

* Herbs for Cognition, focus, brain health



Guido Masé RH(AHG) 2019

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- * Scope of the problem:
 - * Slowing cognitive decline vs. enhancing baseline function
- * Common background:
 - * Blood flow, vascular integrity, distractability, sleep, “stress”
- * Traditional tonics / cognitive enhancers
- * Botanicals (and a mushroom) with more recent interest
- * Entheogens: what roles can they play?
- * Protocols and cycling for maximum effect

* Overview

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~6 million living with **dementia** (2/3 Alzheimer's) in US
This is expected to more than DOUBLE by 2050

Many, many people looking for solutions to:
fatigue, distractability, lack of focus
Others looking for "smart drugs" (advantage)

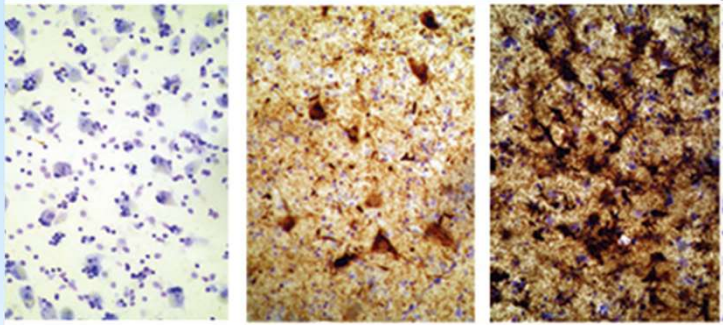
*Scope

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- * **Frontal / Temporal lobe dementias** ("Classic" age-related)
Judgement, behavior and speech areas affected
Slowly progressive, with or without tau protein tangles
- * **Progressive vascular dementia:** microinfarcts, atherosclerosis
hypoxia -> neuronal damage
- * **Alzheimer's Disease**
Incidence: rarely before 50, 1% in age 60-64, 40% in age 85-89
Begins as slight impairment of higher functions, mood /
behavior alterations
Progresses to disorientation, memory loss, aphasia and finally
catatonia in 5-15 years

*Dementia

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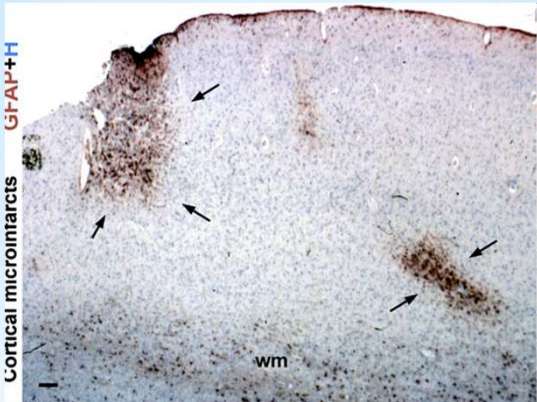


time →

Classic dementia - tau protein tangles
Repeated TBI, chemical damage, oxidative stress - frontal, temporal lobes

The image consists of three vertical panels showing a progression of tau protein tangles in brain tissue over time. The left panel shows normal-appearing cells with blue nuclei. The middle panel shows the beginning of brownish, granular tangles. The right panel shows a dense accumulation of these tangles, significantly obscuring the underlying cellular structure. A horizontal arrow labeled 'time' points from left to right below the panels.

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Cortical microinfarcts
GFAP+H
wm

Vascular symptoms associated with dementia / cognitive dysfunction

The micrograph shows a cross-section of brain tissue. On the left, a vertical label reads 'Cortical microinfarcts'. The tissue is stained with GFAP+H, showing brownish areas of reactive gliosis. Several black arrows point to these infarcted regions. The white matter (wm) is labeled at the bottom. A scale bar is visible in the bottom left corner.

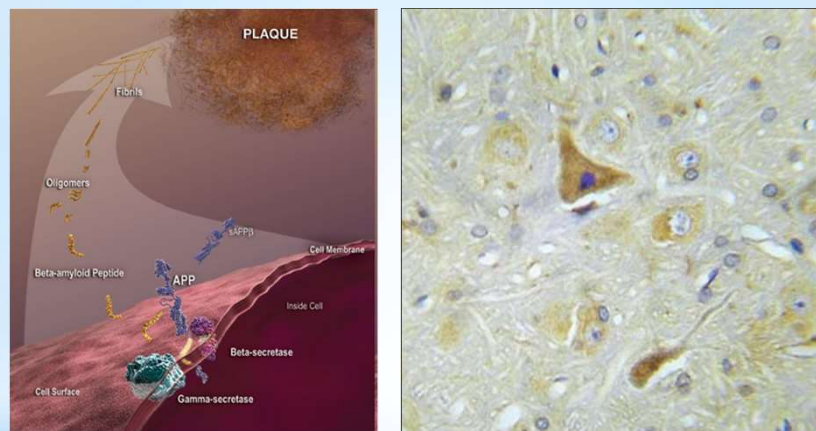
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Vascular damage

Microinfarcts and hemorrhages on the retina (easier to observe)

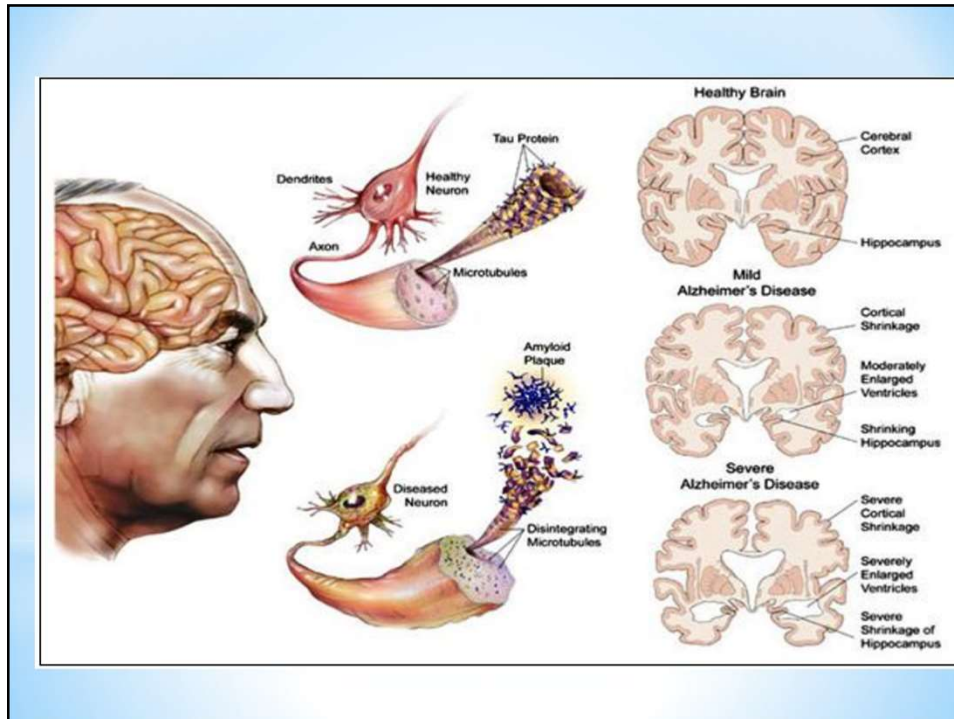
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Alzheimer's dementia - amyloid-beta protein

