

Life is Your Best Medicine



Tieraona Low Dog, MD

Founder: Medicine Lodge Ranch

National Geographic's: *"Life Is Your Best Medicine," "Healthy At Home,"*
and *"Fortify Your Life"*

www.DrLowDog.com

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Epigenetics



- The mapping of **human genome** was one of the greatest scientific undertakings of past century, **detailing with incredible accuracy the blueprint of our species.**
- It also paved the way for field of **epigenetics**, which has shown that when it comes to our genes, **nurture is inextricably linked with nature.**
- That it is the *way we live our lives - from the moment of conception to our last breath - that influences the expression of our genes.*

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"THE FOOD YOU EAT
CAN BE EITHER
THE SAFEST
&
MOST POWERFUL
FORM OF MEDICINE
or
THE SLOWEST
FORM OF POISON."

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CDC shows <18% of adults consume the recommended amount of fruit and <14% consume the recommended amount of vegetables.

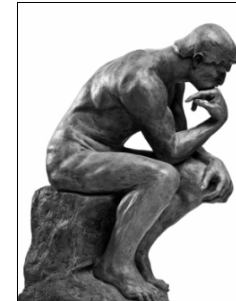
www.cdc.gov/mmwr/preview/mmwrhtml/mm6426a1.htm Accessed December 20, 2016

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Personalized Diets

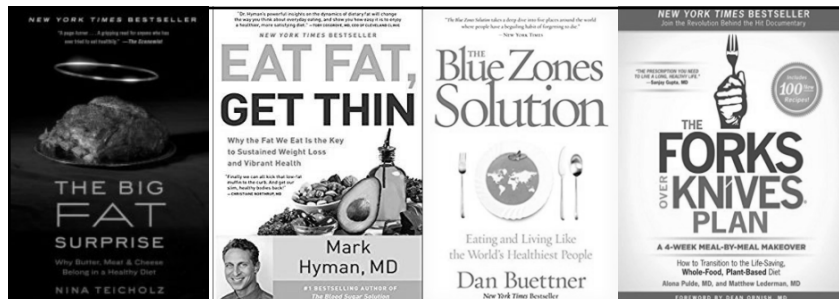
- Personalized diets based on individual's genetics to optimize dietary intervention and **reduce genetic heart disease risk or to prevent or treat cancer** is one of the **challenges and great opportunities** facing the scientific community.



Corella D, et al. Utilizing nutritional genomics to tailor diets for the prevention of cardiovascular disease: a guide for upcoming studies and implementations. Expert Rev Mol Diagn 2017 May;17(5):495-513.

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Is it any wonder that people are confused?

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Dietary Inflammatory Index (DII)

- Inflammation often driven by dietary patterns. An anti-inflammatory diet may reduce **sub-chronic inflammation** and improve **cardiovascular, metabolic, and neurologic parameters**.
- The **Dietary Inflammatory Index** is based on measuring inflammation in the body in response to specific foods (many clinical trials).
- You can take the test by **downloading the app for Dietary Inflammatory Index** (iTunes: DII Screener)

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Inflammatory Food Ratings		FOOD	SERVING SIZE	SERVING SIZE (GRAMS)	IF RATING
200 or higher	Strongly anti-inflammatory	AGAVE NECTAR	1 TBSP	21	-74
		ALMOND BUTTER	¼ CUP	64	100
101 to 200	Moderately anti-inflammatory	CHEESE, CHEDDAR	1 OUNCE	28.35	-20
		CHICKEN BREAST, RSTD	3 OUNCES	85	-19
0 to 100	Mildly anti-inflammatory	MILK, WHOLE	1 CUP	246	-46
		OLIVE OIL	1 TBSP	14	74
-1 to -100	Mildly inflammatory	ONIONS, COOKED	½ CUP	105	240
		RICE, WHITE	1 CUP	158	-153
-101 to 200	Moderately inflammatory	SPINACH	1 CUP	30	75
		SALMON, SOHO BAKED	3 OUNCES	85	450
-201 or lower	Strongly inflammatory	TURMERIC	½ TSP	1.5	338

