

Advances in Nutritional Science To Prevent and Reverse Disease

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Disclosure

I have ownership interest in drfuhrman.com

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Learning Objectives

1. Discuss the shortfalls of conventional treatment for heart disease and diabetes
2. Identify the dietary profile that can enable the prevention and reversal of heart disease and diabetes
3. Explain potential nutritional strategies that can be used with patients suffering from heart disease and diabetes

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Two Types of Nutrients

Macronutrients

protein, carbohydrates and fat

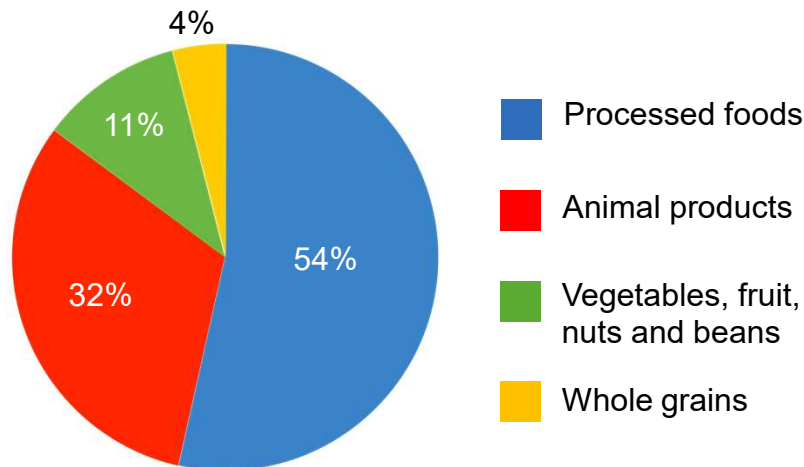
Micronutrients

vitamins, minerals and **phytochemicals**

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The Standard American Diet (SAD)



Source: Economic Research Service, United States Department of Agriculture: Loss-Adjusted Food Availability

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Dr. Fuhrman's Health Equation

$$H = N / C$$

Health Expectancy = Nutrients / Calories

FIRST PRINCIPLE
of the Nutritarian Diet

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Fiber and Appetite

- Fiber fermented by bacterial produce SCFA- which acts on hypothalamus to suppress appetite
- More SCFA produced by bacterial fermentation of fiber and resistant starch
- Fiber hold water, space and triggers volume sensors

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Metabolism and Aging

- **Reduced body temperature**
- **Reduced respiratory quotient**
- **Lowered thyroid function**

For each 100 calorie increase in metabolic rate, the risk of death by increased by 25%.

Jumpertz R, Hanson RL, Sievers ML, et al. Higher Energy Expenditure in Humans Predicts Natural Mortality. *J Clin Endocrinol Metab* 2011.

Bano A, Khana K, Chaker L, et al. Association of Thyroid Function With Life Expectancy With and Without Cardiovascular Disease: The Rotterdam Study. *JAMA Intern Med.* 2017;177(11):1650-1657.

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G-BOMBS



GREENS



BEANS



ONIONS



MUSHROOMS



BERRIES



SEEDS

Foods for Optimal Health

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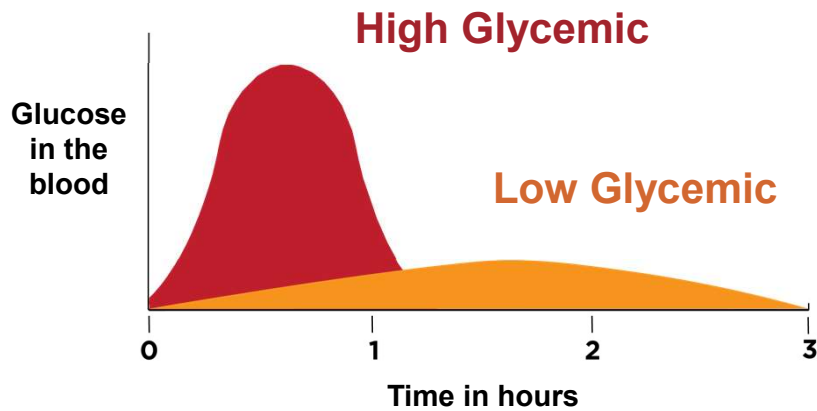
Hormonally Favorable