... plaques interfere with nutrient transport inside neurons, neural repair

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CC(=O)OCCN(C)C

ACh
Acetylcholine

Memory /
learning /
recall

Alertness

Judgement

Anger
modulation

caudate nucleus

cerebral cortex

nucleus of meynert

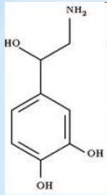
amygdala

hippocampus

brainstem nuclei

thalamus

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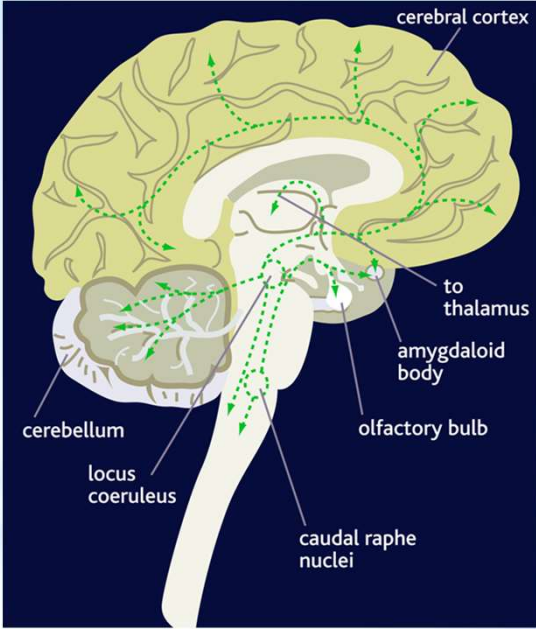


NE
Norepinephrine

Attentiveness /
focus / learning

Fight & flight

Anger /
"Passion"



Labels in diagram: cerebral cortex, cerebellum, locus coeruleus, caudal raphe nuclei, amygdaloid body, olfactory bulb, to thalamus.

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- * **Sleep - related cognitive dysfunction**
Not only short-term, but progressively neurodegenerative
- * **Stress - related cognitive dysfunction**
While stress can be helpful short-term, it can also cause depletion and impair performance
- * **Distractability / lack of focus & mindfulness**
Constant diversions / notifications, inability to come to "island of calm" for good performance

* "Smarter"

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- * **Good circulation**

Neuronal tissue relies heavily on blood flow

- * **Good vascular integrity**

Microvascular damage->neurodegeneration

- * **Practice focus / limit distraction**

Real-world relationships and experiences;
restricting device-based experiences;
avoiding multitasking

* Common Background

WHO Guidelines for reducing cognitive decline and dementia: 2019
https://www.who.int/mental_health/neurology/dementia/guidelines_risk_reduction/en/

Physical activity (circulation), no smoking, low alcohol, good nutrition (vascular health), social ties
Vit. B, Vit. E, fish oil, multivits NOT helpful

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- * **Avena sativa** (milky, unripe oat tops as tea / extract)

- * **Phosphatidylcholine / choline** (whole fish, legumes)

- * **Ginkgo biloba** (leaves or leaf extracts)

- * **Centella asiatica** (gotu kola - whole leaves / extract)

- * **Aromatics - external** (incense, aromatherapy)

- * **Rosmarinus off.** (rosemary leaves, often a tincture)

- * **Salvia off.** (garden sage leaves, tea or tincture)

- * **Coffea / Camellia / Ilex / Guarana / Cola species**
(caffeine sources)

* Traditional herbs

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*Tonics

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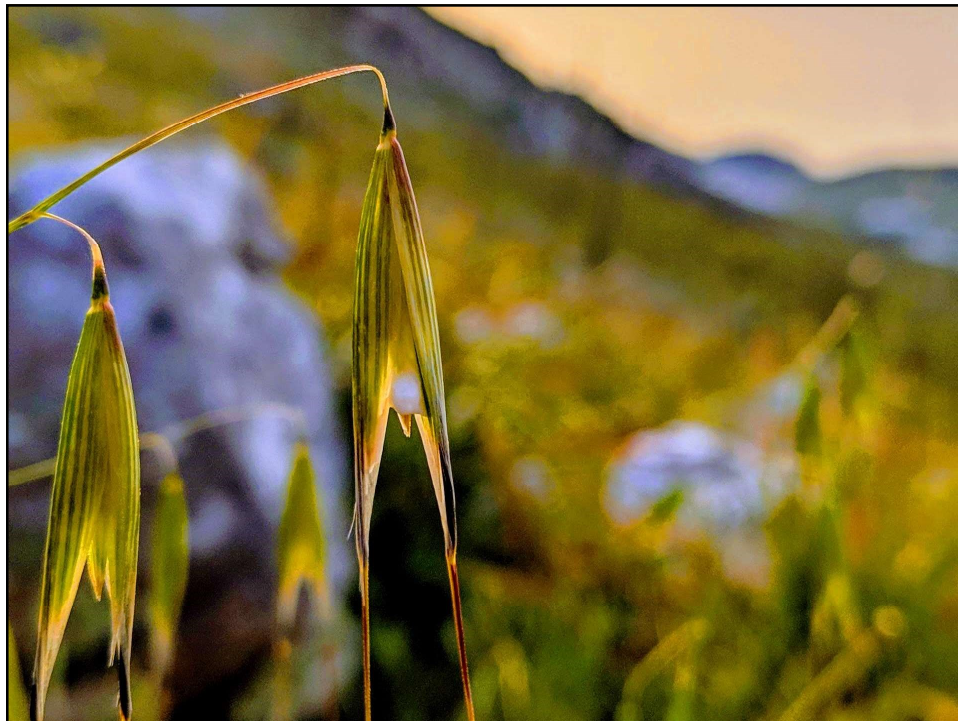
*Supportive herbs

