
- It also **helps transform tyrosine into dopamine**
- Has been shown to improve cognitive functioning in patients with Parkinson's disease, primary tremors, depression and Alzheimer's disease.

Drugs Exp Clin Res. 2004;30(1):27-33.

65

# L-tryptophane & 5-hydroxy-tryptophan (5-HTP)

- One of eight essential amino acids that must be obtained from the diet.
- The richest dietary sources include fish, turkey, dairy, eggs, nuts, and wheat germ.
- L-tryptophan converts to 5-HTP, and then to serotonin
- Melatonin is derived from serotonin within the pineal gland and the retina
- Specific nutrient for Serotonin Deficiency Syndrome.
- These symptoms include nervousness, anxiety, sleep disorders, mood disorders, and excessive appetite.
- Dosage: 2-3 grams daily, taken away of meals with protein, or on an empty stomach.

66

## Tryptophan

- Supplementation has been used in the management of neuropsychiatric disorders with good results.
- In one study it induces positive cognitive changes in depressive females. Thirty-eight women were randomized to receive 14 days double-blind intervention with Tryptophan (1 g 3x a day) or placebo.
- Tryptophan increased the recognition of happy facial expressions and reduced attentional vigilance towards negative words.

*Int J Neurosci.* 1992; Nov-Dec;67(1-4):127-44 *Psychopharmacology (Berl)*. 2006; Jul;187(1):121-30. Epub 2006 May.

67

## Insolitol + Magnesium Glycinate

- Plays key roles in lipid transport, hepatic fat metabolism and cell membrane function, nerve transmission and neurotransmitter activity
- Supplementation has been used in the management of neuropsychiatric disorders including binge eating, bulimia, depression, obsessive-compulsive disorder and panic disorder, as well as concurrently with lithium treatment of bipolar disorder.
- Works by helping the binding of GABA and serotonin receptors in the brain.
- Useful in PCOS especially with anxiety
- Dosage: 2-5 grams daily

*Depress Anxiety.* 2014 May;31(5):379-90. *J Clin Psychopharmacol* 2001;21:335-339; *J Clin Psychopharmacol* 2001;21:335-339; *Gynecol Endocrinol.* 2012 Feb 1; *Gynecol Endocrinol.* 2012 May 21.

68

## L-Theanine

An amino acid derivative found in tea (*Camellia sp*)

- Works to diminish stress, worry, and anxiety, allowing the brain to focus and concentrate better.
- Studies have shown that the ability to learn and remember may be enhanced with theanine supplementation.
- It not only reduces anxiety but also attenuates the blood-pressure increase in high-stress-response adults.
- Enhances the cytotoxicity of chemotherapy, inhibits MDR, and protects healthy cells of the toxicity of chemotherapy.

AANA J. 2009 Dec;77(6):445-9; J Physiol Anthropol. 2012 Oct 29;31:28

69

## L-theanine Clinical Studies

- Stimulates the production of alpha brain waves and is also involved in the formation of GABA.
- Animal studies have revealed that L-theanine affected dopamine and serotonin concentrations in the brain, underlying its anxiolytic effect.
- Also reduces heart rate and salivary immunoglobulin A responses to an acute stress task, suggesting that L-theanine could reduce stress by inhibiting cortical neuron excitation
- Suntheanine® is a patented that is produced via a patented fermentation process that mimics the natural process in green tea leaves.

J Physiol Anthropol. 2012 Oct 29;31:28; Neurochem Res. 1998;23:667–673;  
Nutr Neurosci. 2005;8:219–226; Clin Neuropharmacol. 2007;30:25–38.

70

## L-theanine in schizophrenia

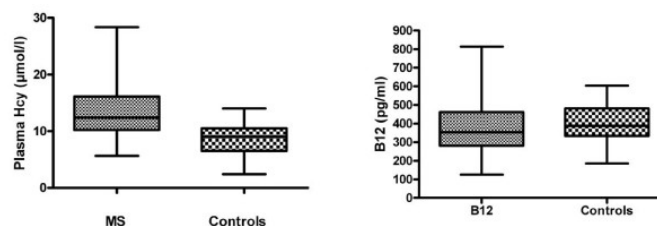
- Ameliorate positive, activation, and anxiety symptoms in schizophrenia and schizoaffective disorder patients, an 8-week, randomized, double-blind, placebo-controlled, 2-center study.
- Neuroprotective: Counteracts the damage inflicted by aluminium on rat brain regions

J Clin Psychiatry. 2011 Jan;72(1):34-42; Drug Chem Toxicol. 2014 Mar 24.

