

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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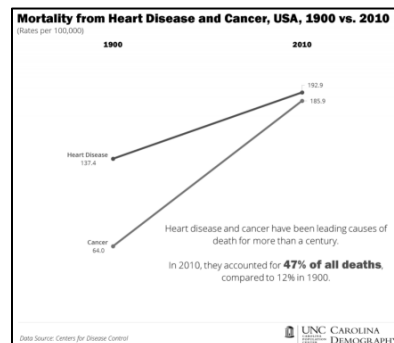
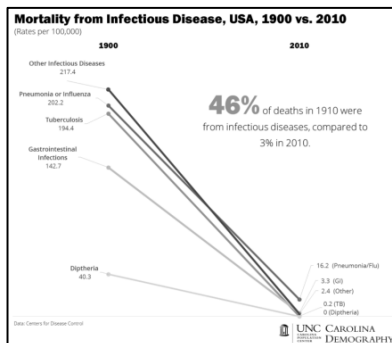
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The Times They Are A-Changing



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Modern Biomedicine

- **Acute disease** is what drove medicine in the 20th century.
- **Infectious disease and injuries** dominated the landscape.
- This reinforced view that **being healthy meant not being sick**.
- We assume most people can be treated in **exactly the same way**.
- While this **works well for appendicitis, collapsed lung, or heart attack**, it is **woefully inadequate for the prevention and management of chronic disease**.
- And it doesn't even begin to address **the concept of health promotion**, a process of enabling people to **increase control over, and to improve, their health**.

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• If the American public embraced a healthier lifestyle:

- *no smoking*
- *no or moderate alcohol consumption*
- *limited or no exposure to toxic chemicals*
- *healthy nutrition*
- *balance of exercise and rest*
- *stress management*
- *and healthy social networks*

93% of diabetes, 81% of heart attacks, 50% of strokes, and 36% of all cancers could be prevented.

Ford, et al *Arch Intern Med.* 2009; 169(15):1355-62.

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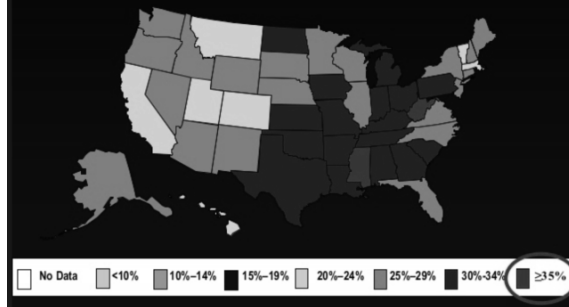
CDC shows <18% of adults consume the recommended amount of **fruit** and <14% consume the recommended amount of **vegetables**.

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

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Obesity Trends* Among U.S. Adults CDC, 2013



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Caloric Restriction?



Canto is 27 year old monkey on CR diet, Owen is 29 year old on unrestricted diet.

news.wisc.edu/monkey-caloric-restriction-study-shows-big-benefit-contradicts-earlier-study/

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- 25 year study University of Wisconsin Madison: 76 rhesus monkeys who between ages 7-14 years, began eating a diet reduced in calories by 30%.
- Disease was 3 fold greater in control group. No evidence of diabetes in any caloric-restricted animal.
- National Institutes of Aging reported one monkey on 30% CR diet at age 16 years lived to be 43 years old, a longevity record for the species, and equivalent of a human living to 130.

CALERIE (Comprehensive Assessment of the Long-term Effects of Reducing Intake of Energy)

- National Institute of Aging sponsored controlled study: 218 non-obese individuals, randomized to maintain current diet or 25% caloric restriction for 2 years. (11.7% caloric restriction was actually maintained on average).
- Study found statistically significant reduction in cardiometabolic risk factors and inflammatory markers; weight loss, improved mood and sleep duration.
- Reduced bone mineral density noted in CR group. Exercise was recommended to offset loss of BMD. Higher incidence of anemia in CR group, some required iron supplementation but overall was very well tolerated.

Ravussin E, et al. : A 2-Year Randomized Controlled Trial of Human Caloric Restriction: Feasibility and Effects on Predictors of Health Span and Longevity. *J Gerontol A Biol Sci Med Sci.* 2015;70(9):1097-104.

Martin CK, et al. Effect of Caloric Restriction on Mood, Quality of Life, Sleep, and Sexual Function in Healthy Nonobese Adults: The CALERIE 2 Randomized Clinical Trial. *JAMA Intern Med* 2016 Jun 1;176(6):743-52.

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CALERIE 2

- 2-year prospective, longitudinal follow-up study of 39 nonobese adults who went through the CALERIE trial (12 and 24 months post trial completion).
- After the CR intervention, a mean weight loss of 9.0 ± 0.6 kg was observed in the CR group, in which only 54% of the weight was regained 2 y later.
- Despite regain, *weight, percentage of body fat, and fat mass remained significantly reduced from baseline throughout follow-up and remained significantly less than in the control group* ($P < 0.05$).
- After a 2-y intensive CR intervention, ~50% of CR-induced weight loss was maintained 2 y later, which was probably the result of lasting effects on acquired behaviors and dietary restraint.

Marlatt KL, et al. Persistence of weight loss and acquired behaviors 2 y after stopping a 2-y caloric restriction intervention. *Am J Clin Nutr* 2017 Apr;105(4):928-935.

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Fasting-Mimicking Diets (FMD)?



Wei M, et al. Fasting-mimicking diet and markers/risk factors for aging, diabetes, cancer, and cardiovascular disease. *Sci Transl Med* 2017; 9(377).

- USC study of 100 healthy participants randomized into 2 study arms and tested the effects of FMD done 5 consecutive days each month for 3 months.
 - 1100 calorie first day, 700 calories for 4 days (plant based, multivitamin). Ate whatever they wanted rest of the month.
- Three FMD cycles reduced body weight and total body fat; lowered blood pressure, cholesterol, triglycerides and IGF-1. Lean muscle mass remained unchanged. Note: 25% drop-out rate
- Effects still noted 3 months AFTER study ended.

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Promising and....



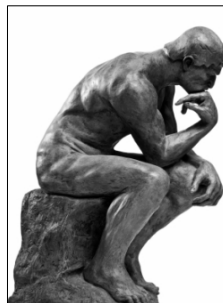
- Much of initial research on yeast and rodent models. Research in rhesus monkeys is impressive.
- CALERIE study showed that even 11% reduction in calories can improve weight loss and certain biomarkers associated with aging. Most people could not sustain 25% reduction in cal.
- What is unclear: do these diets extend *longevity* in humans? The data suggest that they have a favorable impact on many metabolic parameters associated with better health.