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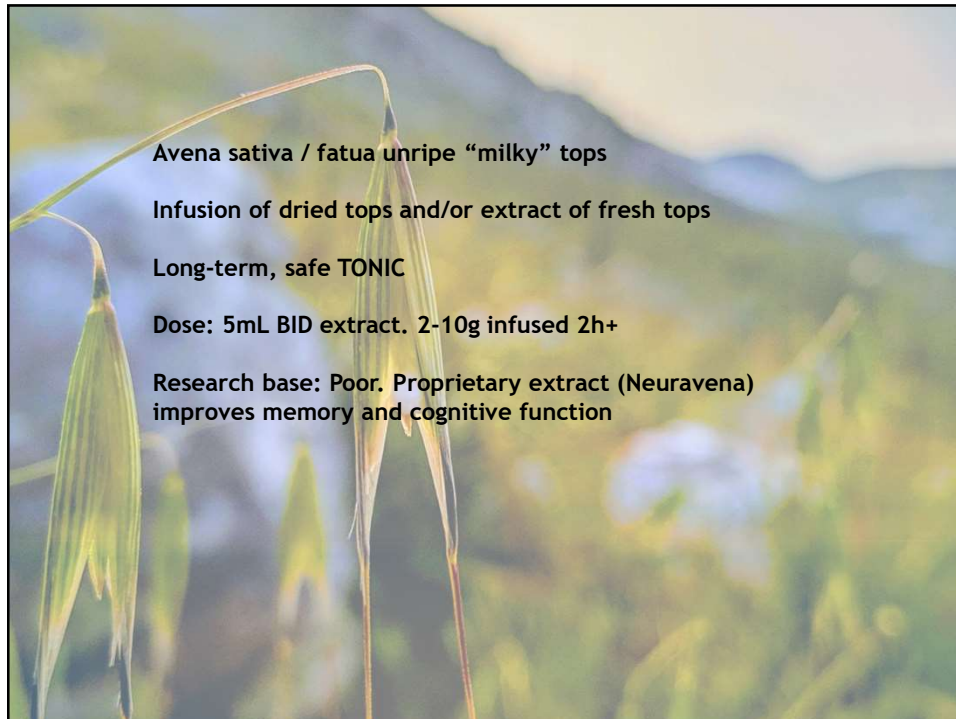
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* Neurotransmitter modulation

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Ginkgo biloba - leaf or leaf extract

Infusion of leaves or proprietary extract (EGb, 24% flavones)

Most indicated if vascular health is a concern; also anxiolytic

Safety: anticoagulants, interactions w/ psychotropics

Dose: 4-5g infused 2h+, 240mg-600mg Egb QD/BID

Research base: Almost entirely on the extract. Cognitive performance boosts at higher doses, supportive effects at lower doses, 240mg BID minimum for anxiolytic effects

Bettermann, K., Arnold, A. M., Williamson, J., Rapp, S., Sink, K., Toole, J. F., Carlson, M. C., Yasar, S., Dekosky, S., and Burke, G. L. Statins, risk of dementia, and cognitive function: secondary analysis of the ginkgo evaluation of memory study. *J Stroke Cerebrovasc. Dis* 2012;21(6):436-444.

Vellas, B., Coley, N., Ousset, P. J., Berrut, G., Dartigues, J. F., Dubois, B., Grandjean, H., Pasquier, F., Piette, F., Robert, P., Touchon, J., Garnier, P., Mathix-Fortunet, H., and Andrieu, S. Long-term use of standardised Ginkgo biloba extract for the prevention of Alzheimer's disease (GuidAge): a randomised placebo-controlled trial. *Lancet Neurol.* 2012;11(10):851-859.

Herrschaft, H., Nacu, A., Likhachev, S., Sholomov, I., Hoerr, R., and Schlaefke, S. Ginkgo biloba extract EGb 761(R) in dementia with neuropsychiatric features: a randomised, placebo-controlled trial to confirm the efficacy and safety of a daily dose of 240 mg. *J Psychiatr. Res* 2012;46(6):716-723.

Ihl, R., Tribanek, M., and Bachinskaya, N. Efficacy and tolerability of a once daily formulation of Ginkgo biloba extract EGb 761(R) in Alzheimer's disease and vascular dementia: results from a randomised controlled trial. *Pharmacopsychiatry* 2012;45(2):41-46.

Laws, K. R., Sweetnam, H., and Kondel, T. K. Is Ginkgo biloba a cognitive enhancer in healthy individuals? A meta-analysis. *Hum. Psychopharmacol.* 2012;27(6):527-533.

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Centella asiatica - Gotu Kola leaves

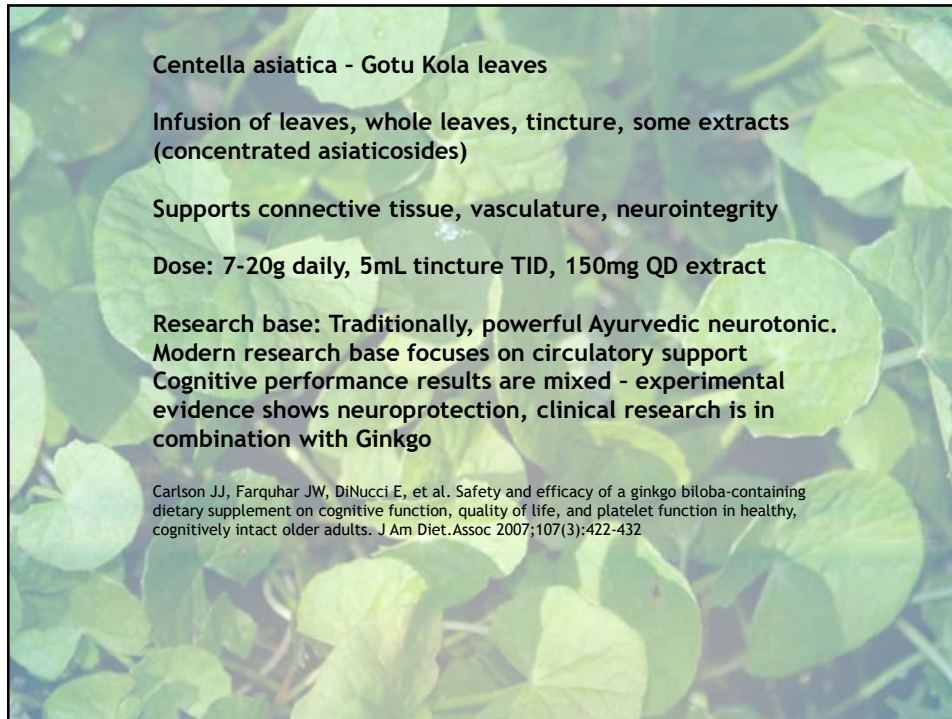
Infusion of leaves, whole leaves, tincture, some extracts (concentrated asiaticosides)

