

Are meat, fish and milk nutritional necessities?

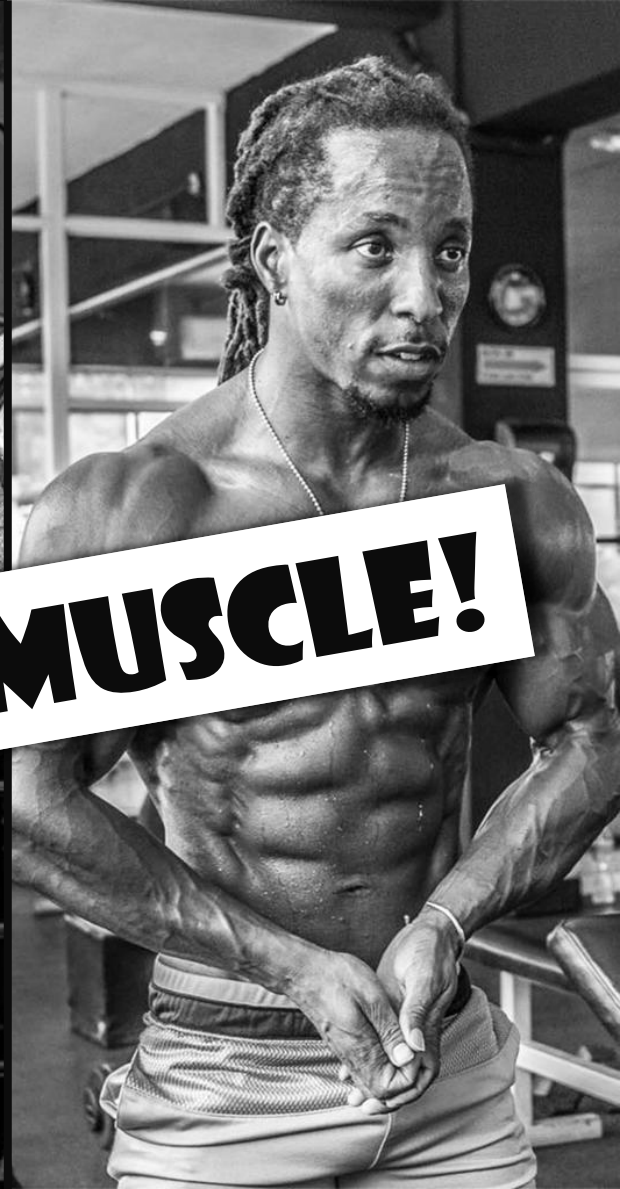


Brenda Davis, RD
www.brendadavisrd.com

Science Says...



The Evidence is Strong



100% PLANT-BASED MUSCLE!

