Let food be thy medicine

- Hippocrates -

It is the physician's duty to educate the masses not to take medicine

Sir William Osler -
Confirmation Bias
Conformation Bias
“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
Ingredients:
4 c flour
1 Tbsp baking powder
1 tsp salt
2 Tbsp powdered milk
1 1/2 c warm water
1 c shortening
NOT Walking the Talk
Secret Recipe: Cocaine, Caffeine, Salt, & Sweetness
5/5 Healthy Lifestyles Add 14 yrs to Women and 12.2 yrs to Men after age 50

Healthy or just a fad?

- Ketogenic Diet
- Standard American Diet (SAD)
- Intermittent Fasting
- Paleo Diet
- Vegetarian/Vegan Diet
- Pesco-Vegetarian Diet
- Mediterranean Diet
- Low Glycemic Index Diet
- Eat plenty of plants and enjoy life diet
- Elimination Diet
3 Major Nutritional Studies

- Diabetes Prevention Trial
- Predimed
- PURE
The Diabetes Prevention Trial

- Metformin reduced progression by 28%
- Diet and Exercise cut risk of developing type II diabetes by 58%

NIH, Diabetes Prevention Trial (27 centers) stopped early due to convincing results

NEJM. 344(18):1343-50, 2001
Reduction in the incidence of type 2 diabetes with the Mediterranean diet: results of the PREDIMED-Reus nutrition intervention randomized trial.


52% reduction in diabetes in those with 3 risk factors.

1) Control (Low fat)
2) Med Diet (Olive Oil)
3) Med Diet (Nuts)

No calorie restriction
No weight loss
No increase in exercise

Benefits remain!!
CV Events with Mediterranean Diet

30% Reduction in those at high risk

A Primary End Point (acute myocardial infarction, stroke, or death from cardiovascular causes)

- Med diet, EVOO: hazard ratio, 0.70 (95% CI, 0.53–0.91); P=0.009
- Med diet, nuts: hazard ratio, 0.70 (95% CI, 0.53–0.94); P=0.02

The PURE Study: Mortality Rates for % energy from each food group

Fats vs Carbs: The Pendulum Has Swung

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
<th>Nutrition Facts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving Size 2/3 cup (55g)</td>
<td>Serving size 2/3 cup (55g)</td>
</tr>
<tr>
<td>Servings Per Container About 8</td>
<td></td>
</tr>
<tr>
<td><strong>Amount Per Serving</strong></td>
<td><strong>Amount per serving</strong></td>
</tr>
<tr>
<td><strong>Calories</strong> 230</td>
<td><strong>Calories</strong> 230</td>
</tr>
<tr>
<td><strong>% Daily Value</strong></td>
<td><strong>% Daily Value</strong></td>
</tr>
<tr>
<td><strong>Total Fat</strong> 8g</td>
<td><strong>Total Fat</strong> 8g</td>
</tr>
<tr>
<td><strong>Saturated Fat</strong> 1g</td>
<td><strong>Saturated Fat</strong> 1g</td>
</tr>
<tr>
<td><strong>Trans Fat</strong> 0g</td>
<td><strong>Trans Fat</strong> 0g</td>
</tr>
<tr>
<td><strong>Cholesterol</strong> 0mg</td>
<td><strong>Cholesterol</strong> 0mg</td>
</tr>
<tr>
<td><strong>Sodium</strong> 160mg</td>
<td><strong>Sodium</strong> 160mg</td>
</tr>
<tr>
<td><strong>Total Carbohydrate</strong> 37g</td>
<td><strong>Total Carbohydrate</strong> 37g</td>
</tr>
<tr>
<td><strong>Dietary Fiber</strong> 4g</td>
<td><strong>Dietary Fiber</strong> 4g</td>
</tr>
<tr>
<td><strong>Sugars</strong> 1g</td>
<td><strong>Sugars</strong> 1g</td>
</tr>
<tr>
<td><strong>Protein</strong> 3g</td>
<td><strong>Protein</strong> 3g</td>
</tr>
<tr>
<td><strong>Vitamin A</strong> 10%</td>
<td><strong>Vitamin A</strong> 10%</td>
</tr>
<tr>
<td><strong>Vitamin C</strong> 8%</td>
<td><strong>Vitamin C</strong> 8%</td>
</tr>
</tbody>
</table>

**Includes 10g Added Sugars 20%**
Fig. 3. Percentage of patients with remission of NAFLD according to the percentage of weight loss from baseline to month 12. *p* <0.001 for trend.

The most cost effective, value-based therapy in health care?

