46TH ANNUAL EDUCATIONAL CONFERENCE

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FUNCTIONAL PSYCHIATRY:

GETTING TO THE ROOT CAUSE OF DEPRESSION AND ANXIETY

Presented by Everest Goldstein, M.Ed, MSN,
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CANP 46TH ANNUAL EDUCATIONAL CONFERENCE

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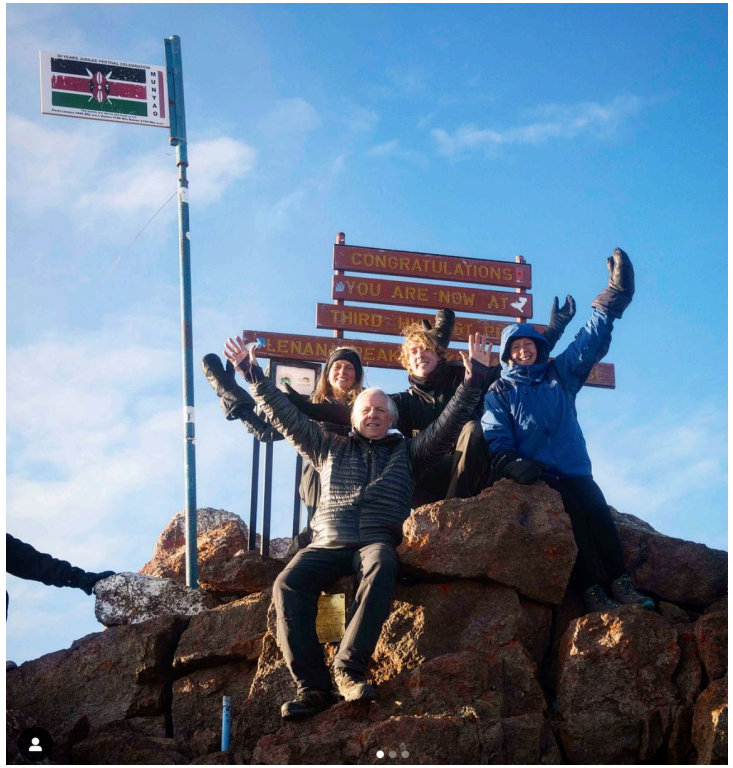


OBJECTIVES

1. Define functional psychiatry and its importance in clinical practice.

2. Identify possible root causes that drive depression and anxiety.

3. Assess and treat root causes of anxiety and depression.

WHAT IS FUNCTIONAL PSYCHIATRY?

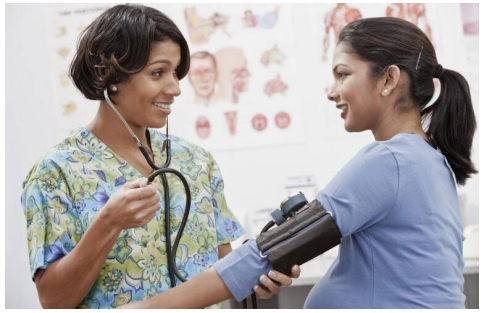
- **Functional medicine X psychiatry**
  - Using a root cause approach to address mental health concerns
  - Treating the whole person
  - Mind-body approach
- **Mental health disorders are multifactorial in nature**
  - Resulting from a combination of genetic, environmental, and lifestyle factors
  - Requiring a comprehensive and personalized approach
- **Goal:**
  - Restore balance in the body's
  - Optimize mental and physical well-being

https://smarticons.co/blog/understanding-the-meaning-of-question-mark-icons/

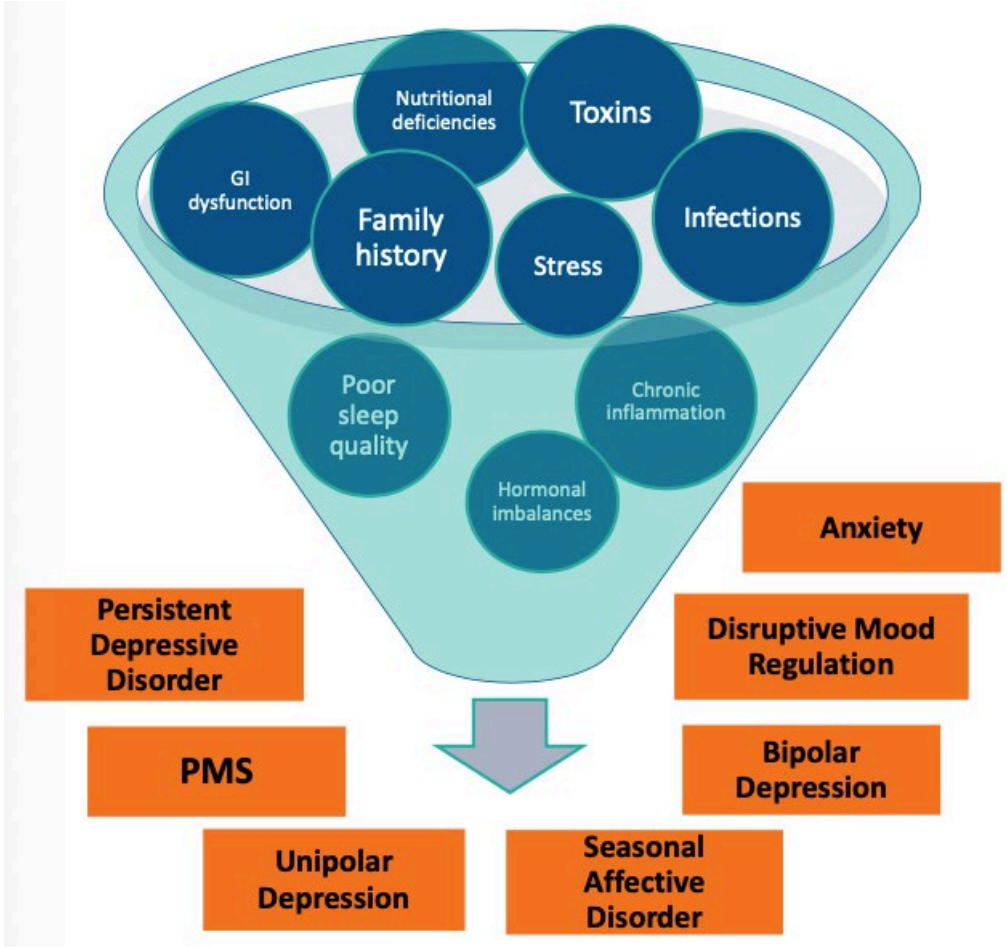
CONVENTIONAL VS. FUNCTIONAL PSYCHIATRY

CONVENTIONAL PSYCHIATRY

FUNCTIONAL PSYCHIATRY



DEPRESSION AND ANXIETY



Source: Institute for Functional Medicine

WHY DO WE CARE?

- All of our patients have a mental health component to their overall well-being
- Mental health concerns are often barriers to healing
  - They can also be mediators of disease
- Up to ½ of mood disorders contribute to future development of neurodegenerative disorders

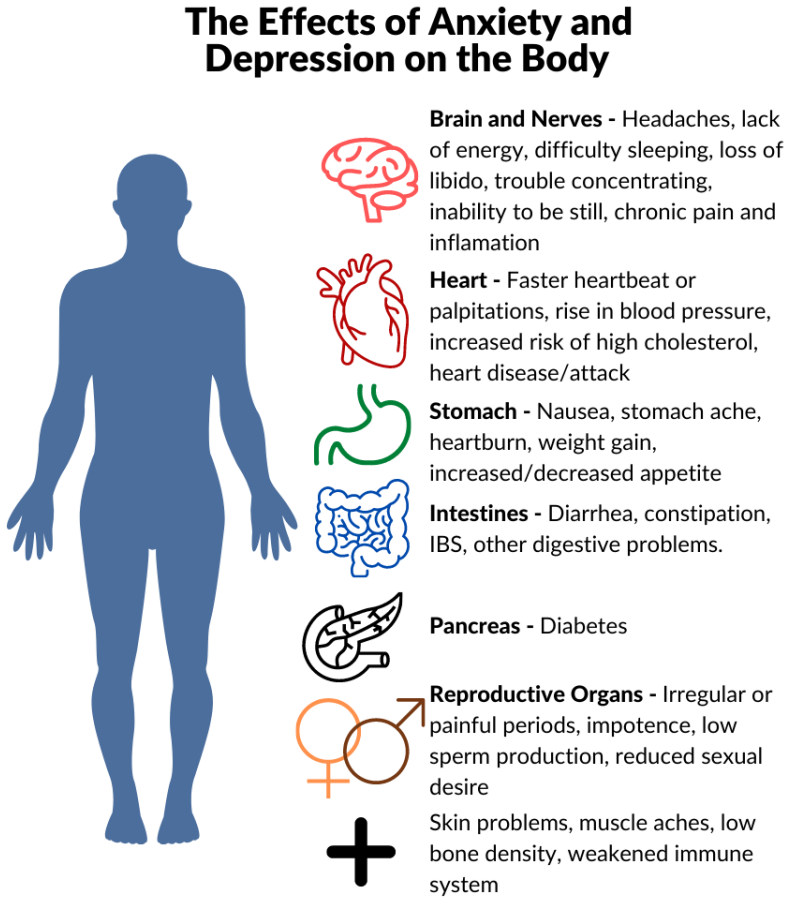
Rodrigues R, Peterson RB, Perry G. Parallels between major depressive disorder and Alzheimer's disease: role of oxidative stress and genetic vulnerability. Cell Mol Neurobiol. 2014 Oct;34(7):925-49. doi:10.1007/s1057-014-0074-5.

