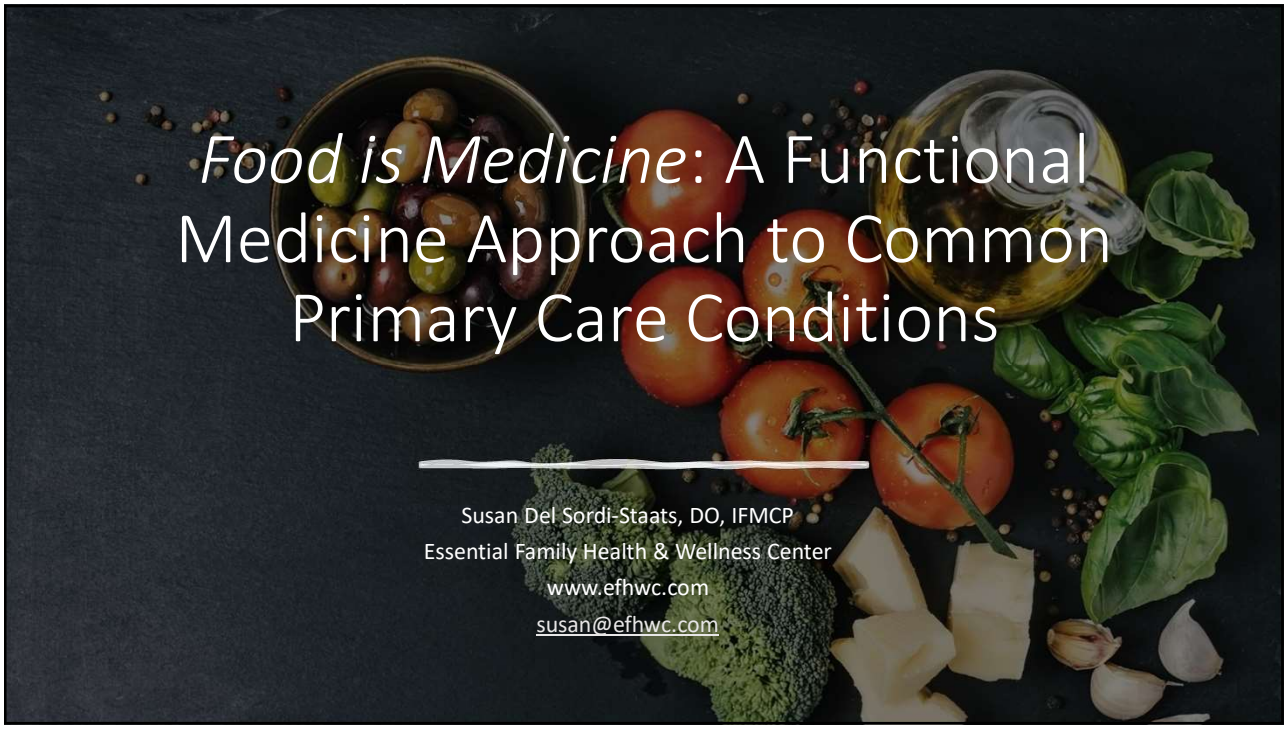

Food is Medicine: A Functional Medicine Approach to Common Primary Care Conditions

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Disclosures

I have no financial relationships or conflicts to disclose.

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Learning Objectives

Define	Define the scope of the current healthcare crisis and how a ”Food is Medicine” approach can be utilized as a solution.
Examine	Examine how nutritionally deficient diets are at the root cause for common primary care conditions.
Understand	Understand how different dietary prescriptions such as the Elimination diet can be used in your practice.

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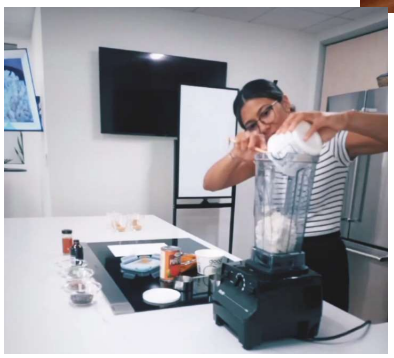

the well kitchen

·est 2022·

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Perspective…….