10 cents per day w/ little harm
Goal to reduce Hgb A1C by 0.58% = 13.1 gms of Soluble Fiber Daily

1 Tbsp = 5 gms fiber (Range = 3.5 – 7 gms)

8-10 oz of Water

Dosed 3x/ day before meals

Legacy Effect for exercise and nutrition vs Aggressive Hgb A1C Control
"The Da-Qing Study"
30 yr Follow Up

Lancet Diabetes Endo. April, 2019

577 Chinese with Glucose Intolerance
6 yrs of Diet and/or Exercise vs Control
No significant change in BMI

NNT = 10
↓ 33%
The VADT Follow Up Study: 1.5% Hgb A1C improvement for 5.6 years (BMJ 2019)
Nuts: A handful, Not a Canful

4 oz. of nuts, 7 days a week =
• 20% reduction in death from all causes
• 29% reduction in death from heart disease
• 39% reduction in death from kidney disease


Association Between Nut Consumption and Non-alcoholic Fatty Liver Disease in Adults. Liver International 2019;39(9):1732-1741.

Incidence of Fatty Liver in 23,915 Subjects
### Ingredient consumed daily

<table>
<thead>
<tr>
<th>Ingredient Consumed Daily</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetables (Not including potatoes)</td>
<td>1</td>
</tr>
<tr>
<td>Fruit</td>
<td>1</td>
</tr>
<tr>
<td>Nuts</td>
<td>1</td>
</tr>
<tr>
<td>Whole Grains</td>
<td>1</td>
</tr>
<tr>
<td>Legumes</td>
<td>1</td>
</tr>
<tr>
<td>Fish</td>
<td>1</td>
</tr>
<tr>
<td>More monounsaturated fats (olive oil) than saturated fats</td>
<td>1</td>
</tr>
<tr>
<td>5-15 gms of Alcohol (14 gms = 12 oz beer or 4 oz wine)</td>
<td>1</td>
</tr>
<tr>
<td>Little to no Red or Processed Meat</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Maximum Score</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

- **Low vs High Med Score = 28% ↓ in CV Events**
- **Veg vs AHA diet has a 32% ↓ hs-CRP**
- **Inflammation = Greatest Predictor of ↓ CV Events**

### Protective Mediator

<table>
<thead>
<tr>
<th>Rank</th>
<th>Protective Mediator</th>
<th>% Reduction in CV Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inflammation</td>
<td>29.2</td>
</tr>
<tr>
<td>2</td>
<td>Glucose Metabolism/Insulin Resistance</td>
<td>27.9</td>
</tr>
<tr>
<td>3</td>
<td>Body Mass Index</td>
<td>27.3</td>
</tr>
<tr>
<td>4</td>
<td>Blood Pressure</td>
<td>26.6</td>
</tr>
<tr>
<td>5</td>
<td>Lipids</td>
<td>26</td>
</tr>
</tbody>
</table>

*Ahmad S, et al. Assessment of Risk Factors and Biomarkers Associated with Risk of Cardiovascular Disease Among Women Consuming a Mediterranean Diet. JAMA Network Open. 2018;1(8)*

Heart Attacks……

God’s revenge for eating his/her animal friends.
Best Sources of Protein……

Roots  Fins  2 legs  4 legs

Best ⎯ Modifier ⎯ Best


Plants Promote Perfusion

Three Major Nutritional Chemistry Blunders
“As for butter versus margarine, I trust cows more than chemists”

-Nutritionist Joan Dye Gussow-
Nutrition Chemistry Error #1
Trans-Fatty Acids & Partially Hydrogenated Oils
Nutrition Chemistry Error #2: Chronic Acid Suppression
FIGURE 1 The Combined Effects of Low Sodium and the DASH Diet According to BP

CENTRAL ILLUSTRATION  The BP Effects of the DASH Diet

- FDA requirement for new antihypertensive drugs (13)
- Angiotensin-converting enzyme inhibitors (12)
- Beta blockers (12)
- Calcium-channel blockers (12)
- Sodium reduction (on a control diet) in participants with a baseline SBP ≥150 mm Hg
- DASH versus control (at high sodium) in participants with a baseline SBP ≥150 mm Hg
- DASH-low sodium (vs control-high sodium) in participants with a baseline SBP ≥150 mm Hg

Effect on Systolic Blood Pressure, mm Hg
Nitrates (Vegetables)

Gut
Salivary Glands
Bacteria

Nitrites

Endothelium

Nitric-Oxide

Blood Pressure
Arterial Stiffness
Endothelial Function

DDAH, ADMA
Enzymes

PPIs
Acid Activates Pepsin

Protein

\[ \text{Pepsinogen} \]

\[ \text{PH}=1.8-3.2 \]

Active Pepsin Protease

Amino Acids

Immune Response

Inactive Pepsin Protease

Intact Protein

5 days of

PPI= PH\geq 4.0
The Lysosome Needs Acid for Lysis
Nutrition Chemistry Error #3
Non-Nutritive Sweeteners
Aspartame = ↑formaldehyde = leaky brain

Pase MP et al, Sugar and Artificially Sweetened Beverages and the Risks of Incident Stroke and Dementia: A Prospective Cohort Study. *Stroke*. May, 2017
Sweetness > Sugar

Aspartame = 200x Sweeter

Saccharin = 500x Sweeter

Sucralose = 600x Sweeter

Advantame = 20,000x Sweeter

Eat multi-colored, fiber rich, whole foods that were recently alive with people you love......

And not too much, or after supper.