

Evidence-based Lifestyle Medicine for Cardiovascular Health

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The moral imperative:
What should we prescribe Brian
a 42-year-old father (with 2 young children) and
high blood pressure, high cholesterol, and type 2 diabetes?



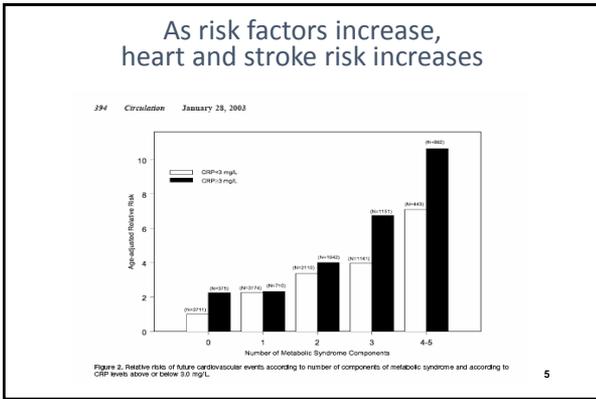
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AHA/NHLBI: Updated Metabolic Syndrome Guidelines
 Diagnose when ≥3 of these risk factors present

Risk Factor	Defining Level
Waist circumference	
Non-Asian Men*	>40 in (>102 cm)
Non-Asian Women*	>35 in (>88 cm)
Asian Men	>35 in (>88 cm)
Asian Women	>31 in (>80 cm)
TG	>150 mg/dL or on drug tx for ↑ TG
HDL-C	
Men	<40 mg/dL
Women	<50 mg/dL
	or on drug tx for ↓ HDL-C
Blood pressure	>130 mm Hg systolic >85 mm Hg diastolic or on HTN drug tx
Fasting glucose	>100 mg/dL or on drug tx for ↑ glucose

*Some non-Asian US adults with marginally increased circumference may be genetically predisposed to insulin resistance and other metabolic syndrome risk factors.

Grundy SM et al. *Circulation*. 2005;112.



- Why not just treat Brian with medications to “normalize” blood sugar, blood pressure, cholesterol...?

Are benefits of pharma management of diabetes exaggerated?

- A 2016 systematic review summarized potential fallacies in the "...overwhelming consensus in favor of tight glycemic control to prevent microvascular complications..." as "strong[er] than warranted by the evidence." Rodriguez-Gutierrez, R. & Montori, V. Circulation Cardiovasc Qual Outcomes 2016;9:504-12
 - "...inconsistencies observed in diabetes trials between the effect of glycemic control on surrogates and on outcomes important to patients should lower our confidence in relying on these surrogates for decision making and support the case for larger and longer-term investigations." "[Embrace] this skeptical view..."
- Newer agents might be superior...or not

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Why do we say that BP meds are overrated and may even give false confidence?

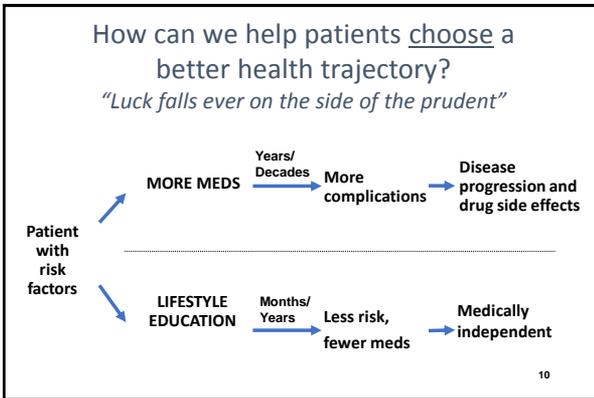
- Although BP meds for high blood pressure reduces risk of stroke compared to not treating, the risk of stroke for that person is still 2-3x higher than someone with the same BP who is untreated!
 - BP medications do not reduce the risk of stroke to normal, even if the treated BP is "normal". Howard, G. et al. Stroke. 2015;46:1595-1600
- Use a high blood pressure as a warning sign that you have to make lifestyle changes.
 - But, no matter what, some people need blood pressure meds

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Most people with the metabolic syndrome are also at greatly increased risk of:

- Cancer
- Heart disease and stroke
- Type 2 diabetes
- Dementia, Parkinson's
- Atrial fibrillation
- Degenerative joint disease
- Intra-abdominal catastrophes
- Fatty liver
- Infections
- Worse surgical outcomes
- Depression
- ...and so on