WHY DO WE CARE?

COMORBIDITIES:

- Alzheimer's dz
- Parkinson's dz
- Diabetes
- Metabolic syndrome
- Obesity
- Asthma
- Allergies
- Osteoporosis

- Traumatic brain injury
- Endocrine disorders
- Coronary artery disease
- HIV
- Cancer
- Autoimmune disease



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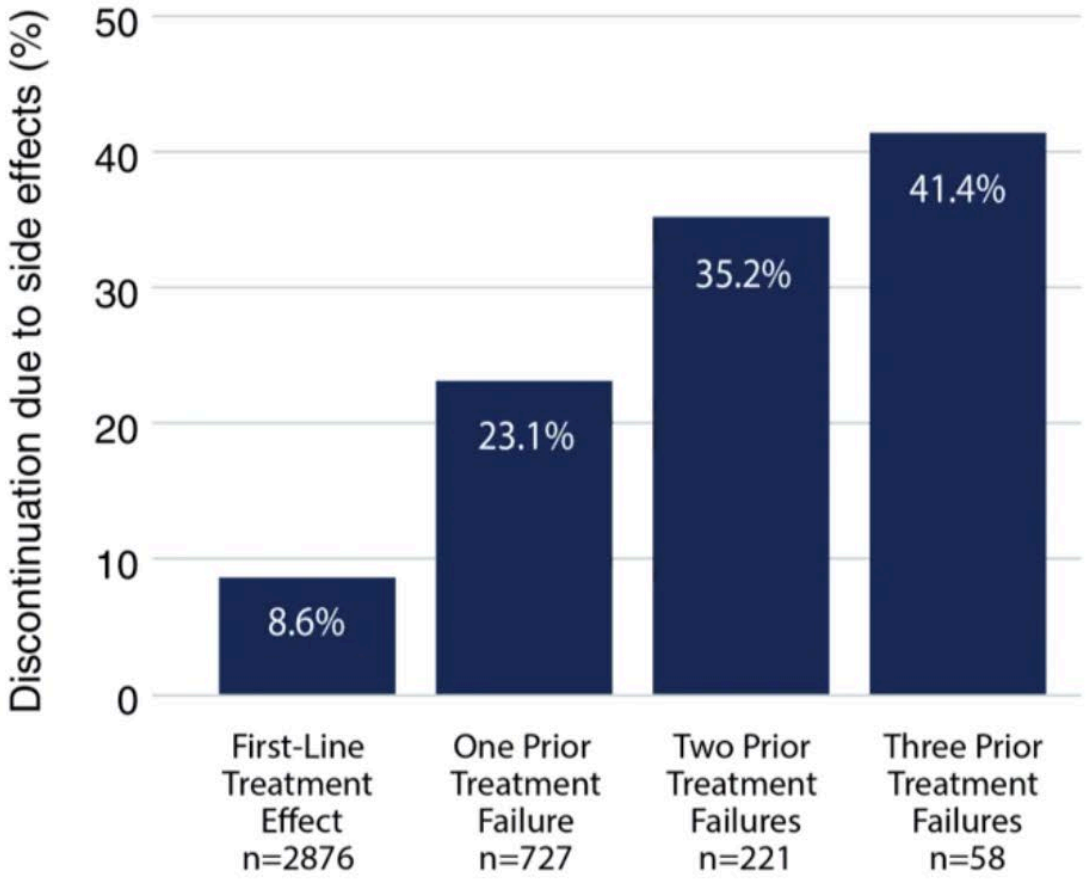
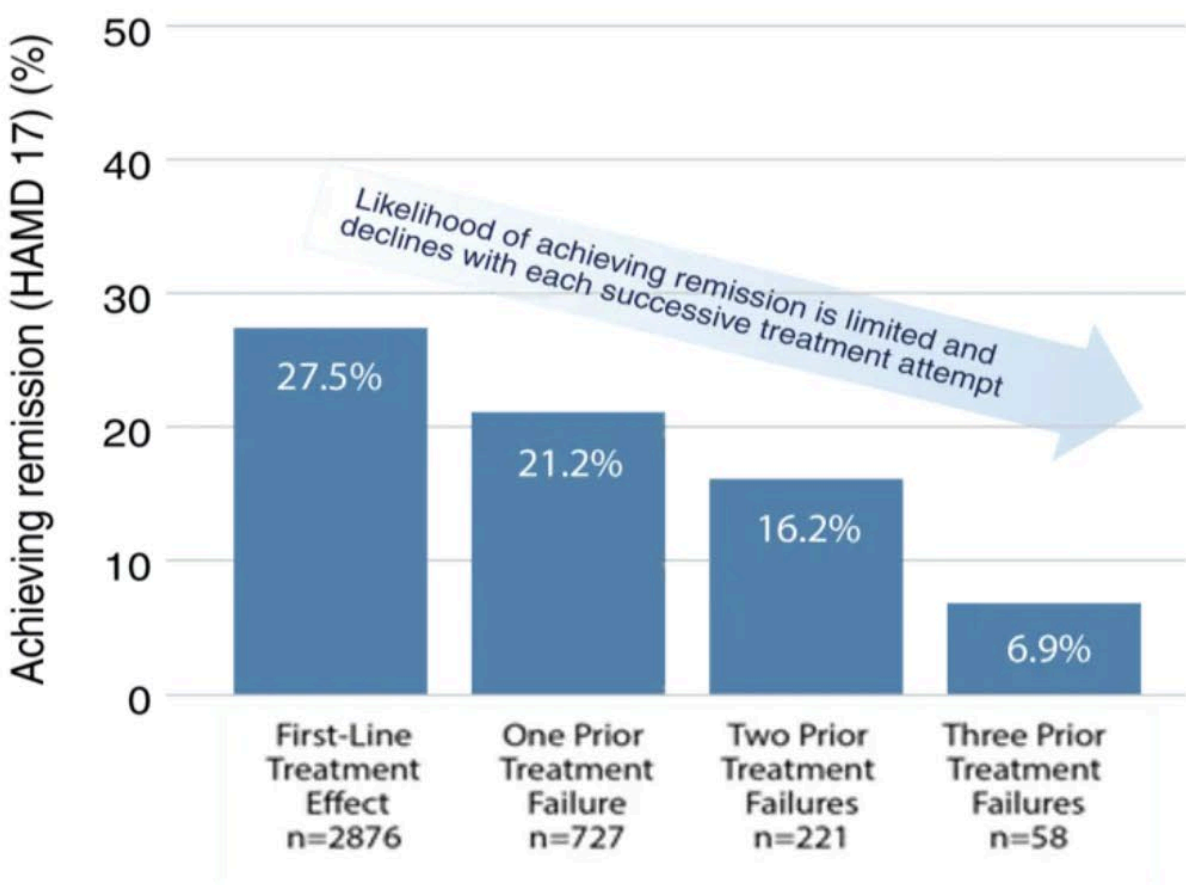
WHY DO WE CARE?

STAR*D Trial (Sequenced Treatment Alternatives to Relieve Depression)

- 50% of responders experienced treatment relapse within a year
- 25% experienced a long-term rate of remission
    - Full recovery rates are even lower

STAR*D Study





https://www.tmshelps.com/star-d

References: Why Do We Care?

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Malhi GS, Mann JJ. Depression. Lancet. 2018 Nov 24;392(10161):2299-2312. doi: 10.1016/S0140-6736(18)31948-2.

Shelton RC, Osuntokun O, Heinloth AN, Corya SA. Therapeutic options for treatment-resistant depression. CNS Drugs. 2010 Feb;24(2):131-61. doi: 10.2165/11530280-000000000-00000.