60% of all adults have at least one chronic health condition[1]

40% of adults have multiple chronic health conditions [1]

According to the Centers for Medicare & Medicaid Services (CMS), in **2022**, healthcare costs skyrocketed to **$4.4 trillion**. Despite decreased health services during the COVID-19 pandemic, CMS expects national health expenditures to reach **$6.8 trillion by 2030**[5]

WHAT are some solutions?

- Can we liberate patients from their dependency on costly medications?
- Can we adapt a system to address the dual problem of healthcare inflation & chronic dependency on the healthcare system?

Sources 1. About chronic diseases. Centers for Disease Control and Prevention. https://www.cdc.gov/chronicdisease/about/costs/index.htm. Published April 28, 2021. Accessed April 11, 2022 . 2. https://www.cms.gov/newsroom/press-releases/cms-office-actuary-releases-2021-2030-projections-national-health-expenditures

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CDC leading Causes of Death are Driven by Nutrition & Lifestyle

- Unhealthy diet contributes to approximately 678,000 deaths each year in the U.S., due to nutrition and obesity related diseases, such as heart disease, cancer and type 2 diabetes
- Adherence to a healthy eating program is associated with a lower risk of death

Shan Z, Wang F, Li Y, et al. Healthy Eating Patterns and Risk of Total and Cause-Specific Mortality. *JAMA Intern Med.* 2023;183(2):142–153. doi:10.1001/jamainternmed.2022.6117

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Health Outcomes

- US spends **18% of GDP** on Healthcare
- **US ranks last overall** compared with the other 10 high-income countries in the domain of healthcare outcomes
  - Highest infant mortality rate
  - Lowest life expectancy at age 60
  - Highest rate of preventable mortality
  - Highest maternal mortality rate
- Health outcomes are **NOT** the focus
  - Drugs, surgery and interventions are the priority

"People are fed by the Food Industry, which pays no attention to health,

and are treated by the Health Industry, which pays no attention to food."

Wendell Berry

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Disparity in Healthcare

- USDA defines **food insecurity** as a lack of consistent access to enough food for every person in a household to live an active, healthy life
- More than **34 million people**, including **9 million children** experience food insecurity in the U.S
- The U.S. Department of Agriculture(USDA) defines a community as a **food desert** if: The area has **poverty rate of at least 20%**. In urban areas, **at least 33% of the population lives more than 1 mile from the nearest grocery store**

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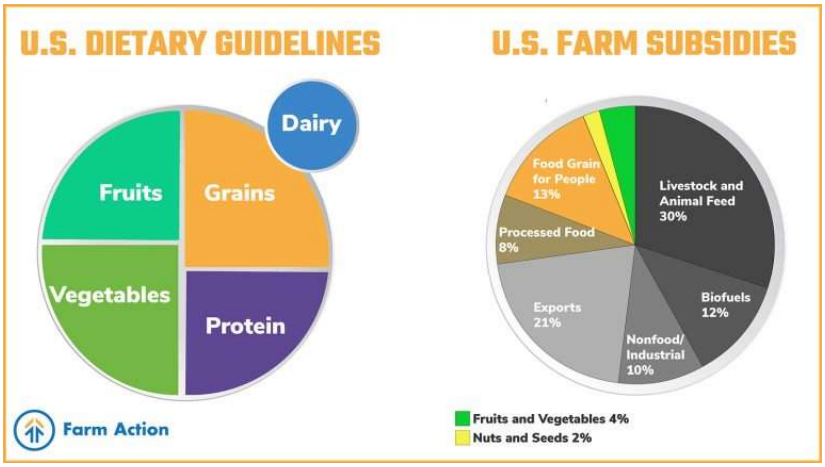