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- Q: Can we treat Brian with lifestyle medicine instead of pharmaceuticals?
- A: YES

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Brian lost 85 pounds in about 4 months
 (105 pounds in 6 months)

Pre and post lab results (4 months later)	Pre	Post
Weight:	328	243
Body Mass Index (BMI):	47	35
Blood Pressure:	140/96	100/70*
Total Cholesterol:	197	99*
Triglycerides:	315	70
HDL (good) Cholesterol:	32	42
LDL (bad) Cholesterol:	102	43
Total Cholesterol:HDL Ratio:	6.2	2.4
HbA1c:	6.5%	5.1%
Liver enzymes (AST, ALT):	High	Normal

*With medication

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Goals

- Lifestyle prescriptions can be more important than medications, and if followed may make many medications unnecessary
 - Offer broad range of benefits – without side effects!
 - Reduce heart disease, stroke, dementia, type 2 diabetes, depression, frailty, cancer, etc.
- When giving patients lifestyle prescriptions, keep it simple and suggest only those restrictions that have factual support: evidence-based

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Critical thinking about nutrition advice

Don't believe everything you think.

- Consider historical precedent: What have humans traditionally chosen to eat?
- Is the source peer reviewed?
- What is the methodology of the study?
- What are the ACTUAL benefits?
- Is the claimed benefit reproducible by other researchers?
- Does the benefit include mortality reduction?

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Choices matter: Lifestyle and health

- Good diet quality:
 - Vegetables, fruit, nuts, whole grains, polyunsaturated and omega-3 fats;
 - Low in: red/processed meats (yet typically eaten daily), sweet drinks, *trans* fat, and sodium
- Body mass index 18.5-24.9
- >30min/d of mod-vigorous physical activity
- Moderate alcohol (5-15g/day)
- Not smoking

Associated with 12-14 years greater longevity, and:

- 84% less all cause mortality, 82% less cardiovascular mortality, 65% less cancer mortality. NHS + HPLUS. Healthy Eating Index. 123k, 27-34y follow up, high adherence vs. low. Li, Y. et al. Circulation 2018;137: DOI:10.1161
- Also associated with about 90% reduction in type 2 diabetes Ley, S, et al. AMJ Public Health 2016;106:1624-30

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PURE diet score

- PURE study collected data on 138,527 from 18 countries over 9 years
- “Most healthy” outcomes (mostly mortality) in those eating
 - Vegetables and fruit 8.4 servings/day
 - Nuts and legumes 2.5 servings/day
 - Dairy 3 servings/day
 - Unprocessed red meat 1.4 servings/day
 - Fish 0.3 servings/day
- Validated when applied to ONTARGET, INTERHEART and INTERSTROKE databases Mente, A. et al, Eur Soc Cardiol 2018

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Mediterranean diet adherence and health outcomes

- Meta-analysis of prospective cohort studies, 4,172,412 people followed for 5-16 years
- Mediterranean diet: “perfect” if high in vegetables, fruit, grains, legumes, fish, olive oil; 1-2 servings of alcohol/day; up to 3oz meat/day, 5oz dairy/day
- For every 2 points of greater adherence on an 18 point scale there was 8% lower total mortality, 10% less cardiovascular disease, 4% less cancer

Sofi, F. et al. Public Health Nutr. 2014;17:2769-82

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Mediterranean diet: Lyon diet heart study

A randomized controlled trial for secondary prevention of heart disease

- “Prudent Western Diet” vs. Mediterranean Diet after myocardial infarction (MI)
 - 72% reduction cardiac events
 - 56% reduction in all cause mortality
 - 61% reduction in all cancers
 - Independent of cholesterol, blood pressure, aspirin, alcohol use RCT, 4y, n= 604 de Lorgeril, M et al. Circulation 1999;99:779-85

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Lifestyle recommendation overview

1. Four-part lifestyle prescription for avoiding heart disease and stroke
2. What should be avoided or minimized
3. Unnecessary restrictions: keep it evidence-based
4. How to help patients make this a priority – Make lifestyle prescriptions a universal standard of care

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Part 1: What to choose

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5-part lifestyle medicine Rx

1. Exercise every day
2. Eat an omnivorous Mediterranean-style diet
 - Vegetables, whole fruit, beans, whole grains
 - Fish, dairy, other animal proteins
 - Extra-virgin olive oil
 - Include caffeine, chocolate and alcohol
3. Aim for a waist smaller than your hips
4. Get adequate sleep
5. Heat: Sauna, hot baths?