POSSIBLE ROOT CAUSES

- **Gut imbalances**
- **Inflammation**
- **Nutrient deficiencies**
- **Diet**
- **Exercise / sleep**
- **Thyroid / adrenal dysfunction**
- **Spiritual, social, emotional factors**

ROOT CAUSE:
GUT IMBALANCES

GUT HEALTH AND MENTAL HEALTH

- **There is a significant correlation between gut health and mental health**

- Patients with depression are more likely to experience:
  - Increased intestinal permeability (AKA “leaky gut”)
  - Dysbiosis (altered microbiome)
  - Increased LPS antibodies
  - IBS (irritable bowel syndrome)

Yong SJ, Tong T, Chew J, Lim WL. Antidepressive Mechanisms of Probiotics and Their Therapeutic Potential. Front Neurosci. 2020 Jan 14;13:1361. doi: 10.3389/fnins.2019.01361. PMID: 32009871; PMCID: PMC6971226.

ANTIDEPRESSANTS AND GUT HEALTH

- 95% of the body's serotonin receptors are in the gut
  - SSRI GI side effects..?!
- Antidepressants have antimicrobial effects on the gut
- Long-term antidepressant use can change the gut microbiome

IT IS CRUCIAL TO SUPPORT THE GUT IF A CLIENT IS ON OR HAS BEEN ON AN ANTIDEPRESSANT!

Appleton J. The Gut-Brain Axis: Influence of Microbiota on Mood and Mental Health. Integr Med (Encinitas). 2018 Aug;17(4):28-32. PMID: 31043907; PMCID: PMC6469458.

PSYCHOBIOTICS

Psychobiotics = probiotics (live organisms) that improve mental health

- These organisms can help produce GABA, serotonin, and other neurotransmitters that improve anxiety and depression
- They can help stimulate the vagus nerve, calm the neuroendocrine system, and regulate the HPA axis
- They improve depression and anxiety
- They reduce overall cortisol and can be protective during stressful events
- They reduce inflammation
- They reduce chronic fatigue

See ”Reference” slide

References: Psychobiotics

Dinan TG, Stanton C, Cryan JF. Psychobiotics: a novel class of psychotropic. *Biol Psychiatry*. 2013 Nov 15;74(10):720-6. doi: 10.1016/j.biopsych.2013.05.001.

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GUT HEALTH AND MENTAL HEALTH

WHEN IN DOUBT, START IN THE GUT

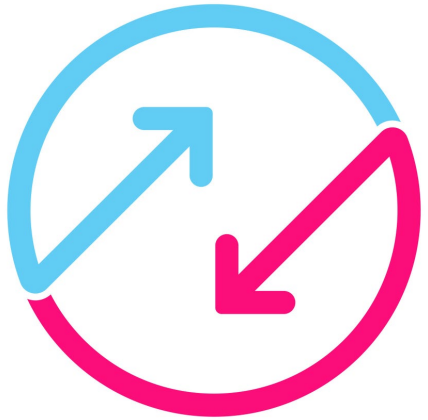
TREATMENT

https://www.23nutritiontherapy.com/restore-gut-health-using-the-5-r-protocol/

ROOT CAUSE: INFLAMMATION

INFLAMMATION AND MENTAL HEALTH

- There is a bi-directional relationship between inflammation and anxiety/depression
    - Inflammation can increase anxiety and depression
    - Anxiety and depression can increase inflammation
        - This occurs because of the release of pro-inflammatory cytokines
- Anti-inflammatory treatments have been shown to reduce symptoms of depression



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ANTI-INFLAMMATORY BOTANICALS

- Turmeric
- Ginger
- Boswellia
- Bromelain
- Devil's Claw
- Quercetin
- Cayenne
- EGCG

Source: Institute for Functional Medicine

References: Inflammation

Köhler O, et al. Effect of anti-inflammatory treatment on depression, depressive symptoms, and adverse effects: a systematic review and meta-analysis of randomized clinical trials. JAMA sychiatry. 2014 Dec 1;71(12):1381-91. doi: 10.1001/jamapsychiatry.2014.1611.

Maes M, et al. The effects of psychological stress on humans: increased production of pro-inflammatory cytokines and a Th1-like response in stress-induced anxiety. Cytokine. 1998 Apr;10(4):313-8.

Michopoulos V, Powers A, Gillespie CF, Ressler KJ, Jovanovic T. Inflammation in Fear- and Anxiety-Based Disorders: PTSD, GAD, and Beyond. *Neuropsychopharmacology*. 2017;42(1):254-270. doi:10.1038/npp.2016.146

References: Anti-Inflammatory Botanicals

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Bu, S., Kar, W., Tucker, R. M., & Comstock, S. S. (2022). Minimal Influence of Cayenne Pepper on the Human Gastrointestinal Microbiota and Intestinal Inflammation in Healthy Adult Humans—A Pilot Study. *Life*, *12*(11), 1849.

Chen, T., Zhang, X., Zhu, G., Liu, H., Chen, J., Wang, Y., & He, X. (2020). Quercetin inhibits TNF-α induced HUVECs apoptosis and inflammation via downregulating NF-kB and AP-1 signaling pathway in vitro. *Medicine*, *99*(38).

Huang TH, Tran VH, Duke RK, et. al. Harpagoside suppresses lipopolysaccharide-induced iNOS and COX-2 expression through inhibition of NF-kappa B activation. Ethnopharmacol. 2006 Mar 8;104(1-2):149-55.

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Mokra, D., Joskova, M., & Mokry, J. (2022). Therapeutic effects of green tea polyphenol (–)-Epigallocatechin-3-Gallate (EGCG) in relation to molecular pathways controlling inflammation, oxidative stress, and apoptosis. *International Journal of Molecular Sciences*, *24*(1), 340.

Shimizu, K., Funamoto, M., Sunagawa, Y., Shimizu, S., Katanasaka, Y., Miyazaki, Y., ... & Morimoto, T. (2019). Anti-inflammatory action of curcumin and its use in the treatment of lifestyle-related diseases. *European Cardiology Review*, *14*(2), 117.

Siddhu, N. S. S., Guru, A., Satish Kumar, R. C., Almutairi, B. O., Almutairi, M. H., Juliet, A., ... & Arockiaraj, J. (2022). Pro-inflammatory cytokine molecules from Boswellia serrate suppresses lipopolysaccharides induced inflammation demonstrated in an in-vivo zebrafish larval model. *Molecular Biology Reports*, *49*(8), 7425-7435.

ROOT CAUSE:
NUTRIENT DEFICIENCIES

NUTRIENTS INVOLVED IN DEPRESSION AND ANXIETY

- **Vitamin D**
- **B12**
- **Zinc**
- **Copper**
- **Fatty acids**
- **Many more…**

VITAMIN D

- ”Normal” reference range: 30-100
- Optimal reference range: 60-100

- Low vitamin D levels not only correlates to higher depression rates but also to suicidality

- Supplementing with vitamin D has consistently been shown to improve depressive symptoms

Spedding S. (2014). Vitamin D and depression: a systematic review and meta-analysis comparing studies with and without biological flaws. Nutrients, 6(4), 1501–1518. https://doi.org/10.3390/nu6041501. Licensed under CC BY 3.0.

Sarris J, et al. Adjunctive Neutraceuticals for Depression: A systematic Review and Meta-analysis Am J Psychiatry. 2016 Jun 1; 173(6):575-87 doi: 10.1176/appi.ajp.2016.15091228.

B12

Low B12 ->

- 70% increased risk of depression
- Panic attacks
- Visual hallucinations
- Fatigue
- OCD
- Bipolar disorder
- PPD
- Phobias

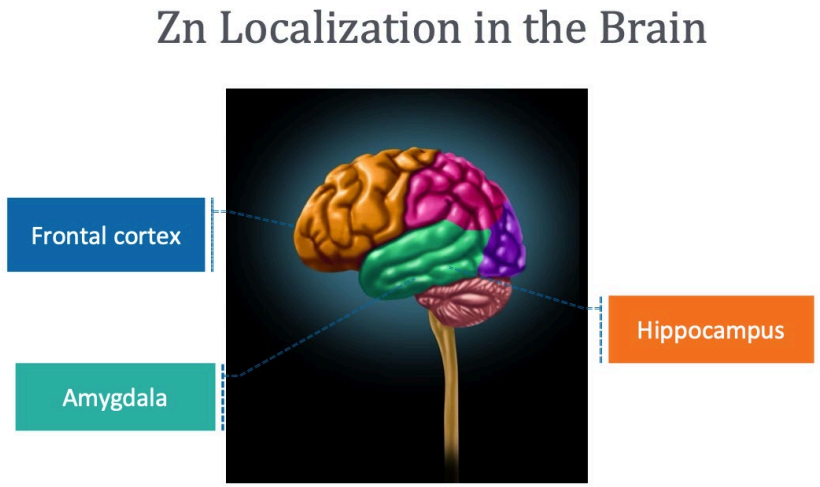
- Methylated B12 (methylcobalamin) is often better absorbed than other forms
- B12 is critical in the methylation pathway

Oiliclinio, IRCCS, et al: European Review for Medical and Pharm Sciences: 2022;26:2443-2459

Frankenburg FR. The role of one-carbon metabolism in schizophrenia and depression. Harv Rev Psychiatry. 2007;15:146-160.