Scott Jurek



**100% PLANT-BASED
SINCE 1999!**

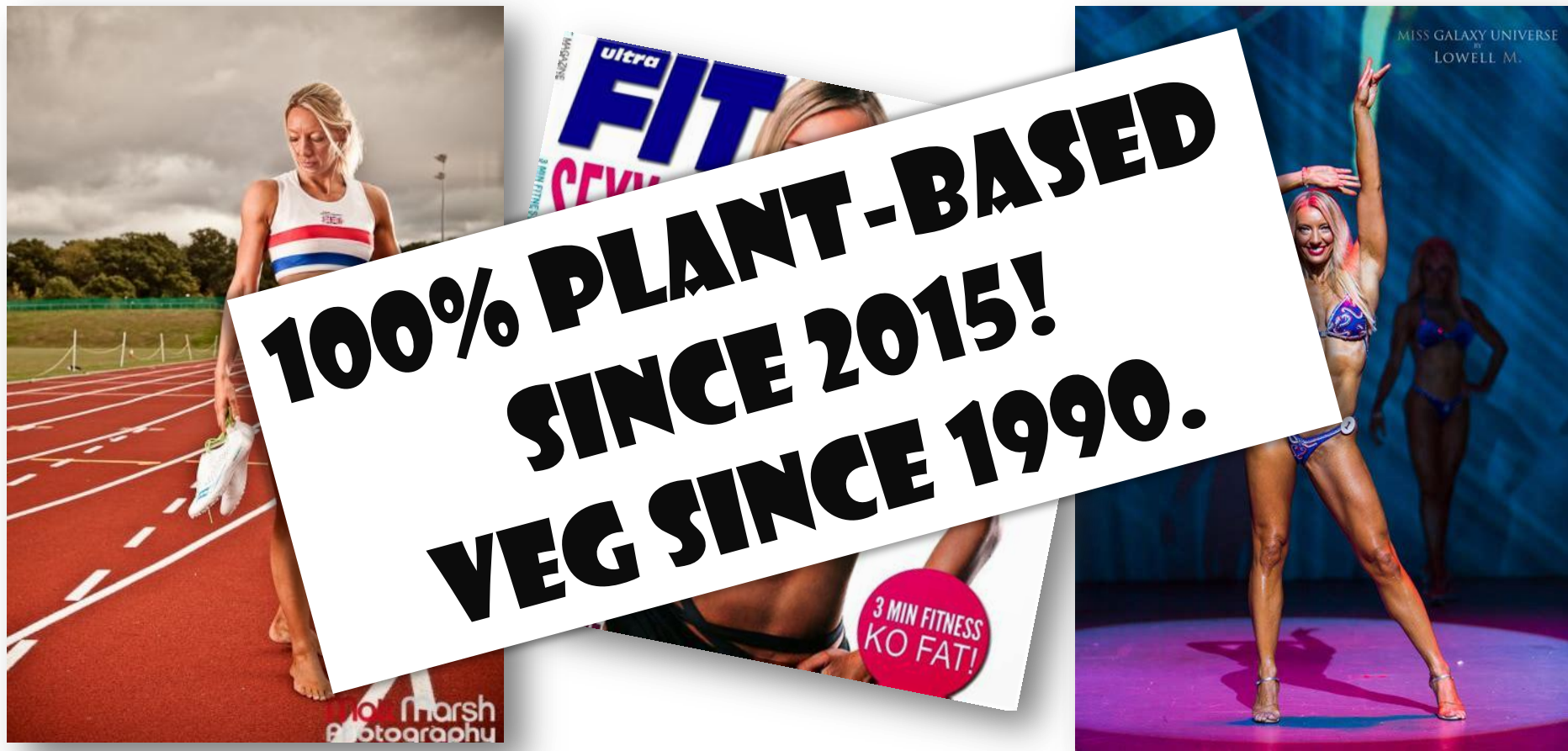


Ultramarathon World Champion

Set Appalachian Trail record: nearly 80 km/day over 46 days.

US record in the 24-Hour Run: 6.5 marathons in 1 day.

Julia Hubbard



World Champion Body Builder

Holder of 3 World titles; 3 Olympia titles; 2 Universe titles;
British Master's 60 and 200 m sprint champion.

Patrik Baboumian

"But where do you get your protein from?"

This is Patrik Baboumian, Iranian-born strongman and body-builder. At 33 years old, standing 171cm tall and weighing 116kg, Patrik is Germany's strongest man.

With a bench press of 200kg and a deadlift of 250kg, he also holds the world record for the heavyweight log lift with a record of 190kg.

VEGAN

**100% PLANT-BASED
SINCE 2011!**



World Champion Strongman

Holds world record for log lift. Germany's strongest man.

Tia Blanco

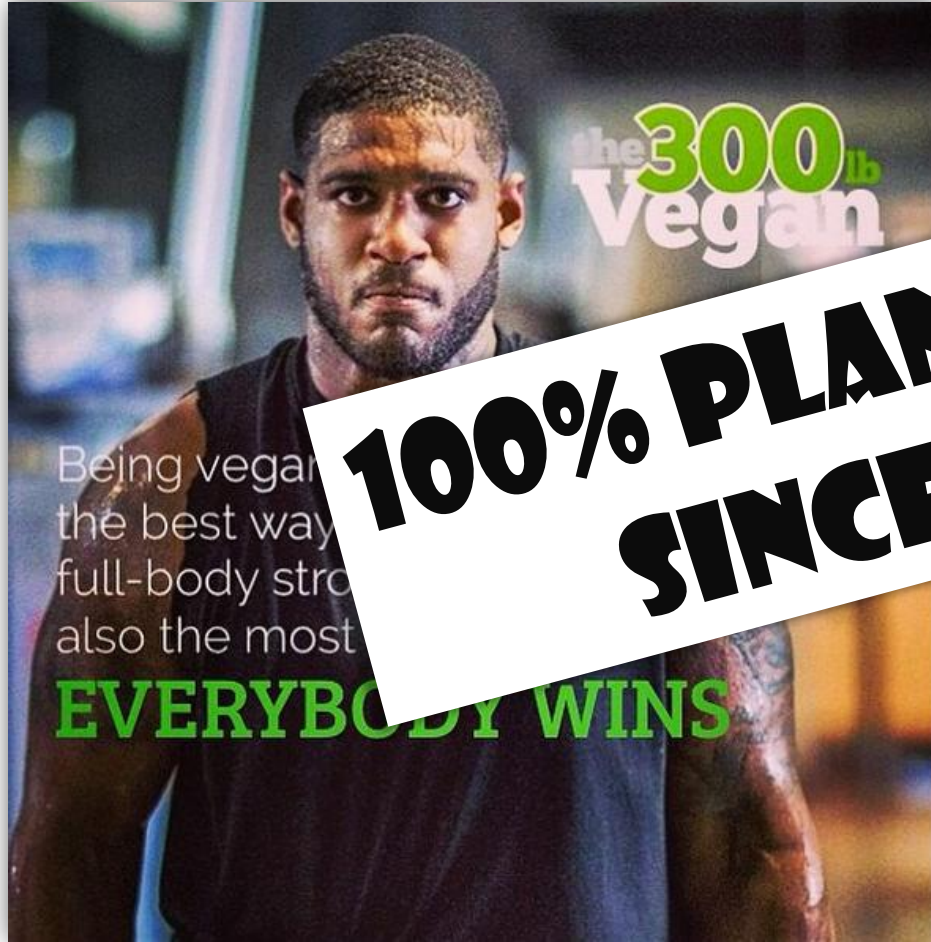
A woman with long brown hair, wearing a blue bikini top, is captured mid-air while surfing. She is performing a maneuver that has kicked up a large spray of water. The background shows a rocky coastline under a clear sky. A white, tilted rectangular box with bold black text is overlaid on the lower right portion of the image.