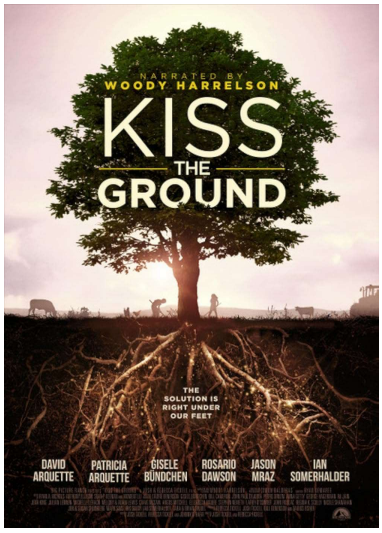

- Nearly 90% of U.S. Population falls below the recommended dietary allowance (RDA) for vegetables, and 80% fall below the RDA for fruit
- The USDA recommends filling 50% of your plate with fruits & vegetables, but in 2019, only 4% of federal farm subsidies supported their production

https://farmaction.us

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Diseases Associated with Diet

- HTN/Hyperlipidemia/CAD
- Diabetes/Metabolic Disease
- Migraines
- Autoimmune Disease
- Acne
- Allergies/Asthma/Atopy
- IBS/GERD/Constipation
- Osteoporosis
- Hashimoto's/Hypothyroidism
- PCOS/Hormone Imbalance/Infertility
- Depression/Anxiety
- Arthritis
- Cancer

***All common Primary Care Conditions

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How Can Food Effect Inflammation?

Chronic low-level inflammation is the root cause of disease and degeneration of most human cells/tissues/structures

Components that encourage inflammatory response

- Example: Gluten or dairy in sensitive individual, too much poor-quality animal based saturated fats

Auto-immune and allergic responses

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What does a Pro-Inflammatory Diet Look Like?

- High GI CHO
  - Highly refined grains, etc.
- Saturated/polyunsaturated Fats
- Overloaded with animal protein
- Deficient in v/m

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General Characteristics of an Optimal Diet

- Varied
  - Insures you are meeting nutrient needs
  - Insures you are not getting too much
- High in fresh foods, low in refined, processed, and manufactured foods
- Proper kcal distribution of CHO/Pro/Fat

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Food Prescription 101

Where is the patient deficient?

3 Basic Elements in Food:

- Macronutrients
- Micronutrients
- Phytonutrients

Recommended goals should include:

- Determining readiness for change
  - Meeting patient where they are at!
- Eat to nourish your body
  - What can you add to diet?
  - What do we need to take away?
- Decrease Inflammation
- Support Gut Microbiome
- Support Mitochondria
- Improve Insulin Sensitivity

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Food Prescription 101

Food is Information

Food represents Connection

- Topic Ideas
  - Building Healthy Bowls, or Healthy Smoothie, What to eat for Breakfast, How to meal prep, How to stock your panty, How to incorporate savory foods/spices, Health Benefits of Microgreens
  - How to read a food label, Eating Mindfully, Not Mindlessly, Tips for Eating out or Navigating Holidays

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Food as Medicine RX?

Where do we start?

- Group Medical Visits
- Dietician
- Health Coach
- Customized eating programs

Choices

Consistency

Empowered
Knowledge
Community
Support

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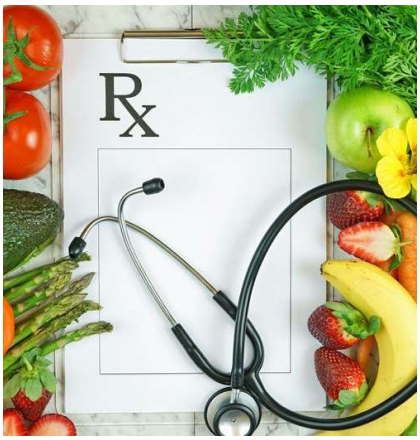
Evidence Based Food RX

- Mediterranean diet
- Elimination Diet
- FODMAP
- Low Histamine Diet
- Whole Food Plant Based
- Paleo
- Keto