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Personalized Diets

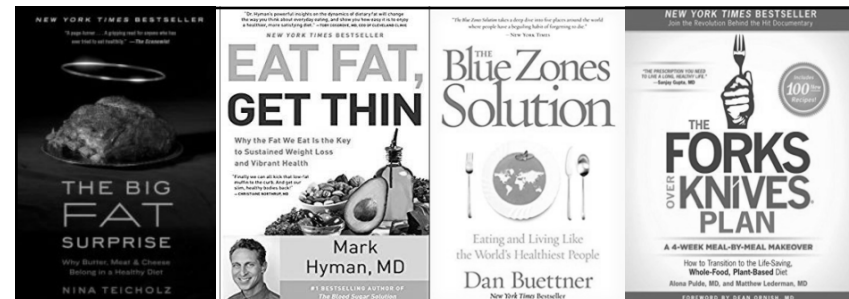
- Personalized diets based on individual's genome to optimize dietary intervention and reduce genetic cardiovascular disease (CVD) risk or to prevent or treat cancer is one of the challenges frequently discussed in scientific community.



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

200 or higher	Strongly anti-inflammatory
101 to 200	Moderately anti-inflammatory
0 to 100	Mildly anti-inflammatory
-1 to -100	Mildly inflammatory
-101 to 200	Moderately inflammatory
-201 or lower	Strongly inflammatory

- Inflammation often driven by dietary patterns. An anti-inflammatory diet can reduce inflammation and improve health.
- The Dietary Inflammatory Index is based on measuring inflammation in the body in response to specific foods. You can take the test by downloading the app for Dietary Inflammatory Index (DII).

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INFLAMMATION INDEX

FOOD	SERVING SIZE	SERVING SIZE (GRAMS)	IF RATING
AGAVE NECTAR	1 TBSP	21	-74
ALMOND BUTTER	¼ CUP	64	100
CHEESE, CHEDDAR	1 OUNCE	28.35	-20
CHICKEN BREAST, RSTD	3 OUNCES	85	-19
MILK, WHOLE	1 CUP	246	-46
OLIVE OIL	1 TBSP	14	74
ONIONS, COOKED	¼ CUP	105	240
RICE, WHITE	1 CUP	158	-153
SPINACH	1 CUP	30	75
SALMON, SOHO BAKED	3 OUNCES	85	450
TURMERIC	½ TSP	1.5	338

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Mediterranean Dietary Pattern and Memory

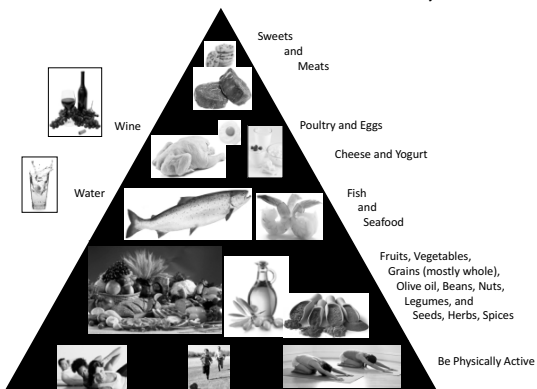
- Mediterranean and DASH diets have been associated with lower dementia risk. Researchers evaluated the inflammatory potential of these diets in relation to mild cognitive impairment/dementia risk using the DII during an average follow up of 9.7 years during Women's Health Initiative Memory Study.
- 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 Diet Pattern: Anti-Inflammatory



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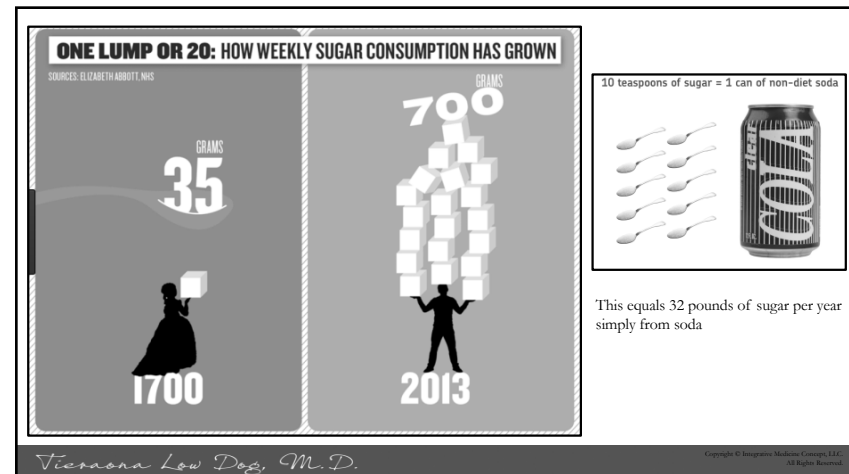
Mediterranean Dietary Pattern

- 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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November 2016

Sugar Industry and Coronary Heart Disease Research

A Historical Analysis of Internal Industry Documents

Cristin E. Kearns, DDS, MBA^{1,2}; Laura A. Schmidt, PhD, MSW, MPH^{1,3,4}; Stanton A. Glantz, PhD^{1,5,6,7,8}

> Author Affiliations

JAMA Intern Med. 2016;176(11):1680-1685. doi:10.1001/jamainternmed.2016.5394

Editorial Comment

Related Articles

Author Interview

Abstract

Early warning signals of the coronary heart disease (CHD) risk of sugar (sucrose) emerged in the 1950s. We examined Sugar Research Foundation (SRF) internal documents, historical reports, and statements relevant to early debates about the dietary causes of CHD and assembled findings chronologically into a narrative case study. The SRF sponsored its first CHD research project in 1965, a literature review published in the *New England Journal of Medicine*, which singled out fat and cholesterol as the dietary causes of CHD and downplayed evidence that sucrose consumption was also a risk factor. The SRF set the review's objective, contributed articles for inclusion, and received drafts. The SRF's funding and role was not disclosed. Together with other recent analyses of sugar industry documents, our findings suggest the industry sponsored a research program in the 1960s and 1970s that successfully cast doubt about the hazards of sucrose while promoting fat as the dietary culprit in CHD. Policy-

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Sugars



- Americans consume primarily: table sugar and high-fructose corn syrup.
- Table sugar (sucrose): bond between one glucose molecule 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. But liver cells are one of the few types of cells that can convert fructose to energy.
- A soda floods the liver with large amounts of free floating fructose. When you eat an apple, the fiber considerably slows down digestion, making the fructose slowly enter the liver.
- Large amounts of "free" fructose taxes the liver and increases fatty liver disease.
- Fructose also raises levels of the hormone ghrelin, which stimulates hunger, and suppresses leptin, the hormone that makes you feel full.

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- One of the most popular dietary trends in US is the “low carb” diet.
- Perhaps instead of focusing on LOW CARB, we could emphasize **LOW GLYCEMIC LOAD CARBS**.



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Glycemic Index/Load

- International consensus conference concluded that diets low in GI and GL were relevant to the **prevention and management of diabetes and coronary heart disease**, and are **particularly important in individuals with insulin resistance**.
- “Given the high prevalence of diabetes and pre-diabetes worldwide and the **consistency of the scientific evidence reviewed**, the expert panel confirmed an urgent need to communicate information on GI and GL to the general public and health professionals, through channels such as national dietary guidelines, food composition tables and food labels.”