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Lifestyle Rx 1: Exercise daily

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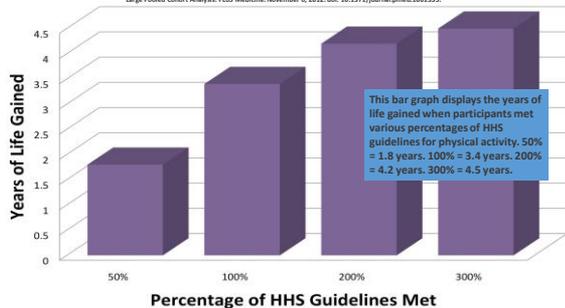
Benefit of moderate exercise

- Less cancer, better cancer survival
- Less heart disease (60%), stroke
- Improved endothelial function
- Anti-oxidant, anti-inflammatory
- Better cholesterol, triglycerides
- Less dementia
- Less frailty in old age
- Lower total mortality: As good or better than meds for stroke, heart, diabetes
BMJ 2013;347:f5577
- 30-80% lower risk of developing DM2
- Immune-enhancement, fewer infections
- Better mood

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Life Expectancy Gains from Physical Activity

Reference: Moore SC, et al. Leisure Time Physical Activity of Moderate to Vigorous Intensity and Mortality: A Large Pooled Cohort Analysis. PLoS Medicine. November 6, 2012. doi: 10.1371/journal.pmed.1001335



Exercise vs. stent

- 101 men with stable angina and single vessel disease
- Randomized to angioplasty/bare metal stent or exercise training: 20 min exercise bicycle/d, for 1 y
- Equal benefits for symptom relief
- Exercise group had 60% fewer cardiac events, particularly reduced hospitalizations and revascularizations. Cheaper, too! Hambrecht Circulation 2004;109:1371-78

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Prescribing exercise:

- Emphasize the importance of exercise, and sitting less
- Find out what they like to, or can, do
 - Short-duration high-intensity works for many of us: e.g. 20 x 8 second sprints, with 12 second recovery between sprints, on exercise bike after warm up
- Give a written exercise prescription
- Ask about compliance on the next visit
- Very, very few patients are at risk from excessive exercise

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Lifestyle Rx 2: Mediterranean-style diet

- Greater evidence for better health outcomes across:
 - A broad spectrum of disease
 - Prospective randomized controlled and observational studies
 - Different geographical areas and ethnicities
- Supported by historical precedent:
Nothing new here, folks

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Mediterranean diet vs. low fat diet

Randomized controlled trials

- **Lyon Heart Study:** Mediterranean diet associated with 70% reduction in cardiac events, 56% reduction in deaths, 60% reduction of all cancers 4 y follow up, [secondary prevention](#). P= 0.05 deLorgeril Arch Int Med 1998;158:1181-87
- **PREDIMED.** Med diet reduced cardiovascular disease by 30%, stroke by 40% n=7447, 5y, [primary prevention](#), Estruch, R et al. NEJM 2013 doi:10.1056
 - 68% less breast cancer n=4200 women, average 67yo and BMI 30. Total of 35 breast cancer cases. Secondary analysis, prespecified outcome. No change in weight or exercise habits. Toledo, E. et al. JAMA Intern Med doi:10.1001/2015.4838
 - 52% less diabetes 4y, no weight loss or activity goals, Salas-Salvado, J. Diabetes Care 2011;34:14-19

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A whole food Mediterranean diet

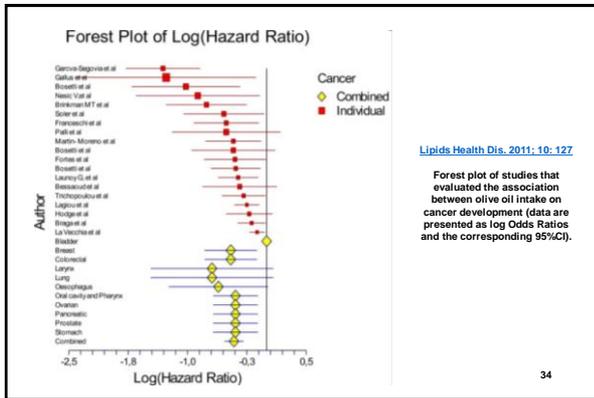
- Aim for 9 servings of vegetables and whole fruits daily. Potatoes don't count! Avoid smoothies and juice - eat whole vegetables or fruit instead.
- Eat plenty of beans/legumes, and include raw nuts and seeds.
- Eat intact or minimally-processed whole grains like brown rice, oat groats, steel cut oats, old-fashioned rolled oats, quinoa, etc.
- Use extra-virgin olive oil as main fat, replacing most other oils and fats.
- Eat plenty of fish, especially oil-rich fish like salmon, tuna, and sardines. Include other animal proteins in the form of unprocessed (uncured) meat and poultry, dairy, and real eggs.
- Emphasize cultured dairy like unsweetened yogurt and kefir, and aged cheese.
- Includes moderate alcohol.
- Not usually low in fat, saturated fat, or cholesterol.