Insulin and IGF-1

SECOND PRINCIPLE
of the Nutritarian Diet

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Glycemic Load



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Medium Glycemic Load		Low Glycemic Load	
Corn	18	Lentils	9
Brown rice	16	Apples	9
Sweet potato	14	Kiwi	8
Grapes	14	Green peas	8
Rolled oats	13	Butternut squash	8
Whole wheat	11	Kidney beans	7
Mango	11	Black beans	6
High Glycemic Load		Watermelon	6
White potato	29	Oranges	4
White rice	26	Cashews	2
White pasta	21	Strawberries	1
Chocolate cake	20		

Atkinson FS, Foster-Powell K, Brand-Miller JC. International tables of glycemic index and glycemic load values: 2008. Diabetes Care. 2008 Dec;31(12):2281-3.

Foster-Powell K, Holt SH, Brand-Miller JC. International table of glycemic index and glycemic load values: 2002. Am J Clin Nutr. 2002 Jul;76(1):5-56. index and glycemic load values: 2002. Am J Clin Nutr. 2002 Jul;76(1):5-56.

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	Resistant Starch %	Resistant Starch % + Fiber %
Black beans	27	70
Navy beans	26	62
Lentils	25	59
Split peas	25	58
Corn	25	45
Brown rice	15	20
Rolled oats	7	17
Whole wheat flour	2	14
Pasta	3	9
Potato	3	5

J Nutr 2001;131(2):276-86. Starch and fiber fractions in selected food and feed ingredients...

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IGF-1

Insulin-like growth factor 1

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Insulin-like Growth Factor – 1 (IGF-1) Low Levels Extend Life Span

- Decreased inflammation
- Reduced oxidative damage
- Stress resistance
- Insulin sensitivity
- Slows aging of the brain

Bartke A. Minireview: role of the growth hormone/insulin-like growth factor system in mammalian aging. *Endocrinology* 2005;146:3718-3723.

Berryman DE, Christiansen JS, Johannsson G, et al. Role of the GH/IGF-1 axis in lifespan and healthspan: lessons from animal models. *Growth Horm IGF Res* 2008;18:455-471.

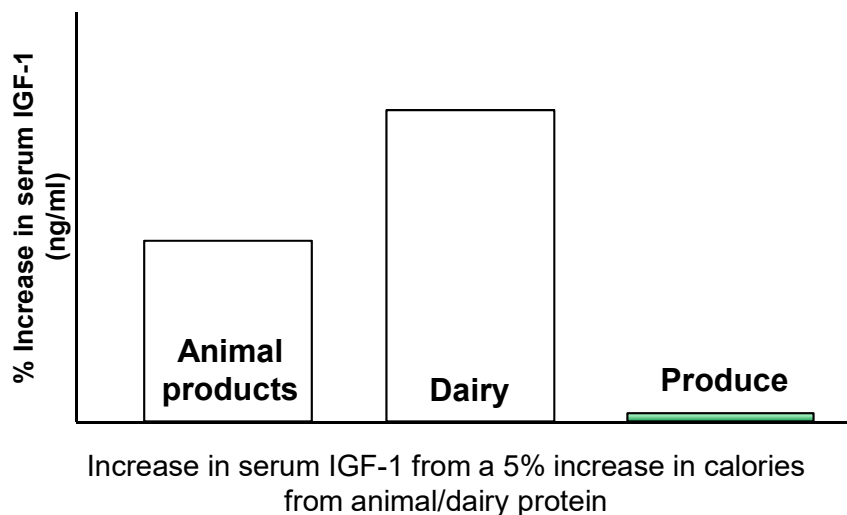
Salminen A, Kaarniranta K. Insulin/IGF-1 paradox of aging: regulation via AKT/IKK/NF-kappaB signaling. *Cell Signal* 2010;22:573-577.

