

DEPRESSION, ANXIETY, AND DIET: Can food influence mood?

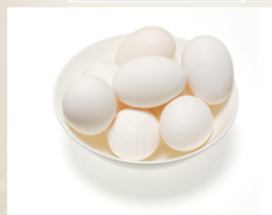
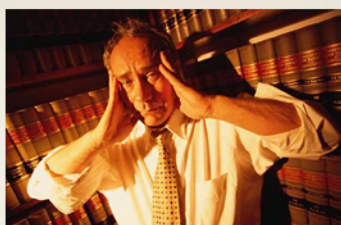
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Dr. Lam has no relevant relationships or financial
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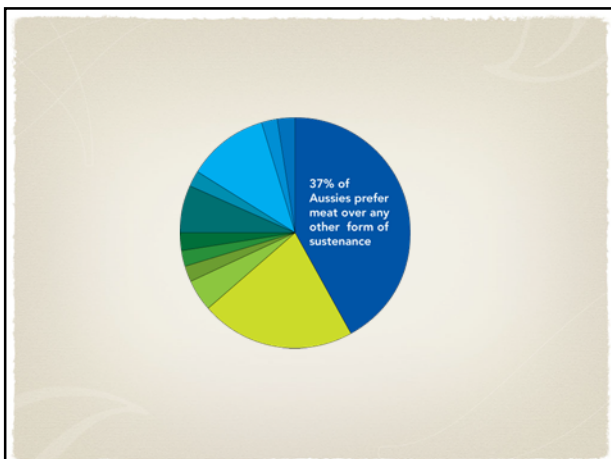


Depression: some facts

- * MDD + Dysthymic Disorder: 18 million American adults/ year
- * Women > Men
- * Leading cause of disability in Americans aged 15-44
- * WHO: by 2020, MDD to be the 2nd leading cause of disability worldwide (behind ischemic heart disease)

Anxiety Disorders

- * Include: panic disorder, OCD, PTSD, GAD, and phobias (e.g. social phobia, agoraphobia)
- * 40 million adults/year (18% of adults)
- * Frequently co-occur with another anxiety disorder and/or depressive disorder

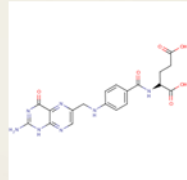


HELPFUL NUTRIENTS

- * Folate (Vitamin B9)
- * Omega-3 fatty acids (EPA and DHA)
- * Inositol
- * L-theanine

FOLATE

Vitamin B9



Folate: facts

- * Water-soluble B vitamin (B9) found in leafy green vegetables, fruit, and legumes
- * Theoretically, mood effects are due to its important role in the synthesis of neurotransmitters such as serotonin and dopamine
- * Epidemiological studies have found associations between depression and folate deficiency

Folate: the literature

- * Scant available literature on possible therapeutic benefit of folate supplementation
- * A review of 2 randomized controlled trials reported augmentation with folate improved response rates to medication treatment for depression
- * Further study is needed

Folate: how much?

- * US Recommended Daily Allowance is 400 mcg per day (500 mcg in lactation, 600 mcg in pregnancy)
- * Breakfast cereal fortified with 100% DV: 3/4 cup = 400 mcg
- * Spinach: 1 cup cooked = 200 mcg
- * Frozen green peas: 1 cup = 100 mcg
- * Broccoli: 1 cup cooked = 100 mcg
- * Avocado: 1/2 cup sliced = 50 mcg

OMEGA-3 FATTY ACIDS

EPA

DHA



Omega-3 Fatty Acids: facts

- * Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA) are important players in metabolism, especially in the nervous system.
- * Mechanism of action is unknown, but they may help dampen inflammatory cascades that occur in stress and depression, which affect neurotransmitter metabolism, and may contribute to neuronal membrane stability and longevity.
- * Epidemiological studies have linked increased prevalence of depression with low consumption of omega-3 fatty acids.

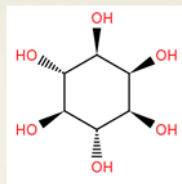
Omega-3's: the literature

- * Many randomized controlled trials have been done, with mixed results
- * A recent large review showed that studies with positive results for mood enhancement involved use of EPA only, or EPA predominant combinations, as augmentation to medications. Negative studies involved use of DHA, or DHA dominant combinations, as monotherapy or as augmentation to medications.
- * The significance of this particular finding is unclear and deserves further research.