**100% PLANT-BASED
SINCE 2013
VEG FROM BIRTH!**

World Champion Surfer

Holds 2015/2016 Women's World Surfing Championship titles.

David Carter



**100% PLANT-BASED
SINCE 2014!**



NFL Football Defensive Lineman
6'6" 300 Pound Vegan

Venus and Serena Williams



**100% PLANT-BASED
SINCE 2012!**



World Tennis Champions

Winners Wimbledon 7x— Serena; Venus 5x

Mac Danzing



Mixed Martial Artist Champion
Winner The Ultimate Fighter

Sonya Looney

A photograph of Sonya Looney, a mountain biker, riding through a dense forest. She is wearing a black long-sleeved jersey and a black helmet. The background is filled with green foliage and trees. A white banner with black text is overlaid on the image.

**100% PLANT-BASED
SINCE 2014!**

World Champion Mountain Biker

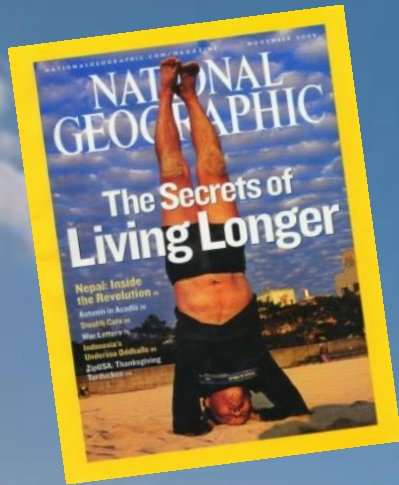
4 x US National Champion; 1st woman to finish a
10-day race across the Annapurna in Nepal.

Dr. Ellsworth Wareham



Blue Zone Centenarian, Loma Linda CA
Cardiothoracic surgeon – retired at age 95; now 104.

What is a Blue Zone?



The 5 Blue Zones

- ▶ Okinawa Japan
- ▶ Sardinia Italy
- ▶ Loma Linda
California
- ▶ Ikaria Greece
- ▶ Nicoya Peninsula -
Costa Rica



Lifestyle Practices Common to ALL Blue Zones

- 
- ▶ Family
 - ▶ No smoking
 - ▶ Socially engaged
 - ▶ Constant, moderate physical activity
 - ▶ Legumes
 - ▶ Plant-based diets

Okinawa Centenarian

Proof Positive

If some of the fastest, strongest, longest lived people on the planet manage without animal products, it is likely safe and adequate for the rest of us.



Academy of Nutrition and Dietetics

2016 Position Paper

Well-planned vegetarian, including vegan, diets are healthful, nutritionally adequate, and may provide health benefits for the prevention and treatment of certain diseases. These diets are appropriate, for all stages of the life cycle, including pregnancy and lactation, infancy, childhood, adolescence, older adulthood, and for athletes.



What are the health benefits?

Longevity

High Blood Pressure

Cataracts

Cancer

Cardiovascular Disease

Diabetes

Kidney Disease

Diverticular Disease



Longevity

In the AHS-2, compared to similar, non-vegetarians, mortality rates were reduced by:

- **9% for vegetarians**
- **15% for vegans**



Cardiovascular Disease

In EPIC-Oxford, compared to similar, health-conscious nonvegetarians, CVD rates were:

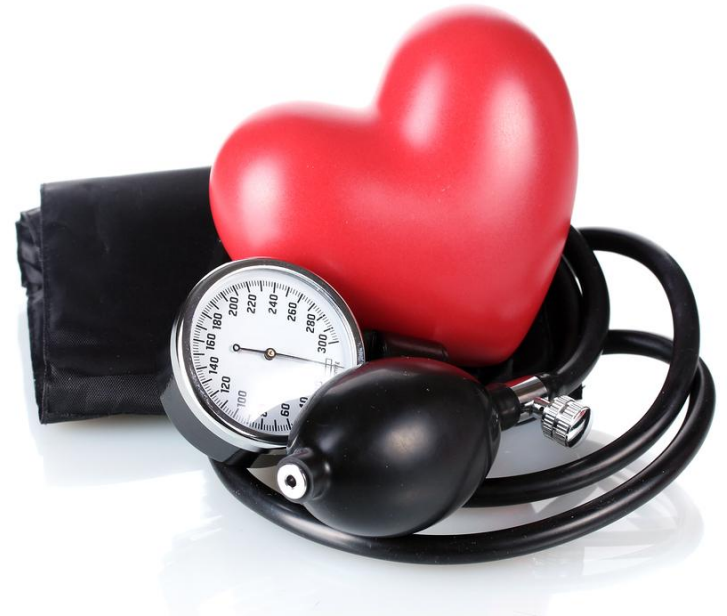
- **32% lower among vegetarians and vegans**