ZINC AND COPPER

- Zinc and copper have an inverse relationship
- Zinc modulates the glutatmine / GABA balance
  - Zinc works as an antagonist of the glutamatergic pathway, allowing the GABAergic pathway to take over
- Zinc increases BDNF
- Zinc influences the serotonin receptor -> affects depression / anxiety
- Caution: zinc toxicity; copper depletion



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See ”Reference” slide

ZINC AND COPPER

- Patients with depression have been found to have lower levels of zinc and higher levels of copper
- It is estimated that 1/3 of people are deficient in zinc
- Supplementing with zinc can be an effective augmenting strategy in the treatment of depression and anxiety

Low zinc, high copper sx:

- Depression
- Anxiety
- Irritability / anger
- Hormonal issues (ex: PMS)

High zinc, low copper sx:

- Decreased BDNF
- Impaired memory
- Cognitive issues

See ”Reference” slide

References: Zinc and Copper

Barrondo S, Sallés J. Allosteric modulation of 5-HT(1A) receptors by zinc: Binding studies. Neuropharmacology. 2009 Feb;56(2):455-62. doi:10.1016/j.neuropharm.2008.09.018

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Mlyniec K. Zinc in the Glutamatergic Theory of Depression. *Curr Neuropharmacol*. 2015;13(4):505-513. doi:10.2174/1570159x13666150115220617

1. Swardfagera W., et. al. (2013). Zinc in Depression: A Meta-Analysis. Biological Psychiatry. 74(12): 872–878. doi:10.1016/j.biopsych.2013.05.008.

References: Zinc and Copper

Swardfagera W., et. al. (2013). Zinc in Depression: A Meta-Analysis. Biological Psychiatry. 74(12): 872–878. doi:10.1016/j.biopsych.2013.05.008

Siwek M, et al. Zinc supplementation augments efficacy of imipramine in treatment resistant patients: a double blind, placebo-controlled study. J Affect Disord. 2009 Nov;118(1-3):187-95. doi:10.1016/j.jad.2009.02.014.

Yang Y, et al. High dose zinc supplementation induces hippocampal zinc deficiency and memory impairment with inhibition of BDNF signaling. PLoS One. 2013;8(1):e55384. doi: 10.1371/journal.pone.0055384.

OMEGA-3S

- Therapeutic dose of EPA: **1-2 grams/day**
- EPA in particular has been shown to improve depression when used as an adjunctive treatment
- Omega-3s have been shown to have anxiolytic effects
  - This effect was increased when using PUFA doses of >2 grams/day

Martins JG. EPA but not DHA appears to be responsible for the efficacy of omega-3 long chain polyunsaturated fatty acid supplementation in depression: evidence from a meta-analysis of randomized controlled trials. J Am Coll Nutr. 2009 Oct;28(5):525-42.

Su KP, Tseng PT, Lin PY, Okubo R, Chen TY, Chen YW, Matsuoka YJ. Association of Use of Omega-3 Polyunsaturated Fatty Acids With Changes in Severity of Anxiety Symptoms: A Systematic Review and Meta-analysis. JAMA Netw Open. 2018 Sep 7;1(5):e182327. doi: 10.1001/jamanetworkopen.2018.2327. PMID: 30646157; PMCID: PMC6324500.

ADDITIONAL SUPPLEMENTS

ANXIETY SUPPORT

- Phosphatidylserine
- Adaptogens (ex: ashwaganda)
- GABA
- L-theanine
- Magnesium glycinate

DEPRESSION SUPPORT:

- 5-HTP
- Saffron
- Methylfolate
- SAMe
- Methylated B vitamins

References: Supplements

HENDRIX, C. (2020). Stress, Anxiety and Cognitive Function. *Stress*, *3*.

Hinton, T., & Johnston, G. A. (2020). GABA-enriched teas as neuro-nutraceuticals. *Neurochemistry international*, *141*, 104895.

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Sakamoto, F. L., Ribeiro, R. M. P., Bueno, A. A., & Santos, H. O. (2019). Psychotropic effects of L-theanine and its clinical properties: From the management of anxiety and stress to a potential use in schizophrenia. *Pharmacological research*, *147*, 104395.

Salve, J., Pate, S., Debnath, K., Langade, D., & Langade, D. G. (2019). Adaptogenic and anxiolytic effects of ashwagandha root extract in healthy adults: a double-blind, randomized, placebo-controlled clinical study. *Cureus*, *11*(12).

Tóth, B., Hegyi, P., Lantos, T., Szakacs, Z., Kerémi, B., Varga, G., ... & Csupor, D. (2019). The efficacy of saffron in the treatment of mild to moderate depression: a meta-analysis. *Planta medica*, *85*(01), 24-31.

ROOT CAUSE:
DIET

DIET AND MENTAL HEALTH

- Studies have repeatedly shown an association between what we eat and our mental health

- Macronutrients have been shown to greatly affect both depression and anxiety by:
  - Controlling glucose supply to the brain
  - Influencing our microbiome
  - Providing anti-inflammatory benefits
  - Impacting our HPA axis

Sarris J, Logan A, Akbaraly T et al. Nutritional medicine as mainstream in psychiatry. *The Lancet Psychiatry*. 2015;2(3):271-274. doi:10.1016/s2215-0366(14)00051-0.

SUGAR AND MENTAL HEALTH

Processed sugar is full of downstream effects that can increase depression and anxiety

- Increases inflammation s/t pro-inflammatory cytokines
- Decreases BDNF
- Decreases neuronal plasticity
- Increases cortisol

- Decreases availability of B vitamins
- Increases brain fog
- Increases insomnia

See ”Reference” slide

BLOOD SUGAR AND MENTAL HEALTH

- **Blood sugar spikes can independently increase depression and anxiety**

- **Ways to balance blood sugar:**

  - Walk for 10 minutes post-meals
  - Drink bone broth
  - Reduce sodas / sugary drinks
  - Reduce processed carbs
  - Eat veggies then protein/fat then carbs
  - Use a CGM

- Consider supplements:
  - Berberine
  - Cinnamon
  - Magnesium

See ”Reference” slide

MEDITERRANEAN DIET

THE MEDITERRANEAN DIET IMPROVES OVERALL DEPRESSION AND ANXIETY

- **Mediterranean diet:**
  - Reduces inflammation
  - Improves methylation
  - Improves omega 6:3 ratio
  - Decreases insulin resistance and helps balance blood sugar
  - Improves gut microbiome diversity

See ”Reference” slide

References: Diet

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References: Diet

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Philippou E, Nikiphorou E. Are we really what we eat? Nutrition and its role in the onset of rheumatoid arthritis. *Autoimmun Rev*. 2018;17(11):1074-1077. doi: 10.1016/j.autrev.2018.05.009.

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ROOT CAUSE:
EXERCISE AND SLEEP

EXERCISE BENEFITS

- Decreases cortisol (stress hormone)
- Increases serotonin
- Increases BDNF
- Increases endorphins
- Increases endocannabinoids
- Decreases inflammation
- Improves sleep

See ”Reference” slide

EXERCISE

- All types of exercise improve anxiety / depression
  - Both aerobic/cardio and resistance/weight training have been found to be beneficial
  - Moderate-vigorous exercise is correlated with reduced distress

- Exercise alone has been shown to be beneficial in treating mild-moderate depression

- Exercise can prevent future anxiety and depression

- Exercise may protect against genetic SNPs that may make one more likely to experience anxiety and depression
  - Particularly promising research in regards to the COMT gene

- Exercise can help improve sleep, which directly impacts mood and anxiety

See ”Reference” slide

References: Exercise

Adapted with permission of Kowsar, from Depression and Exercise: A Clinical Review and Management Guideline, Ranjbar, E., Memari, A. H., Hafizi, S., Shayestehfar, M., Mirfazeli, F. S., & Eshghi, M. A., vol. 6, copyright 2015; permission conveyed through Copyright Clearance Center, Inc.

Awick EA, Ehlers DK, Aguiñaga S, Daugherty AM, Kramer AF, McAuley E. Effects of a randomized exercise trial on physical activity, psychological distress and quality of life in older adults. Gen Hosp Psychiatry. 2017 Nov;49:44-50. doi:10.1016/j.genhosppsych.2017.06.005.

