Friend or Foe?
Grains, Gluten, Meat, Fat, Eggs, Dairy, Salt, and Alcohol

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Overview

- Is it really important to talk about what we eat?
- Suggested steps to develop reasonable conclusions in a world of conflicting opinions
- Examples of evidence-based choices that make a huge difference in meaningful health outcomes
- Evidence for some traditional foods often criticized as unhealthy: grains, gluten, meat, fat, eggs, dairy, salt, and alcohol
Why talk about lifestyle choices?

• Identify the choices associated with improvement in meaningful health outcomes:
  – Benefits should be evident across a broad range of diseases: cancer, heart disease, stroke, diabetes, dementia, depression, better long term health and independence

• It is morally imperative that we do our best to give accurate advice based on hard science and sound reasoning
What lines of evidence do I use?

• What have people eaten, when given the choice, over recorded history (the concept of “historical precedent”)?
• How do we identify high-quality medical studies, and what do we learn from them?
• What have I learned from my patients over the last 20 years?
  – Which ideas are the most sustainable?
  – Which ideas are easily adaptable over a broad range of cultures and budgets?
• This strategy helps prevent ping ponging between wildly divergent views
• *Good Food, Great Medicine* is designed to help you get started – read the first 120 pages
“Historical precedent” is an important concept when talking about good food

• What people have been eating throughout recorded history is the most likely predictor of good food
  – In practice, evidence-based science often loses out to eminence-based “science”
  – All food invented in the last 150 years is guilty until proven innocent: refined sugars, flours, hydrogenated oils, highly-refined vegetable oils, non-nutritive sweeteners, and so on
Assessing a study for relevance

Prove all things, hold fast to that which is good (1 Thessalonians 5:21)

• Peer reviewed: found acceptable by other experts
• Were there adequate numbers of participants, and were those people like me?
• What methodology was used? A randomized controlled trial is usually better
• Was the study continued for sufficient length of time?
• Were the results statistically and clinically significant?
• What do other comparable studies say?
We are all individuals

• A very small percentage of people can not tolerate one food or another, including the foods discussed here.

• These general recommendations are not intended to cover those individual variations.
Combined lifestyle choices mortality outcomes in women

- Good diet (veg >5s/d, fruit >4/d, nuts or soy daily, fish/poultry>red meat, cereal fiber >15g/d, rare hydrogenated oils, PS:S >1.0)
- BMI <25: Get or maintain a healthy waistline
- 30min/day brisk walking or equivalent
- Light alcohol intake (Consumption of up to 1 drink /day, excluding non-drinkers)
- 31% of cancer, 12% of CAD, 23% of all cause mortality
  - Also identified with about 90% less diabetes incidence

Compared to being sedentary, overweight smoker with poor diet. Non-smokers, 24 year follow up, 78k, Nurses Health Study van Dam, R. BMJ 2008;337:a1440doi:10.1136/bmj.a1440
A longer disease free life

• 10,670 women in their 50s and early 60s and without any major health problems were followed for 15 years.
  – Those following a Mediterranean-style diet were 40% more likely to live to age 70 or beyond, and 46% more likely to be free of any physical or mental illness.
Mediterranean diet benefits:
Prospective Cohort Studies

• Over 2 million people followed for up to 20 years:
  – for every 2 points greater adherence on a 10 point scale
    • Total mortality: 8% less
    • Heart attack and stroke: 10% less
    • Dementia, Parkinson’s: 13% less
    • Risk of cancer, or cancer death: 6%-12% less

• Risk of type 2 diabetes: Up to 80% less
• Depression: 30-50% less
• Less disability in the elderly
• Better weight loss and metabolic improvement in head-to-head studies

Sofi, F. AJCN 2010;92:1189-96; Greek EPIC Benetou, V. B J Cancer 2008;99:191-95
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

Mediterranean diet to prevent 1st heart attack or stroke

- 7,447 “high risk” people, 57% women, treated with usual medications, randomized to either (higher fat, including frequent red meat) Mediterranean diet (with either 1 liter/week EVOO or 30g/day of walnuts, hazelnuts, and almonds) or prudent low-fat diet.