High Blood Pressure

In the AHS-2, compared to similar, health-conscious nonvegetarians, risk of high blood pressure was:

- **55% lower among vegetarians**
- **75% lower among vegans**



Diabetes

In the AHS-2, compared to similar, health-conscious nonvegetarians, risk of developing diabetes was:

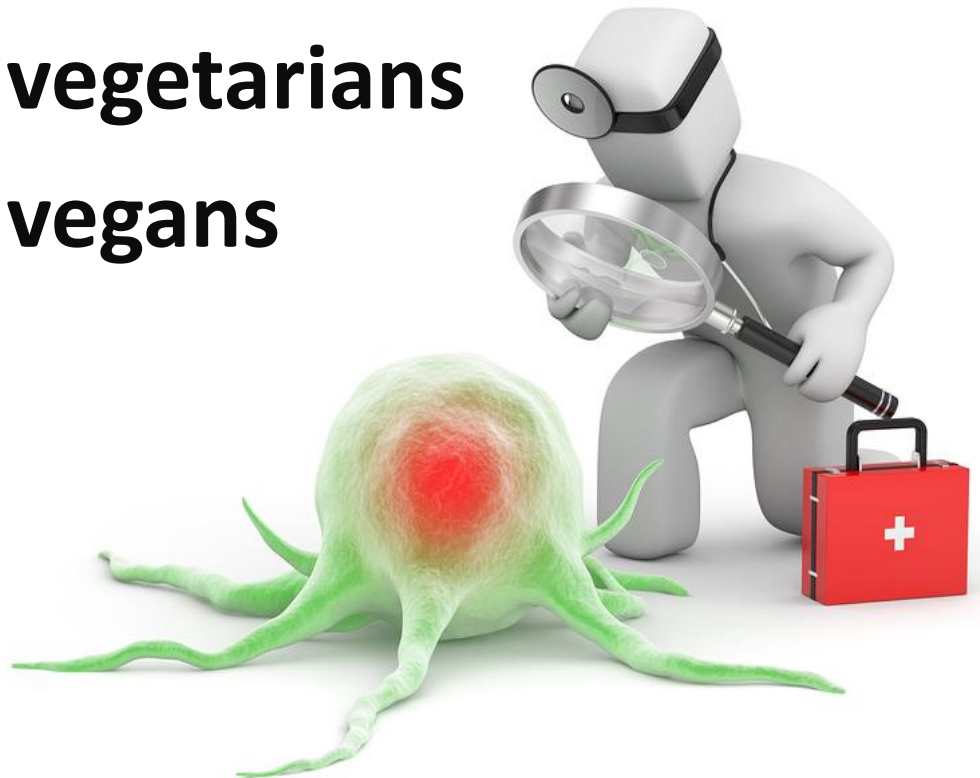
- **38% lower among vegetarians**
- **62% lower among vegans**



Cancer

In EPIC-Oxford, compared to similar, health-conscious non-vegetarians, cancer rates were:

- **11% lower among vegetarians**
- **19% lower among vegans**



Cataracts

In EPIC-Oxford, compared to similar, health-conscious nonvegetarians, risk of cataracts was:

- **30% lower among vegetarians**
- **40% lower among vegans**



NORMAL EYE

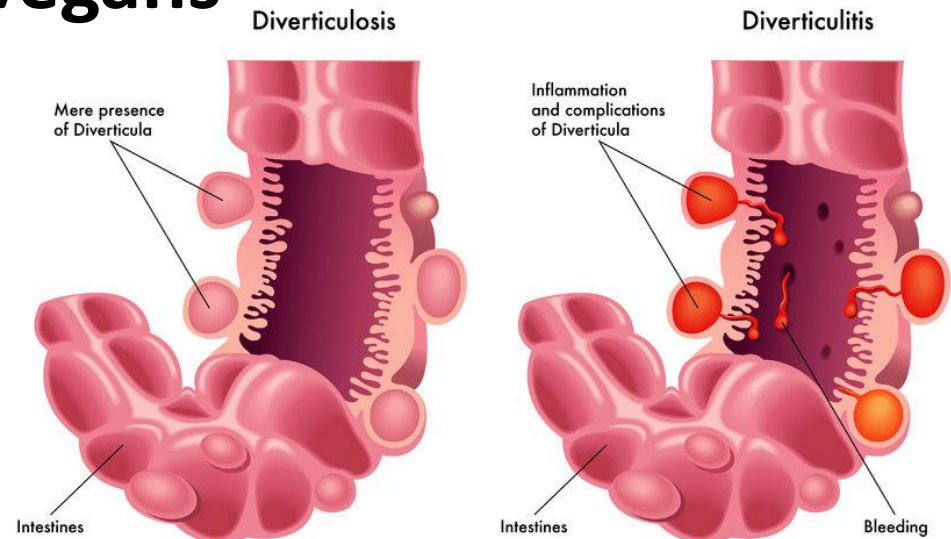


EYE WITH CATARACT

Diverticular Disease

In EPIC-Oxford, compared to similar, health-conscious nonvegetarians, risk of diverticular disease was:

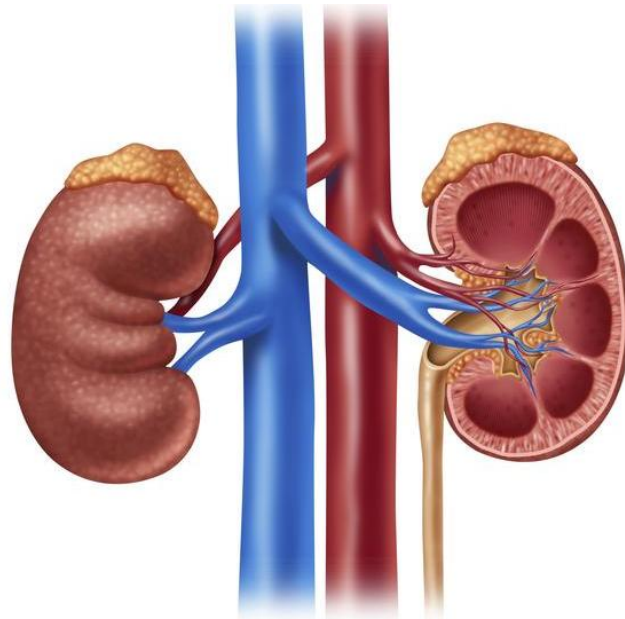
- **27% lower among vegetarians**
- **72% lower among vegans**



Kidney Disease

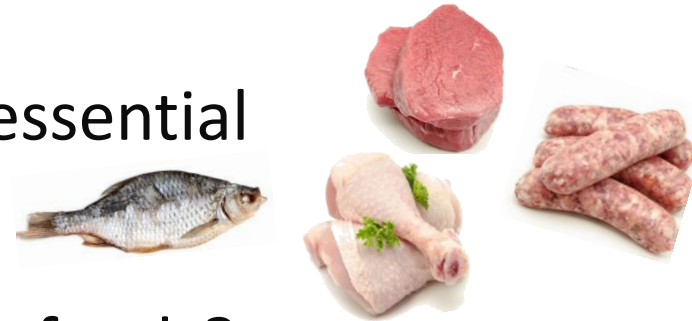
Compared to similar, health-conscious nonvegetarians, vegetarians and vegans experienced:

- **31% fewer kidney stones (EPIC-Oxford)**
- **52% less kidney disease (AHS-2)**



Examining the Evidence

1. Why are meat and milk viewed as essential for people?



2. What are the key nutrients in these foods?



3. Can we get enough of each of these key nutrients from plant foods?

- How much do we need?
- Actual intakes in plant-based diets?
- Richest plant sources?
- Pros and cons of plant vs animal sources?



1. Why are meat and milk viewed as essential for people?



Public Health History

- ▶ For many years, hunger and malnutrition were the #1 public health nutrition concerns.
- ▶ Government policies were directed towards the elimination of hunger and deficiency diseases.
- ▶ Nutrition education campaigns were dominated by “eat more” messages.



The Meat and Milk Solution

Economic policies sought to maximize meat and milk production to reduce malnutrition. Farmer subsidies, marketing support, and price controls were set in place.



A Job Well Done?

- ▶ Diseases of nutritional deficiency diminished, and the interests of animal agriculture became deeply entrenched in the economy.
- ▶ It appeared as though the job of improving health through nutrition had been effectively accomplished.



Meat and Milk

Acquired Health Halos

Meat is associated with protein, muscles and masculinity.



Milk is associated with calcium and strong bones and teeth.



“Eat More” Message Backfired

While nutritional deficiency diseases plummeted, the “eat more” message gave rise to another malnutrition menace → overconsumption!



Many Faces of Malnutrition

3 main types of malnutrition:

1. Undernutrition or hunger.
2. Micronutrient deficiency.
3. Overconsumption.



The New Normal

- ▶ Overconsumption now exceeds undernutrition as the #1 form of malnutrition globally.
- ▶ As a result diseases of overconsumption kill 70% of the global population.



What We Learned

It was NOT the lack of meat or cow's milk that was responsible for malnutrition – it was the lack of a variety of nutritious foods.