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Extra-virgin olive oil

- Associated with the Mediterranean diet model, and:
 - Lower total and cardiovascular (CV) mortality Buckland, G et al. AJCN 2012;96:142-9. Guasch-Ferre, M et al. BMC Medicine 2014;12:78
 - Less atrial fibrillation
 - Improved endothelial function, blood pressure Morena-Luna, R. et al. Am J Hypertens 2012;1299-304 Ferrara. Arch Int Med. 2000;160:837-42,
 - Improves fibrinolysis, reduces platelet aggregation Lopez-Miranda, J. Mol Nut Food Res 2007;51:1249-59
 - Reduces post-prandial: activation of Factor VII, p inflammation, increases antioxidants Bogani, P. Atherosclerosis 2007;190:181-6
 - Less stroke Samieri, C. et al. Neurology 2011;77:418-25
 - Improved mood, physical activity, resting energy expenditure Kien, CL et al. Am J Clin Nutr 2013;97:689-97
 - Modest lipid benefits
 - Less cancer: about 40%! Lipids Health Dis 2011;10:127
- Many of the benefits appear to be phenol-mediated: extra-virgin is the least processed and therefore richest in phenols.

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Choosing extra-virgin olive oil

- Extra-virgin olive oil is essentially fresh squeezed olive juice which offers maximum benefits when fresh and unprocessed.
 - Purchase within 12 to 18 months of its **harvest date**, and use within six months of opening. Store in a cool, dark place.
- *California Olive Oil Council* reviews California produced olive oils: <https://www.cooc.com/>
- Look for reliable domestic brands with harvest dates: *California Olive Ranch, Corto, Oregon Olive Mill*, and so on.



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Eat raw nuts, not commercially-roasted (or roast them yourself)

- Nuts associated with:
 - Eaten daily: 20% lower all cause mortality Bao, Y. et al. *NEJM* 2013;369:2001-11, also Guasch-Ferre, M. et al *BMC Med* 2013;11:164
 - 32% lower risk of heart attack Meta analysis. Highest vs. lowest Weng, YQ et al. *Coronary Artery Dis* 2015;
 - Less diabetes Salas-Salvado, J. et al. *Arch Intern Med* 2008;168:2449-58
 - Less cancer, respiratory illness Van Den Brandt, P. *Int J Epidemiol* 2015 10.1093
 - Peanuts OK, but peanut butter less beneficial
- All nuts, including peanuts, lower LDL cholesterol: down 7.4% and triglycerides 10% with 67g of nuts daily. Pooled analysis, 25 studies, Sabate J. et al. *Arch Intern Med* 2010;170:821-27
 - Raw almonds: 2 handfuls/day (73g) lowered Lp(a), oxidized LDL cholesterol, LDL cholesterol 9.4% and TC:HDL 9%. Jenkins. *Circulation* 2002;106:1327-32
 - Similar results with walnuts Banel D.K. et al. *Am J Clin Nutr* 2009;90:56-63

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Chocolate *and* heart disease

Use 70% or higher for therapeutic effect
tea, extra-virgin olive oil have similar compounds

- **Increases HDL cholesterol 11-14%**. 75g dark chocolate, 3 weeks Mursu FRBM 2004;37:1351-9
- **Reduces: platelet adhesion** Pearson Clin Dev Immunol 2005;12:1-9, and **LDL oxidation** Wan, Am J Clin Nutr 2001;74:576-602 Mathur J Nutr 2002;3663-67
- **Improves endothelial function** Vlachopoulos Am J Hypertens 2005;18:785-91 Also in smokers, Heiss JACC 2005;46:1276-83
- **Appears to reduce:**
 - heart disease risk by 37%, stroke by 29% Meta-analysis, highest vs. lowest, Bultrago-Lopez, A et al. BMJ 2011;343:d4488
 - ≥ 3 -4 servings weekly associated 10%+ lower risk of MI compared to non-consumers (p=0.04) Larsson Heart 2016 doi:10.1136
- **Optimal dose?**
 - likely < 1oz/day of 70-85% Circ Heart Failure 2010;5:612-16