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Harvey SB, Øverland S, Hatch SL, Wessely S, Mykletun A, Hotopf M. Exercise and the prevention of depression: results of the HUNT Cohort Study. Am J Psychiatry. 2018;175(1):28-36. doi:10.1176/appi.ajp.2017.16111223

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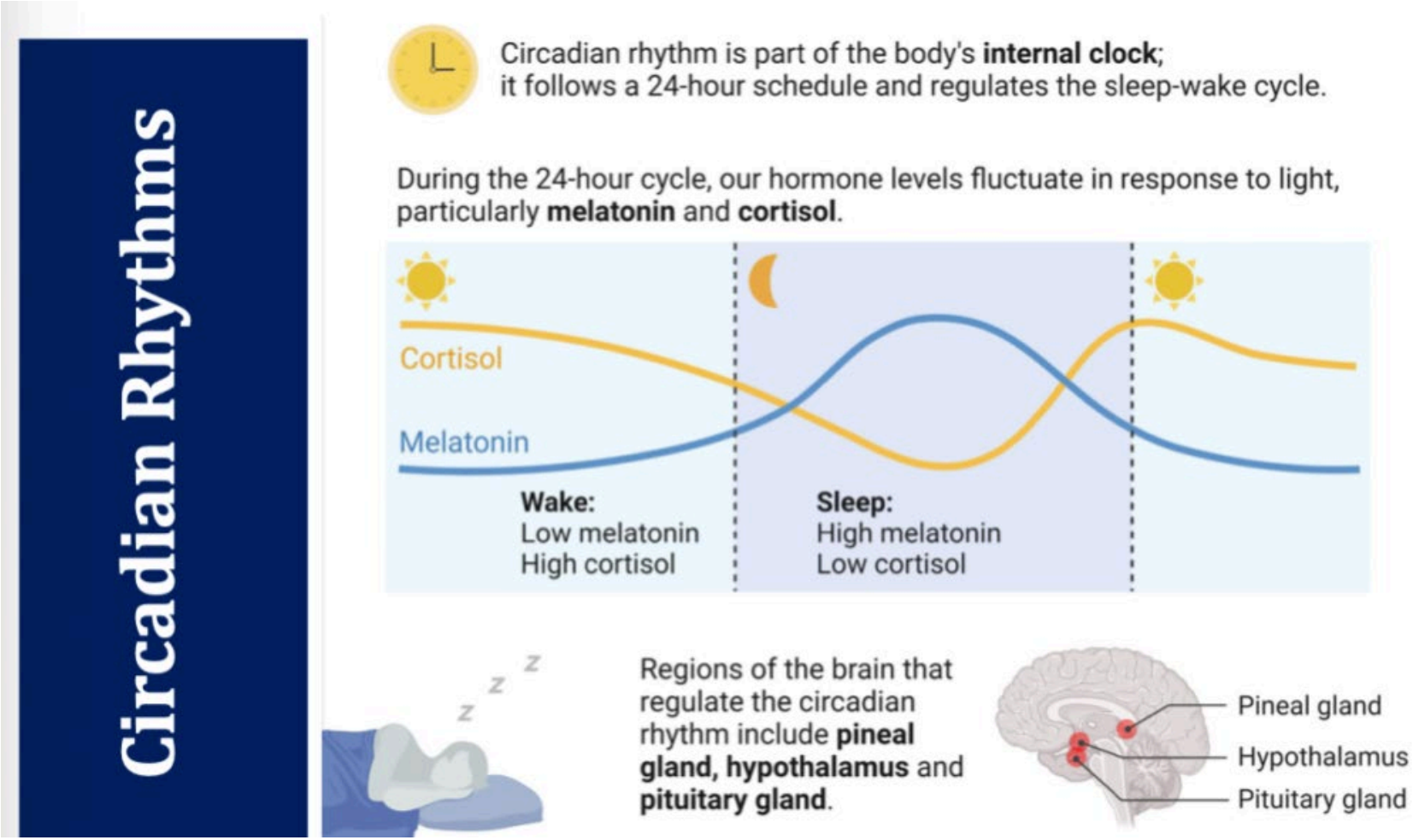
CIRCADIAN RHYTHM AND SLEEP



Source: Institute for Functional Medicine
Adapted from "Circadian Rhythm", by BioRender.com (2022). Retrieved from https://app.biorender.com/biorender-templates

SLEEP HYGIENE

Tips to improve sleep hygiene:

- Get morning sunlight between 7-11am
- Consider light therapy
- Reduce blue light exposure in the evening
- Wear blue light blocking glasses
- Reduce napping during the day
- Avoid caffeine after 12pm
- Eat dinner at least 2 hours before bedtime
- Maintain a stable blood sugar
- Consider meditation or yoga nidra
- Limit time in the bedroom
- Consider supplementation:
  - Melatonin
  - L-theanine
  - Phosphatidylserine
  - GABA
  - Adaptogens (ex: ashwaganda)

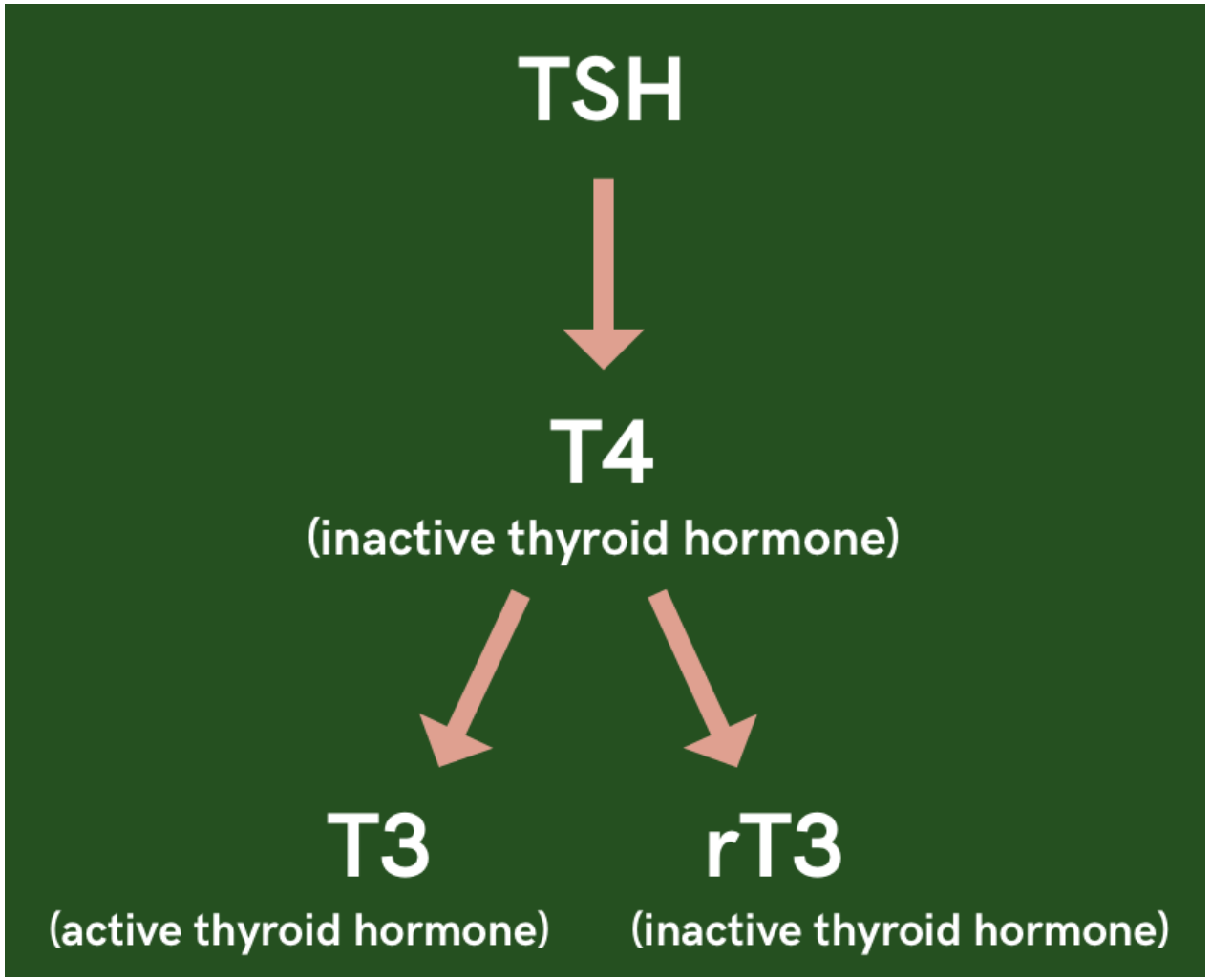
Source: Everest Functional Psychiatry and Wellness