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Mediterranean Dietary Pattern and Memory

- Mediterranean and DASH diets have been associated with lower dementia risk. **Researchers evaluated the inflammatory potential of these diets in relation to mild cognitive impairment/dementia risk using the DII during an average follow up of 9.7 years during Women's Health Initiative Memory Study.**
- **Higher inflammatory scores were significantly associated with *greater cognitive decline and earlier onset of cognitive impairment.***

Hayden KM, et al. The association between an inflammatory diet and global cognitive function and incident dementia in older women: The Women's Health Initiative Memory Study. *Alzheimers Dement* 2017 May 19; pii: S1552-5260(17)30185-1.

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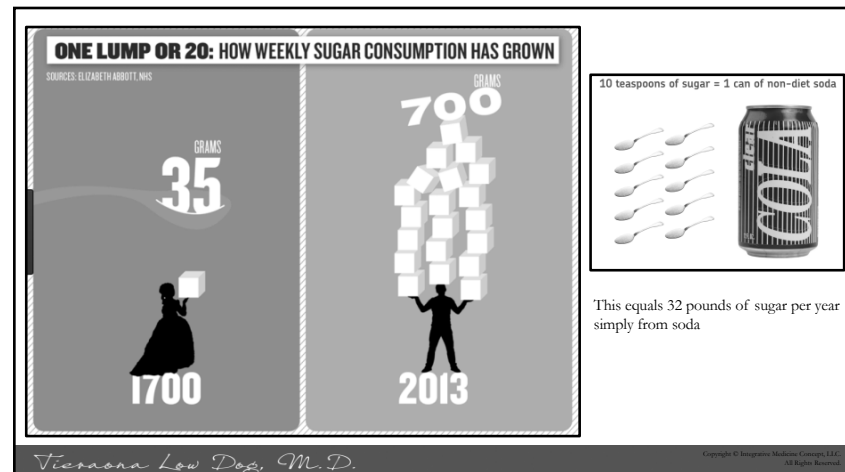
Mediterranean Dietary Pattern

- **13 meta-analyses of observational studies and 16 meta-analyses of randomized controlled trials** investigating association between adherence to Mediterranean diet and 37 different health outcomes, for a total population of over than **12,800,000 subjects, were reviewed.**
- Robust evidence (P -value<0.001) and large sample sizes show that greater adherence to the Mediterranean diet is associated with **reduced risk of overall mortality, cardiovascular disease, heart attack, overall cancer incidence, diabetes, neuro-degenerative diseases and lower inflammatory markers.**

Dinu M, et al. Mediterranean diet and multiple health outcomes: an umbrella review of meta-analyses of observational studies and randomized trials. *Eur J Clin Nutr* 2017; May 10. doi: 10.1038/ejcn.2017.58.

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Sugars



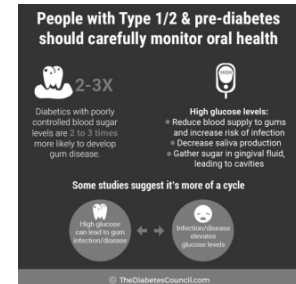
- Americans consume primarily: **table sugar and high-fructose corn syrup**.
- Table sugar (sucrose): bond between **one glucose and one fructose** molecule
- High fructose corn syrup: **55% fructose, 42% glucose** and 3% other sugars.
- Every cell in our body readily converts **glucose into energy**.
- Liver cells** are one of few types of cells that **can convert fructose to energy**.
- Soda floods liver with large amounts of **free floating fructose** versus the **fiber in an apple** slows down digestion, making the **fructose slowly enter the liver**.
- Large amounts of “**free**” **fructose taxes the liver** and increases fatty liver disease.
- Fructose raises levels of the hormone **ghrelin**, which **stimulates hunger**, and **suppresses leptin**, the **hormone that makes you feel full**.