71

## Homocysteine and Depression

- B12 is a primary player in the one-carbon cycle and a co-factor for the methylation, by activated folate, of homocysteine, to recycle it back to methionine.
- SAME is produced, the body's busiest methyl donor.



**Serum homocysteine levels correlate with behavioral and psychological symptoms of Alzheimer's disease**

Ann Gen Psychiatry. 2008; 7: 17, Neuropsychiatr Dis Treat. 2014 Oct 3;10:1887-96

72

Methylation donors such as reduced Folic acid (5-MTHFR), Vitamin B-12 and B-6



**Vitamin B-12** and other B vitamins play a role in producing brain chemicals that affect mood and other brain functions. Low levels of B-12 and other B vitamins such as vitamin B-6 and folate may be linked to depression.

### Folic Acid

- Folate deficiency appears significantly correlated with higher rates of depression
- Data suggest low serum folate may hinder antidepressant response
- Folate (0.5-1 mg/day) may be important adjuvant in treating women with resistant depression
- Folate may help prevent relapse during & after depression tx

73

Methylated vitamin B complex on depressive and anxiety symptoms and quality of life in adults with depression

- A randomized, double-blind, placebo-controlled trial to evaluate the efficacy of a vitamin B complex for improving depressive and anxiety symptoms according to the Beck Depression and Anxiety Inventories (BDI and BAI) in 60 adults diagnosed with major depression or other forms of depressive disorders.
- The study showed significant and more continuous improvements in depressive and anxiety symptoms, compared to placebo. Additionally, Max Stress B showed significant improvement on the mental health scale of the SF-36 compared to placebo.

ISRN Psychiatry. 2013 Jan 21;2013:621453. doi: 10.1155/2013/621453.

74

## S-Adenosyl-Methionine (SAME)

- Several placebo-controlled trials for use in depression
- Meta-analysis shows SAME (400-800mg) may be equivalent to tricyclics
- Researchers from Harvard and Massachusetts General Hospital randomized 73 adults who had not responded to their prescribed antidepressant treatment to receive either SAME or placebo, along with their antidepressants, for six weeks. The subjects taking SAME had significantly higher response and remission rates on the Hamilton Depression Rating Scale (HAM-D), compared to those taking the placebo.

American Journal of Psychiatry (2010;167:942-48. DOI:10.1176/appi.ajp.2009.09081198).

75

## Omega-3 Fatty Acids and GLA

- Worldwide, lower serum omega-3 fatty acids significantly correlate with depression.
- Double-blind, placebo-controlled studies show efficacy of omega 3 (from fish oil) in unipolar and bipolar depression.
- Eicosapentanoic acid (EPA) more critical omega-3 fatty acid than docosahexanoic acid (DHA).
- New research shows that when patients with major depression and no concurrent anxiety disorder were treated with omega-3 supplements (>60% EPA), their symptoms were markedly reduced compared to patients treated with placebo.
- Typical EPA (most important) dose 1 gm/day • DHA 750 mg.
  - GLA 500 mg.

J Clin Psychiatry. 2012 Jan;73(1):81-6; J Clin Psychiatry. 2011 Dec;72(12):1577-84; J Am Coll Nutr. 2009 Oct;28(5):525-42.

76

## Lithium: we all can use a little bit

- Evidence is slowly accumulating that relatively tiny doses of lithium can have beneficial effects.
- They appear to decrease suicide rates significantly and may even promote brain health and improve mood.
- A recent review of epidemiological studies of lithium in drinking water reported that 9 out of 11 studies found an association between higher levels of lithium in local water and “beneficial clinical, behavioral, legal and medical outcomes.”
- According to recent research lithium may be a major compound for the prevention of dementia.