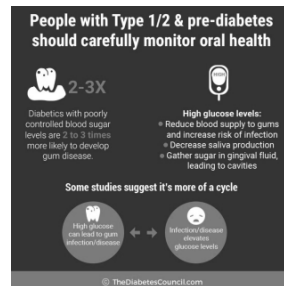
Augustin LS, et al. Glycemic index, glycemic load and glycemic response: An International Scientific Consensus Summit from the International Carbohydrate Quality Consortium (ICQC). *Nutr Metab Cardiovasc Dis* 2015 Sep;25(9):795-815.

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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 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.

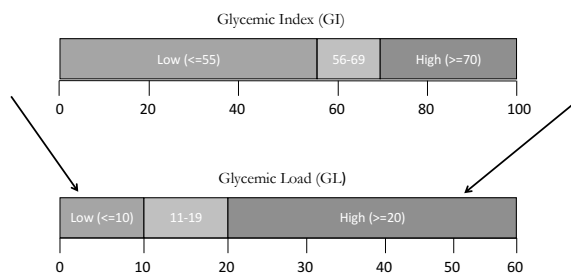


Breymeyer KL, et al. *Appetite* 2016; Dec 1;107:253-259.

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Glycemic Index & Glycemic Load Rating Chart



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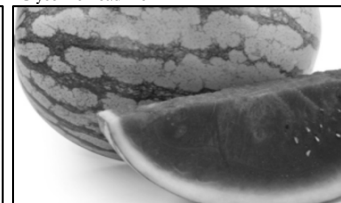
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Which One Would You Choose?

Banana
 Glycemic Index = 52
 Available Carbs = 24 grams
 Glycemic Load = 14



Watermelon
 Glycemic Index = 72
 Available Carbs = 10 grams
 Glycemic Load = 8



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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
Asparagus	½ cup	2
Broccoli	1 cup	4
Green beans	1 cup	3
Tomato	1 medium	2
Subway sandwich 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
Eggo oat waffles	1 serving	13
Maple syrup	4 Tbsp	39
Egg, hard boiled	1	2
Apple juice	8 ounce	6

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Food	Serving Size	Glycemic Load
Spaghetti	1 cup	38
Brown rice	1 cup	23
White rice	1 cup	33
White bread	1 slice	10
Whole grain bread	1 slice	5
Bagel, cinnamon raisin	1 3.5 inch	24
Pumpernickel bread	1 slice	6
Macaroni and cheese	1 cup prepared	31
Chocolate doughnut	1 doughnut (80 g)	25
Glazed doughnut	1 doughnut (80 g)	12
Kellogg's Frosted Flakes	¾ cup	20
Kellogg's Special K	1 cup	14
Post Bran Flakes	¾ cup	12
Post Raisin Bran	1 cup	25

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Low/High GI Meals



GI = 80 GL = 32

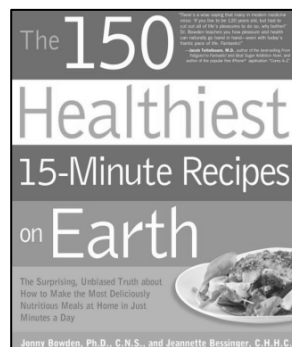
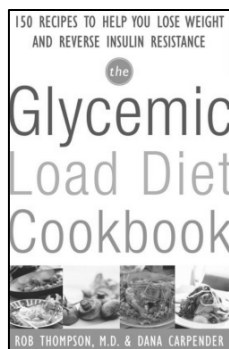


GI = 61 GL = 12

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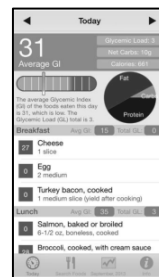
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Resources



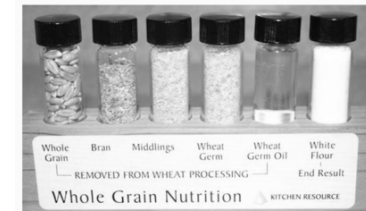
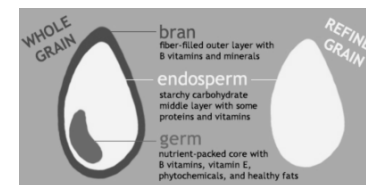
Get an App \$3.99

Low GI Diet Tracker



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Tips on Whole Grains

- **100% Whole Wheat** (first ingredient!)
- **Oats** (skip the instant)
- **Brown Rice** (white has bran/germ removed, LOW in nutrients)
- **Whole Rye** (four times the fiber of whole wheat, most nutritious)
- **Whole Grain Barley** (not pearled: bran and germ have been removed)
- **Buckwheat** (loaded in magnesium, gluten-free)
- **Quinoa** (not a grain, it's a seed loaded in protein and omega 3)
- **Whole Wheat Couscous** (delicious and high in fiber)
- **Corn** (organic, non-GMO – increases healthy gut flora)

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Gluten

- Autoimmune condition **celiac disease**, where immune system interacts negatively with **gluten**, a storage protein in cereal grains. **ONLY** treatment is complete avoidance of gluten. Note: *In children, celiac disease is associated with both enamel defects and aphthous stomatitis.**
- Celiac symptom checklist: (celiac.org/celiac-disease/resources/checklist/)
- Other individuals may be **allergic to wheat**, not all grains. Symptoms can include GI (indigestion, cramps, diarrhea, nausea), respiratory (stuffy/runny nose) and/or skin (hives or rash). Necessary to AVOID wheat.
- And still others appear to have a **gluten sensitivity**, where “symptoms” improve when they eliminate gluten from their diet. This is less clear....

*Nieri M, et al. Enamel defects and aphthous stomatitis in celiac and healthy subjects: Systematic review and meta-analysis of controlled studies. *J Dent* 2017; Oct;65:1-10.

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www.celiac.org

Lots of info. Recipes provided for 7 day meal plan.

Get an app!

The Gluten-Free Scanner (free, more than 500,000 products)



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Non Celiac Gluten Sensitivity

- Multicenter study of 1,114 children (negative for celiac and wheat allergy) with chronic functional GI symptoms associated with gluten ingestion using a double-blind placebo controlled gluten challenge and crossover.
- Patients were randomized to gluten (10 g/daily) and placebo (rice starch) for 2 weeks each, separated by a washout week. Out of 1,114 children, 96.7% did not exhibit any correlation with gluten ingestion.
- Eleven of 36 children who did react tested positive for gluten challenge.

Francavilla R, et al. Randomized Double-Blind Placebo-Controlled Crossover Trial for the Diagnosis of Non-Celiac Gluten Sensitivity in Children. *Am J Gastroenterol* 2018 Jan 30. doi: 10.1038/ajg.2017.483

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Fructans or Gluten?