- Med diet reduced cardiovascular disease reduced by 30%, stroke by 40%

- Study stopped early for ethical reasons Estruch, R et al. NEJM 2013 doi:10.1056 PREDIMED
A summary of Mediterranean diet benefits

<table>
<thead>
<tr>
<th>RANDOMIZED CONTROLLED TRIALS (RCT)</th>
<th>PROSPECTIVE OBSERVATIONAL STUDIES</th>
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<tbody>
<tr>
<td>✓ Lower death rates^1</td>
<td>✓ Lower death rates^9</td>
</tr>
<tr>
<td>✓ Less heart disease, stroke^2</td>
<td>✓ Less heart disease, stroke,^10 and peripheral artery disease^11</td>
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<tr>
<td>✓ Improvement in heart disease risk factors^3</td>
<td>✓ Less type 2 diabetes^12</td>
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<td>✓ Less type 2 diabetes^4</td>
<td>✓ Less cancer^13</td>
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<tr>
<td>✓ Better blood sugar control^5</td>
<td>✓ Less mild cognitive impairment and progression to dementia^14</td>
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<tr>
<td>✓ Sustainable weight loss^6</td>
<td>✓ Less dementia, Parkinson’s disease^15</td>
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<tr>
<td>✓ Less cancer^7</td>
<td>✓ Less depression^16</td>
</tr>
<tr>
<td>✓ Improved brain function^8</td>
<td>✓ Less menopausal symptoms, hot flashes and night sweats^17</td>
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</tbody>
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2 Estruch, R. et al. NEJM 2013;368:1279-90
4 Salas-Salvado, J. et al. Diabetes Care 2011;34:14-9
5 Ajala, O. et al. AJCN 2013; 97:505-16 (Meta-analysis: 20 Randomized Controlled Trials)
9 Sofi, F. et al. AJCN 2010;92:1189-96 (Meta-analysis of 7 prospective studies)
12 Kastorini, C.M. J Am Coll Cardiol 2011;57:1299-313 (Meta-analysis: 35 Clinical trials, 2 Prospective, and 13 Cross-sectional)
17 Herber-Gast, G. and Mishra, G. AJCN 2013;97:1092-9
A whole food Mediterranean diet #1

• Aim for 9 servings of vegetables and whole fruits daily. Potatoes don’t count! Avoid juice and eat vegetables or whole fruit instead.

• Eat plenty of beans/legumes, and include raw nuts & seeds.

• Eat intact or minimally-processed whole grains like brown rice, oat groats, steel cut oats, old-fashioned rolled oats, quinoa, millet, and barley (whole not pearled), etc.

• Eat good fat with each meal and snack (avocados, raw nuts, raw seeds, etc) & use extra-virgin olive oil as main kitchen oil.
A whole food Mediterranean diet #2

• Eat plenty of fish, especially oil-rich fish like salmon, tuna, & sardines. Include other animal proteins in the form of unprocessed (uncured) meat & poultry, dairy, & real eggs.

• Cultured dairy foods like unsweetened yogurt and kefir, and aged cheese.

• Include moderate alcohol

• This diet is typically not low in fat, saturated fat, or cholesterol.
But what about these foods, which are all part of the Mediterranean diet?