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Diabetes Matters to Us All

- “There is strong evidence that **people with periodontitis have elevated risk for dysglycemia and insulin resistance**.”
- Periodontitis** is also associated with an **increased risk** of type 2 diabetes.”
- “The European Federation of Periodontology and the International Diabetes Federation report consensus guidelines for **physicians, oral healthcare professionals and patients to improve early diagnosis, prevention and co-management of diabetes and periodontitis**.”



Sanz M, et al. Scientific evidence on the links between periodontal diseases and diabetes: Consensus report and guidelines of the joint workshop on periodontal diseases and diabetes by the International Diabetes Federation and the European Federation of Periodontology. *J Clin Periodontol* 2017 Aug 24; doi: 10.1111/jcpe.12808.

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Glycemic Index/Load

Low GI Diet Tracker
App: \$3.99

- Glycemic load** measurement of impact of carbohydrates on blood sugar/insulin.
- International **consensus** conference concluded that given the **consistency of the scientific evidence**, diets **low in glycemic index/load** should be promoted in the **prevention and management of diabetes and coronary heart disease**, and are **particularly important in individuals with insulin resistance**.

Augustin LS, et al. Glycemic index, glycemic load and glycemic response: An International Scientific Consensus Summit from the International Carbohydrate Quality Consortium (ICQC). *Nutr Metab Cardiovasc Dis* 2015 Sep;25(9):795-815.



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Glycemic Load and Mood

- 82 healthy weight and healthy overweight or obese adults** enrolled in randomized, crossover controlled feeding study.
- Compared to a low GL diet, consumption of **high GL diet** resulted in:
 - 38% higher score for **depressive symptoms** ($P = 0.002$)
 - 55% higher score for **total mood disorder** ($P = 0.05$)
 - 26% higher score for **fatigue/inertia** ($P = 0.04$), compared to low GL diet.



Breymeyer KL, et al. *Appetite* 2016; Dec 1;107:253-259.

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Glycemic Load

Individual Food Portion

Low	0-10
Moderate	11-19
High	20+

Whole Day

Low	< 80
Moderate	80-120
High	>120

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Food	Serving Size	Glycemic Load
Grapefruit	½ large	3
Apple	1 medium	6
Banana	1 large	14
Raisins	1 small box	20
Watermelon	1 cup	8
Carrots	1 large	5
Orange	1 medium	6
Sweet potato	1 cup	17
Baked potato	1 medium	28
French fries	1 medium serving	26
Snickers	1 bar	35
Reese's cup	1 miniature	2
White table wine	5 ounces	1
Red table wine	5 ounces	1
Grape juice	6 ounces	12

Food	Serving Size	Glycemic Load
Asparagus	½ cup	2
Broccoli	1 cup	4
Green beans	1 cup	3
Tomato	1 medium	2
Subway sandwich	6 inch	17
Turkey breast	6 inch	17
Butter pecan ice cream	5.5 ounces (small)	22
Vanilla ice cream cone	4.5 ounces (small)	19
Potato chips, fat free	1 bag (8 ounces)	49
Tortilla chips, white corn	3.5 ounces	38
Spaghetti	1 cup	38
Brown rice	1 cup	23
White rice	1 cup	33
Macaroni and cheese	1 cup prepared	31

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Low/High GI Meals



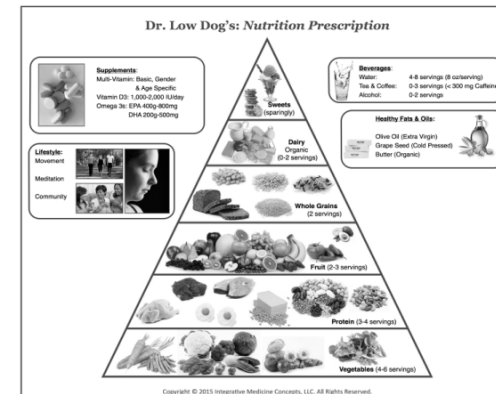
GI = 80 GL = 32



GI = 61 GL = 12

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Take a Basic Multivitamin....