Cohen E. Countering neurodegeneration by reducing the activity of the insulin/IGF signaling pathway: Current knowledge and future prospects. *Exp Gerontol* 2010.

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Food and IGF-1



Crowe FL, Key TJ, Allen NE, et al. The association between diet and serum concentrations of IGF-1, IGFBP-1, IGFBP-2, and IGFBP-3 in the European Prospective Investigation into Cancer and Nutrition. *Cancer Epidemiol Biomarkers Prev*. 2009 May;18(5):1333-40.

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High Protein and Death

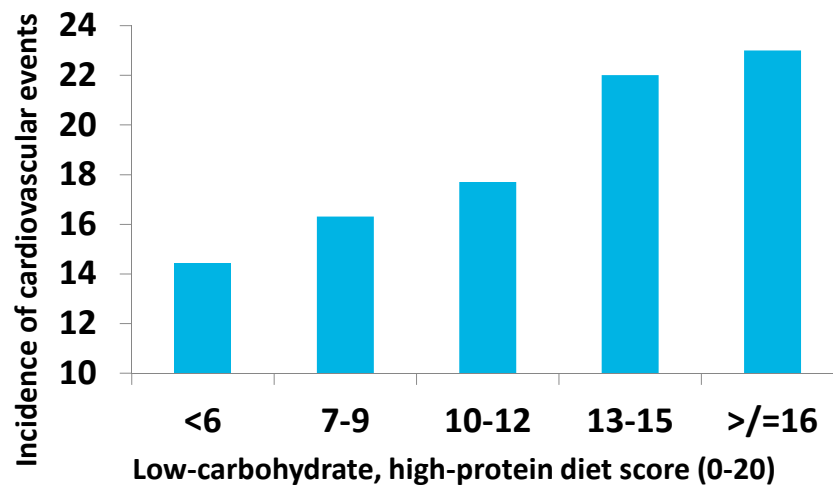
- 4-fold increase in cancer death
- 75% increase in overall deaths

Levine ME, Suarez JA, Brandhorst S, et al. Low Protein Intake Is Associated with a Major Reduction in IGF-1, Cancer, and Overall Mortality in the 65 and Younger but Not Older Population. *Cell Metab* 2014; 19(3):407-417.

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Low-carb, High-protein Diet: Cardiovascular Disease Risk



Lagiou P, Sandin S, Lof M, et al. Low carbohydrate-high protein diet and incidence of cardiovascular diseases in Swedish women: prospective cohort study. *BMJ* 2012; 344:e4026

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3 Irrefutable Facts

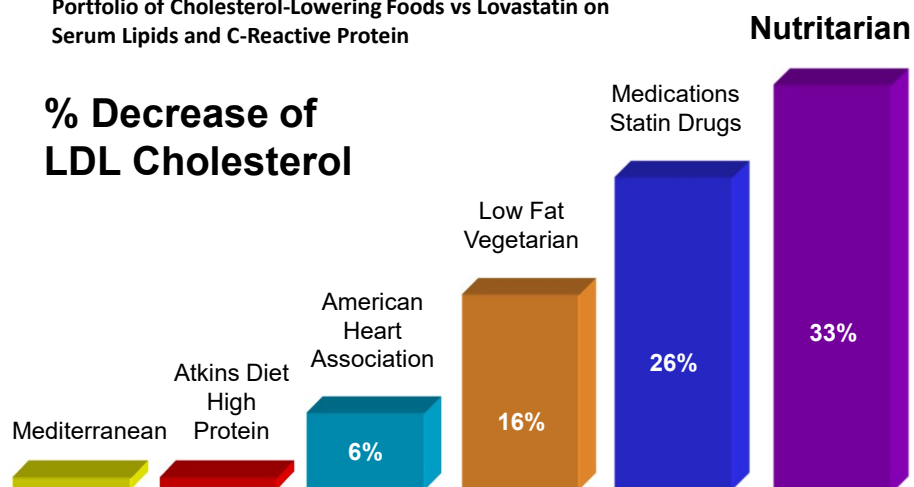
1. Vegetables, beans, seeds, nuts, fruits, are good for you.
2. Excessive amount of animal products cause disease.
3. Refined carbohydrates cause disease and lead to overweight and obesity.