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Anti-inflammatory Pyramid

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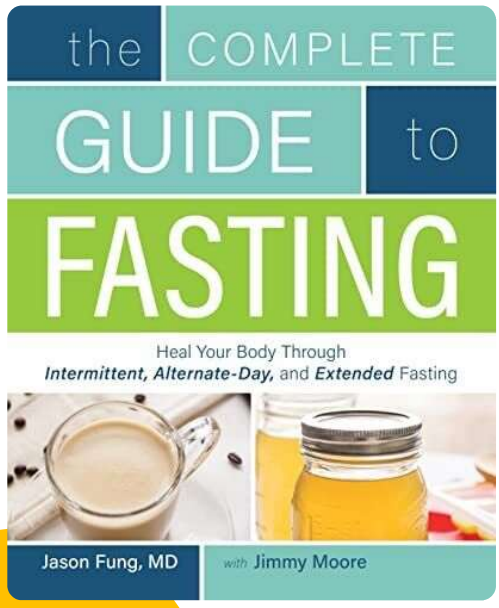

Fasting

Potential Benefits:

- Lowering of Systolic Blood Pressure, Cholesterol & Triglycerides
- Improvement in Diabetes (Type 2), Pre-Diabetes
- Balancing Hormones, PCOS, Fertility
- Reduction in Autoimmune disease
- Decrease in Fatty Liver
- Decrease in Body Fat
- Decrease in Aging, Improvement in skin wrinkling
- Decrease risk of Cancer
- Prevention of Alzheimer's Disease
- Improvement in intestinal motility & improvement in microbiome
- Improved focus/attention & mood

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Fasting Options:

Intermittent fasting-Overnight fast

- 12:12-Start Here
- 16-18-Slow/Steady

Alternate Day Fasting

- 24, 36, 42 hour fasting 2-3 days/week or every 2 weeks
- 5:2 plan (5 days eating/2 days "off")-Doesn't have to be consecutive

2-3 day Fast or 7-14 day Extended Fasting

FMD-Fasting Mimicking Diet

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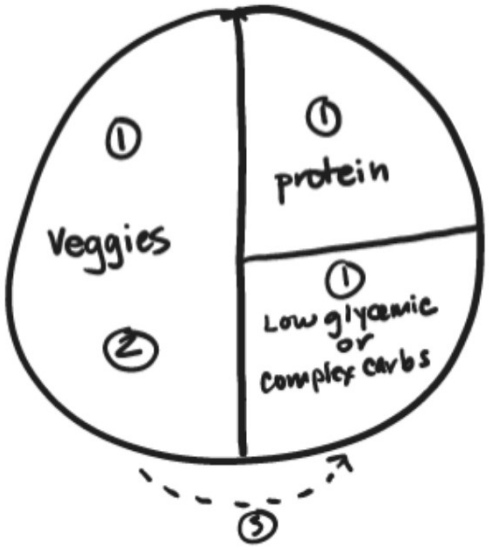

Low Glycemic Impact

- **Insulin Resistance**
  - Decreases mitochondrial function
  - Increased insulin = increased blood sugar = increased risk for altered learning and cognitive decline (dementia)
  - *Insulin Resistance Score <10 ideal*
- **"Type 3 Diabetes"**
- Balanced meals provide a low glycemic impact for 3-4hours of energy before feeling the need to eat again
- **Managed blood sugar** = satisfied, clear-headed, focused, energized
- **Mismanaged blood sugar** = hunger, brain fog, shakiness, fatigue, mood swings, overeating at next meal/snack, reaching for high glycemic foods