- Non-celiac gluten sensitivity is characterized by symptom improvement after gluten withdrawal in absence of celiac disease. Foods with gluten often contain fructans, a type of fermentable oligo-, di-, monosaccharides and polyols.
- Double-blind crossover challenge of 59 individuals on a self-instituted gluten-free diet, for whom celiac disease had been excluded. Participants were randomly assigned to groups placed on diets containing gluten (5.7 g), fructans (2.1 g), or placebo, concealed in muesli bars, for 7 days.
- Symptoms were measured by Gastrointestinal Symptom Rating Scale Irritable Bowel Syndrome
- 13 participants had the highest overall score after consuming gluten, 24 had the highest score after consuming fructan, and 22 had the highest score after consuming placebo.

- Skodje GI, et al. Fructan, Rather Than Gluten, Induces Symptoms in Patients With Self-Reported Non-Celiac Gluten Sensitivity. *Gastroenterology* 2018 Feb;154(3):529-539.e2.

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LOW FODMAP GROCERY LIST			
GRAINS Gluten free pasta (rice, quinoa, corn) Corn Quinoa Buckwheat (not gluten) Rice (brown, white, basmati) Rice bran BRAND NAME CEREALS Kashi Nature of Rice Nature of Rice Nature of Rice Nature of Rice BREADS Gluten free bread Gluten free bread Gluten free bread Gluten free bread FLOURS AND BAKING SUPPLIES Gluten free flour Gluten free flour Gluten free flour Gluten free flour SPICES Black pepper Cardamom Cinnamon Cloves Coriander Curry powder Mustard seeds Nutmeg Paprika Turmeric PROTEIN Beef Chicken Fish Pork Tofu Turkey TOFU/KEFIR Tofu Kefir	NUT BUTTER Almond butter Cashew butter Coconut oil Peanut butter NUTS/SEEDS Almonds Cashews Coconuts Pistachios Pine nuts Pumpkin seeds Sesame seeds Sunflower seeds PRODUCE Asparagus Avocado Broccoli Brussels sprouts Cauliflower Cucumber Eggplant Green beans Kale Lettuce Onions Peas Potatoes Spinach Sweet potatoes Tomatoes Zucchini VEGETABLES Asparagus Avocado Broccoli Brussels sprouts Cauliflower Cucumber Eggplant Green beans Kale Lettuce Onions Peas Potatoes Spinach Sweet potatoes Tomatoes Zucchini HERBS Basil Cilantro Dill Parsley Rosemary Thyme DAIRY Butter Cheese Cream Yogurt MILK Almond milk Coconut milk Cashew milk Hemp milk Macadamia milk Pea milk Soy milk Tofu TOFU/KEFIR Tofu Kefir	FRUIT Apples Avocado Bananas Berries Citrus Grapes Kiwi Mango Melons Nectarines Peaches Pineapples Plums Raspberries Strawberries Tangerines Watermelon SNACKS-SWEETS Almonds Apples Avocado Bananas Berries Citrus Grapes Kiwi Mango Melons Nectarines Peaches Pineapples Plums Raspberries Strawberries Tangerines Watermelon BEVERAGES Almond milk Coconut milk Cashew milk Hemp milk Macadamia milk Pea milk Soy milk Tofu TOFU/KEFIR Tofu Kefir	OILS/CONDIMENTS Almonds Apples Avocado Bananas Berries Citrus Grapes Kiwi Mango Melons Nectarines Peaches Pineapples Plums Raspberries Strawberries Tangerines Watermelon SNACKS-SWEETS Almonds Apples Avocado Bananas Berries Citrus Grapes Kiwi Mango Melons Nectarines Peaches Pineapples Plums Raspberries Strawberries Tangerines Watermelon BEVERAGES Almond milk Coconut milk Cashew milk Hemp milk Macadamia milk Pea milk Soy milk Tofu TOFU/KEFIR Tofu Kefir

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Saturated Fat Debate

- Three large meta analyses (21 studies, 12 studies, and 76 studies) have all failed to show any significant evidence that saturated fat increases the risk for heart disease.
- It also has failed to find any significant evidence that increasing polyunsaturated fats and decreasing saturated fats lowers your heart risk.
- Include a variety of fats in your diet!



Siri-Tarino, *Am J Clin Nutr* 2010; 91 (3): 535-46.
Schwingshackl L, et al. *BMJ Open* 2014; 4(4):e004487.
Chowdhury R, et al. *Ann Intern Med* 2014; 160(6):398-406.

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- Grass fed and finished beef higher in conjugated linoleic acid, stearic acid, vitamins A and E.
- *Organic* pastured dairy and meats are up to ~50% higher in omega 3 fatty acids and were only given organic feed and no growth hormones or antibiotics.

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Red Meat and Cancer

- **Poultry/turkey and fish** neutral or beneficial effects regarding cancer/health.
- The American Institute for **Cancer** Research has made the following recommendations regarding red meats (**beef, lamb, pork**) based upon the data that links them to an increased risk of colon cancer:
 - **Limit red meats to < 18 ounces per week.**
 - **Avoid processed** red meats (e.g., bologna, salami, hot dogs, corned beef)

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Fish and Seafood



- Fish and seafood are excellent source of protein high in omega 3 fatty acids. They also provide vitamin D and contribute valuable mineral nutrients to the diet such as selenium, iodine, magnesium, iron and copper.
 - Beneficial for helping to prevent atherosclerosis and maintaining healthy blood pressure and blood flow.
 - Promote brain health and may help reduce the risk of depression.
 - Necessary for the health of the eyes. Can help reduce dry eye syndrome.
 - Crucial for health pregnancy and childhood development.
 - Help quell inflammation, which has been linked to many chronic disorders.

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Choose Your Seafood Wisely

The Seafood Watch App

Available for iOS and Android

It's easier than ever to get the latest recommendations for seafood and sushi, learn more about the seafood you eat, and locate or share businesses that serve sustainable seafood.

Download on the App Store
GET IT ON Google play

View our App FAQs

Features

- Get free, up-to-date seafood recommendations
- Search for seafood quickly and easily by common market name
- Search for sushi by Japanese name as well as common market name
- Find restaurants and stores near you that serve ocean-friendly seafood
- Access in-depth conservation notes and reports

<https://www.seafoodwatch.org/seafood-recommendations/our-app>

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Coconut Oil (*Cocos nucifera*)

- Extensively used in tropics/subtropics. Rich in medium chain saturated fatty acids (e.g., lauric acid), MAY be less likely stored as adipose tissue and may be less likely to promote insulin resistance and inflammation. Raises **both** LDL and HDL.
- Possesses antibacterial and antifungal activity (great for topical use). Study of 60 patients found oil-pulling (10 minutes, 2 tsp) equivalent to chlorhexidine in reducing *S. mutans*.
- **If using refined coconut oil use ORGANIC only:** no chemical solvents. Smoke point: 450 F.
- **"Virgin"** coconut oil obtained from fresh mature kernel of coconut by mechanical or natural means with or without the application of heat.