- **90 million** Americans are **vitamin D** deficient (using the Endocrine Society guidelines $< 20\text{ng/mL}$)
- **30 million** are deficient in **vitamin B6**
- **18 million** people have **B12** deficiency
- **~16 million** have very low serum **vitamin C**
- **13% Latinas and 16% African American, and 8% white women** (ages 12-49) are **iron** deficient
- Women 25-39 overall have **borderline iodine insufficiency**



CDC: 2nd National Report on the Biochemical Indicators of Diet and Nutrition in the U.S. population

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“When we try to pick out anything by itself, we find it hitched to everything else in the universe.”

John Muir



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Endocrine Society Second Scientific Statement

- EDCs contribute to **impaired reproduction, neurodevelopment, thyroid function, metabolism, and increased propensity for hormone-sensitive cancers.**
- Unfortunately, it is **difficult to directly relate** chronic disease burden to exposures in humans.
- The increased prevalence of such diseases underscores the need to **invoke precaution** in introducing new (and usually untested) chemicals into the environment.



Gore AC, et al. *Endocr Rev* 2015; 36(6):E1-E150.

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Reducing Environmental Exposures

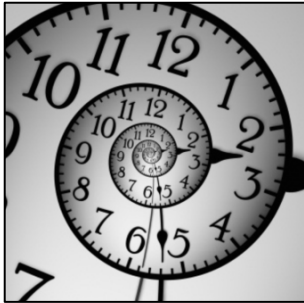
1. Eat **fresh** rather than processed food, when possible
2. **Organic** fruits/vegetables, dairy; **grass fed/finished** meats, **free range eggs**, when possible
3. Reduce consumption of foods/beverages in **cans/plastic containers**
4. Minimize use of personal care products containing **fragrances (skindeep.org)**
5. **Avoid** garden/household/pet pesticides or fungicides. Use **integrated pest management for home/yard.**
6. Use **water filtration system (ewgs-water-filter-buying-guide)**, consider **HEPA** filters in home



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The Biological Clock



- **Most important regulator of sleep wake cycle is our biological clock.**
- Responsible for **24 hour fluctuations in hormone secretion, body temperature and other bodily functions.**
 - Deepest sleep is generally around 2 AM
 - Lowest body temp around 4:30 AM
 - High alertness 10 AM
 - Highest body temperature ~ 7 PM
 - Melatonin secretion starts ~8-9 PM

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Sleep Stages

- **Stage 1:** Lasts a few minutes, the first stage of sleep is light and easy to wake from. Muscle twitching common.
- **Stage 2:** Light sleep, ~20 minutes brain waves begin to slow, blood pressure and body temperature decrease.
- **Stages 3 and 4:** Move into deeper sleep that's harder to wake from. This is when body repairs itself and boosts immune function. Also known as "delta" sleep.
- **Rapid eye movement (REM):** Final stage in sleep cycle, brain becomes more active and dreams occur. Brain is processing information and storing long-term memories. Heart rate and breathing increases. **Gets longer and longer through the night - can last up to one hour.**
- **REM suppressors:** alcohol, nicotine, blood pressure and anti-depressant meds

This cycle repeats ~90 minutes. As sleep progresses, REM cycles increase in length.

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Consolidated vs Segmented Sleep

- **Roger Ekirch** (Virginia Tech) published seminal paper, showing humans **sleep in 2 distinct chunks.**
- ***At Day's Close: Night in Times Past*** has more than **500 references to a segmented sleeping pattern** - in diaries, court records, medical books, etc.
- **First sleep** began about **two hours after dusk**, followed by **waking period of one or two hours** and then a **second sleep.**
- For many reasons, **by the 1920s, the idea of a first and second sleep disappeared from our social lives.**



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Dietary Considerations

- **Watch caffeine.** Drink plenty of water and herbal teas in afternoon with a **calming, relaxing effect.**
- **Cut back or eliminate alcohol** if having trouble sleeping. **3 drinks can disrupt melatonin secretion and REM sleep.** Can increase excitatory neurotransmitters.
- **Increase magnesium and tryptophan foods** (e.g., poultry, eggs, milk, dark green leafy vegetables, pumpkin seeds).
- **Consider magnesium supplements (200-300 mg per day at night)**