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STRATEGIES TO SUPPORT INSULIN SENSITIVITY

- Physical activity
- Sleep
- Stress management

- **Vitamin D**-wild salmon, sardines, organic whole milk (fortified), and egg yolks
- **Magnesium-**nuts, avocado, garbanzo beans, leafy greens, and whole grains
- **Zinc-**oysters, grass-fed beef, organic soybeans, yogurt, nuts, legumes, and cheese
- **Alpha-lipoic acid**-spinach, broccoli, peas, Brussels sprouts, tomatoes, and grass-fed organ meats
- **Probiotics**-yogurt, kefir, fermented foods (e.g., kimchi, sauerkraut, miso, etc.), and probiotic supplements
- **Chromium**-broccoli, organic turkey breast, green beans, grapes, oranges, apples, and bananas
- **CoQ10**-grass-fed beef, organic chicken, fish, sesame seeds, pistachios, and broccoli

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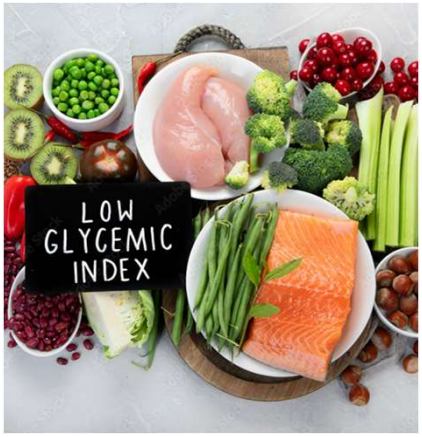
Low Glycemic Foods

- Stabilizes blood sugar by preventing significant spikes and crashes
- Pair healthy protein/fat especially with moderate/high glycemic foods
- **Low**- soy, kidney beans, lentils, chickpeas, nuts, seeds, most whole grains (e.g., oat, barley, spelt), and most vegetables and berries.
- **Medium**-whole grain bread, grain products, brown rice, quinoa, beets, bananas
- **High-** refined sugars, processed grains, baked goods, white bread



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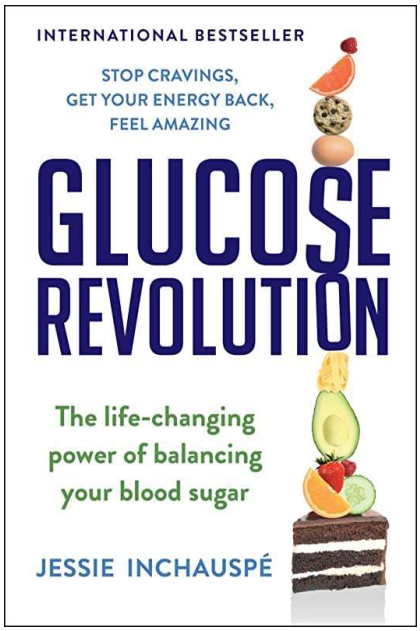

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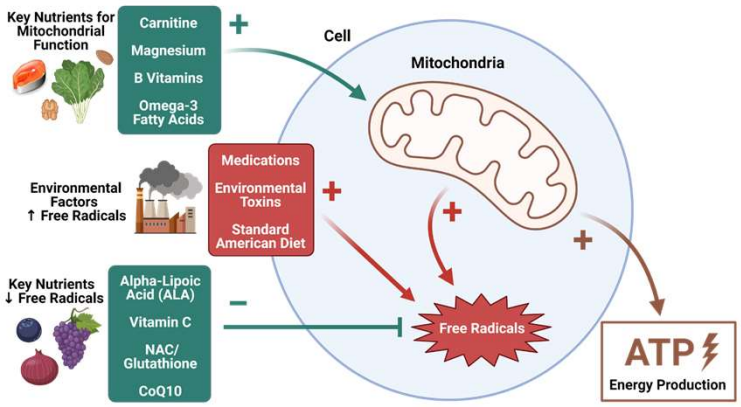
Support of Mitochondrial Health



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What is the Mito Food Plan?