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Effectiveness of Cholesterol Lowering Methods

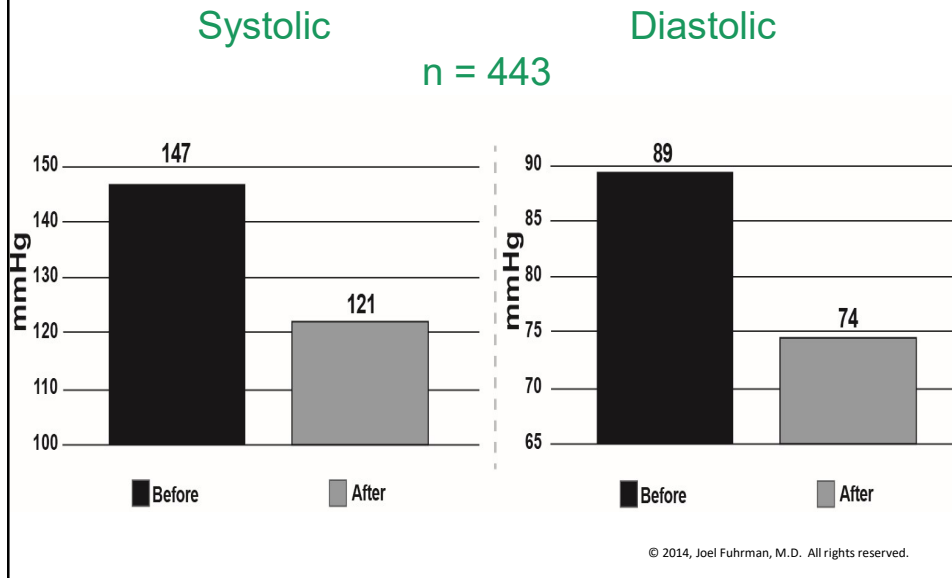
Jenkins DJA et al. July 23/30, 2003 Effects of a Dietary Portfolio of Cholesterol-Lowering Foods vs Lovastatin on Serum Lipids and C-Reactive Protein



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Fuhrman J, Singer M. [Improved Cardiovascular Parameter With a Nutrient-Dense, Plant-Rich Diet-Style: A Patient Survey With Illustrative Cases](#). *American Journal of Lifestyle Medicine*. 2015 doi:10.1177/1559827615611024.



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Vegetables and Endothelial Function

Meta-analysis and brachial artery vasodilatation tests show as vegetable portions per day increase, intra-vascular inflammation decreases and elasticity and function improves, reducing heart attack and stroke risk.

Lancet 2006;367:320-6. J Nutr 2006;136:2588-93.