McCarty MF, et al. *Open Heart* 2016; 3(2):e000467.
Eyles L, et al. *Nut Rev* 2016; 74(4):267-80
Kausik M, et al. *J Contemp Dent Pract* 2016;17(1):38-41.

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Olive Oil

- Cornerstone of Mediterranean diet.
- Rich in monounsaturated fat oleic acid (73%), antioxidants, and modest levels of vitamin E and K.
- Oleocanthal mimics ibuprofen in reducing inflammation.
- Protects against heart disease and stroke; lowers total blood cholesterol, LDL-C, triglycerides; improves HDL, has a mild blood pressure lowering effect.
- May offer additional protection against Alzheimer's disease, diabetes and cancer as part of a healthy diet.
- Keep refrigerated for optimal shelf life.
- To find top olive oils that meet rigorous quality and taste standards: www.bestoliveoils.com



Hernandez A, et al. *Arterioscler Thromb Vasc Biol* 2014; 34(9):2115-9.
Crous-Bou M, et al. *BMJ* 2014;349:g6674

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Full or Low Fat Dairy?

- Full fat dairy products MAY help protect against type 2 diabetes. Fat slows absorption of milk sugar, causing slower rise in blood sugar, and lower/slower release of insulin. No evidence full fat dairy increases risk of heart disease.
- Full fat dairy recommended for women trying to get pregnant as it reduces anovulatory infertility.
- Full fat dairy improves acne, low fat dairy aggravates it.
- Full fat dairy lower in lactose, better tolerated by lactose intolerant individuals.
- Only 30% of global population able to produce enough lactase to digest and absorb lactose throughout adult life (highest in Scandinavian and northern Europeans).



Chavarro JE, et al. *Hum Reprod* 2007; 22(5):1340-7.
Alexander DD, et al. *Br J Nutr* 2016; 115(4):737-50

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What About Eggs, Shrimp and Dietary Cholesterol?

- Provide essential fatty acids, proteins, choline, vitamins A and B12; selenium, and other critical nutrients at levels above or comparable to those found in other animal-sourced foods.
- Egg consumption not associated with an increased risk of heart disease in the general population.
- Past guidelines set 300-mg daily limit for dietary cholesterol. This was removed in new guidelines (e.g., eggs, shrimp)



Shin JY, et al. *Am J Clin Nutr* 2013; 98(1):146-59

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Protein



- From the Greek word *protos*, "first."
- Used to build new cells, maintain tissues (e.g., muscles, inner bone, hair, nails), create enzymes, make hemoglobin to carry oxygen, lipoproteins to transport cholesterol; present in inner and outer membrane of every living cell.
- Sources include meat, poultry, seafood, eggs, soy products, nuts, nut butters, beans, peas, and seeds. You need ~8 grams protein per 20 pounds body weight for adults.
 - Choose seafood two times weekly (low in mercury, high in omega 3s, sustainable)
 - Include beans and peas often in your diet, as a side or main dish
 - Avoid processed red meats, include modest amounts of other meats

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Protein and Fracture Risk

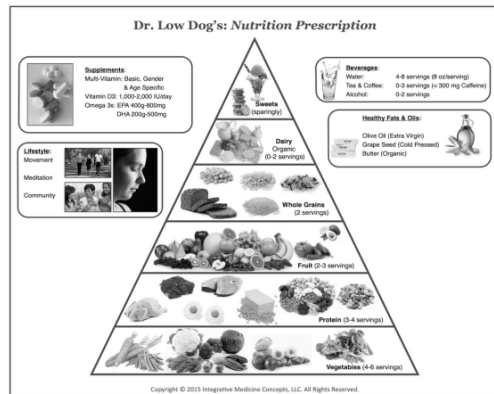


- Framingham Osteoporosis Study found **higher protein intakes** (60-83g/d versus 46g/d) in elder men and women (mean 75 years) were associated with a **37% decreased risk of hip fracture**.
- Women's Health Initiative found 20% increase in protein intake (15-18% of energy intake) improved bone mineral density maintenance and marginally lowered forearm fracture risk.
- Systematic review of **29 studies found that protein intakes above the current RDA have a beneficial role in preventing hip fractures and BMD loss**. No differences between animal or plant proteins, although data in this area were scarce.

Misra D, et al. *Osteoporosis Int* 2011; 22(1):345-349.
 Beasley JM, et al. *Am J Clin Nutr* 2014; 99(4):934-940.
 Calvez J, et al. *Eur J Clin Nutr*. 2012;66(3):281-295.
 Wallace TC, et al. *J Am Coll Nutr* 2017; 36(6):481-496

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Real State of Our Nutrition

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

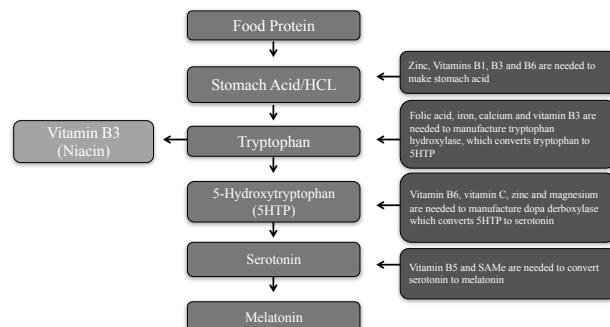


CDC: 2nd National Report on the Biochemical Indicators of Diet and Nutrition in the U.S. population

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Serotonin and Melatonin Pathways



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Position on Nutrient Supplementation by the Academy of Nutrition and Dietetics

- Among the groups **most vulnerable** to inadequacy of one or more nutrients are:
 - **Older adults**
 - **Pregnant women**
 - People who are **food insecure**
 - **Alcohol dependent individuals**
 - **Strict vegetarians and vegans**
- Those with **increased needs** due to a **health condition** or the **chronic use of a medication** that decrease nutrient absorption/increase metabolism or excretion.

Marra and Boyar. *J Am Diet Assoc* 2009

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Position on Nutrient Supplementation by the Academy of Nutrition and Dietetics

- Nutrient supplementation can be used to help meet a nutrient requirement for those:
 - Restricting energy intake for **weight loss/control**
 - **Not consuming an adequate amount of food** to meet energy requirements as a result of poor appetite or illness
 - **Eliminating one or more food groups** from their diet on a regular basis
 - Consuming a diet low in nutrient rich foods despite adequate or excessive energy intakes.

Marra and Boyar. *J Am Diet Assoc* 2009

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- Vitamin D deficiency can cause **osteomalacia** (lower bone mineralization), leading to **musculoskeletal pain**, usually in the pelvis, shoulders, low back, and proximal muscles.
- Deficiency is common worldwide but often **more severe in elders** due to environmental and biological factors.
- Impaired mobility can limit time spent outdoors and **decreased synthesis of vitamin D in skin** makes it difficult to maintain adequate levels even with sun exposure.
- As aging advances, intestinal resistance to 1,25(OH)₂D **impairs the uptake of calcium** and a **decline in renal function reduces activation of vitamin D**.