Anti-inflammatory, low-carbohydrate, high-quality-fats approach to eating designed to support ***energy production, overall vitality, and healthy ageing***

Supports ***Healthy Mitochondria*** which produces cell energy

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Quality Fats

- Lowers TG, increases HDL, healthy cell membranes
- **Increase <u>Mono-unsaturated</u> and <u>Poly-unsaturated</u> fats**
  - EVOO, avocado, nuts, seeds, coconut, olives
- **Increase <u>Omega 3 Fats</u>**
  - Salmon, tuna, leafy greens, nuts, EVOO, seeds, oysters, sardines, eggs
- Saturated fats **moderately**
  - Pro inflammation
  - Animal fat, butter, ghee, coconut oil
- Omega-6 Fats **sparingly**
  - Pro inflammation
  - Corn oil, soybean oil, peanut oil
- **X** Fat free = More Sugar to improve taste

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What is the Cardiometabolic Food Plan?

Modified Mediterranean diet

Phytonutrient-dense, metabolically-balanced approach to enabling the body to more effectively regulate inflammation, blood sugar, insulin, and metabolism

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Fiber

- Fiber is a carbohydrate the body is unable to digest
- **25g women 38g men per day**
- Non-starchy plants
- Snappy plants

- **Insoluble = "inner broom"**
  - Sweeps debris from intestines
  - Outercoat of vegetables, whole grains
- **Soluble = binding gel**
  - Binds cholesterol, improves blood sugar, toxins, pre-biotic to good gut bacteria (probiotic)
  - Oat bran, nuts, seeds, beans, lentils, varied f/v, psyllium husk

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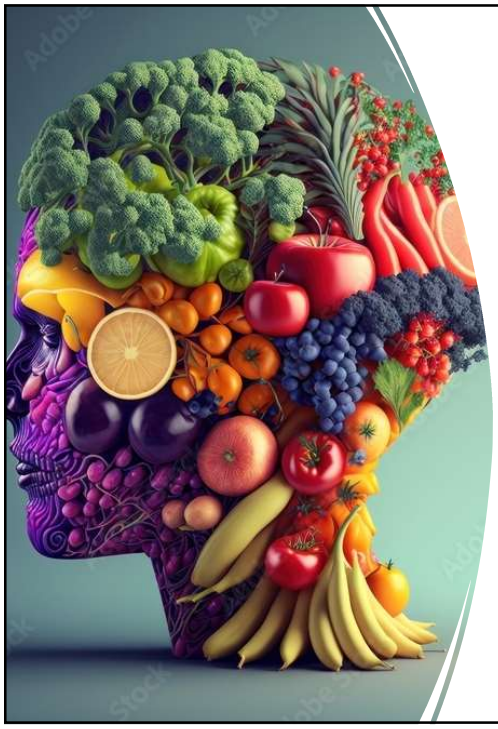

Phytonutrients

- **Eat the Rainbow**
  - **6-9 servings of daily colorful vegetables and fruits**
- **Assist in blood sugar balance:**
  - cinnamaldehyde in cinnamon
  - isoflavones from soybeans
  - beta-glucan from oats and barley

- **Protect LDL cholesterol from damage:**
  - carotenoids including lycopene from tomatoes, grapefruit, and watermelon
  - polyphenols from green tea, dark chocolate and pomegranate
  - isoflavones from soybeans

- **Support blood pressure:**
  - Sulfur compounds from garlic
  - beta-glucan from whole oats
  - isoflavones from soybeans
  - polyphenols from pomegranate and dark chocolate

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Health Benefits of Spices

Cardamom: anti-inflammatory, blood sugar health, cell protection, heart health
Cinnamon: anti-inflammatory, blood sugar health, heart health
Cumin: blood sugar health, cell protection, heart health
Fennel: digestive health, hormonal health
Garlic: anti-inflammatory, blood sugar health, blood vessel health, cell protection, heart health, liver health
Ginger: anti-inflammatory, blood sugar health, cell protection, digestive health, heart health, pain relief
Saffron: blood sugar health, brain health, cell protection, heart health
Turmeric: anti-inflammatory, blood sugar health, brain health, digestive health, heart health

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What is the Elimination Diet?