ROOT CAUSE: THYROID AND ADRENAL DYSFUNCTION

THYROID DYSFUNCTION AND MENDAL HEALTH

THYROID FUNCTION DIRECTLY IMPACTS, MOOD, COGNITION, AND ANXIETY

Bauer M, Goetz T, Glenn T, Whybrow PC. The thyroid-brain interaction in thyroid disorders and mood disorders. J Neuroendocrinol. 2008 Oct;20(10):1101-14. doi: 10.1111/j.1365-2826.2008.01774.x



Source: Everest Functional Psychiatry and Wellness

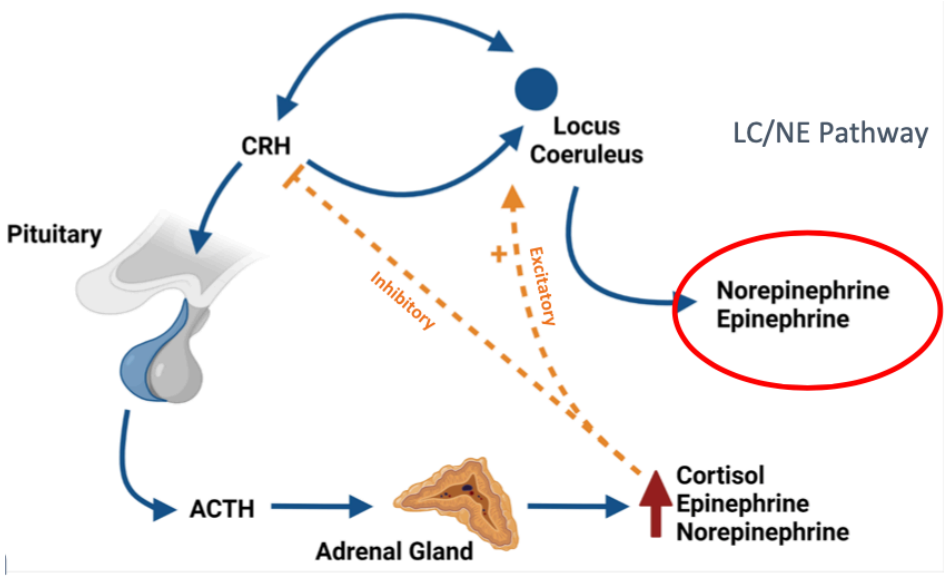
CORTISOL AND MENTAL HEALTH

- **HPA axis** = hypothalamic-pituitary-adrenocortical system

- The HPA axis is often dysregulated in depression and anxiety
  - Activation of the HPA axis -> increased cortisol secretion -> sympathetic response
  - Chronic stress -> chronic state of fight-or-flight

- Depression and anxiety are often associated with hypercortisolism
  - HPA axis hyperactivity

- Conventional treatments work to blunt the HPA axis



A specific PVN CRH pathway to brainstem noradrenergic nuclei independent of the HPA axis

Source: Institute for Functional Medicine

CORTISOL AND ANTIDEPRESSANTS

ANTIDEPRESSANTS LOWER CORTISOL

- 2012 double-blind, placebo-controlled, cross-over study:
  - Citalopram 20mg vs. placebo
  - After 4 days of treatment or placebo, participants were give 30mg of PO cortisol
  - Treatment group experienced less impaired working memory disturbance and reduced EEG changes

- 2011 placebo-controlled study:
  - SSRI's significantly reduced cortisol
  - This cortisol reduction led to improvements in anxiety symptoms

See "Reference" slide

BUT…
What happens when our adrenals give out ???

Salivary Cortisol in depressed patients				
	8 AM	11 AM	4 PM	11 PM
Normal	13-24n	4-10nM	3-8nM	1-4nM
Melancholic Agitated Depression	High	High	High	Marked increase
Atypical Depression and CFIDS	Low	Low	Low normal	Normal

Source: Institute for Functional Medicine

See "Reference" slide

References: Cortisol

Bschor T, Ising M, Erbe S, et al. Impact of citalopram on the HPA system. A study of the combined DEX/CRH test in 30 unipolar depressed patients. *Journal of Psychiatric Research*. 2012;46(1):111-117.

Gold PW, Chrousos G. P. Organization of the stress system and its dysregulation in melancholic and atypical depression: high vs low CRH/NE states. Mol Psychiatry. 2002;7(3):254-75.

Gold PW, Machado-Vieira R, Pavlatou MG. Clinical and biochemical manifestations of depression: relation to the neurobiology of stress. Neural Plast. 2015;2015:581976. doi:10.1155/2015/581976.

Hernandez MCADE, Mendieta D, Pérez-Tapia M, et al. Effect of Selective Serotonin Reuptake Inhibitors and Immunomodulator on Cytokines Levels: An Alternative Therapy for Patients with Major Depressive Disorder. *Clinical and Developmental Immunology.* 2013;2013:1-11.

References: Cortisol

Lenze EJ, Mantella RC, Shi P, et al. Elevated Cortisol in Older Adults With Generalized Anxiety Disorder is Reduced by Treatment: A Placebo-Controlled Evaluation of Escitalopram. *The American Journal of Geriatric Psychiatry.* 2011;19(5):482-490.

Tsigos C, Chrousos GP. Hypothalamic-pituitary-adrenal axis, neuroendocrine factors and stress. J Psychosom Res. 2002 Oct;53(4):865-71. doi: 10.1016/s0022-3999(02)00429-4. PMID: 12377295.

Pariante CM, Alhaj HA, Arulnathan VE, et al. Central glucocorticoid receptor-mediated effects of the antidepressant, citalopram, in humans: A study using EEG and cognitive testing. *Psychoneuroendocrinology*. 2012;37(5):618-628.

ROOT CAUSE: SPIRITUAL, SOCIAL, EMOTIONAL FACTORS

SPIRITUALITY

Studies on spiritual belief show:

- Decreased depression rate by almost 30%
- Decreased suicide rate by almost 85%
- Decreased substance use disorder
- Decreased all-cause mortality by up to 35%
  - 7 additional years of life
- Decreased divorce rate by up to 50%
- Increased happiness scores

Schlundt, D. G. et al. (2008). Religious affiliation, health behaviors and outcomes: Nashville REACH 2010. *American journal of health behavior*, *32*(6), 714–724. doi:10.5555/ajhb.2008.32.6.714

VanderWeele T. J. (2017). Religious Communities and Human Flourishing *Current directions in psychological science*, *26*(5), 476–481. doi:10.1177/0963721417721526

IMPORTANCE OF SUPPORT SYSTEMS

- A strong social support system reduces risk for depression
- Social connections improve vagal tone balance
- Social isolation can negatively influence gene expression and increase inflammation

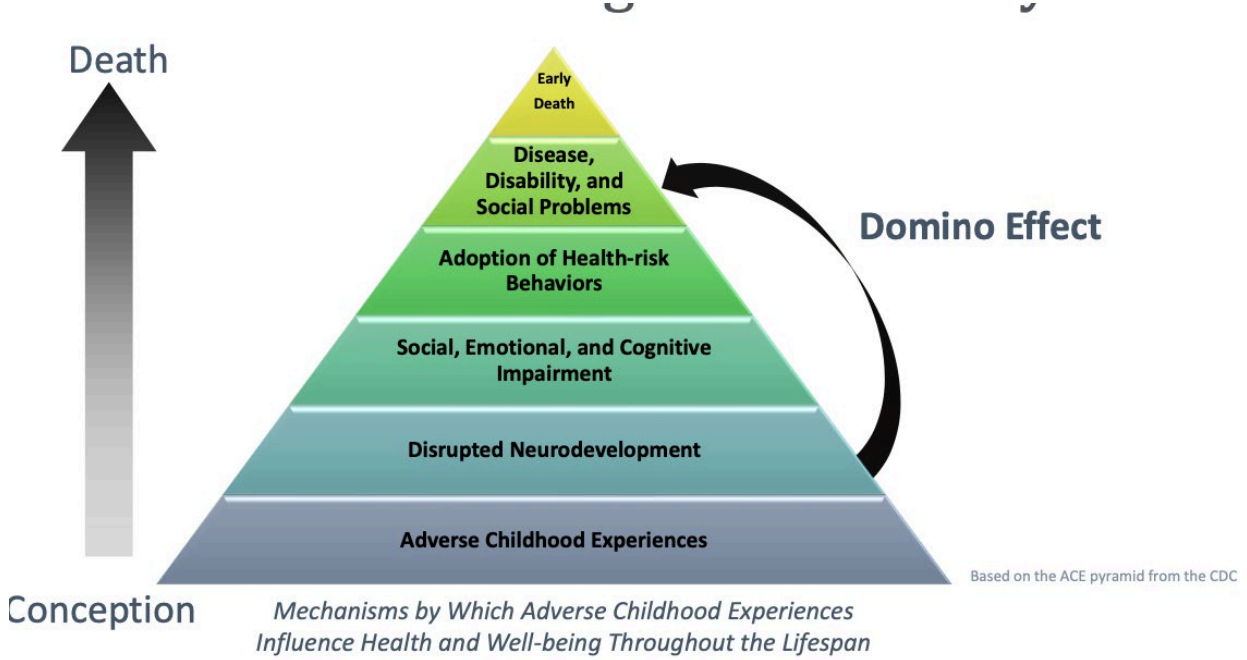
Source: Venice Family Clinic

See ”Reference” slide

CHILDHOOD EXPERIENCES ON DEPRESSION / ANXIETY

- **ACEs = adverse childhood experiences**
  - Socioeconomic disadvantage
  - Maltreatment
  - Social isolation