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Caffeine in coffee and tea

- Coffee associated with lower total mortality, heart disease, stroke, diabetes, gallbladder disease, dementia, respiratory illness Lofftfield, E. Am J Epid 2015;182:1010-22 Freedman, N. NEJM 2012;366:1891-904,
 - Less progression of Parkinson's Moccia, M. Parkinsonism and related disorders 2016
 - Longer leucocyte telomeres Liu, J J Nutr 2016
- Tea associated with less heart disease, osteoporosis, maybe less cancer
- Avoid "coffee" and "tea" drinks with added sweetening and flavors, like caramel lattes, mochas, and sweetened tea drinks
- Caffeine may be part of the mechanism for benefit from coffee, tea

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Alcohol and health

1 drink = 4-5 ounces wine, 12 ounce beer, 1.5 ounces spirits

- **Up to 2 alcoholic drinks/men, 1/women daily associated with:**
 - 15-42% less coronary artery disease or risk of dying of any **CAUSE** Klatsky, A.L. J Intern Med 2015;278:238-50; Costanzo, S. et al. JACC 2010;55:1339-47 (meta-analysis)
 - Less heart failure 15% less Larsson, S. et al. Eu J Heart Failure 2015;17:367-73
 - 45% less mortality following MI Mukamal, K.J. et al. JAMA 2001;285:1965-70
 - Raises HDL, reduces platelet aggregation, increases fibrinolysis, increases NO, stabilizes plaque Review: Kloner, R. Circulation 2007;116:1306-17
 - Promotes arteriogenesis in ischemic myocardium Pig model. Lassaletta, A et al. Circulation 2013;128S1:5136-43
 - All alcoholic drinks associated with reduced risk Rimm et al. BMJ 1996;312(7033):731-6

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Other aspects of prudent alcohol intake

- Moderate alcohol intake also associated with:
 - Less dementia Reas, E.T. et al. J Prev Alz Dis 2015 doi:10.14283
 - Lower risk of type 2 diabetes Rasouli, B. et al. Diabet Med 2013;30:56-64
 - Fewer vascular and renal complications of diabetes
- Breast cancer: Possible small increase in risk at 7 drinks/week, likely increase at 14/week
 - Cardiovascular benefit appears to greatly outweigh cancer risk, including for breast cancer survivors Newcomb, P.A. et al. J Clin Oncol 2013;31:1939-46
- Many people, because of their personal health history or beliefs, need to avoid alcohol. Home-made kefir may be a reasonable alternative for them

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Women and alcohol

- Women with low to moderate alcohol intake (3-7 drinks per week) exhibited the lowest risk of mortality, hypertension, MI, stroke, cognitive decline compared to abstainers and heavy drinkers (>1 drink per day). Mostofsky Am J Public Health 2016 106 1586-91
- Women with a history of breast cancer who had moderate alcohol intake had 38% lower total mortality, and no increase in breast cancer recurrence or mortality. Newcomb, P et al. JCO 2013;31:1939-46. Review: Demark-Wahnefried, W. and Pam Goodwin. JCO 2013;31:1917-19

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Lifestyle Rx 3: Waistline

- Excessive abdominal fat drives many of the cardiac risk factors, and is associated with an increase in most other diseases.
- Don't miss opportunity to remind patients of associated risks, don't give up, don't fail to present them with solutions.
 - Motivation
 - Food choices, emphasizing homemade
 - Food quantity
 - Daily exercise

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For most patients, waist management is a vital key to long-term health

- Stress the importance to them, just as you would BP, blood sugar, medication compliance.
- Have a plan that works for you, too. Or refer.
- Make sure your recommendations are associated with better health outcomes, not just weight loss.
- Weight loss almost always requires eating substantially less, not exercise.

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Lifestyle Rx 4: Adequate sleep

- Start with the basics:
 - Schedule 7-9 hours of sleep
 - Vigorous activity every day
 - 1 glass of red wine with evening meal
 - No screen time after evening meal
 - Deep hot bath or sauna
 - Bedtime snack with protein and good fat?
 - Blackout bedroom: No lights, screen time, or music
 - Sleep apnea?