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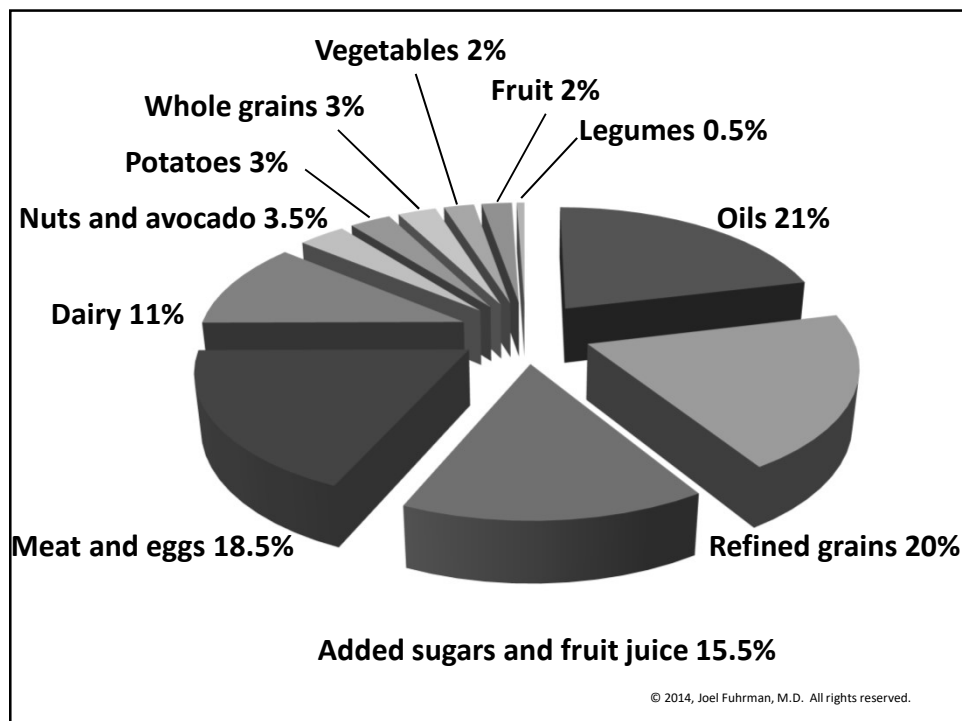
Greens Protect Against Heart Disease

- Greens are needed to activate **NRF2**, which prevents plaque adhesion
- Those with the highest blood levels of **lutein** had the healthiest blood vessels, with no atherosclerosis.

Zakkar M, et al. Activation of Nrf2 in Endothelial Cells Protects Arteries From Exhibiting a Proinflammatory State. Arteriosclerosis Thrombosis and Vascular Biology. Dwyer JH, et al. Oxygenated carotenoid lutein and progression of early atherosclerosis. Circulation 2001;103(24):2922-2927.

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Nuts and Heart Disease

- The Adventist Health Study
- The Iowa Women's Health Study
- The Nurses Health Study
- The Physicians Health Study
- The CARE Study

Dramatic reduction in all-cause mortality.
Dramatic effect on increased lifespan.

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The Physicians Health Study

21,454 physicians followed for 17 years

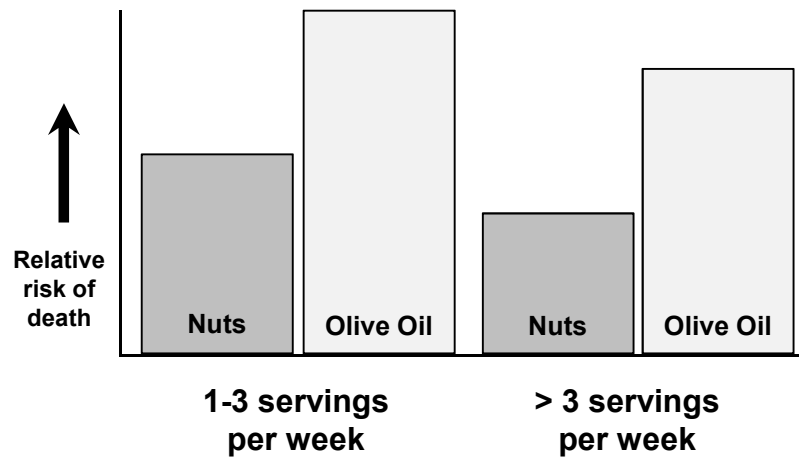
Albert CM, et al. Nut consumption and decreased risk of sudden cardiac death in the Physician Health Study. Arch Int Med 2002;162:1382-1387.

- Anti-arrhythmic and anti-seizure effects
- Associated with 60 percent reduction in sudden cardiac death
- Restoration of Vascular Elasticity

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Nuts vs. Olive Oil in Mediterranean Diet



Guasch-Ferré M, Bulló M, Martínez-González MÁ, et al. PREDIMED study group. BMC Med. 2013 Jul 16;11:164.