Supports connective tissue, vasculature, neurointegrity

Dose: 7-20g daily, 5mL tincture TID, 150mg QD extract

Research base: Traditionally, powerful Ayurvedic neurotonic. Modern research base focuses on circulatory support
Cognitive performance results are mixed - experimental evidence shows neuroprotection, clinical research is in combination with Ginkgo

Carlson JJ, Farquhar JW, DiNucci E, et al. Safety and efficacy of a ginkgo biloba-containing dietary supplement on cognitive function, quality of life, and platelet function in healthy, cognitively intact older adults. *J Am Diet. Assoc* 2007;107(3):422-432



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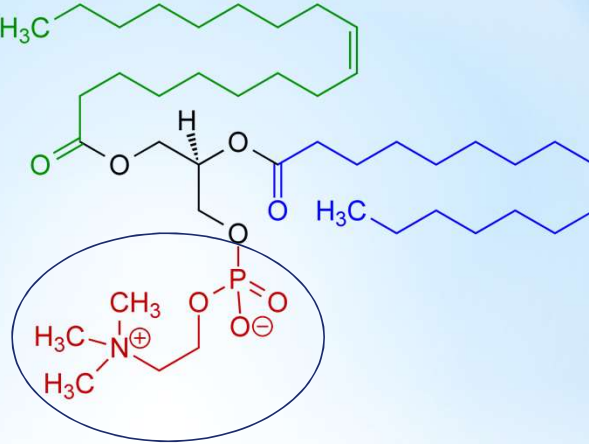
Choline
(as part of phosphatidylcholine)

Lecithin, fish, Avena, legumes, eggs

TONIC - important B vitamin, also building block for nerve tissue
Especially indicated for recovery: after brain injury, stroke

Dose: 1g-2g for long periods: 4-6 months

Research base: Clearly an important nutrient - esp. fetal neurodevelopment. Poor clinical evidence for cognitive enhancement; limited evidence for improved recovery post-injury.



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Rosmarinus officinalis - Rosemary leaves

Tincture of the leaves; small amounts in infusion

Supports cerebrovascular circulation; indicated as a supportive herb where circulatory deficiency (brain and/or systemic) is present.
May have secondary cognitive / memory support (rosmarinic acid as neuronal anti-inflammatory)

Dose: .75mL-1.5mL tincture BID-TID

Research base: Limited, but positive clinical evidence on mood, alertness, and memory recall. Akin to many of the aromatic strategies - but more stimulating, arousing rather than relaxing / calmative.

Moss M, Cook J, Wesnes K, et al. Aromas of rosemary and lavender essential oils differentially affect cognition and mood in healthy adults. Int J Neurosci 2003;113(1):15-38.
Burnett KM, Solterbeck LA, and Strapp CM. Scent and mood state following an anxiety-provoking task. Psychol. Rep 2004;95(2):707-722

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Salvia officinalis - sage leaves

Infusion of leaves, tincture

Neurotransmitter modulator for ACh. May support good mood as an aromatic plant; supports focus, cognition and memory in dementia.

Dose: 5-8g infused daily, 2-3mL tincture BID

Research base: Promising clinical research in Alzheimer's, limited but positive clinical research on cognition, memory and mood / stress in healthy adults

Dos Santos-Neto LL, Vilhena Toledo MA, Medeiros-Souza P, et al. The use of herbal medicine in Alzheimer's disease-a systematic review. *Evid.Based.Complement Alternat.Med* 2006;3(4):441-445.

Kennedy DO, Dodd FL, Robertson BC, et al. Monoterpenoid extract of sage (*Salvia lavandulaefolia*) with cholinesterase inhibiting properties improves cognitive performance and mood in healthy adults. *J.Psychopharmacol.* 2011;25(8):1088-1100.

Kennedy DO, Pace S, Haskell C, et al. Effects of cholinesterase inhibiting sage (*Salvia officinalis*) on mood, anxiety and performance on a psychological stressor battery. *Neuropsychopharmacology* 2006;31(4):845-852

Moss L, Rouse M, Wesnes KA, and Moss M. Differential effects of the aromas of *Salvia* species on memory and mood. *Hum.Psychopharmacol.* 2010;25(5):388-396.

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Various herbs - aromatics

Incense, aromatherapy diffusion

Supports mood, but can also alleviate anxiety and stimulate creativity / work performance

Dose: daily rituals: AM for focus, PRN for transitions

Research base: Extensive, with multiple botanicals. Often essential oil fractions are the focus.

Lis-Balchin, Maria. Aromatherapy science
 Lemon, Katie. "An assessment of treating depression and anxiety with aromatherapy." *International journal of aromatherapy* 14.2 (2004): 63-69.
 Watanabe, Eri, et al. "Effects of bergamot (*Citrus bergamia* (Risso) Wright & Arn.) essential oil aromatherapy on mood states, parasympathetic nervous system activity, and salivary cortisol levels in 41 healthy females." *Forschende Komplementärmedizin/Research in Complementary Medicine* 22.1 (2015): 43-49
 Koutivand, Peir Hossein, Maryam Khaleghi Ghadiri, and Ali Gorji. "Lavender and the nervous system." *Evidence-Based Complementary and Alternative Medicine* 2013 (2013).
 Raudenbush, Bryan, et al. "Effects of Peppermint and Cinnamon Odor Administration on Simulated Driving Alertness, Mood and Workload." *North American Journal of Psychology* 11.2 (2009).

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**Camellia sinensis, Ilex (paraguayensis, vomitoria, guayusa),
 Cola nitida (Cola nut), Paullinia (Guarana), Coffea arabica**

Infusion, tincture, extracts

Proven short-acting cognitive performance enhancer. Most useful as a targeted boost for short-term memory, reaction times.