- 32 year prospective longitudinal study:
  - ACEs -> increased risk for metabolic disease, inflammation, and depression later in life
  - Highest risk: trauma, neglect, abuse



Source: Institute for Functional Medicine

See "Reference" slide

References: Support and ACEs

Ashida S, Heaney CA. Differential associations of social support and social connectedness with structural features of social networks and the health status of older adults. J Aging Health. 2008 Oct;20(7):872-93. doi: 10.1177/0898264308324626.

Cheong EV, Sinnott C, Dahly D, Kearney PM. Adverse childhood experiences (ACEs) and later-life depression: perceived social support as a potential protective factor. BMJ Open. 2017;7(9).

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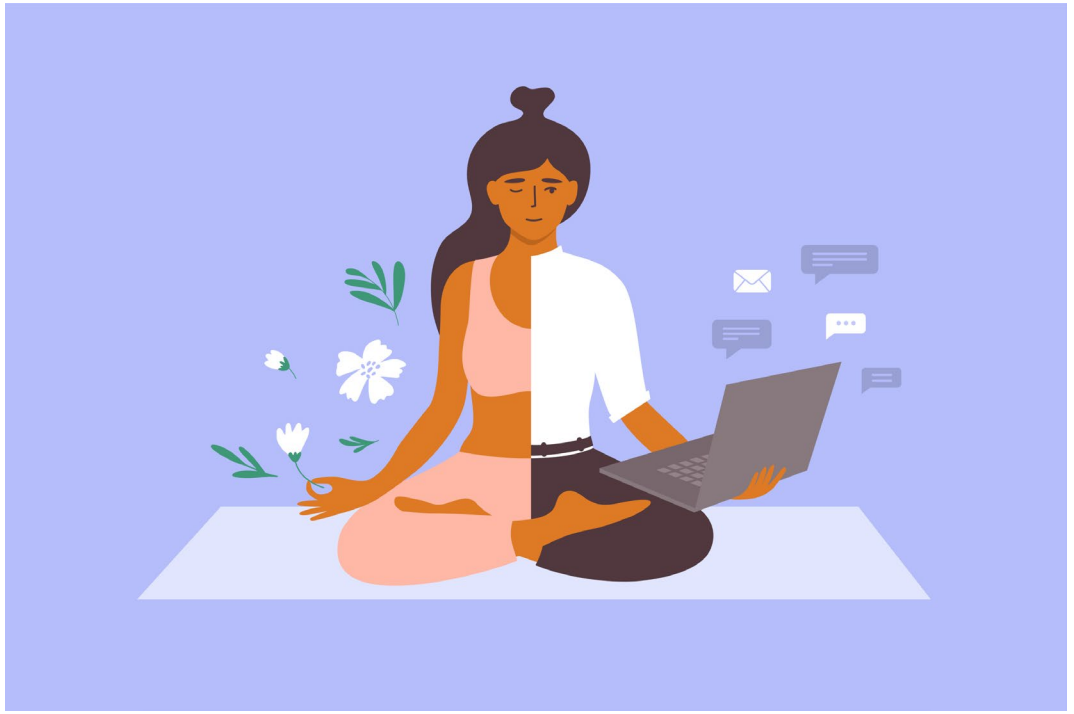
Slavich GM, Cole SW. The Emerging Field of Human Social Genomics. *Clin Psychol Sci*. 2013 Jul;1(3):331-348. PubMed PMID: 23853742

MINDFULNESS

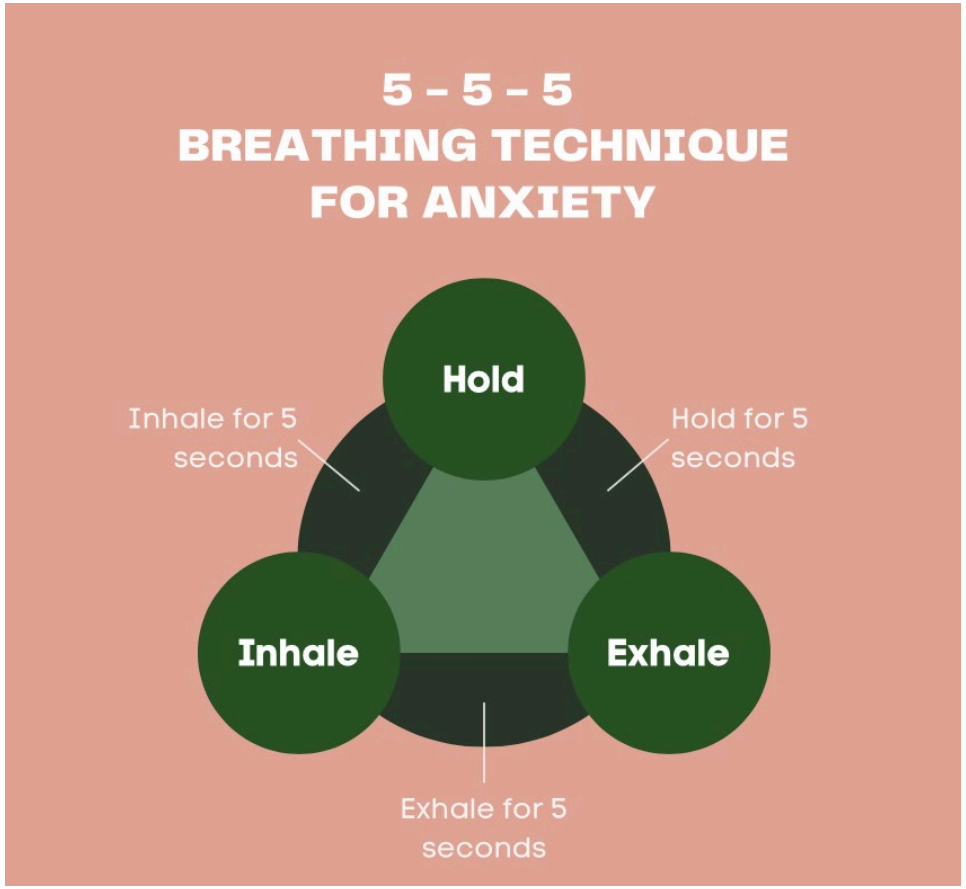
2018 randomized-controlled trial:

- Participants with generalized anxiety disorder were randomized to either a mindfulness intervention or control
- The mindfulness group had significantly greater reductions in stress response after performing a social stress test