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Nuts and Cholesterol Levels

Pooled analysis of 25, 3-8 week trials:

Nuts consumed/day	Decrease in total cholesterol	Decrease in LDL
1 ounce	2.8%	4.2%
1.5 ounces	3.2%	4.9%
2.4 ounces	5.1%	7.4%

Sabaté J, Oda K, Ros E. Nut consumption and blood lipid levels: a pooled analysis of 25 intervention trials. Arch Intern Med. 2010 May 10;170(9):821-7.

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Nuts, one serving a day

Meta-analysis examining issue of cardiovascular mortality and nuts, with 354,933 individuals, 44,636 deaths→

Am J Clin Nutr 2015;101:783–93.

39 percent decrease cardiovascular mortality

27 percent decrease all cause mortality

The group with the highest intake of nuts/seeds had 40 percent lower deaths compared to the group with the lowest intake.

Adventist Health Study-2 cohort. *Int J Epidemiol* 2018

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Seventh-Day Adventist Study

This 12-year study, published in 2001 Archives of Int Med

Longest life was in:



Vegan who ate nuts and seeds

Flexitarians who eat nuts and seeds

Low fat vegans (no nuts and seeds)

**Fraser GE, Shavlik DJ. Ten Years of Life, Is It a Matter of Choice?
Arch Intern Med. 2001;161:1645-1652.**

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Diabetic Medications Cause Weight Gain

- Insulin
- Amaryl (Glimepiride)
- Diabinese (Chlorpropamide)
- Glucotrol (Glipizide)
- Diabeta, Glynase (Glyburide)
- Actos (Pioglitazone)
- Avandia (Rosiglitazone)

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More Drugs, More Deaths

On February 6, 2008 the National Heart, Lung, and Blood Institute (NHLBI), stopped the ACCORD Study (Action to Control Cardiovascular Risk in Diabetes)

Results showed that intensive treatment of diabetics (more meds to lower the glucose closer to normal) increases the risk of dying compared to those patients treated less aggressively.

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Diabetes Research Study

Average systolic blood pressure 148 → 121

Diabetic medication reduced by 90 percent

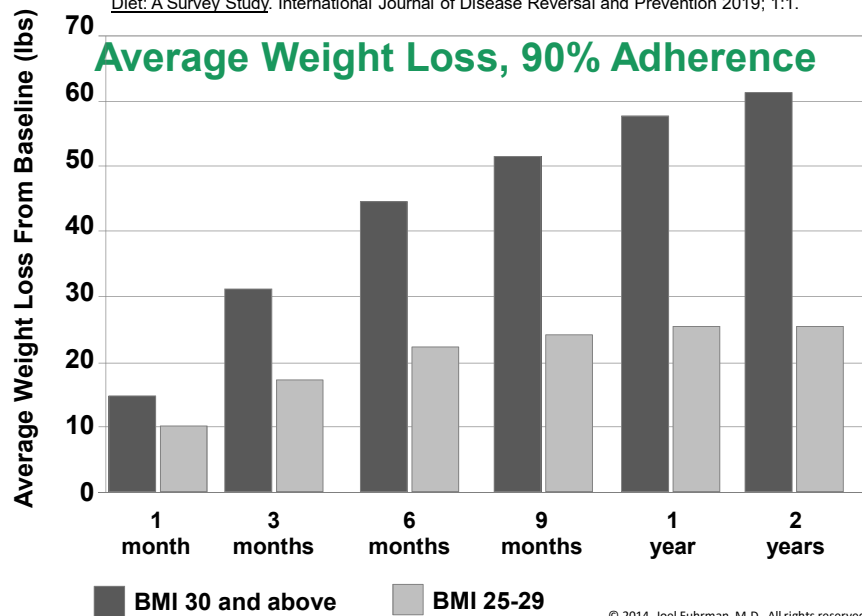
Mean HbA1c 8.2 → 5.8

Dunaief DM, Fuhrman J, Dunaief JL, Ying G. Glycemic and cardiovascular parameters improved in type 2 diabetes with the high nutrient density (HND) diet. Open Journal of Preventive Medicine 2012;3:364-371.