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Lifestyle Rx 5: Heat

- Hot baths and sauna for diabetes, heart disease, stroke, dementia, depression, immunity, and sleep:
 - Although the mechanisms for benefit aren't clear (fewer?), heat therapies such as a deep, hot bath or sauna, typically 2-3 times per week for 10-20 minutes, is associated with benefit for:
 - Diabetes management and weight loss Krause, M. et al. Curr Opin Clin Nutr Metab Care 2015;18:374-80
 - Reduced risk of heart attacks and total mortality Laukkanen, T. et al. JAMA Intern Med 2015;175:542-8
 - 60% fewer strokes and 65% less dementia with 4-7 sessions a week Kunutsor, S. et al. Neurology 2018; e1-e8 doi:10.1212;Laukkanen, T. et al. Age and Ageing 2017;46:245-9
 - Depression Naumann, J. et al. BMC Comp Alt Med 2017;17:172
 - Better immunity and improved sleep

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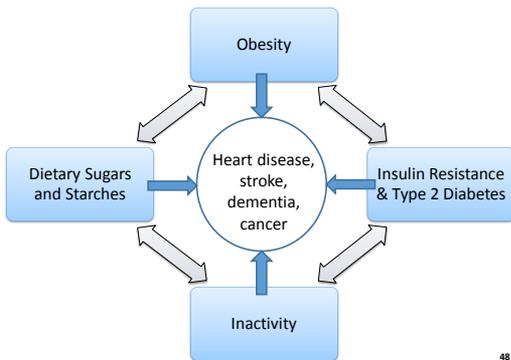
Part 2: What to avoid

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Things to avoid or minimize

- Refined carbohydrates
 - Sugars
 - Refined grains and white flour
 - Juices and sugar-sweetened beverages
- Hydrogenated oils and trans fats
- Think twice about highly processed vegetable oils

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Problems associated with added sugars and starches

- Obesity
- Hypertension
- Hypertriglyceridemia
- Ischemic heart disease and stroke
- Insulin resistance, metabolic syndrome and type 2 diabetes
- Dementia
- Cancer

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Sugars, refined grains, and the heart

- Highest intake of added sugars associated with 3-4x greater risk of dying of heart disease and stroke; 33% more for one 12 ounce soda a day. n=43k, 14.6. Yang, Q et al. JAMA Internal Med 2014;174:516-24
 - Sweet drinks, naturally or artificially sweetened, including fruit juice >5 a week is associated with increased risk of metabolic syndrome. Ferreira-Pego J Nutr 2016 146(8):1528-36)
 - Highest intake of refined grains (mostly white rice, some wheat flour) had 3x more heart disease. n=117,366, 5.4-9.8y. Yu, D. et al. Am J Epid 2013;178:1542-9

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Help patients identify sugar (real and artificial) and refined grains

- Refined and concentrated sugars
 - Including brown, raw, and table sugar, fructose, fruit juice concentrates, agave nectar, corn syrup, rice syrup and so on.
 - Avoid artificial and non-nutritive sweeteners too, including aspartame, sucralose, and stevia.
 - If you need to use a sweetener – choose traditional options like raw honey, molasses, pure maple syrup, and regular brown or white sugar – but use them sparingly.
- Minimize sweet drinks, including juices
- Minimize refined grains:
 - including anything made with white flour (*wheat, enriched, and unbleached*), white rice, instant oatmeal, cold (ready-to-eat) breakfast cereals, and grits.

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Avoid highly processed vegetable oils

- Most are *extensively processed* with chemicals and high temperatures of 250-500°F
 - The processing is necessary to create neutral tasting, clear oils, but it also makes them severely nutrient-depleted
 - Sydney Diet Heart Study: Linoleic acid (omega-6, safflower oil) replacing saturated fat, randomized controlled trial (RCT) The group using safflower oil had about a 62% higher mortality, 70% higher cardiovascular disease (CVD) risk, n=458, 5y, Ramsden, C. BMJ 2013;346:e8707
 - Minnesota Coronary Experiment Ramsden, C. BMJ 2016;353:i1246
- *Minimally processed* traditional oils from seeds or nuts (including virgin coconut oil) are healthy, but lack the evidence for benefit of extra-virgin olive oil.