National and International Diet Guidelines Reflect this Knowledge



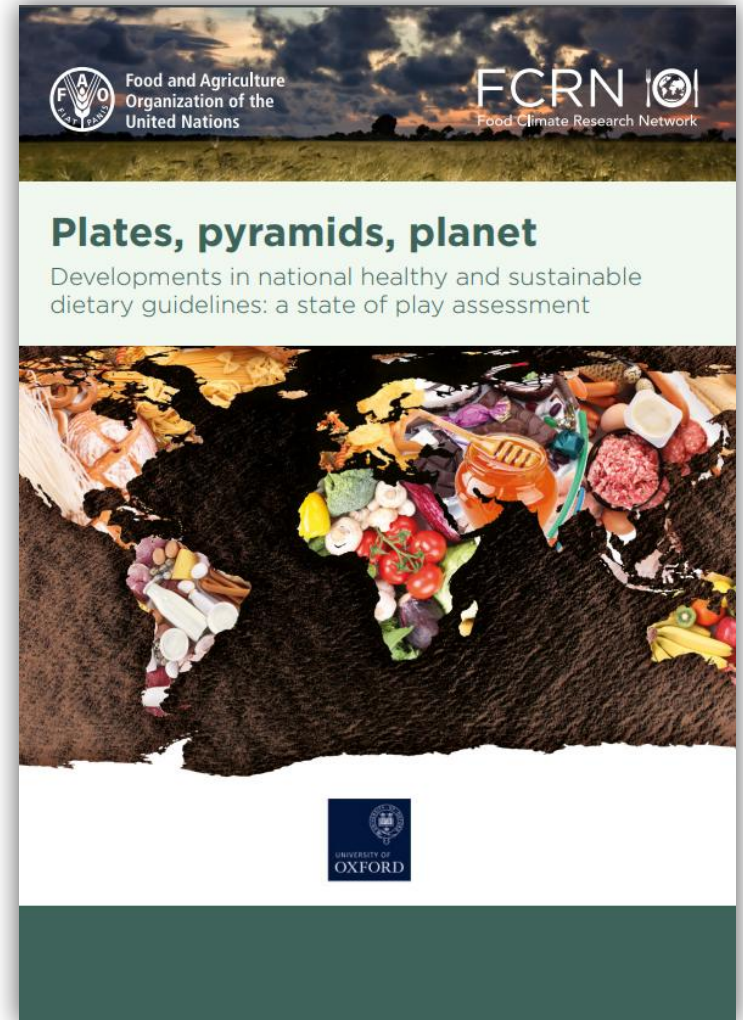
WHO: 12 Steps to Healthy Eating

1. “Eat a nutritious diet based on a variety of foods originating mainly from plants, rather than animals.”



Food and Agriculture Organization of the United Nations (FAO)

Poor dietary habits, rich in meat and foods that are high in sugar and fat and low in whole grains, fruits and vegetables have been closely linked to noncommunicable diseases... these diets are typically not only unhealthy, but environmentally unsustainable.



2. What key nutrients come from meat, fish and milk?

Meat, Poultry, Fish

- ▶ Protein
- ▶ Vitamin B12
- ▶ Iron
- ▶ EPA/DHA (fish)



Milk (and other dairy)