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Fuhrman JH, Ferreri DM, Singer ML. Long-Term Weight Loss Maintenance on a Nutrient-Dense, Plant-Rich (NDPR) Diet: A Survey Study. International Journal of Disease Reversal and Prevention 2019; 1:1.



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Nutritarian vs. Standard Diet

Nutritarian Diet

- Vegetable-based
- Lots of fruit, beans, seeds, nuts
- Oil used sparingly
- Animal products 0-3 times a week
- Nutrient-dense calories

Standard Diet

- Grain based
- Lots of dairy and meat
- Oils = major caloric load
- Animal products 2-4 times a day
- Nutrient-poor calories

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One year later



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Emily, lost 100 pounds in one year, no longer depressed and sick



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Jodi O'Neil Before and After



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Ronnie Lost 140 lbs. in 12 Months!

"I would not want anyone to go through what I have had to endure in my struggle before I learned about Dr. Fuhrman. DON'T WAIT until you have a medical tragedy happen to you! Start your new life today!!!"



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	July 2008	July 2009
Weight	300 lbs	160 lbs
Blood pressure	161/110 (on meds)	115/70 (no meds)
Waist	58"	33"
Cholesterol	228 (on meds)	132 (no meds)
Triglycerides	312	63
LDL	148	75

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Steve and Tara Brzdek

226/447 → 80/220/32



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John, 23 years later

At age 72 had significant chest pain with minimal activity

1994
Age 72

- Triple-vessel disease
- Hypertension
- On 3 medications
- BP 138/88

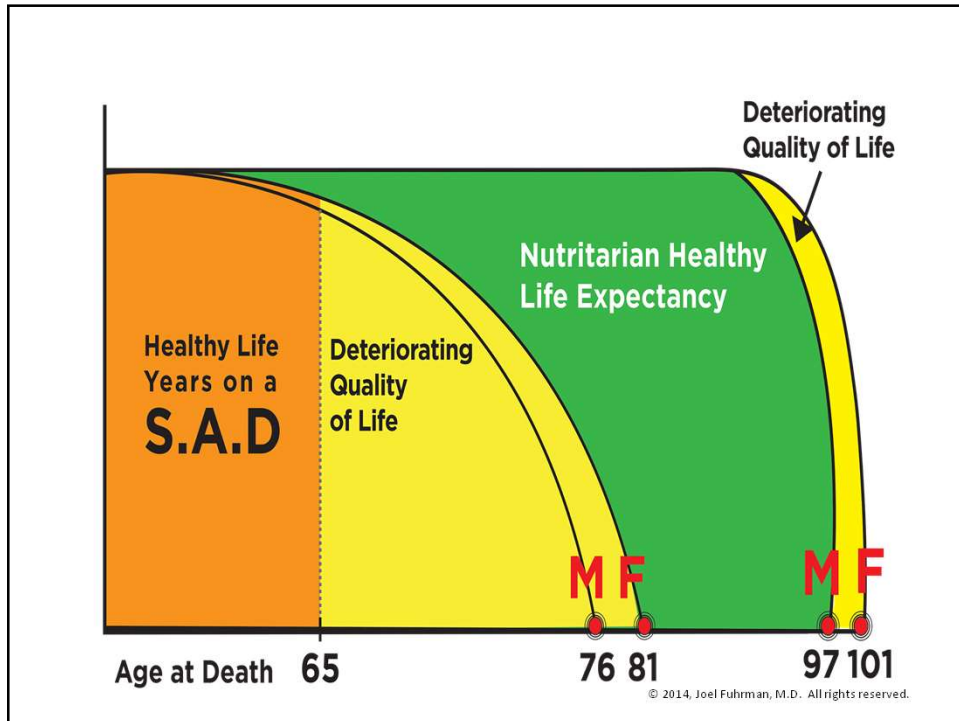


2018
Age 97

- No heart disease
- Normal blood pressure
- No medications
- Blood pressure 120/75

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