Omega-3's and food:

- * Fish oils are the most potent and efficient source of EPA/DHA currently available (coldwater, oily -fleshed fish such as salmon, sardine, herring, anchovy, mackerel) - recommend 3 servings/week
- * Vegan sources of omega -3 (walnut, chia seed, flaxseed) contain ALA (alpha-linolenic acid), which is inefficiently transformed into EPA/DHA by our bodies
- * For vegetarians/vegans, now can obtain DHA from algae as supplementation

INOSITOL



Vitamin B8

Inositol: facts

- * A naturally occurring isomer (same number of carbon, hydrogen, and oxygen atoms, but different molecular structure) of glucose
- * A key player in the chemical pathways that control the number of receptors on a cell's surface that bind serotonin and other neurotransmitters
- * Theoretical mechanism of action: modulating the cell's response to serotonin

Inositol: the literature

- * A 2004 review article identified 4 small randomized controlled trials looking at inositol in depression
- * 3 of the studies examined inositol versus placebo as adjunct to pharmacotherapy, and showed no difference between the 2 groups
- * The 4th trial yielded potentially positive mood benefits for inositol monotherapy versus placebo.
- * Initial positive data on inositol for anxiety disorders
- * Small quantities of data exist; further study is needed.

Inositol and food

- * Study dosages are 10-12 grams per day
- * Dietary intake = 1 g/day
- * Found in blackstrap molasses, citrus, nuts, and whole grains
- * Has not been shown to adversely affect blood glucose in diabetic patients

L-theanine



L-theanine: facts

- * Imparts flavor to green tea
- * Thought to increase concentration and focus by decreasing anxiety
- * Possibly works in concert with caffeine in green tea

L-theanine: data

- * Several papers on physiological relaxation response in rats
- * Limited human data, but one study showed positive response for anxiety in small group of healthy women, and another RCT showed benefit for anxiety in schizophrenic patients on antipsychotic medications.
- * More study needed, as most data is from entities that have financial interest in a particular L-theanine product

L-theanine: sources

- * 1 cup of green tea = 10-50 mg
- * Study dosages: 50-400 mg/day
- * Supplements: 200 mg/tablet

Deficiencies and mood

- * Vitamin C
- * Magnesium
- * Iron
- * Vitamin D



Vitamin C



- * Metabolic role: antioxidant and cofactor in collagen synthesis
- * Populations at risk for deficiency
- * Food sources
- * Linus Pauling Institute: 200 mg/day

Magnesium

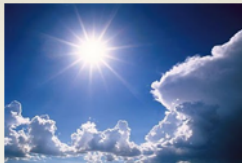
- * American diet is generally low in Mg
- * Populations at risk for deficiency
- * Food sources

Iron



- * Deficiency results in fatigue and anemia
- * Food sources
- * Chelated supplements can help with constipation

Vitamin D



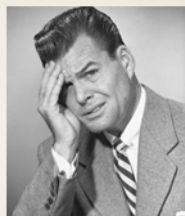
- * Emerging evidence of complex and wide-ranging role
- * Deficiency fairly common in US
- * Food sources
- * Supplementation

Vitamin B complex

- * B6 (pyridoxine)
- * B9 (folate)
- * B12 (cobalamin)
- * B vitamins and the SAMe/homocysteine pathway
- * Vegans and B12

LESS HELPFUL SUBSTANCES

- * Caffeine
- * Alcohol
- * Sugar



Caffeine

- * Effects
- * Sources
- * Pharmacokinetics
- * Tolerance



Alcohol

- * Temporary effect
- * Longterm effects in heavy drinkers
- * Potential benefits



SUGAR



- * Complex relationship between sugar and mood
- * Metabolic effects
- * Effect of depression on cravings

Psychology and Food



- * What psychological factors influence diet?

Talking about food



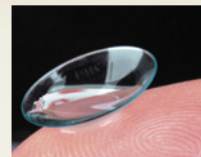
- * Clinical approach
- * Countertransference
- * Collaboration

Clinical approach



- * Repletion rather than scarcity, focus on positives in order to reduce anxiety in the room

Countertransference



- * Important to be aware of it
- * Awareness brings groundedness and reduces risk of reactivity or overcompensation

Collaboration



- * Perceived gap between your experience and the patient's
- * Leveling the playing field can make a difference

Food plays many roles



- * Self medication (Brene Brown: "The Power of Vulnerability" - ted.com)
- * Anchors people into culture, history, and tradition
- * Can be a marker of socioeconomic stratum

Eating mindfully



- * Difficult in today's culture
- * Effects on hydration
- * Effects on blood glucose levels

Hydration



- * What is the rule of thumb?
- * Institute of Medicine recommendations

Meals



- * Listen to endogenous hunger signals
- * Negative impact of overriding signals

Resources

- * "Savor: Mindful Eating, Mindful Life" - Thich Nhat Hanh and Lilian Cheung, D.Sc.
- * The Center for Mindful Eating

Conclusion



- * Complex interrelationship between food and mood
- * Nutrition and diet play an important role in treatment planning
- * Thank you!