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Guided Imagery: *Imagine Yourself.....*

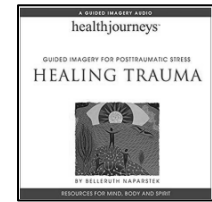
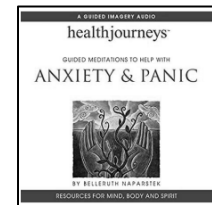
- An **immersive, deeply relaxing intervention** that uses calming words, soothing music and positive images to structure a healing experience.
- Like meditation, it **focuses attention and calms the mind**, working on those parts of the brain where the emotional self dwells.
- Clinical trials show can **reduce stress, anxiety, and depression; help with sleep; lower blood pressure, and ease posttraumatic stress.**
- I have found guided imagery a fabulous tool for myself, kids and patients. Very helpful for those with ADHD, anxiety, depression, pain, insomnia.

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Belleruth Naparstek

- Love, love, love her. Something for everyone.
- She has Guided Imagery Meditations for:
 - Anxiety and Panic
 - Anger and Forgiveness
 - Depression
 - Healing Trauma
 - Ease Grief
 - Relieving Stress
 - Undergoing Surgery
 - Chemotherapy and Radiation



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Apps for Sleep

Sleep Cycle



- Sleep Cycle sits under your pillow and gathers data to wake you up when you'll feel the least groggy. Easy-to-read graphs show your sleep patterns. Free.

Deep Sleep



- Deep Sleep provides step-by-step instructions to guide you into state of deep relaxation. Andrew Johnson is awesome and his CDs are truly amazing. \$2.99

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What To Do



- Research shows **chronic sleep problems can lead to weight gain, obesity, diabetes (33% increased risk), heart disease, mood disorders.**
- Use sleep hygiene recommendations (same bedtime, cool/dark room, etc.)
- **Control blue light (consider blue light blocking glasses), get early morning light**, use cognitive behavioral therapy, **guided imagery**, stimulus control.
- **Controlled-release melatonin** recommended as first-line agents in older adults. (**2 mg sustained release** for 4-6 weeks and re-evaluate).

Shan Z, et al. *Diabetes Care* 2015;38(3):529–37.

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To Fall, to Let Go, to Open.....

To fall asleep is an act of faith, a deep trust that whatever is going on in life, you can let it go, put it on hold so that you can **sleep deeply and awaken with the energy and resilience** to face whatever lies ahead.

When body is **overstimulated**, brain is flooded with **neurochemicals that keep us awake**, making it difficult to wind down at night. This leads to **poor sleep, bad dreams, and being tired during day**.

Letting go can be hard when you think you are responsible for everything.

If you find it hard to delegate to others or things won't get done right. **When one's "faith" is in themselves.**



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Sleep Evaluation

- **Numerous medications** can impair sleep (e.g., beta blockers antidepressants, steroids, ADHD meds, possibly statins, etc.) Do some online research and/or **talk to your pharmacist**. If you are taking medication that disrupts sleep, talk to your health care provider.
- **Restless leg syndrome** impacts many people. Talk to provider, could be due to low iron, vitamin D or meds— though cause is really not known.
- **Sleep apnea** is a condition where breathing is interrupted during the night. A sleep study can be ordered and treatments are available (e.g., CPAP, dental appliances which reposition lower jaw and tongue)

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**This life is
not a dress
rehearsal.**

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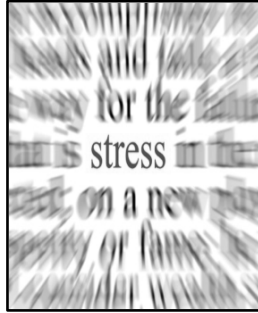
**What is Your Body
Telling You?**

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High cortisol levels linked to high blood pressure, high cholesterol, high blood sugar, insulin resistance, insomnia, weight gain, headaches, mood swings, depression, and increased risk of infections.