Vitamin D



Wintermeyer E, et al. Crucial Role of Vitamin D in the Musculoskeletal System. *Nutrients* 2016; Jun 1;8(6). pii: E319.

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Fragility Fractures

- **Fragility fractures** associated with **decreased quality of life**, increased disability, more frequent hospital admission and **increased risk of mortality**.
- While a multimodal approach is important, **vitamin D supplementation alone, or in combination with calcium**, has been shown to **significantly reduce the risk of falling in elders**.



WHO. Nutrition for Older Persons. <http://www.who.int/nutrition/topics/ageing/cn/in dex1.html> Accessed January 3, 2018

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Calcium and Vitamin D: Fracture

- Osteoporosis responsible more than 8.9 million fractures annually worldwide.
- Meta-analysis by National Osteoporosis Foundation: eight studies (n= 30,970 participants) found that all studies showed **calcium plus vitamin D** supplementation **produced a statistically significant 15 % reduced risk of total fractures and 30% reduced risk of hip fractures**.



Weaver CM, et al (2016). Calcium plus vitamin D supplementation and risk of fractures: an updated meta-analysis from the National Osteoporosis Foundation. *Osteoporosis Int*, 27: 367-376

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Vitamin D and Respiratory Infection



Martineau AR, et al. Vitamin D supplementation to prevent acute respiratory tract infections: systematic review and meta-analysis of individual participant data. *BMJ* 2017; 356: i6583.

- Acute respiratory infection kills ~2.65 million people/year.
- **25 eligible randomized controlled trials (n=10,933, aged 0-95 years).**
- Vitamin D supplementation **reduced risk of acute respiratory infection** among all participants (NNT=33) and **those who were vitamin D deficient experienced the most benefit (NNT=4)**, as did those who were receiving daily or weekly vitamin D and *not* receiving vitamin D boluses (NNT=20).

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Endocrine Society Guidelines

- Serum 25(OH)D level is used to determine vitamin D status
 - **Sufficiency** is 30 ng/mL (75 nmol/L) and above
 - **Insufficiency** defined as 21-29 ng/mL.
 - **Deficiency** defined as <20 ng/mL.
- **66.8 million Americans** 1 year and older had levels between **12-20 ng/ml**
- **23 million Americans** 1 year and older had levels **less than 12 ng/ml**
- **WHY isn't there more routine screening in high risk individuals?**

CDC 2nd National Report on Biochemical Indicators of Diet and Nutrition in the U.S. Population
Holick MF, et al. *J Clin Endocrinol Metab* 2011; 96(7):1911-30

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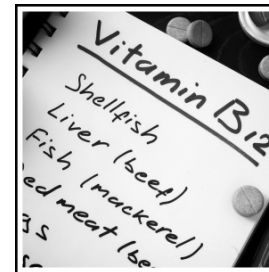
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Prescription Meds and Nutrients: Just a Glimpse

- Widespread use of prescription drugs for management of chronic health conditions can make it difficult to maintain adequate levels of specific nutrients.
- PPI drugs are one of the most commonly prescribed medications and are also available over-the-counter in the United States. Long-term use can increase the risk of fracture, cause magnesium levels to plummet, and interfere with B12 absorption, as well as increasing the risk of *C. difficile* infection.
- With increasing prevalence of type-2 diabetes, we will continue to see increase in metformin use, a drug known to deplete vitamin B12.

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Bird JK, et al. Risk of Deficiency in Multiple Concurrent Micronutrients in Children and Adults in the United States. *Nutrients* 2017; doi: 10.3390/nu9070655

Conzade R, et al. Prevalence and Predictors of Subclinical Micronutrient Deficiency in German Older Adults: Results from the Population-Based KORA-Age Study. *Nutrients* 2017; doi: 10.3390/nu9121276

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Vitamin B12 Deficiency

- **Risk for vitamin B12 deficiency increases with age.** Using NHANES data, 6.9% ages 51–70 years and 15% >70 years are B12 deficient.
- In Germany, **27.3% of people aged 65-93** have **deficient** serum B12 levels.
- Risks include: **inadequate intake, vegan, malabsorption, medications (PPI, metformin), obesity, and aging.**
- **Decline in gastric acid secretion** occurs with advancing age can make it difficult to absorb food-bound B12, **supplementation is recommended.**

Vitamin B12

- A 2015 meta-analysis found an **80% increased risk of B12 deficiency after ten months of regular PPI use.**
- **Metformin**, a medication commonly prescribed for the treatment of type-2 diabetes, **reduces serum B12 levels and worsens diabetic neuropathy.**
- B12 deficiency can lead to **difficulty walking, tingling/numbness in hands and feet, fatigue, shortness of breath, loss of appetite, joint pain, depression, loss of taste and smell, cognitive impairment, and dementia.**
- **YET**, vitamin B12 levels are **not commonly monitored with these drugs.**

Jung SB, et al. Association between vitamin B12 deficiency and long-term use of acid-lowering agents: a systematic review and meta-analysis. *Intern Med J* 2015; 45(4):409-16.

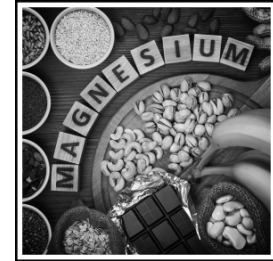
Our M, et al. Long-term treatment with metformin in type 2 diabetes and methylmalonic acid: Post hoc analysis of a randomized controlled 4.3-year trial. *J Diabetes Complications* 2018; 32(2):171-178.

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Magnesium

- Low magnesium intakes and serum levels associated with **type 2 diabetes, metabolic syndrome, chronic inflammation, high blood pressure, atherosclerotic vascular disease, sudden cardiac death, osteoporosis, migraine headache, asthma, and colon cancer.**
- 48% of US population consume less than RDI of magnesium; down from 56% in 2001-2002
- FDA requires warning that **proton pump inhibitors can cause dangerously low magnesium levels.**



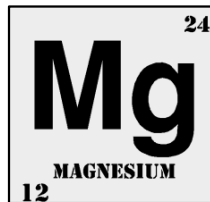
Resanoff A, Weaver CM, Rude RK (2012) Suboptimal magnesium status in the United States: are the health consequences underestimated? *Nutr Rev* 70(3): 153-64.

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Magnesium and Diabetes

- **Insulin resistance** repeatedly shown to **decrease magnesium levels and diabetics with low magnesium show a more rapid disease progression** and an increased risk for **diabetes-related complications.**
- A vicious forward feeding cycle is created. **Magnesium supplementation** has been shown to **improve glucose metabolism and insulin sensitivity** in those with type-2 diabetes.