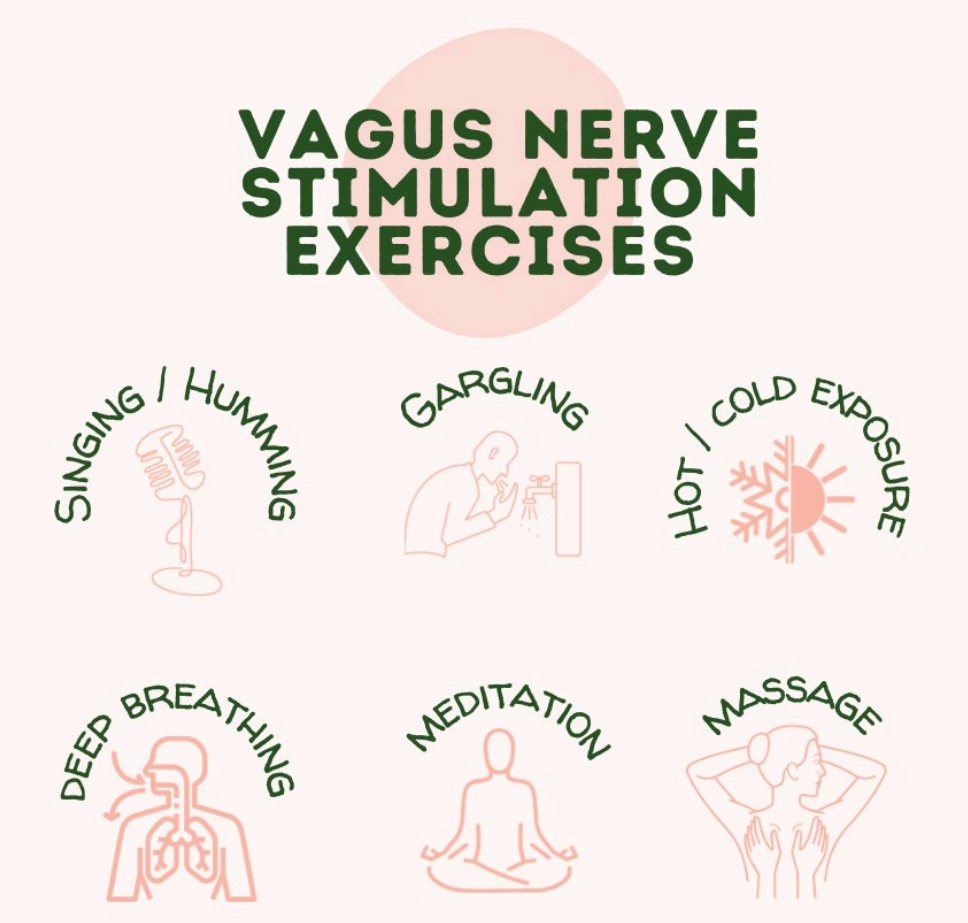
Hoge EA, Bui E, Palitz SA, Schwarz NR, Owens ME, Johnston JM, Pollack MH, Simon NM. The effect of mindfulness meditation training on biological acute stress responses in generalized anxiety disorder. Psychiatry Res. 2018 Apr;262:328-332. doi: 10.1016/j.psychres.2017.01.006.

BREATHWORK



Source: Everest Functional Psychiatry and Wellness

VAGUS NERVE STIMULATION



Source: Everest Functional Psychiatry and Wellness

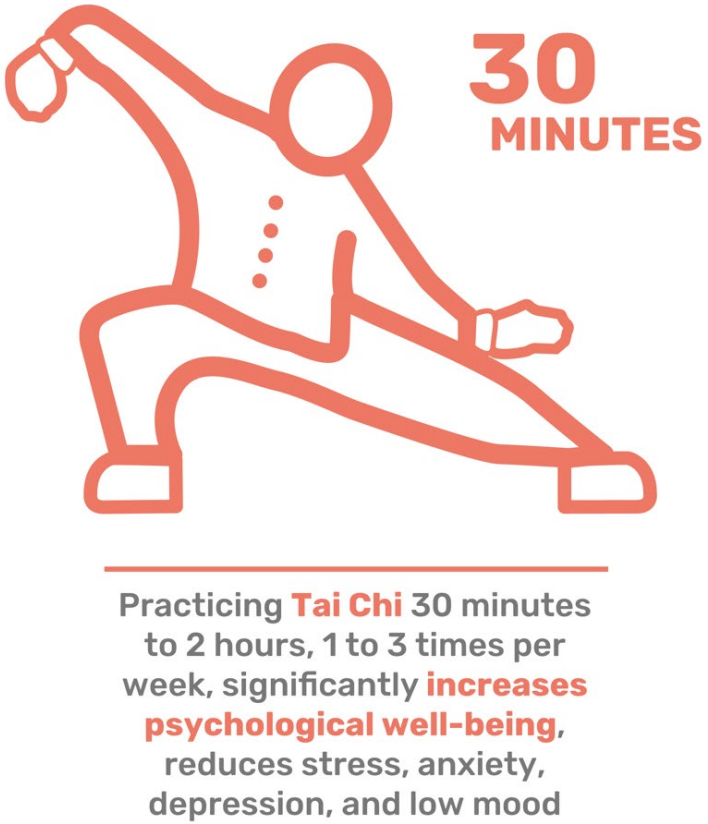
MINDFULNESS-BASED PRACTICES

- Meditation
- Breathwork
- Guided Imagery
- Therapy
- Nature-bathing
- Journaling
- Prayer
- Biofeedback
- Hot/cold exposure
- Tapping
- Acupuncture
- Massage

Source: Wellmark

TAI CHI

- Tai chi has been shown to improve emotional regulation
- Tai chi helps reduce and prevent further symptoms of depression



Source: Mindhealth360

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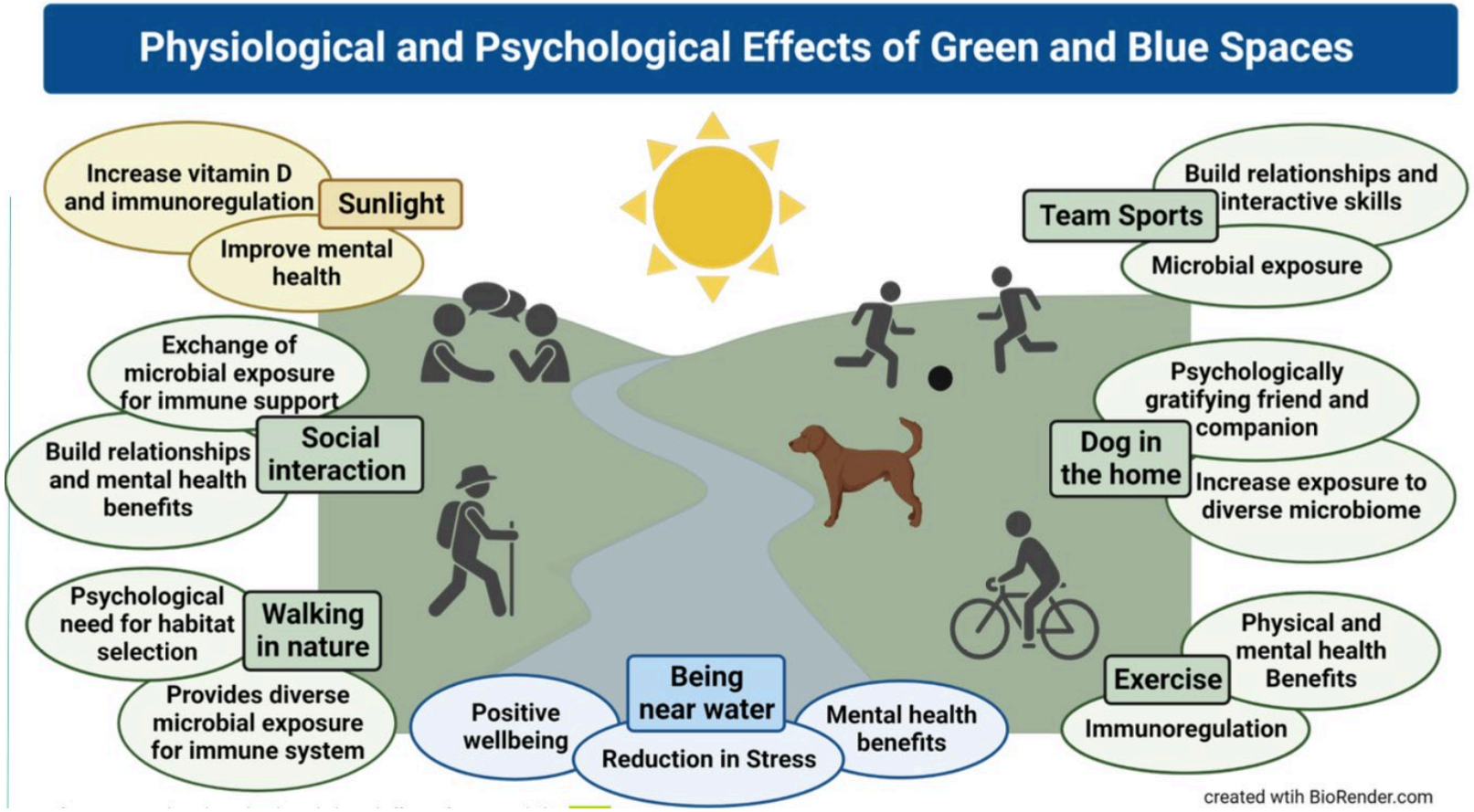
NATURE



See ”Reference” slide

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KEY TAKEAWAYS

KEY TAKEAWAYS:

- **Anxiety and depression:**
  - Are multifactorial in nature
  - Can be influenced by a range of factors that are not mutually exclusive
  - Need to be considered on an individual and case-by-case basis
  - Impact and are impacted by overall physical health

Q&A

Instagram

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