Scientists believe that prolonged elevation of stress hormones may shorten our lifespan by 15 years.

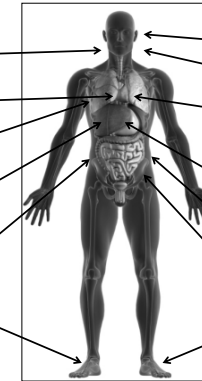


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Parasympathetic

- Stimulates flow of saliva
- Slows heartbeat
- Lowers blood pressure
- Stimulates release of bile and aids in digestion and elimination
- Inhibits release of stress hormones
- Increases blood flow to extremities



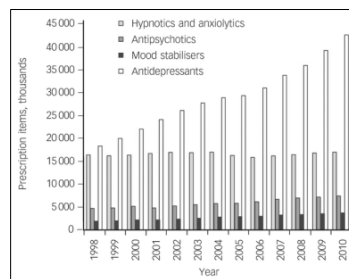
Sympathetic

- Pupils dilate
- Salivary production inhibited
- Heart rate and blood pressure goes up
- Mobilize fats and glucose; make more glucose
- Inhibit digestion and elimination
- Secrete "stress" hormones – adrenalin, noradrenalin and cortisol
- Reduce blood flow to fingers and toes

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Trends in prescriptions of major classes of psychiatric drugs 1998–2010.



Stephen Ilyas, and Joanna Moncrieff BJP
2012;200:393-398

THE BRITISH JOURNAL
OF PSYCHIATRY

- **400% increase** in anti-depressant prescriptions since 1980s. Rates of anxiety/depression in adolescents and young adults **skyrocketing**.
- JAMA review: For **severe depression**, **benefit** of medications over placebo is **substantial**; however, magnitude of benefit may be **minimal or nonexistent**, on average, for those with **mild or moderate** symptoms.

Fournier, et al. JAMA. 2010;303(1):47-53

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Many Factors at Play..... All Must be Addressed...

- Processed, **nutrient depleted** diet
- Poor **gut health**
- **Poor sleep** and inadequate rest
- Lack of **physical activity**
- Increased exposure to **environmental toxins**
- **Social isolation** and soul pain
- Strong focus on **image**, money, high achievement, having "stuff"
- Weaker personal and **community networks**



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The World Today

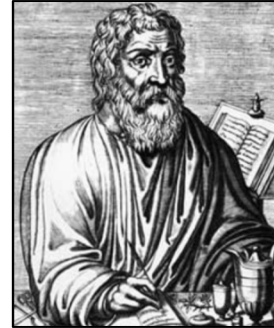
- We strongly emphasize **biological explanation** for depression and anxiety, as evidenced by **extensive use of antidepressants and anxiolytics**.
- There remains **little** focus on **physiological, nutritional, societal, communal, familial and spiritual underpinnings**.
- “I take my Effexor and go to a **job I hate** and then home to a house full of **kids** that are **out of control** and a husband that **barely** talks to me. Is my depression better? **Yea, I guess.**”
- **Complex world**. We often have unrealistic expectations. **Isolation** is common, **financial problems**, **lack of purpose, meaning**, a sense of **despair, hopelessness** – the world has less color and texture.

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Eating alone will not keep a man well. He must also take exercise.

Hippocrates



- Higher risk for heart disease, type 2 diabetes, certain cancers, Alzheimer's disease and increase lower back pain, depression and anxiety.
- Half of baby boomers in the US report having **NO** exercise.
- **80 million Americans** over the age of 6 years of age are **entirely inactive**

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Movement is Life.....