Gommers LM, Hoenderop JG, Bindels RJ, de Baaij JH (2016) Hypomagnesemia in Type 2 Diabetes: A Vicious Circle? *Diabetes*, 65(1):3-1

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Magnesium and Heart Disease



- 2013 **meta-analysis** of 16 studies with more than **313,000 participants** found:
 - Higher blood levels associated with a **30% lower risk of cardiovascular disease.**
 - Dietary magnesium (per 200-mg/d increment) associated with a **22% lower risk of fatal ischemic heart disease.**
- Magnesium important in maintaining blood pressure and **supplementation (365 to 450 mg/d)** shown to **significantly lower blood pressure** in those with **insulin resistance, prediabetes, and other chronic diseases.**

Del Gobbo LC, et al. Circulating and dietary magnesium and risk of cardiovascular disease: a systematic review and meta-analysis of prospective studies. *Am J Clin Nutr* 2013; 98(1):160-73.

Dibaba DT, et al. The effect of magnesium supplementation on blood pressure in individuals with insulin resistance, prediabetes, or noncommunicable chronic diseases: a meta-analysis of randomized controlled trials. *Am J Clin Nutr* 2017; 106(3):921-929.

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Magnesium Deficiency

- People with magnesium deficiency can present with **insulin resistance, menstrual cramps, leg cramps, migraines, fatigue, anxiety and mild elevations in blood pressure.**
- In more severe cases of deficiency, **seizures, tingling and numbness in the arms and legs, bizarre muscle movements (especially of the eyes and face), personality changes, and coronary spasms can occur.**
- Many medications can deplete magnesium (e.g., **diuretics, PPIs, OCPs, gout medication, B2-agonists, steroids, etc.**).

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The Need is Real and Urgent

- Clinicians must have more training in how to identify potential nutrient deficiencies and what testing is most appropriate for determining the status of specific nutrients.
- We urgently need more research to determine the “optimal” reference range for key micronutrients in specific populations, as well as making nutrient testing more widely available, more economical, and reimbursed by insurance and government programs.
- Given that even marginal micronutrient status can adversely affect muscle, joint, and eye health, as well as the immune, cardiovascular and neurological systems, there is an urgent need for better education and communication with public health officials, medical professionals and the public.

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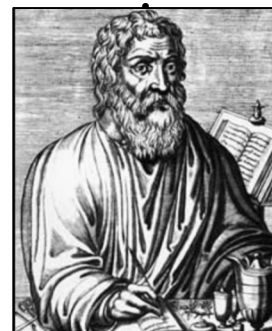
This life is
not a dress
rehearsal.

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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: *Sound Body = Sound Mind*

- Known since ancient times, exercise and physical activity are keys to a long and healthy life. Reducing risk of diabetes, heart disease, osteoporosis.
- Movement increases blood flow to the brain, promoting growth of new blood vessels, stimulating release of endorphins that diminish pain, as well as compounds that elevate mood and reduce tension.
- More than 400 studies show exercise can reduce risk depression/anxiety.
- Regular exercise increases energy levels and eases fatigue. Just 20 minutes 3 x per week of moderate exercise can improve energy levels in just 4 weeks!
- Fatigue, low energy, pain and depressed mood all impact our emotional wellbeing. Make movement a habit!

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Motivation

- Use a fitness tracker – assess your baseline (normal activity 3 days) and see where you can improve.
- Use an app, join a class, grab a friend
- Make it a habit. Just *do* it.
- Do something you enjoy
- Focus on the *immediate* benefits you will feel once you start exercising regularly

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Lack of Sleep



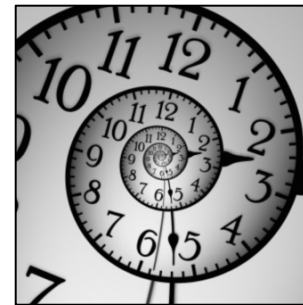
- Tremendous amount of research shows that chronic sleep problems can lead to weight gain, obesity, diabetes (33% increased risk type 2 diabetes) and heart disease.
- CDC reports that 1 in 3 Americans do not get sufficient sleep.
- Studies show as our time asleep declines, it impairs working memory, processing speed and executive function. Interestingly, caffeine can *temporarily* counteract all but executive function.
- Women report more sleep disruption than men (pregnancy, childrearing, menopause), though men have more sleep apnea.
- Depression and anxiety are higher in people with chronic pain and are also strongly correlated with self-reporting of insufficient sleep. A vicious forward feeding circle.

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

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The Biological Clock



- The most important regulator of the sleep wake cycle is our biological clock.
- Responsible for the 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 blood pressure ~6:30 PM
 - 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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Days Can Make For Better Nights!

- Wake at same time everyday and make your bed! Exercise early.
- Start morning with **exposure to sunlight** or consider using a dawn simulating device that slowly increases intensity of light for 30 minutes before awakening.
- Landmark study in 1989 found that when participants with seasonal affective disorder were exposed to either **simulated sunrise** or **both simulated sunset and sunrise for several days** that their depression either resolved or was greatly reduced. The circadian **rise and fall of melatonin** production occurred earlier with sunrise simulation or with sunset plus sunrise simulation.
- Very good for those who have a hard time falling asleep (e.g. teenagers!)
- Pricey – Philips Wake-Up Light with Colored Sunrise Simulation is top rated.

Terman M, Schlager D, Fairhurst S, et al. Dawn and dusk simulation as a therapeutic intervention. *Biol Psychiatry*. 1989;25:966-970.

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The Bedroom

- No alarm clocks with display lights. Make sure there is no blue light emitting from the television or computers, or consider amber blue blocking glasses. Work WITH your body's normal production of melatonin, not against it.
- Turn down your thermostat to 65-68 F. Wear socks to bed if feet get cold.
- Use black out blinds or curtains to eliminate external light.
- Replace mattress every 10 years and pillows every 2 years.
- Have pets sleep in their own beds.
- Make it a sanctuary. Nice bed linens, peaceful, a lamp and good book by the bed.
- Journaling can help if your mind is often preoccupied at night with "to do" lists. Gratitude journaling can also be a great way to ease into sleep.
- Consider melatonin 3 mg 2 hours before bed if you have "delayed sleep"

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Current Recommendations.....

- **Controlled-release melatonin** and doxepin are recommended as first-line agents in older adults; the so-called z-drugs (zolpidem, eszopiclone, and zaleplon) should be reserved for use if the first-line agents are ineffective.
- Dose generally 3-5 mg melatonin.



Matheson E, et al. Insomnia: Pharmacologic Therapy. *Am Fam Physician* 2017; Jul 1;96(1):29-35.