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Why commercially-processed food is significantly *less healthy* than cooking from scratch
 Heat, multiple processing steps, time, pressure and exposure to air all cause nutrient depletion:

- Eliminate probiotics, alter fiber characteristics
- Typically have added sugars and starches, highly-processed fats, plus other chemicals of uncertain risk
- Associated with more calories and eating more An, R. Eur J Clin Nutr 2015;doi:10.1038
- More cardiovascular risk factors Birbaumer-Aragon, I. et al. Am J Clin Nutr 2010;91:1220-6
- More rapidly metabolized, especially carbohydrates and sugars, and less filling Fardet, A. Food Function 2016;7:2338
- Home cooked meals associated with less diabetes Zong, G. et al. NMS + HRFUS AHA 11/2015 Abstract 17285
- A 10% increase in processed foods was associated with a 12% increase in risk of cancers overall, and breast cancer in particular Fiolet, T. et al. BMJ 2018;360:k322 (N= 104,980, 8 years)

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Part 3: Avoid creating unnecessary restrictions

Organic, vegetarian, vegan, paleo, keto . . .

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Whole foods that do *not* cause heart disease

- Dietary cholesterol and saturated fat
- Red meat
- Dairy
- Eggs
- Salt added to home-made food
 - (For more info on sodium see pages 53-54 in *Good Food, Great Medicine* 4th edition)

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Saturated fat from whole foods: neutral

- Saturated fat from whole foods not associated with mortality, cardiovascular disease (CVD), coronary heart disease (CHD), stroke or type 2 diabetes Meta-analysis. deSouza, R et al. *BMJ* 2015;351:h3978
 - Trans fats from hydrogenated oils associated with more risk
 - "High carbohydrate intake associated with higher risk of total mortality, total fat and individual types of fat were related to lower total mortality. Total fat and types of fat were not associated with cardiovascular disease, myocardial infarction, or cardiovascular disease mortality, whereas saturated fat had an inverse association with stroke." Dehghan, M. et al. *PURE Lancet* 2017 doi: 10.1016/S0140-6736(17)32252-3 (n= 135,335, y= 7.4)
- Prior analyses and editorials worth reviewing:
 - Dietary: Siri-Tarino PW et al. *Am J Clin Nutr* 2010;91:502-09, and associated editorials;
 - Circulating: Chowdhury, R et al. *Ann Intern Med* 2014;160:398-406
 - Dietary refined carbohydrate are a much greater concern Siri-Tarino PW *Am J Clin Nutr Am J Clin Nutr* 2010;91:535-46 Also Hu, F. *AJCN* 2010;91:1541-2

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Red meat observational studies

- Higher death rates and more cancer, heart disease, stroke, respiratory disease, infections, kidney and liver disease, and diabetes with higher red meat intake, fresh or processed,
 - Poultry and fish associated with significantly (25%) lower mortality. NIH-AARP n= 536,969, 16y follow up. Etemadi, A. et al. *BMJ* 2017;357:j1957
- Other large and well-done observational studies do *not* show harm from red meat.

PURE *Eur SC* 2018; O'Connor, L. et al. *AJCN* 2017;105:57-69. Rohrmann, S. et al. *BMC Medicine* 2013;11:63; Kappeler, R. et al. *Eur J Clin Nutr* 2013;67:598-606.

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Randomized controlled trials (RCTs):
omnivorous diets containing moderate red meat
vs. good diets with little or no red meat

- **Mediterranean diet with 500 grams red meat per week compared to 200 grams per week:** showed better weight loss and cholesterol in those with more red meat. These results “do not support red meat reduction in the context of the Mediterranean [eating] pattern” n= 41, 5-week randomized crossover. Similar total protein. O’Connor, L. et al AJCN 2018;108:1-8
- **SMILE:** Patients with moderate-severe depression randomized to either Mediterranean diet with red meat 3-4x a week, fish 2x a week, alcohol up to 2 servings a day, reduced processed foods/sweets: 32% remission over 12w; vs. usual diet and social support: 8% remission. Jacka, F. et al. BMC Med 2017;15:23 doi:10.1186

More red meat in
randomized controlled trials (RCTs)

- **BOLD:** compared 4 healthy diets with varying amounts of lean red meat (up to 5 oz/day). The greatest improvements in cardiovascular risk factors and inflammatory markers, were found in those who ate the most red meat. RCT. TC,LDL. 5w, Rousseil, M. et al. AJCN 2012;95:9-16
- **DASH +/- red meat:** a DASH-type diet (Dietary Approaches to Stop Hypertension) which included 6 servings per week of lean red meat, was compared to a lower-fat, low-meat DASH diet to assess effect on mood. Those who ate more red meat had less depression and anger than the other group. 4w, RCT, Torres, S.J. and Nowson, C.A. Nutrition 2012;28:896-900

Red meat summary

- An omnivorous Mediterranean diet with moderate amounts of red meat appears to give better results across a broad range of outcomes than diets that include little or no red meat.
- Sustainability has been demonstrated for the entire record of human history.
- Most studies show processed meats to be harmful.
 - Traditional cultured preserved meats - which use different methods than modern commercial processing - may be healthy: I am aware of no studies looking at this.
- I am not aware of long term prospective studies strictly designed to measure the impact of red meat.

