PART II
Low-Fat, Low-Salt, Whole-Food Vegan

Further Health Benefits
Preventing/Treating Heart Disease

- Coronary heart disease is extremely rare in societies that eat high-carb plant-based diets.
- Pritikin and Ornish Clinics report marked improvements in risk factors and rapid symptomatic improvements in patients treated with very-low-fat, whole-food quasi-vegan diets and regular walking exercise.
- Ornish has demonstrated modest regression of coronary lesions with these measures, and a reduction in coronary morbidity/mortality.
Dr. Caldwell Esselstyn recruited patients with multiple prior coronary events; they were given cholesterol-lowering medication in conjunction with a very-low-fat strictly vegan diet.

18 patients achieved long-term compliance; they had experienced 49 coronary episodes in the previous 8 years.

During 12 years of follow-up, this group experienced one death from cardiac arrhythmia, and there was one elective angioplasty – no other coronary events!
LDL cholesterol (and apoB) is markedly lowered owing to:

- Low saturated fat intake
- No dietary cholesterol
- Plant protein
- Leanness/weight loss
Metabolic syndrome ("fat poisoning") is prevented or alleviated:

- Insulin sensitivity is improved owing to low fat intake, very low saturated fat intake, leanness, and exercise
- Unsaturated fats less damaging to endothelial lining than saturates found in animal products
- Low risk for diabetes
Blood pressure is moderated:

- Low salt, high potassium intake
- Good insulin sensitivity
- Leanness
- Aerobic exercise training
Rapid Symptomatic Benefit of Very-Low-Fat Diet in Angina

- Pritikin/Ornish clinics report rapid reduction in angina symptoms
- Glucose requires less oxygen for oxidation than does fat
- Improved insulin sensitivity lowers insulin levels, reducing sympathetic activity
- Improved adaptive function of coronary endothelium
Esselstyn’s Study – Becoming “Heart Attack Proof”

- 24 patients with severe coronary disease recruited
- All were asked to eat a very-low-fat, rigorously vegan diet
- All were given cholesterol-lowering medication to insure serum cholesterol remained below 150 mg/dl
- After one year, 6 patients were excluded for non compliance with diet
Esselstyn contd.

- After 12 years, one patient with congestive failure had died from an arrhythmia (no infarction)
- One other patient had received an elective angioplasty; there were no other significant coronary events in the group
- In the 8 years prior to the study, these 18 patients had experienced a total of 49 cardiac events!
- Benefit presumably reflected marked reduction of LDL cholesterol in conjunction with alleviation of “fat poisoning”
Frequent consumption of nuts is associated with reduced vascular risk in American epidemiology. This may reflect unsaturated fat, phytochemicals, trace minerals, and plant protein. Adding up to an ounce daily of monounsaturate-rich nuts (almonds, hazelnuts) or nut butters to a very-low-fat diet may help to insure monounsaturated predominance in body tissues, providing protection from oxidant stress.
Preventing Hypertension and Stroke

- Essential hypertension and age-related rise of blood pressure are absent in societies that don’t salt their food.
- Kitava study reveals absence of stroke in a low-salt society – also absence of dementia!
- Stroke and dementia were also rare in black Africans before salt became commonly available.
Other Factors Moderating Blood Pressure

- Good insulin sensitivity and low serum insulin decrease sympathetic activity
- Vegetarian diets promote lower blood pressure for unknown reasons (impact of plant protein?)
- High potassium intake often lowers blood pressure, and decreases risk for stroke independent of any impact on blood pressure
The Salt Paradox

- Although a low-salt diet prevents hypertension, not all hypertensives achieve lower blood pressure with such a diet.
- This suggests that certain “vicious cycle” mechanisms are in place that sustain hypertension.
- Compensatory increased production of angiotensin II plays a role in this.
Reversing Hypertension – the Goldhamer Strategy

- During a prolonged fast, elevated blood pressure usually drops into the normal range.
- This may reflect a prolonged reduction in serum insulin.
- Goldhamer reports that this normalization of blood pressure in hypertensives can be conserved if it is followed by a low-salt, low-fat vegan diet.
In 174 patients with moderate hypertension, average response to this regimen was a reduction of blood pressure from 159/89 to 122/76 – even though medications were discontinued!

Only 11% of the patients failed to achieve normotension.

In 42 patients followed up an average of 27 weeks after the study, blood pressure averaged 123/77.
Ancillary Benefits of Low-Salt Diets

- In salt-sensitive people, salty diets promote increased loss of calcium in urine
- This leads to loss of bone mineral, while boosting risk for kidney stones
- Hence, low-salt diets help to prevent both osteoporosis and kidney stones
Salty diets, contd.

- Salty diets increase risk for left ventricular hypertrophy, a precursor to congestive heart failure
- Salty diets exacerbate exercise-induced asthma in males
- Extremely salty diets are linked to increased risk for gastric cancer
Type 2 Diabetes Can be Prevented and Reversed

- Type 2 diabetes very rare in societies consuming high-carb plant-based diets
- This reflects good insulin sensitivity attributable to decreased tissue exposure to fats, especially saturated fats
- Leanness and low postprandial fat exposure contribute in this regard
Diabetes contd.