Safety: can aggravate anxiety, palpitations. Strong diuretic. Can cause GI upset. Can cause jitters - combine with L-theanine, calming adaptogens

Dose: 30-600mg (30mg = approx 1g Camellia / Ilex / Coffea)

Research base: Extensive. Well-described mechanisms: adenosine antagonism, circadian clock reset

Ker K, Edwards PJ, Felix LM, et al. Caffeine for the prevention of injuries and errors in shift workers. Cochrane Database Syst Rev 2010;(5):CD008508.
 Olson CA, Thornton JA, Adam GE, et al. Effects of 2 adenosine antagonists, quercetin and caffeine, on vigilance and mood. J Clin Psychopharmacol 2010;30(5):573-578.
 Smillie LD, Gokcen E. Caffeine enhances working memory for extraverts. Biol Psychol 2010;85(3):496-498.

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- * *Bacopa monnieri* (brahmi, trad. Ayurvedic, leaves)
- * L-theanine (usually *Camellia* spp. source)
- * *Hericium erinaceus* (lion's mane mushroom)
- * *Crocus sativus* (saffron stigmas)
- * *Curcuma longa* (turmeric rhizome)
- * Quercetin (from a range of sources)
- * Cannabidiol (CBD - from "hemp" Cannabis)
- * *Huperzia serrata* (Chinese clubmoss - extracts)
- * *Galanthus* spp. (snowdrops - source of galantamine)
- * *Rhodiola rosea* (tinctures or extracts)

* "Novel" approaches

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* Tonics

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* Supportive herbs

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* Neurotransmitter modulation

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Bacopa monnieri - Brahmi, Bacopa

Infusion of leaves, tincture, proprietary extracts (BacoMind - full spectrum bacosides+flavonoids, alcohol-based)

Non-specific: both tonic and neurotransmitter modulator, used in dementia but also effective in children/adults. Improves attention, focus, memory, cognition. Best results over time (4-6 weeks).

Dose: 5-10g daily, 5mL tincture TID, 350mg-400mg BacoMind

Research base: Extensive experimental evidence of neuroprotection, cognitive and memory enhancement. More limited, but consistently positive clinical research for attention, focus, memory and cognition at all ages.

Stough C, Lloyd J, Clarke J, et al. The chronic effects of an extract of Bacopa monniera (Brahmi) on cognitive function in healthy human subjects. *Psychopharmacology (Berl)* 2001;156(4):481-484.

Russo A, Borrelli F. Bacopa monniera, a reputed nootropic plant: an overview. *Phytomedicine* 2005;12(4):305-317.

Roodenrys S, Booth D, Bulzomi S, et al. Chronic effects of Brahmi (Bacopa monnieri) on human memory. *Neuropsychopharmacology* 2002;27(2):279-281.

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Camellia sinensis - source of L-theanine (esp. white, green teas which minimize caffeine)

Infusion of leaves, extracts.

Enhances focus and calm, especially w/ stimulating nootropics

Dose: 120mg-2,000mg. Often a 1:4 ratio caffeine:L-theanine

Research base: Direct study of L-theanine reveals little if any calmative effect. In combination with caffeine, it provides an “anti-jitter” effect and a synergistic increase in cognitive performance. Additional theanine is required beyond what is found naturally in tea.

Haskell CF, Kennedy DO, Milne AL, et al. The effects of L-theanine, caffeine and their combination on cognition and mood. *Biol Psychol* 2008;77(2):113-122
Rogers PJ, Smith JE, Heatherley SV, et al. Time for tea: mood, blood pressure and cognitive performance effects of caffeine and theanine administered alone and together. *Psychopharmacology (Berl)* 2008;195(4):569-577

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Heridium erinaceus - Lion's mane, yamabushitake

Edible fungus, 2-phase extracts, mycelial extracts

Primarily neuroregenerative tonic, most useful in dementia and for recovery after injury. But also neuroprotective during times of stress, low sleep; stabilizing to mood.

Dose: 3-5g daily, 5mL tincture BID

Research base: Strong experimental research and well-defined mechanisms, via Nerve Grown Factor and ACh modulation. Limited, but promising clinical research on memory/cognition/mood.

Mori K, Inatomi S, Ouchi K, et al. Improving effects of the mushroom Yamabushitake (Heridium erinaceus) on mild cognitive impairment: a double-blind placebo-controlled clinical trial. *Phytother Res.* 2009; 23:367-72.
Nagano M, Shimizu K, Kondo R, et al. Reduction of depression and anxiety by 4 weeks Heridium erinaceus intake. *Biomed Res.* 2010; 31:231-7.
Spelman K, Sutherland E, and Bagade A. Neurological Activity of Lion's Mane (Heridium erinaceus). *Journal of Restorative Medicine*, Volume 6, Number 1, 3 December 2017, pp. 19-26(8)

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Crocus sativus - saffron

Powdered stigmas

Uplifting, supportive for mood. Seems effective, though mild, in Alzheimer's dementia.

Dose: 30-50mg daily

Research base: Much of the research is focused on the antidepressant effect, as well as its ability to manage dysmenorrhea, stress, and low libido. Almost always shows adaptogenic quality. Small but sound trials have seen improvements in cognition and reductions in dementia.

Akhondzadeh S, Shafiee Sabet M, Harirchian MH, et al. A 22-week, multicenter, randomized, double-blind controlled trial of Crocus sativus in the treatment of mild-to-moderate Alzheimer's disease. *Psychopharmacology (Berl)* 2010;207(4):637-43.
Schmidt M, Betti G, Hensel A. Saffron in phytotherapy: pharmacology and clinical uses. *Wien Med Wochenschr* 2007;157(13-14):315-9.

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Curcuma longa - Turmeric, curcumin

Whole powdered rhizome, tincture, curcuminoid extracts

Supportive: CNS / neuronal anti-inflammatory most indicated for cognitive recovery after TBI/stroke. Also slows neurodegeneration and may improve cognitive parameters in dementia.