Dairy foods and health outcomes

- Small reduction in mortality and cardiovascular disease (CVD) with cultured dairy (cheese, yogurt, kefir) 29 studies, n=938,465, Guo, J et al. Eur J Epidemiol 2017;32:269-87
- CVD: Meta-analysis of 30 prospective studies show a protective effect for dairy, particularly cultured dairy 10-30% risk reduction, Alexander, D. et al. Br J Nutr 2016;115:737-50
 - Other systematic reviews show similar or neutral effect
- Cancer: likely protective for colorectal and breast, probably neutral for cancer overall Lu, W. et al. Nutr J 2016;15:91

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Dairy and inflammation

- 52 high-quality studies on dairy and inflammation
 - Dairy intake: high or low fat, fermented or not, consistently associated with lower inflammatory markers, except in those with identified cow milk allergy. Bordoni, A. et al. Crit Rev Sci Nutr 2015;doi:10.1080. Also see Labonte, M et al. AJCN 2013;doi:10.3945
- Avoid commercially-sweetened dairy foods: buy them plain and unsweetened, and sweeten them yourself with fresh fruit and honey.

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Dietary cholesterol and eggs: unrelated to heart disease risk

- Dietary cholesterol (and eggs) unrelated to disease outcomes n=1000, 20y, Virtanen, J. et al AJCN 2016
- Eggs are excellent sources of nutrient-rich grow-your-own protein
 - Not associated with health risk n=7216, >4/w vs. <2/w, 4.7y, PREDIMED Diez-Espino, J. et al. Clin Nutr 2016
 - Not associated with increased blood cholesterol n=140, 12/w vs <2/w, 6w, Fuller, NR et al. AJCN 2015

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Lifestyle summary

- Choose whole foods you've prepared yourself, including snack foods
- Be wary of claims that foods eaten for millennia are harmful
- Get outside, short of breath and sweaty, every day, even if only briefly
- For weight loss, pursue the necessary changes for planning, food quality, quantity, daily activity, and accountability

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Encouraging patients to make it a priority

- Are we convinced of the importance of lifestyle medicine?
- Do we exaggerate pharmaceutical benefits?
- Ask about diet and daily exercise habits at every visit
- Have evidence-based resources at hand
- Avoid unnecessary prohibitions
- Prescribe lifestyle with the same formality that we prescribe medications, or refer

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Need more ideas?

- Go to our website: goodfoodgreatmedicine.com
 - Click on the *Cookbook* tab for:
 - Whole food shopping list
 - Sample recipes
 - Lifestyle recommendations
 - Click on the *Resources* tab for patient handouts:
 - How to boost your immune system for cold and flu season
 - Mediterranean principles to eat by
 - Type 2 diabetes and weight loss ideas
 - Cancer Survivorship
 - Calcium, Vitamin D, and Osteoporosis
 - Sign up for our *free* monthly Food and Lifestyle Newsletter

The completely revised and updated 4th edition includes 300 easy-to-read pages packed with evidence-based prescriptions for the “why” and “how” of implementing a whole food Mediterranean diet. Includes over 200 easy-to-follow recipes using everyday ingredients.

Books are available at: Amazon, Powell’s Books, Providence Gift Shop and Integrative Medicine Department, all Portland metro area county libraries, and goodfoodgreatmedicine.com

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Good Food, Great Medicine 4-part series

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- Thursdays 6-8pm: October 4th, 11th, 18th, and 25th 2018
- Call the Providence Resource Line to register at 503.574.6595 or look for *Good Food, Great Medicine* in the class listing on-line at providence.org/classes

Good Food, Great Medicine

**Join us for the 4th edition launch November 5th
7pm at Powell's Books Cedar Hills Crossing!**

Dr. Hassell will address the current medical data for a whole food Mediterranean diet, as well as how to evaluate conflicting dietary recommendations

Evidence-based food and lifestyle prescriptions for

type 2 diabetes reversal • heart disease and stroke prevention
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