- Low-glycemic-index foods and measures which delay carbohydrate absorption (e.g. acarbose) also help prevent or postpone diabetes
- The Pritikin program typically achieves rapid improvements in glycemic control, reduced need for anti-diabetic medications
- Diabetes is often reversed in obese diabetics after bariatric surgery
Persistent Beta Cell Failure May Prevent Diabetes Reversal

- Beta cell dysfunction is caused and sustained by “glucolipotoxicity” – persistent exposure to excess levels of glucose and fats
- Glucolipotoxicity also results in decreased beta cell mass owing to increased apoptosis
- Lifestyle programs which improve insulin sensitivity may fail to normalize beta cells function since continuing beta cell dysfunction sustains elevated levels of glucose and fats – a vicious cycle!
Beta cell failure contd.

- Beta cell function in type 2 diabetics improves during prolonged fasting owing to re-establishment of normal glucose levels
- This effect is independent of any induced weight loss
The Allen/Fuhrman Strategy for Reversing Diabetes

- Diabetics adopt a very-low-fat, whole-food vegan diet to improve insulin sensitivity and achieve worthwhile weight loss.
- After weight loss equilibrates, if diabetes persists, patients are put on a sustained fast for about 10 days.
- Beta cell function may normalize owing to sustained normoglycemia.
After the fast is discontinued, resumption of the low-fat, whole-food vegan diet may enable conservation of normalized beta cell function.

As a result, diabetes is “cured” as long as the protective lifestyle regimen is maintained.

First proposed by Allen in 1915!
Prevention/Control of Autoimmunity with Vegan Diets

Throughout most of the twentieth century, most autoimmune disorders were extremely rare in sub-Saharan black Africans. These disorders included rheumatoid arthritis, ulcerative colitis, SLE, type 1 diabetes, multiple sclerosis. When rheumatoid arthritis did occur, it was of diminished intensity.
Africans contd.

- These disorders are now less rare, appearing primarily in middle-class blacks adopting Western diets/lifestyles

- These disorders are not uncommon in black Americans – so genetic factors are unlikely to explain this anomaly
Vegan Diets have Anti-inflammatory Effects

- Scandinavian clinics treat rheumatoid arthritis with a week-long fast, followed by transition to a vegan diet.
- This strategy has been shown in controlled studies to lessen the intensity of rheumatoid inflammation, thought the syndrome is not reversed.
- Vegan diets have also been used with alleged success in the control of asthma and ulcerative colitis.
Swank Diet for Control of Multiple Sclerosis

- Dr. Roy Swank treated multiple sclerosis for nearly 50 years with a diet very low in saturated fat
- He claimed that the disorder would not progress if he initiated treatment within a couple of years of onset
- Rate of deterioration was slowed in other patients
- A vegan diet could be used with the Swank regimen
Hypothesis: Vegan Diets vs. Autoimmunity

- Reduced growth factor activities associated with low-fat vegan diets might reduce the survival of autoreactive lymphocytes.
- Once autoimmunity is established, vegan diets may exert anti-inflammatory effects that are therapeutically useful.
- Complete reversal of autoimmunity once established may usually not be feasible.
Use of Fish Oil in Autoimmunity

- The long-chain omega-3 fats found in fish oils exert anti-inflammatory effects by inhibiting production of certain pro-inflammatory hormones (e.g. leukotrienes) derived from arachidonic acid.

- Arachidonic acid is found in animal products, and can be synthesized from plant-derived omega-6 fats.

- Thus, supplemental fish oil in the context of a vegan diet low in omega-6 fats may be therapeutically beneficial in some autoimmune disorders.
Fish Oil contd.

- The alpha-linolenic acid derived from plants (flaxseed, walnuts, etc.) is much less beneficial than fish oil in this regard.
- Plants bioengineered to make high amounts of the omega-3 stearidonic acid may eventually offer a practical alternative to fish oil in this regard.
Ancillary Benefits of Fish Oil Omega-3s

- Reduced risk for sudden-death arrhythmias; alpha-linolenic acid is also useful in this regard
- Stabilization of platelets, the clotting cells
- Increased vascular expression of NO synthase, a key mediator of vascular health
- Decreased risk for bipolar depression
Role of Protein in Osteoporosis

- Sulfur amino acids are metabolized to sulfuric acid, which leaches calcium from bones.
- This effect also increases risk for renal stones.
- Organic anions in potassium-rich fruits and vegetables are metabolized to bicarbonate, buffering the impact of sulfuric acid.
- Thus, high-protein diets tend to promote osteoporosis, but this can be offset by a high intake of high-potassium fruits and vegetables.
Protein and Osteoporosis, contd.

- In the elderly, a low-protein diet compromises efficiency of dietary calcium absorption, exerting a negative impact on bone density.
- A diet that includes a moderate amount of protein-rich plant foods, such as beans, nuts, and soy products, in conjunction with a high intake of fruits and vegetables, may have an optimal impact on bone health and overall health.
Preventing Gallstones

- Gallstones reflect excess liver levels of cholesterol relative to bile acids.
- Insulin inhibits the enzyme that converts cholesterol to bile acids in the liver.
- Thus high insulin levels boost risk for gallstones, whereas the insulin sensitivity associated with low-fat vegan diets, leanness, and exercise training is protective in this regard.
Gallstones contd.