- Relationship between physical activity and **cardiovascular, metabolic, neurological, immunological and bone health** well-established.
- Shown to reduce the harmful effects of stressors when performed at moderate intensities.
- Meta-analysis of **398 studies** consistently shows **exercise benefits mood, depression and anxiety**.
- Use a fitness tracker, find your passion. **JUST DO IT**



Dzindolet, et al. *Neuropsychobiology* 2009; 59(4):191-8
Rebar AL, et al. *Health Psychol Rev* 2015; Mar 5:1-78

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Yoga

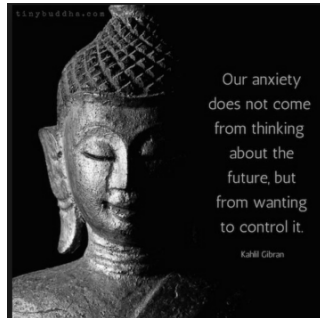
- The “**union of the divine**,” yoga practiced for thousands of years in India.
- Yoga incorporates **breathing exercises, different postures, stretches, and meditation** to help one gain **greater acceptance, compassion and centering**.
- Studies have found yoga to help **ease stress, anxiety, and pain, while improving mood**.



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Self Soothing



- A good way to deal with **anxiety and high stress is to occasionally sidestep the analytical part of your brain** by practicing **relaxation, meditation and/or using guided imagery.**

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Meditation

- Meditation excellent for **reducing stress perception and pain intensity**, while **elevating mood.**
- Long-time meditators have greater activation of areas responsible for **sustaining attention, processing empathy, integrating emotion and cognition.**
- Review of **47 trials** found that meditation improves:
 - Anxiety
 - Depression
 - Pain



Goyal M, et al. *JAMA Intern Med* 2014; 174(3):357-68

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Meditation Resources

- **Guided Mindfulness Meditation:** *A Complete Guided Mindfulness Meditation Program* from Jon Kabat-Zinn
- **Insight Timer** - ~4,000 guided meditations from more than 1,000 teachers (self-compassion, nature, stress, podcasts and more). More than 750 meditation music tracks. Free.
- **Headspace** – very good for beginners with 10 minute meditations. Free.
- **The Mindfulness App** – nice 5 day guided meditation program to get you started. Can be personalized and integrated into other apps. Free.

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Loneliness, Social Isolation & Your Health

- Poor social relationships associated with **29% increase in risk of heart disease and 32% increased risk of stroke.**
- **148 studies** on the effects of social isolation on health found it is:
 - As bad as **smoking** 15 cigarettes a day
 - As dangerous as being an **alcoholic**
 - As harmful as **never exercising**
 - Twice as dangerous as being **obese**



- Valtorta NK, et al Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies. *Heart*. 2016 Jul 1;102(13):1009-16.
- Cacioppo JT, et al. *Ann N Y Acad Sci* 2011; 1231:17-22

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*Call it a clan, call it a network, call it a tribe, call it a family.
Whatever you call it, whoever you are, you need one.
~ Jane Howard*



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*Are you
breathing
just a little
and calling
it a life?*

*"But until a person can say
deeply and honestly, "I am
what I am today because of
the choices I made yesterday,"
that person cannot say, "I
choose otherwise."*

Stephen Covey



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1. **Move more.** Whether it's the 7 minute workout, cycling, yoga, or taking long walks - one of surest ways to maintain heart, brain, bone and muscle health is daily exercise. It's not optional. ***Just do it.***
2. **Eat food.** Minimally processed, **low glycemic load**, diverse, and largely **plant** based diet. **Organic, local, and/or humanely raised** when possible,
3. **Meditate.** Meditation widens the gap between trigger and response, allowing you to feel a greater calm and awareness. It's a **game changer** for almost anyone.
4. **Stay connected.** Social isolation and loneliness is as dangerous as being an alcoholic or being obese. **Invest in your friends and family.**
5. **Take a multi.** Many lack when it comes to key micronutrients. A food based multi can be insurance against the gaps. **Age and gender** appropriate.
6. **Be tech smart.** Technology makes life easier and more complex. Use **blue light blocking glasses** at night, make one day each week **tech free**, and **limit email in the evening.**
7. **Nurture spirit.** The search for meaning and purpose is a fundamental part of being human. A **richly nourished inner life** is a source of strength during hard times. **Look inward. Honor mystery.**

Vienna Low Dog, M.D.

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