Dose: 4-20g powder daily, w/ black pepper & food. 600mg-1,200mg curcuminoids QD-BID

Safety: rule out CNS bleeding. Do not mix with anticoagulants

Research base: Extensive as a general anti-inflammatory. More limited as a neuronal anti-inflammatory, and scant (though promising) clinical research for dementia

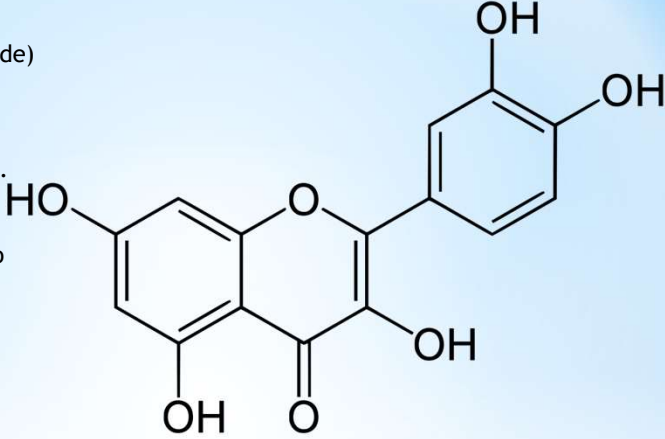
Hurley LL and Tizabi Y. Neuroinflammation, neurodegeneration, and depression. Neurotox.Res 2013;23(2):131-144
 Ogle WO, Speisman RB, and Ormerod, BK. Potential of treating age-related depression and cognitive decline with nutraceutical approaches: a mini-review. Gerontology 2013;59(1):23-31
 Zhang LN, Sun YJ, Pan S, et al. Na(+)-K(+)-ATPase, a potent neuroprotective modulator against Alzheimer disease. Fundam.Clin Pharmacol 2013;27(1):96-103.

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Quercetin (+Q-glycoside)
(common flavonoid)

Apples, onions,
Solidago. Isolated too.

Vascular tonic and
protective agent. Also
may support
wakefulness and
cognition if fatigued -
adenosine antagonist



Dose: 120-400mg QD-BID. Best taken as a complex of glycosides for absorption.

Research base: Experimental evidence points to anti-inflammatory, neuroregenerative effects; also adenosine antagonism (=alert, fewer allergies). Clinical research is mixed - military trials show no effect. May be due to supplementation with de-glycosylated flavonoid, or too-low dosing.

Olson, Craig A., et al. "Effects of 2 adenosine antagonists, quercetin and caffeine, on vigilance and mood." *Journal of clinical psychopharmacology* 30.5 (2010): 573-578.

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Cannabis spp. - Marijuana, hemp, cannabinoids, THC, CBD

Smoked, lipid extracts (CO2, others)

Psychoactive THC (CB1 agonist) can cause anxiety, harm focus and memory. In microdoses can increase creativity and focus. “Non-psychoactive” CBD modulates endocannabinoid / phytocannabinoid metabolism: reduces anxiety, improves focus

Dose: THC micro 1mg-2mg QD. CBD 15mg-600mg QD-BID

Research base: Extensive, but much less so for CBD/hemp (<0.3% THC). Improvement in mood, focus, and cognition seem to come from its balancing effect on neurotransmission in the CNS endocannabinoid system.

Mikael A. Kowal et al. Modulation of cognitive and emotional processing by cannabidiol: the role of the anterior cingulate cortex. *Frontiers in Human Neuroscience*, April 2013.
 Russo, E. Cannabidiol claims and misconceptions. *Trends in Pharmacological Sciences*, March 2017.
 Osborne, A. L., Solowij, N. & Weston-Green, K. (2017). A systematic review of the effect of cannabidiol on cognitive function: relevance to schizophrenia. *Neuroscience and Biobehavioral Reviews*, 72 310-324.

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Huperzia serrata, Chinese clubmoss, huperzine-A (alkaloid)

Tinctures can be found, but usually a huperzine-rich extract

Enhances neurotransmission in the ACh system, improves memory and cognition, used in dementia and also to boost mental performance.

Dose: 200mcg-400mcg huperzine-A QD

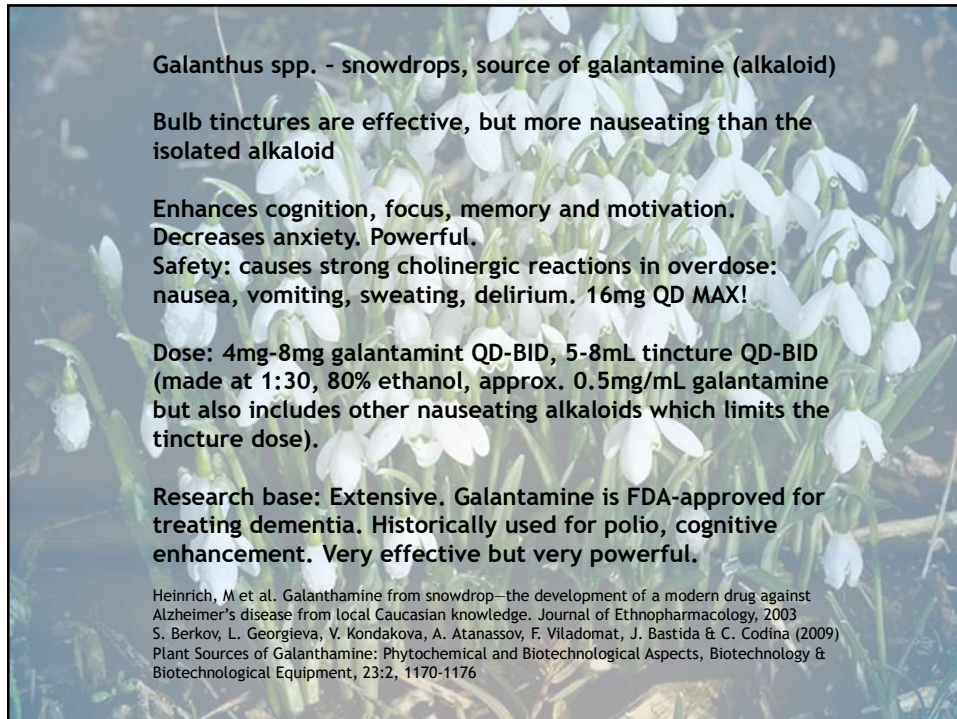
Research base: Experimental models confirm ACh-esterase inhibition, hint at neuroregenerative effects. Clinical research converges on improvements in memory, cognition. Some research on dementia is positive, some is mixed.

Hao Z, Liu M, Liu Z, et al. Huperzine A for vascular dementia. *Cochrane Database Syst Rev* 2009;(2):CD007365
 Chow TW. Review: insufficient evidence on huperzine A for Alzheimer's. *Evid Based Ment Health* 2008;11(4):112.
 Sun QQ, Xu SS, Pan JL, et al. Huperzine-A capsules enhance memory and learning performance in 34 pairs of matched adolescent students. *Zhongguo Yao Li Xue Bao* 1999;20(7):601-603.
 Wang R, Tang XC. Neuroprotective effects of huperzine A. A natural cholinesterase inhibitor for the treatment of Alzheimer's disease. *Neurosignals* 2005;14(1-2):71-82.
 Wang G, Zhang SQ, Zhan H. [Effect of huperzine A on cerebral cholinesterase and acetylcholine in elderly patients during recovery from general anesthesia]. *Nan Fang Yi Ke Da Xue Xue Bao* 2006;26(11):1660-1662.