- Soluble dietary fiber from fruits and vegetables decreases gallstone risk by decreasing production of bacterial bile acid metabolites that inhibit bile acid synthesis in the liver
- In Native Americans, a very high risk for gallstones is linked to greatly increased risk for gallbladder cancer, a very deadly malignancy
Fiber-Rich Diets – Other Suspected Benefits

- In societies with plant-based, fiber-rich diets, appendicitis, diverticulitis, varicose veins, hiatal hernia, and constipation are quite rare

- High fiber intakes are suspected to play a role in mediating this protection, though other factors may be involved

- High fiber diets are established as clinically beneficial in the management of diverticulitis and of course constipation
Slowing the Aging Process?

- Decreased IGF-I activity appears to mediate, at least in part, the prolongation of longevity associated with caloric restriction or methionine restriction in rodents.
- Rodent strains that are genetically deficient in IGF-I activity typically have increased maximal lifespans.
- Low-fat vegan diets are associated with decreased IGF-I activity, in part owing to low methionine content – could this represent a practical alternative to caloric restriction for slowing aging in humans?
Benefits of Moderate Alcohol Consumption

- Moderate regular alcohol consumption (1-2 drinks daily women, 2-3 drinks daily men) is associated with decreased risk for heart attack and stroke
- This may reflect a favorable effect on insulin sensitivity and increased HDL
- Risk for type 2 diabetes is also decreased in moderate drinkers
Alcohol contd.

- Risk for weight gain may be lower in women who drink moderately
- Moderate alcohol consumption also improves bone density
- Modestly increased risk for breast and colon cancer in moderate drinkers may reflect interference with folate metabolism – risk not seen in drinkers with good folate status
Health Benefits of Coffee and Caffeine

- Mental-energizing effects of caffeine reflect inhibition of adenosine receptors in the brain.
- This mechanism may be responsible for reduced risk of Alzheimer’s and Parkinson’s in coffee drinkers.
- Alzheimer’s risk found to be about 60% lower in those who drink 1-3 cups caffeinated coffee daily.
Caffeine contd.

- Adenosine receptors also promote pathogenic fibrosis in the liver
- Coffee drinkers are at reduced risk for liver cirrhosis and liver cancer
- Regular use of caffeinated or decaffeinated coffee reduces risk for type 2 diabetes; chlorogenic acid might be the protective factor
Preventing Dementia

- Both stroke and dementia are rare in societies that don’t salt their food.
- Typical vascular risk factors - high LDL cholesterol, insulin resistance syndrome, obesity, diabetes, hypertension, sedentary lifestyle - have been linked to increased dementia risk.
- Hypothesis: If your cerebral vasculature is so healthy that you are virtually immune from stroke – you will not develop dementia.
- Low-fat, low-salt, whole food vegan diet, plus regular caffeine intake, exercise training, and moderate alcohol consumption may notably decrease risk for dementia.
Low-Fat, Low-Salt, Whole-Food, Vegan – Summing Up the Benefits

- This dietary strategy appears likely to reduce risk for, and in some cases promote control or reversal of, the following disorders:
  - Atherosclerosis, hypertension, coronary disease, heart attack, stroke, left ventricular hypertrophy, and congestive heart failure
  - Obesity, metabolic syndrome and type 2 diabetes
  - A range of “western” cancers, including those of the colon-rectum, breast, prostate, pancreas, ovary, and uterine endometrium
Diet benefits contd.

- Autoimmune disorders, including rheumatoid arthritis, ulcerative colitis, SLE, and multiple sclerosis
- Asthma
- Osteoporosis
- Renal stones and gallstones
- Diverticulitis, appendicitis, varicose veins, and hemorrhoids
- Dementia
- And a modest delay in the aging process is a theoretical possibility
Other Popular Diets Can’t Compete

- As compared to the standard American diet, high-protein diets (e.g. “Paleolithic”, Zone, Atkins) or Mediterranean diets may promote better weight control, or reduce risk for certain disorders.
- But none of these alternatives can match the scope of protection afforded by a low-fat, low-salt, whole-food vegan diet.
- Big bonus: widespread adoption of vegan diets would minimize use of energy, water, and land in agriculture, and make it more feasible for all to eat affordably.
Amplifying the Benefits

- Regular exercise training will amplify the benefits of optimal diet for promoting insulin sensitivity, leanness, arterial health, strong bones, and the manifold health benefits that flow from these.

- A cutting-edge supplementation program, including Full-Spectrum Antioxidant Therapy and protective nutrients such as vitamins D and K, may provide additional health protection.
Benefits contd.

- Strict vegan diets must be supplemented with vitamin B12, and supplementation with omega-3-rich fish oil and certain carninutrients (e.g. creatine, carnitine) may sometimes be advisable.

- Psychological factors are also crucial to health: a worthwhile vocation or avocation, and supportive human relationships, are key to a healthy and successful life.