- Grains
- Gluten
- Meat
- Fat
- Eggs
- Dairy
- Salt
- Alcohol
Whole grains

• Whole grains, including “modern” wheat, is associated with lower risk of breast and colon cancer, stroke, heart disease and type 2 diabetes

• Intact whole grains contain more minerals, vitamins, antioxidants, oils, fiber than refined grains
  – Avoid refined grains: this includes anything made with white flour (also called wheat flour, enriched flour, and unbleached white flour) or any other form of highly-refined grains.
    • ‘cold’ breakfast cereals, crackers, white rice, most pasta, bagels, breads, etc.
  – However, consider avoiding ALL foods made with flour if you are significantly overweight or have diabetes
View highly altered “whole” foods with caution: *when whole grain is NOT whole grain*

- The extensive processing that produces ready-to-eat (“cold”) whole grain breakfast cereals alters the chemical structure:
  - The starch now acts more like sugar, and no longer behaves as the original grain
  - The processing damages whole families of nutrients: oils, vitamins, nucleic acids. Granfeldt J Nutr 2000;130:2207-14

- Better choices:
  - Intact whole grains are best (e.g. oat groats)
  - Minimally processed grains are 2\textsuperscript{nd} best (e.g. steel-cut or Scottish oats)
  - Thick, unroasted whole flakes are more processed and not quite as good (e.g. old-fashioned rolled oats)
Gluten: naturally-occurring vs. added

• As a naturally-occurring protein in wheat, rye and barley, gluten has been part of healthy diets for thousands of years.
• As with almost any food, some people don’t tolerate gluten. Naturally-occurring gluten is healthy for the rest of us.
• Avoid refined (or added) gluten: Read labels! This step may eliminate “gluten intolerance” in many people.
• If you suspect gluten intolerance, medical tests may be of value.
Problems associated with excess (usually refined) sugars and starches (white flour, white rice...)

- Ischemic heart disease and stroke
- Insulin resistance, metabolic syndrome and type 2 diabetes
- Dementia
- Obesity
- Hypertension (high blood pressure)
- Cancer and cancer survivorship
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


• Sugars and refined carbohydrates (white flour, white rice, ready-to-eat cereals) associated with more hypertension Brown, I. et al. Hypertension 2011;57:695-701
Red meat: best single source of B12, other B vitamins, iron, zinc & protein, but avoid preserved meat

• Diets that include red meat have been the norm throughout recorded history, and Mediterranean diets incorporating red meat have better outcomes than very low-meat or vegetarian diets

• Epidemiological studies of red meat and health outcomes are plagued by contradictory findings and poor data:
  – Is a hamburger red meat for the purposes of measuring health outcomes?
  – Do participants reliably differentiate between red meat and processed meats?
  – Is there adequate adjustment for other variables, such as vegetable intake?

• Looking at outcomes from prospective randomized studies comparing healthy diets containing red meat (e.g. Mediterranean) vs. healthy diets with little or low red meat is likely to be a more helpful strategy
Meta-analysis of red meat studies

• Observational studies of meat and risk of heart disease, stroke and diabetes
  – 20 studies, 1 million people, 10 countries
• No association between red meat 3-4 oz/day and heart disease, stroke or diabetes
• Preserved (‘cured’) meats associated with more heart disease and diabetes
  – Sausages, ham, bacon, lunchmeats
  – Each 50g = 42% more heart disease, 19% more diabetes  Micha R Circulation 2010 doi:10.1161
• 1 ½ lbs (raw) red meat per week safe for cancer risk (AICR 2007) and heart disease (Bernstein, A. Circulation 2010;122:876-883)
Omnivorous diets containing moderate red meat vs. good diets with little or no red meat

- **BOLD**: compared 4 healthy diets with varying amounts of lean red meat (up to 5 oz/d). The greatest improvements in cardiovascular risk factors and inflammatory markers, were found in those who ate the most red meat. RCT, TC, LDL. 5w, Roussell, M. et al. AJCN 2012;95:9-16

- **PREDIMED**: Mediterranean diet with moderate red meat, or to a low-fat diet with red meat limited to less than once per week. Mediterranean diet had 30% lower heart disease and stroke risk than those on a lower-meat diet. RCT, n= 7447, 4.8y, Estruch, R. et al. NEJM 2013;368:1279-90

- **DASH +/- red meat**: Compared a DASH-type diet (Dietary Approaches to Stop Hypertension) which included 6 servings per week of lean red meat, or to a lower-fat, low-meat DASH diet, to compare the effect on mood. Those with 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
If possible, choose meat, poultry, dairy, and eggs raised in a free range environment

• An animal’s diet affects many nutrients, including the fat within the meat, so grass-fed and wild game meat is likely to have a better nutritional profile (including omega-3 fats) than feedlot animals. Try to buy from local farmers so you know the quality you’re getting.