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Galanthus spp. - snowdrops, source of galantamine (alkaloid)

Bulb tinctures are effective, but more nauseating than the isolated alkaloid

**Enhances cognition, focus, memory and motivation.
Decreases anxiety. Powerful.**

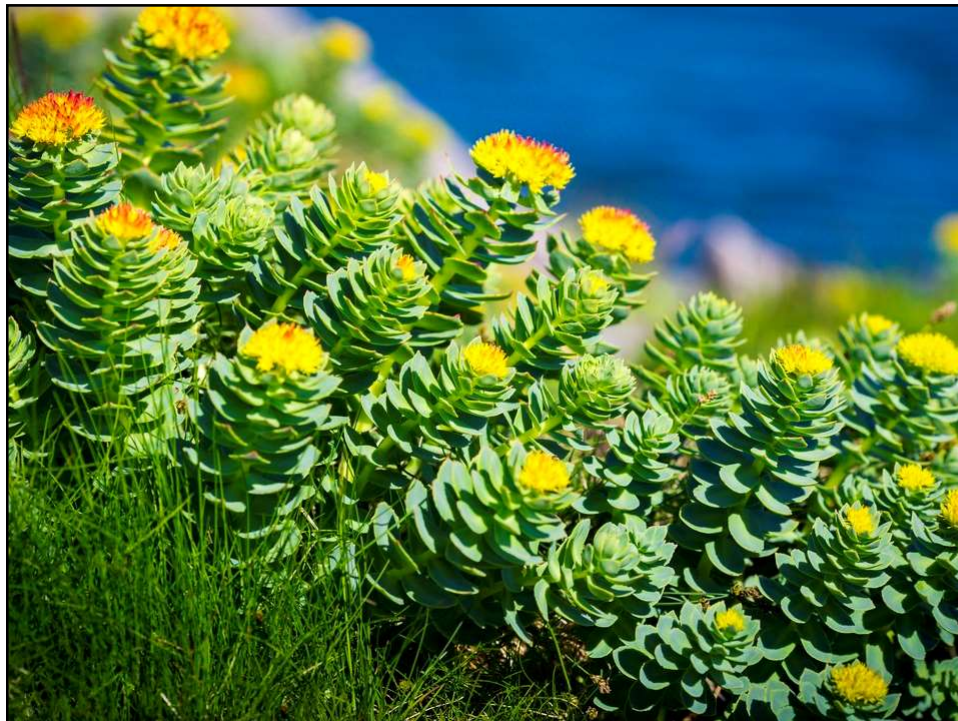
**Safety: causes strong cholinergic reactions in overdose:
nausea, vomiting, sweating, delirium. 16mg QD MAX!**

**Dose: 4mg-8mg galantamine QD-BID, 5-8mL tincture QD-BID
(made at 1:30, 80% ethanol, approx. 0.5mg/mL galantamine
but also includes other nauseating alkaloids which limits the
tincture dose).**

**Research base: Extensive. Galantamine is FDA-approved for
treating dementia. Historically used for polio, cognitive
enhancement. Very effective but very powerful.**

Heinrich, M et al. Galanthamine from snowdrop—the development of a modern drug against Alzheimer's disease from local Caucasian knowledge. *Journal of Ethnopharmacology*, 2003
S. Berkov, L. Georgieva, V. Kondakova, A. Atanassov, F. Viladomat, J. Bastida & C. Codina (2009)
Plant Sources of Galanthamine: Phytochemical and Biotechnological Aspects, *Biotechnology & Biotechnological Equipment*, 23:2, 1170-1176

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Rhodiola rosea - rose root, arctic root

Powdered root, tincture, or extracts

A stimulating adaptogen, modulates neurotransmission across multiple axes including 5-HT (serotonin), DOPA (dopamine), and NE (Norepinephrine). Mood and physical performance improve along with cognitive performance, memory.

Safety: can be excessively stimulating. Often combined with Schisandra to “soften”. Avoid after 2pm.

Dose: 500mg-2g daily, 2-5mL tincture

Research base: Good, though often focused on physical performance and often studied as a proprietary combination (w/ Schisandra + Eleuthero). Antidepressant, anti-fatigue, improves memory, learning, cognition. Fast-acting.

Hung SK, Perry R, and Ernst E. The effectiveness and efficacy of Rhodiola rosea L.: A systematic review of randomized clinical trials. *Phytomedicine* 2011;18(4):235-244

Darbinyan V, Kteyan A, Panossian A, et al. in stress induced fatigue--a double blind cross-over study of a standardized extract SHR-5 with a repeated low-dose regimen on the mental performance of healthy physicians during night duty. *Phytomedicine* 2000;7(5):365-371.

Shevtsov VA, Zhulus BI, Shervarly VI, et al. A randomized trial of two different doses of a SHR-5 extract versus placebo and control of capacity for mental work. *Phytomedicine* 2003;10(2-3):95-105.

Spasov AA, Wikman GK, Mandrikov VB, et al. A double-blind, placebo-controlled pilot study of the stimulating and adaptogenic effect of SHR-5 extract on the fatigue of students caused by stress during an examination period with a repeated low-dose regimen. *Phytomedicine* 2000;7(2):85-89.

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***“Psychedelics”**

- * Research into “full-dose” therapeutics has been progressing over the last 15 years (and before)
- * Psilocybin and LSD receive the most attention
- * Main outcomes: reduce depression, anxiety, addiction
- * Main outcomes: improve flexibility, creativity


***Entheogens**

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Roland Griffiths
Johns Hopkins

Psilocybin: oceanic boundlessness, fear of ego dissolution, visuals
Fear in over 1/3 of participants, but significant benefits in depression, PTSD, anxiety, addiction

Griffiths, Roland R., et al. "Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance." *Psychopharmacology* 187.3 (2006): 268-283.



Entheogens

57


Roland Griffiths
Johns Hopkins

Psilocybin: increase in "openness" domain - clinically observed, reported by family/friends @ 6mo follow-up

MacLean, Katherine A., Matthew W. Johnson, and Roland R. Griffiths. "Mystical experiences occasioned by the hallucinogen psilocybin lead to increases in the personality domain of openness." *Journal of Psychopharmacology* 25.11 (2011): 1453-1461.