[http://www.nytimes.com/2014/09/14/opinion/sunday/should-we-all-take-a-bit-of-lithium.html?\\_r=1](http://www.nytimes.com/2014/09/14/opinion/sunday/should-we-all-take-a-bit-of-lithium.html?_r=1)

77

## Lithium Orotate (the lithium salt of orotic acid)

- Is believed to be up to 20 times more bio-active than other lithium salts.
- Dr. Hans Nieper stated that 5 mg of lithium orotate are closely equivalent to 100 mg of the carbonate form – I have followed this dosage for 25+ years.
- Has been used for the following conditions and diseases: Mood Swings, Chemical Dependency (Alcoholism), Depression, OCD, Mania, Bi-Polar, Fibromyalgia, Cluster Headaches, Alzheimer's, Brain Aging (*protects brain cells from being stimulated to death by **glutamate***), ALS, liver diseases and herpes (both internally and topically).

Alcohol. 1986 Mar-Apr;3(2):97-100.

78

## Dark Chocolate is good for your health

Chocolate: fights off chronic fatigue  
 increases "good" and lowers the "bad" cholesterol,  
 improves brain health and may inhibit dementia -  
 improves cognitive performance and increased  
 lifespan and dopamine levels  
 slows down the aging process and reduces all  
 cause mortality.  
 Chocolate flavonoids have shown to inhibit  
 certain forms of cancer.



*Arch Intern Med.* 2006;166:411-417, *J Cardiovasc Pharmacol*, 2006. 47 Suppl 2: p. S177-86;  
 discussion S206-9; *Cancer Lett.* 2002 Nov 28;185(2):123-30; *J Hypertens*, 2006. 24(8): p. 1575-80;  
*Br J Nutr.* 2008 Jul;100(1):94-101.

79

## Dark chocolate intake buffers stress reactivity in humans



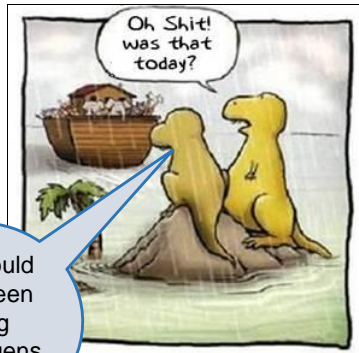
- Contains phenylethylamine, which have an anti-depressant effect; and compounds that stimulate the brain to release an opiate-like substance called anandamide.
- Flavonoid-rich dark chocolate intake buffers endocrine stress reactivity on the level of the adrenal gland suggesting a peripheral stress-protective effect of dark chocolate consumption.
- A single consumption of flavonoid-rich dark chocolate blunted the acute prothrombotic response to psychosocial stress, thereby perhaps mitigating the risk of acute coronary syndromes triggered by emotional stress.

*Journal of the American College of Cardiology* (2014);  
*Thromb Haemost.* 2014 Sep 11;112(6).

80

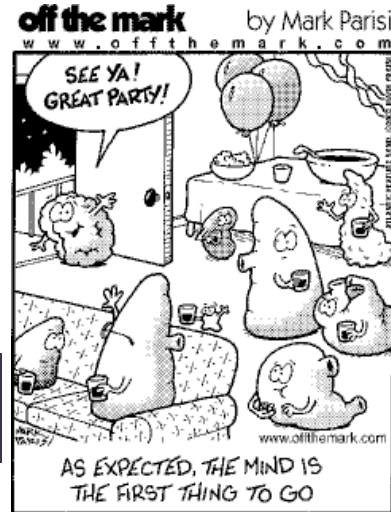


The First 'Senior Moment' on Record



We should have been taking Adaptogens

**LAUGHTER**  
 "IS THE BEST MEDICINE"

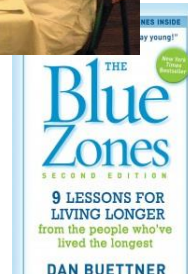


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81

## 5 Tips from the Blue Zone

- Diet – Relationship
- Physical activity
- Clean environment
- Relaxation-rest
- Family-Community
- Theology/Spirituality



82

## Be Physically Active and Enjoy Time in Nature



83

### Effects of physical activity/exercise for patients with depression...

- Improved mood
- Improved self-concept
- Improved work behavior
- Decreased depression and anxiety
- Improved social networks



American Journal of Preventive Medicine  
Volume 28, Issue 1, January 2005, Pages 1–8

84

## Physical Activity/Exercise Prescription for Depression and Anxiety

- Programs including walking or running, biking, swimming, weight lifting, and group exercises, dynamic movement activities, yoga.
- Low to moderate intensity (50-65% of MHR)
- 20-60 minutes.
- For melancholic types aggressive exercise 1-2x's per week
- For intense Type A relaxing slow moment exercise

\*The prevalence of obesity, physical inactivity and low self-esteem are high in this population structured, supervised programs may be needed to reinforce beginning stages of program.