• Higher blood levels of dairy fat, especially from grass-fed cows, can be associated with a lower risk of having a heart attack, especially if the dairy is in the form of cheese or fermented milk (yogurt, kefir).

• Butter is also a source of valuable fatty acids and nutrients such as vitamin K, especially in butter from grass-fed animals.
Mediterranean diet vs. low-fat diet for heart risk factors, weight loss, diabetes

• Meta-analysis of high-quality studies comparing the Mediterranean diet, typically with moderate red meat, to low fat diets (typically with very low or no red meat) for overweight and obese people
  – Mediterranean diet superior to low-fat diets for: weight loss, BMI, blood pressure, blood glucose, cholesterol, hsCRP
    Trends towards better HDL, LDL; Nordmann, A. Am J Med 2011;124:841-51
  – better for diabetes management Ajala, O et al. AJCN 2013;97:505-16
Vegetarian/vegan diets

• Peer-reviewed vegetarian or vegan diet studies, including Adventist and EPIC-Oxford, do not show the same degree of health benefit as observed with the Mediterranean diet, and too restrictive for many people

• Omnivorous diets have demonstrated sustainability for thousands of years, and don’t require vitamin or mineral supplements

• For a detailed *China Study* (not a peer reviewed study) and *Forks Over Knives* critique, see:
Paleolithic diets

- A diet attributed to hunter-gatherers: lean meats, non-starchy fruits and vegetables, nuts.
  - We are unable to identify whether these people were particularly healthy, how long they lived, their height...
  - It excludes many demonstrably healthy and enjoyable foods, is hard to maintain, has not demonstrated significant health benefits

- Any diet that excludes refined sugars and refined starches is probably very helpful.
Fats and health outcomes

• **Beneficial:**
  – Olive oil, especially extra-virgin
  – Raw nuts, oilseeds (sunflower, sesame, pumpkin, flax, etc)
  – Oil-rich fish: sardines, salmon, herring, mackerel, tuna
  – Avocado, probably coconut oil and dairy fats (!)

• **Harmful:**
  – *trans* fats, typically found in partially hydrogenated oils and many packaged foods like baked goods, crackers, and cake mixes

• **Used with caution:**
  – Most non-olive vegetable oils: little nutrition, high in omega-6 fatty acids, possible associations with more cancers, heart disease, and death.
Saturated fat is OK

• Both epidemiological and randomized prospective studies of dietary saturated fat have had inconsistent results

• Meta-analysis of prospective studies show no significant association between saturated fat and heart disease


• Intake of refined carbohydrates is a much greater concern

Extra-virgin olive oil

• Associated with the Mediterranean diet and:
  – Reduced post-prandial: activation of Factor VII, p inflammation, increases antioxidants Bogani, P. Atherosclerosis 2007;190:181-6
  – Modest lipid benefits
  – Less cancer Lipids Health Dis 2011;10:127
  – Many of the benefits appear to be phenol-mediated, so watch out for extra processing
Forest plot of studies that evaluated the association between olive oil intake on cancer development (data are presented as log Odds Ratios and the corresponding 95%CI).
Other vegetable oils

• Most are EXTENSIVELY processed with chemicals at temperatures of 250-500F...
  – Bland and clear
  – Severely nutrient depleted
• Virgin coconut oil is probably good
• Fresh pressed traditional oils from seeds or nuts (usually cloudy, very flavorful) are healthy but harder to find, and should not be confused with highly-refined vegetable oils
Are cholesterol- and saturated fat-free vegetable oils good for you?