Also:

Griffiths et al 2008: 14 month follow-up
Griffiths, Grob et al 2013: anxiety + cancer



Entheogens

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Roland Griffiths
Johns Hopkins

Good review of overall effects of psilocybin on mental health:

Griffiths, Roland R., and Charles S. Grob. "Hallucinogens as medicine." *Scientific American* 303.6 (2010): 76-79.

Johnson, Matthew W., et al. "Pilot study of the 5-HT2AR agonist psilocybin in the treatment of tobacco addiction." *Journal of Psychopharmacology* (2014): 0269881114548296.

Experiment on tobacco cessation.
80% stayed quit at 6mo follow-up
....after one session!



Entheogens

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Robin L Carhart-Harris (Imperial College, London)
Clinical trial in the *Lancet*

One of the first prospective trials for psilocybin in cases of depression that didn't respond to treatment.

Carhart-Harris, Robin L, et al. " Psilocybin with psychological support for treatment-resistant depression: an open-label feasibility study." *The Lancet: Psychiatry* (2016): pre-publication

12 patients. Two sessions, with escalating dose of psilocybin.
All patients reported anxiety during onset.
All patients showed improvement at:
1 week and 3 months in:
depression, anxiety, anhedonia



Entheogens

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* **“Psychedelics”**

- * Research into “full-dose” therapeutics has been progressing over the last 15 years (and before)
- * Psilocybin and LSD receive the most attention
- * Main outcomes: reduce depression, anxiety, addiction
- * Main outcomes: improve flexibility, creativity
- * ... all at doses that are impractical for daily use
- * **“MICRODOSING”?**

* **Entheogens**

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* **“Microdosing”**

- * Typically 10% of a “full” dose
- * Psilocybin: 200mg-400mg
- * LSD: 10mcg-15mcg
- * Research is limited compared to full doses, but outcomes are similar in one respect:
 - * Convergent, analytical thinking improves
 - * Divergent, tangential thinking improves
 - * Overall: increase in creativity, flexibility, focus

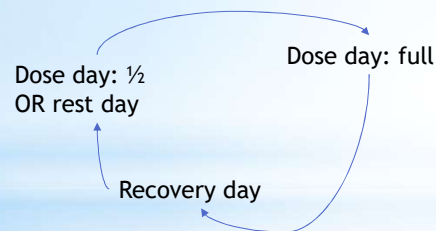
* **Entheogens**

Prochazkova, Luisa, et al. "Exploring the effect of microdosing psychedelics on creativity in an open-label natural setting." *Psychopharmacology* 235.12 (2018): 3401-3413.
 - Psilocybin, 240-440mg depending on weight. Non-blinded.

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* **“Microdosing”**

- * In clinical practice, even small doses have noticeable effects.
- * Tolerance develops quickly - recovery indicated
- * “Cycling”: typical plan (psilocybin, LSD, THC)



* **Entheogens**

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- * Especially for short-acting neurotransmitter modulation, and entheogens, cycling is essential for ongoing benefit.
- * Tolerance
- * Rest requirement
- * Short cycles - 1-2x/week
- * Long cycles - 3-6 weeks

* **Cycling**

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- *Step 1: Goals
 - *Dementia / cognitive decline
 - *Recovery: brain injury, stroke
 - *Long-term cognitive boosting
 - *Short-term (project, deadline, etc)
- *Step 2: Components
 - *Tonics, supportives, targeted nootropics
- *Step 3: Timing
 - *Short and long cycles

*Building a plan

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- *Tonics + supportives are most valuable
- *May want to add milder neurotransmitter modulation
 - *Crossover tonic / neurotransmitter support
 - *Bacopa, Hericium, Salvia
- *Cycling less crucial
 - *But consider a 1-week “break” every 6 weeks
- *Important to isolate vascular component
 - *Ginkgo, Centella, Rosmarinus

*Dementia

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- *Tonics + supportives are most valuable
 - * Avena, Hericium, Choline + lipids
- *Neurotransmitter modulation is usually shorter-term, but may need to be powerful. 1-12 weeks?
 - * Rhodiola, Huperzia, Galantamine
- *CNS anti-inflammatory herbs are valuable for neuroregeneration
 - * Quercetin, Curcuma, Boswellia

*Recovery

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- *Cycling is crucial for sustained effects
- *Asynchronous micro-cycles: entheogens / neurotransmitter modulators on different days
- *Macro-cycles: ~monthly (3-6 weeks).
 - * For 1 week, tonics only. Reduce workload and distractions, increase rest, focus on mindfulness practice. [note: 2-3 days not as effective]
- *Reserve: additional “boost” when needed
 - * Rhodiola? Caffeine+theanine / Caffeine+Schisandra?

*Cognitive boost: Long

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Day 1: LSD 10mcg (AM)
Avena infusion
Hericium 200mg BID
Saffron / Bacopa / Gotu Kola

Day 2: Galantamine 4mg (AM)
Avena infusion
Hericium 200mg BID
Saffron / Bacopa / Gotu Kola

Day 3: Galantamine 8mg (AM)
Avena infusion
Hericium 200mg BID
Saffron / Bacopa / Gotu Kola

Day 7: Aromatics + long hike
Avena infusion
Hericium 200mg BID

As-needed (1-3x/week)
Caffeine 30mg-120mg
L-theanine 120mg-500mg

Week "off" (q3-6wks)
Avena infusion
PM: Scutellaria lateriflora
PM: Withania somnifera
CBD: 30mg-300mg QD

*** Cognitive boost: Long**

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- *Target: 1 week / quarter. 2-3 days/month.
- *Pre: tonification, normal load
 - * 1 week: Hericium, Bacopa
 - * 2-3 days: Hericium, Rhodiola+Schisandra
- *During: neurotransmitter modulation, supportives
 - * Galantamine OR Huperzia, Bacopa, Hericium
 - * CBD OR Crocus OR Ginkgo/Centella/Rosmarinus
- *Post: tonification, reduced load
 - * 1-2 weeks: Avena, Hericium, Withania/Schisandra

*** Cognitive boost: Short**

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- * **Good circulation**
Neuronal tissue relies heavily on blood flow
- * **Good vascular integrity**
Microvascular damage->neurodegeneration
- * **Practice focus / limit distraction**
Real-world relationships and experiences;
restricting device-based experiences;
avoiding multitasking

***Common Background**

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