85

## GET ADEQUATE SLEEP & REST



86

# ART • MUSIC • SPIRIT



87

## Music and Art

- “There is a massive benefit from being musical that we don’t understand.
- The benefit of music education for me is about being musical. It gives you a better understanding of yourself.
- The horizons are higher when you are involved in music.”
- “Your understanding of art and the world, and how you can think and express yourself, are enhanced.”



<http://www.pbs.org/parents/education/music-arts/the-benefits-of-music-education/>

88

## Music Can Heal the Brain & the Heart



Today, evidence suggests that musical training may enhance a suite of cognitive functions, including listening, linguistics, focus and memory, **mood**, along with spatial, motor and mathematical skills.

A Cochrane systematic review paper indicates that listening to music has a beneficial effect on anxiety in persons with coronary heart disease.

Furthermore, listening to music may have a beneficial effect on systolic blood pressure, heart rate, respiratory rate, quality of sleep and pain in persons with CHD

**Everyone Can Gain from Making Music** The perks of learning to play an instrument last for decades, By Julia Calderone, Feb. 2015, Scientific America; Cochrane Database Syst Rev. 2013 Dec 28;12:CD006577.

89

## Mediation and Prayer

- Contemplative practices that extend back thousands of years show a multitude of benefits including mood balancing, lifting and easing anxiety as well as developing behavior patterns that lead to spiritual awareness and response - "Boundless compassion and loving kindness."
- Create a path to total well-being
- One type of contemplative meditative prayer I often recommend is called "Lectio divina" (Latin for divine reading)

Med Care. 2014 Dec;52 Suppl 5, Building the Evidence Base for Complementary and Integrative Medicine Use among Veterans and Military Personnel:S19-S24.

90

## Gene Expression Changes With Meditation



After eight hours of mindfulness practice, meditators showed a range of genetic and molecular differences, including altered levels of gene-regulating machinery and reduced levels of pro-inflammatory genes, which correlated with faster recovery from a stressful situation.

Dec. 11, 2013, [http://www.sciencedaily.com /releases/2013/12/131208090343.htm](http://www.sciencedaily.com/releases/2013/12/131208090343.htm)

91

## “Lectio divina”

- A method of prayer that employs the reading of short passages of scriptures or other spiritual writings, to encourage communion with God, and in the process, inspire spontaneous spiritual insights.
- It is to align our “doing” self with our “being” self. In other words, what we do should first and foremost be a reflection of who we are, from the standpoint of our relationship with God, in the Cosmos, in Nature, and mostly ultimately through our exchange of love to one another.

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**When Solution is  
Simple,  
God is Answering!**

Albert Einstein

goes for all of us  
Love binds us together,  
making us a unified whole

**FORGIVE AND LOVE,  
AND BE OF SERVICE TO OTHERS**



"Be quick but don't hurry"

$$T = \frac{U_{ob} + \sum E}{\sum R}$$

$$\sqrt{\frac{\sum \frac{1}{N_B}}{\sum \frac{1}{N_A}}} \sqrt{\frac{\sum \frac{1}{N_C}}{\sum \frac{1}{N_D}}} = g$$

$$(a + b)^n = \sum_{k=0}^n \binom{n}{k} a^k b^{n-k}$$

$$\binom{n}{k} = \frac{n!}{k!(n-k)!}$$

$$P(X = k) = \binom{n}{k} p^k (1-p)^{n-k}$$

“The greatest obstacle to discovery is not ignorance - it is the illusion of knowledge”  
 — P.

Neurologi  
 Bateson Biblioteca Borges 53

Thank you for coming!