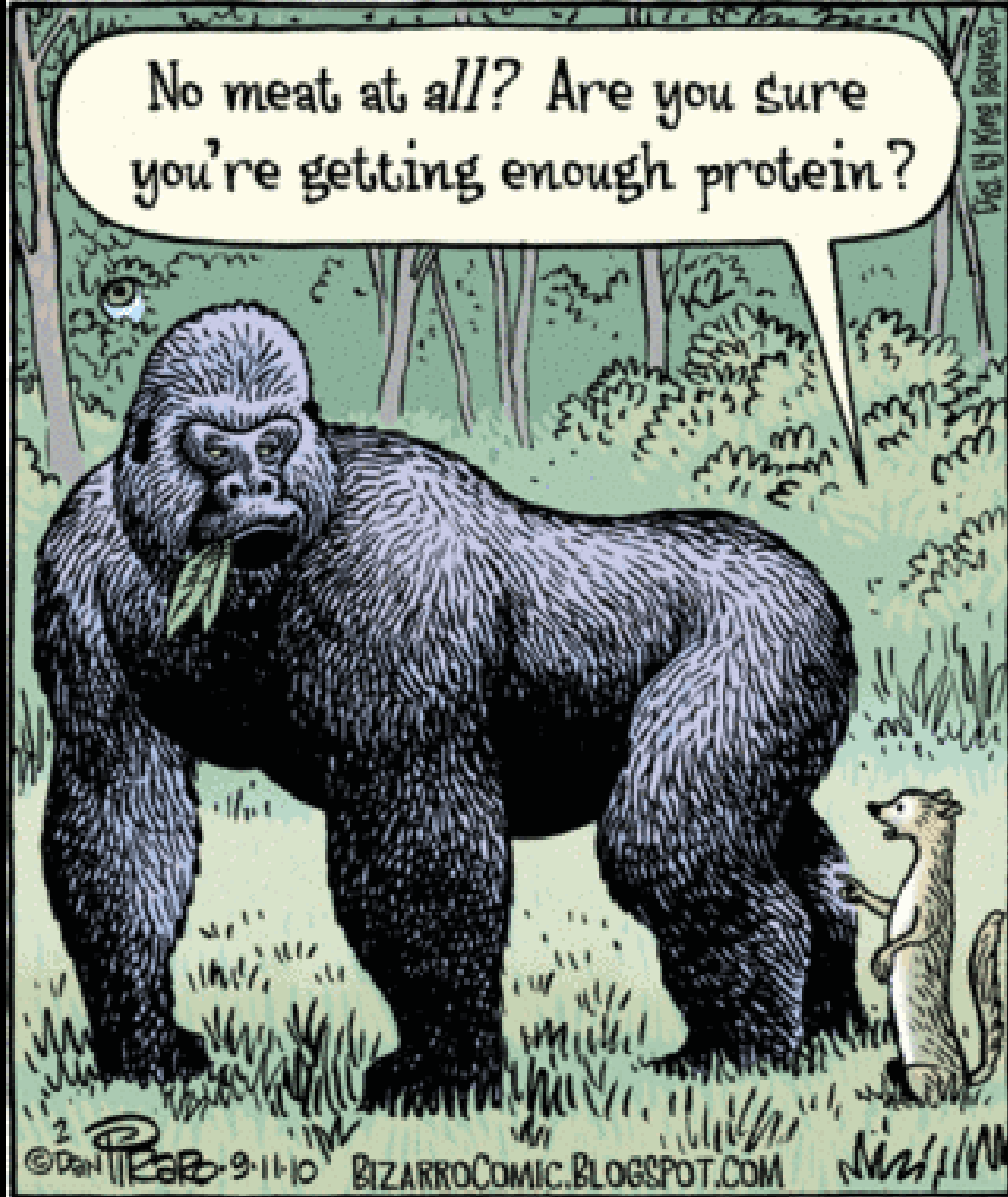
- ▶ Protein
- ▶ Vitamin B12
- ▶ Calcium





**3. Can we get
enough of these key
nutrients from
plant foods?**

PROTEIN





A full-body photograph of a very muscular man with short dark hair and a light beard, standing in a gym. He is shirtless, showing his well-defined chest, shoulders, and arms. He is looking directly at the camera with a neutral expression. The background is a blurred gym environment with various pieces of equipment. A large white banner with black text is overlaid diagonally across the center of the image.

**VEG FROM BIRTH.
VEGAN SINCE 2015!**

@nimai_delgado

How Much Protein Do We Need?

RDA:
0.8 g/kg body weight

More for:

- Infants, children
- Athletes

Possibly more for:

- Seniors
- People eating very high fiber WFPB diets (+10%)



Average Requirements

Women – 46 grams

Men – 56 grams



Actual Intakes?

	Meat Eaters	Vegetarians	Vegans
AHS-2			
Total protein (g)	74.7	70.6	70.7
EPIC Oxford			
Total protein (g)	92.9	74.2	67.4



Richest Plant Sources

Plant Food	Protein (g)	Animal Food	Protein (g)
Soybeans, 1 c, ckd	30	Meat, 3 oz 	20-25
Tofu, firm, ½ c 	20	Poultry, 3 oz	20-25
Veggie meat, 3 oz	15-20	Fish, 3 oz 	20-25
Lentils, 1 c, ckd	18	Eggs, 2 large	12
Other legumes, 1 c, ckd 	14-18	Milk, 2%, 1 c 	8
Hempseeds, ¼ c	13	Cheese, cheddar, 1 oz	7
Pumpkin seeds, ¼ c 	10	Sources: USDA Nutrient Database Release 27 (Manitoba Hemp Hearts Product Label)	
Kamut, spelt, wheat, 1 c, ckd	10-12		
Amaranth, 1 c, ckd	10		
Quinoa, 1 c, ckd 	8		
Nuts, most, ¼ c	5-8		
Oatmeal, 1 c, ckd	6		
Spinach, 1 c, ckd 	5		

Can we meet essential amino acid needs with plants?



- ▶ Yes! All essential amino acids (EAA) are made by plants.
- ▶ We can get plenty of EAA from plants providing:
 - ✓ We eat a variety of plant foods over the course of the day, including protein-rich choices.
 - ✓ Sufficient calories are eaten.

Benefits of Plant Protein vs Animal Protein?