• Sydney Heart: Linoleic acid (omega-6, safflower oil) replacing saturated fat, RCT
  – The group using safflower oil had about a 62% higher mortality, 70% higher CVD risk, despite lower cholesterol
    n=458, 5y, (includes updated metanalysis of omega 6 fats for CVD). Ramsden, C. BMJ 2013;346:e8707
  – The authors suggest an association between increased omega 6 (mostly linoleic acid) fats and oxidized metabolites (OXLAMS); which in turn are associated with more oxidized LDL, atherosclerotic progression and increased cardiovascular mortality
Eggs (real)

- Outcomes data for eggs are inconsistent: evidence of both benefit and harm in observational studies, but confounded by other factors: e.g. bacon, smoking

- Total egg consumption
  - Not associated with Type 2 diabetes Cardiovasc Health Study Djousse, L. Am J Clin N 2010;92:422-7
  - Has no adverse effect on blood cholesterol or endothelial function 2 eggs/d x 6w. Njike, V. Nutr J 2010;9:28

- Egg breakfast associated with eating fewer calories overall, better blood glucose and insulin Suppressed gherlin. Leite, R. Nutr Research 2010;30:96-103
Why I eat whole-fat dairy

• Butter, milk, other dairy
  • not associated with mortality in systematic review \textit{1952-2012}; Sullivan T et al Am J Public Health 2013;103:e31-42,
  • but lower total mortality in a meta-analysis \textit{13%}, Elwood, PC et al. Lipids 2010;45:925-39

• Dairy foods associated with:
  – Lower inflammatory markers Labonte, M et al. AJCN 2013;doi:10.3945
  – Less heart disease in some studies Milk fat, Warenso, E. AJCN 2010;92:194-202

• Dairy foods and dairy calcium inconsistently associated with weight loss:
  – Greatest weight loss association appears to be with whole milk, cheese, and cultured milk (yogurt, kefir) \textit{9y, n= 19352 women} Rosell, M. Am J Clin Nutr 2006;84:1481-8

• Emphasizing cultured dairy: yogurt, kefir, cheese is reasonable. Aged (older, harder) cheeses may be superior.
Dairy details

• Inflammation: out of 9 studies on dairy and inflammation, 4 show no effect, 5 show a reduction in inflammatory markers Labonte, M et al. AJCN 2013;doi:10.3945

• Cancers: neutral overall,
  – Probably lower risk of colon and breast cancer
  – Prostate cancer: Some studies show association between dairy and increased risk, especially whole milk

• Caution: avoid commercially-sweetened dairy foods: buy them plain and unsweetened, and sweeten them yourself with fresh fruit and honey
Inflammation

• Inflammation is fundamental to your body’s healing, but prolonged inflammation is associated with many common diseases, including heart disease and stroke, obesity and diabetes, and many others
  – Is it a cause or an effect? This is challenging to quantify
  – Beware oversimplification; and keep in mind that most anti-inflammatory drugs are pretty toxic

• Mediterranean diet (page 124), exercise, weight loss, dairy foods (!) (page 33) are all associated with reductions in inflammatory markers
  – Before assuming a whole food is “pro-” or “anti-inflammatory,” check for evidence that is based on human outcomes
Do we all benefit from a low salt diet? No.

• Few follow a low salt (<2,300mg/day) diet: it doesn’t taste good, and may be harmful. IOM. Bibbins-Domingo, K. et al. JAMA Intern Med 2014;174:136-7
  – You don’t live longer – it just feels that way
  – Avoid prepackaged foods, especially breads and cereals: about 75% of total salt supply
  – Use your saltshaker cheerfully (11% of salt supply) on homemade high-potassium whole foods
Potassium (and sodium)!

• Whole, minimally-refined, foods prepared at home: very rich in potassium compared to sodium.
  – Veggies, whole fruit, whole grains, beans...