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Dietary Considerations

- Watch the caffeine, you might be sensitive to its effects. Drink plenty of water and/or herbal teas in the afternoon that have a calming, relaxing effect.
- While one serving of alcohol isn't generally a problem – cut back or eliminate if you are having trouble sleeping. 3-4 drinks can disrupt melatonin secretion and REM sleep. Alcohol may also increase excitatory neurotransmitters.
- Increase magnesium and tryptophan foods (e.g., poultry, eggs, milk, dark green leafy vegetables, pumpkin seeds).
- Consider magnesium supplements (100-300 mg per day at night)



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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



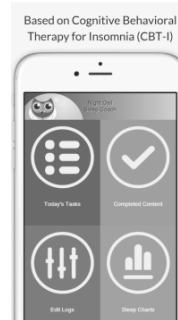
- Deep Sleep provides step-by-step instructions to guide you into state of deep relaxation. Andrew Johnson is awesome and his CDs are truly amazing. \$2.99

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Cognitive Behavioral Therapy

- CBT has emerged as a recommended *first-line therapy for insomnia*. Digital CBT has been shown to be effective for improving sleep, as well as mental health and well-being.
- CBT-I typically consists of:
 - Psychoeducation about sleep and insomnia
 - Stimulus control
 - Sleep restriction
 - Sleep hygiene
 - Relaxation training
 - Cognitive therapy



Luik AI, et al. Digital cognitive behavioral therapy for insomnia: a state of the science review. *Curr Sleep Med Rep* 2017; 3(2): 48-56

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Sleep Evaluation

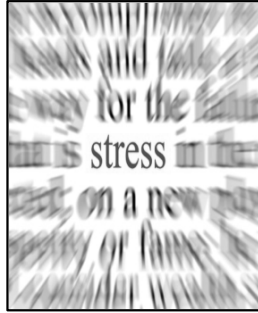
- There are numerous medications that can impair sleep (e.g., beta blockers antidepressants, steroids, ADHD meds, possibly statins, etc.) Do some online research and/or talk to your pharmacist. If you are taking medication that disrupts sleep, talk to your health care provider.
- Restless leg syndrome impacts many people. Talk to you provider, it could be due to low iron, vitamin D or meds you are taking – though the 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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High cortisol levels are linked to high blood pressure, high cholesterol, high blood sugar, insulin resistance, insomnia, weight gain, headaches, mood swings, depression, and increased risk of infections.

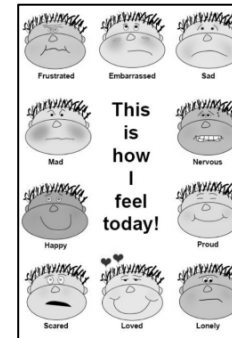
Scientists believe that prolonged elevation of stress hormones may shorten our lifespan by 15 years.



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Emotional Health



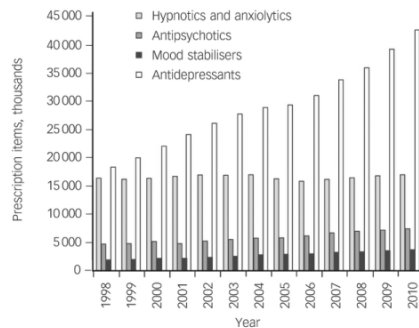
- A conscious mental reaction (such as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by *physiological and behavioral changes in the body.*

Merriam Webster Dictionary

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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

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*What is Your Body
Telling You?*



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Mindfulness Meditation

- Meditation is excellent for reducing stress perception and pain intensity, while elevating mood.
- Quiets the stream of thoughts that rage in our mind.
- 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 days guided meditation program to get you started. Can be personalized and integrated into other health apps. Free.
- *Aura* – multiple teachers, from 3-10 minute daily meditations. Customizable. #1 new app on Apple in 2017. \$29 for 6 months.

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

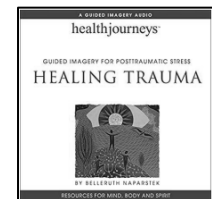
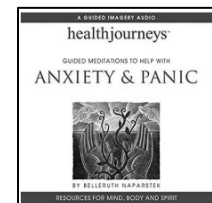
- An immersive, deeply relaxing intervention that uses calming words, soothing music and positive images to structure a healing experience.
- Like meditation, it focuses attention and calms the mind, working on those parts of the brain where the emotional self dwells.
- Imagery has been shown in clinical trials to reduce stress, anxiety, and depression; help with sleep; lower blood pressure, and help with 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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Loneliness, Social Isolation & Your Health



- 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 obesity.

Cacioppo JT, et al. *Ann N Y Acad Sci* 2011; 1231:17-22
Holt-Lunstad J, et al. *PLoS Med* 2010; 7:e1000316

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Stress, Poor Social Networks and Heart Disease

- Psychosocial stress assessed by questionnaire in 14,577 patients (median age 65 years; 81.6% males) with stable coronary heart disease on optimal secondary preventive therapy in the prospective randomized STABILITY clinical trial.
- Psychosocial stress (depressive symptoms, loss of interest, living alone financial stress) associated with an increased CV mortality. Being married was protective, living alone increased risk.
- Meta-analysis of 11 coronary heart disease studies and 8 stroke studies. Poor social relationships associated with 29% increase in risk of incident CHD and 32% increased risk of stroke. No differences by gender.
- Hagstrom E, et al. Psychosocial stress and major cardiovascular events in patients with stable coronary heart disease. *J Intern Med* 2018 Jan;283(1):83-92.
- 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.

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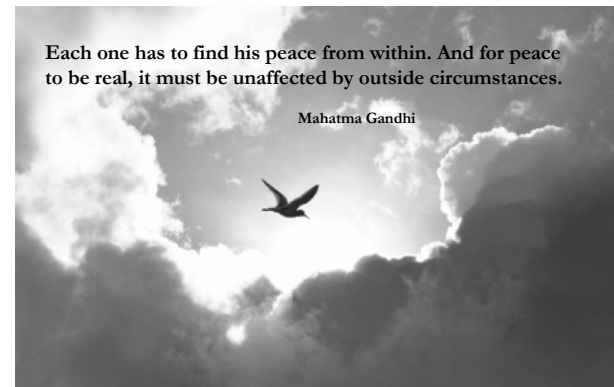


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Each one has to find his peace from within. And for peace to be real, it must be unaffected by outside circumstances.

Mahatma Gandhi



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Meaning and Purpose

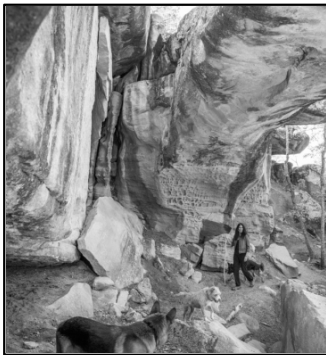
- What truly gives a person a sense of *meaning and purpose* in life?
- How can one live from a “*deep place*” despite her pain?
- How does one feel the oneness, find the *holy and sacred* in the mundane?

Listen.
Are you
breathing
just a little
and calling
it a life?

~ Mary Oliver

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*“There are voices which we hear in
solitude ...*

*but they grow faint and inaudible as we
enter into the world.”*

Ralph Waldo Emerson

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Letting Go.....

*“Healing may not so much be about getting better, but about letting go, of all the
expectations, all of the beliefs, and becoming who you are.”*

— Rachel Naomi Remen, M.D.



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