Short term *REMOVAL* of the most common food triggers that provoke intestinal permeability resulting in symptoms

HEALING THE GUT promotes decreased inflammation, healthy microbiome and bodily awareness to food resulting in improved symptoms

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Removal- 4 weeks

Foods to Avoid	Foods to Eat
Alcohol Beef Chocolate Coffee, soft drinks, energy drinks, tea Corn Dairy products Eggs Gluten-containing grains (all varieties of barley, rye, spelt, wheat) Peanuts Pork Processed meats Shellfish Soy and soy products Sugar (white sugar, high-fructose corn syrup, brown sugar, sucrose, etc.)	Dairy alternatives Fish Fruits (only those specifically listed) Game meats Gluten-free whole grains (amaranth, buckwheat, millet, quinoa, rice, teff, etc.) Healthy oils Legumes (except soy, peanuts) Nuts (except peanuts) Poultry Seeds Vegetables

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Reintroduction – 4 Weeks

Step 1	Step 2	Step 3	Step 4
Step 1 • Choose whatever food is missed, craved, or eaten most often (pre-diet) • Eat the challenge food #1 while continue to eat the foundational foods from the Elimination Diet	Step 2 • Record any symptoms • No symptoms? repeat for 2nd Day • Yes symptoms? continue to avoid for another 4 weeks	Step 3 • No symptoms the first 2 days? reintroduce another challenge food #2	Step 4 • Repeat steps 1-2 until all challenge foods have been reintroduced

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Food/Group	Challenge Food (Examples)
Wheat/gluten	100% whole wheat cereal (e.g., Wheatena) 100% whole wheat noodles
Dairy	Milk (skim, 1%, 2%, or whole milk) Cheese (any whole milk cheese, no additives)
Corn	Fresh or frozen corn kernels
Pork	Cooked meat, not in a casserole
Egg	Hard or soft boiled or poached
Peanuts	Raw or dry roasted peanuts Peanut butter made of 100% peanuts only
Soy	Edamame Soy milk Tofu, tempeh
Shellfish	Challenge individual shellfish each time*
Barley, rye	Cooked barley or rye cereal 100% rye crackers

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FODMAP Diet

Fermentable
Oligosaccharides (fructans and galactooligosaccharides)
Disaccharides (lactose)
Monosaccharides (fructose)
And
Polyols (sugar alcohols including sorbitol, xylitol, maltitol,mannitol, and isomalt)

- Developed at Monash University in Australia, extensive research on Irritable Bowel Syndrome & nutrition
- Aims to limit food sources of certain carbohydrates and sugars which contain higher levels of FODMAP'S

The foods highest in FODMAPs are:

· **Grains**: wheat, rye
· **Fruits**: apples, pears
· **Vegetables**: garlic, onions
· **Dairy**: milk, soft cheese
· **Sweeteners**: honey, agave
· **Other**: high-fructose corn syrup, sugar alcohols

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Supplements

- Danger of reductionist approach
  - Example: pure lycopene versus a tomato
  - No evidence that taking isolated form is effective (as in whole food) or safe

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The Future of Health

- Reframing our delivery of care for chronic conditions
  - Doctor as Teacher
  - Team approach
  - Food as Medicine
  - Community
  - “Inflammology”
  - Group Visits

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Culinary Medicine

- Evidence based field that brings together nutrition and culinary knowledge/skills to assist patients in maintaining health and preventing/treating food-related disease in conjunction with appropriate medical care
- Fills gap in medical education
  - Majority of patients have overnutrition due to high intake of ultra-processed, calorie-dense foods
  - Goal is focused on practical dietary behavior changes, food knowledge, and cooking skills needed to move toward health
  - It is the applied, laboratory portion of a nutrition curriculum

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Resources to learn more

- Culinary Medicine CME
https://culinarymedicine.org

- Functional & Integrative Medicine CME
https://www.ifm.org/

https://lifestylemedicine.org/education-courses

https://integrativemedicine.arizona.edu/education/online_courses.html

- Health Coaching Resources
https://nbhwc.org

https://functionalmedicinecoaching.org

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Thank you!

Email any questions to

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