• Refined foods typically have high sodium to potassium
  – Higher sodium:potassium ratio in diet associated with more cardiovascular disease

• Ratio may be more important than absolute amount of either mineral  

• Higher potassium, 20% less stroke
  – Extra 1.64 g (42mmol) K/d, about 3 pieces of fruit  
    D’Elia L. JACC 2011;57:1210-19
Alcohol and health

1 drink = 5 ounces wine, 12 ounce beer, 1 ½ ounces spirits

• Up to 2 alcoholic drinks/men, 1/women daily associated with
  – 50% less heart failure  JAMA 2001;285:1971-77
  – 45% less mortality following MI  JAMA 2001;285:1965-70
  – Raises HDL, reduces platelet aggregation, increases fibrinolysis, increases NO, stabilizes plaque  Review: Kloner, R. Circulation 2007;116:1306-1317
  – All alcoholic drinks associated with reduced risk  Rimm et al. BMJ 1996;312(7033):731-6
Other aspects of prudent alcohol intake

• Moderate alcohol intake also associated with

• 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
Healthy Habits

Each of these factors reduces a person’s chances of developing Type 2 diabetes. A National Institutes of Health analysis of studies found combining the following lifestyle factors can substantially cut the risk that an adult will get the deadly disease.

- Having a **healthy diet** and exercising regularly
- **Not smoking** for at least 10 years
- Moderate alcohol consumption
- **Body mass index** 18.5-24.9 kg/m²

A cumulative lower risk for developing Type 2 diabetes than those who don’t do these

For men
- Risk reduction: 28%
- 4%
- 7%
- 33%
- 72% lower risk

For women
- Risk reduction: 29%
- 4%
- 24%
- 27%
- 84%

Source: Annals of Internal Medicine

A real hero: S.B.

Before

After

11 months elapsed between pictures
S.B. took advice seriously!

Able to stop insulin, fibrate, statin, metformin. Only medicine is ASA

- Initial findings
  - Weight 212
  - Blood pressure 137/107
  - Total cholesterol 217
  - HDL 13
  - Triglycerides 6701/1570
  - LDL ?
  - TC:HDL ratio 17
  - Random glucose 939
  - HbA1c 11.5%

- 11 months later, with omniverous Mediterranean diet and daily activity:
  - Weight 155
  - Blood pressure 110/70
  - Total cholesterol 152
  - HDL 39
  - Triglycerides 75
  - LDL 98
  - TC:HDL ratio 3.9
  - Fasting glucose 102
  - HbA1c 4.9%

3 years later: HbA1c 5.1%, HDL 47, no meds
GMO and organic foods

• Sources of good information:
  – Organic debate:
  – GMO debate:
    • Scientific American, September 2013
Recommended reading

- The New Mediterranean Diet Cookbook A Delicious Alternative for Lifelong Health - Nancy Harmon Jenkins
- Food Rules, An Eater’s Manual – Michael Pollan
- Real Food – What to Eat and Why – Nina Planck
- Why We Get Fat And What To Do About It – Gary Taubes
- Good Calories, Bad Calories – Gary Taubes
- Fat Chance – Robert Lustig, MD
- The Diabetes Solution - Richard Bernstein, MD
- Good Food, Great Medicine - Miles Hassell, MD and Mea Hassell
  – See recommended reading on page 120 for additional book reviews and recommendations
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
  – Sign up for our free monthly Food and Lifestyle Newsletter
Conclusion

• Foods that have historically been a common part of the diet are predictably good food
• Dietary patterns seem to matter more than individual foods
• Contemporary plant variations and transport do not seem to be associated with harm
• Highly-processed foods remain guilty until proven innocent
• Individual food tolerances will vary
• Prepare your food at home
• Let’s enjoy the benefits of all whole foods!
288 easy-to-read pages packed with evidence-based recommendations for the ‘why’ and ‘how’ of implementing a whole food Mediterranean diet. Includes 185 simple-to-follow recipes made with everyday ingredients.

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

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