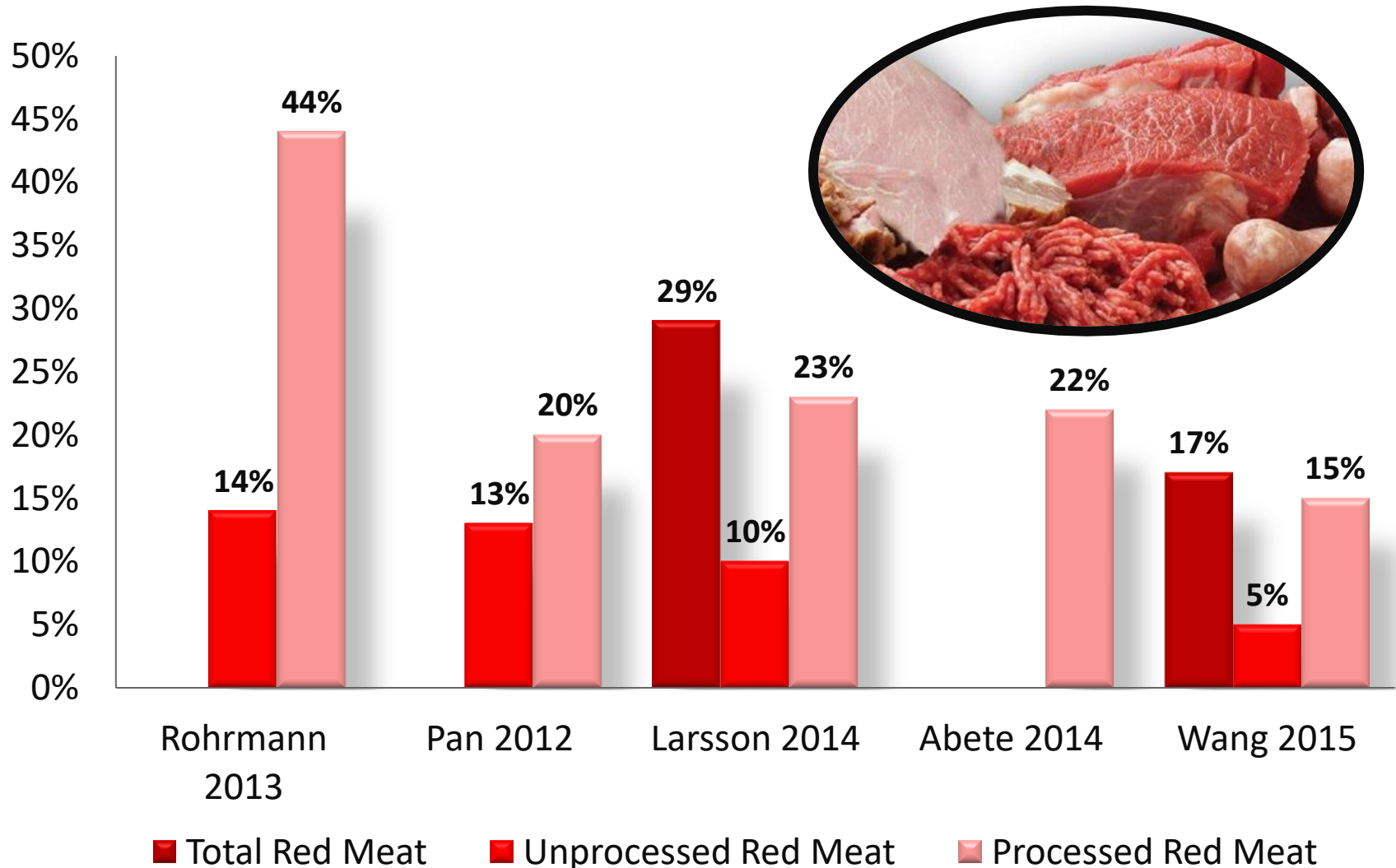


Beans vs Meat



Food Component	Beans/Lentils	Meat/Poultry
Fiber	Very High	Zero
Phytochemicals	High	Zero
Antioxidants	High	Low
Prebiotics	Very High	Zero
Plant sterols and stanols	High	Zero
Total/saturated fat	Low	High
Cholesterol	Zero	Moderate/High
Heme Iron	Zero	Moderate/High
Neu5Gc	Zero	High in red meat
Chemical Contaminants	Low	Moderate/High
Endotoxins	Very low	Low to High

Red Meat and Mortality



Legumes and Mortality

- ▶ When food intake patterns of people 70 yrs+ from a variety of cultures were examined, the only statistically significant food indicator of longevity was legume intake.
- ▶ For every 20 g (2/3 oz) of legumes consumed, there was a 7-8% reduction in mortality.



Scientific Consensus on Meat



Scientific Report of the 2015 Dietary Guidelines Advisory Committee

Advisory Report to the Secretary of Health and Human Services
and the Secretary of Agriculture



For ALL conclusions (heart disease, hypertension, diabetes, cancer, etc.) with moderate to strong evidence:

- **Higher intake of red and processed meats is detrimental to health.**

2015 - WHO declares processed meat a group 1 human carcinogen; red meat a group 2A or probable human carcinogen.

Processed meats rank alongside smoking as cancer causes – WHO

UN health body says bacon, sausages and ham among most carcinogenic substances along with cigarettes, alcohol, asbestos and arsenic

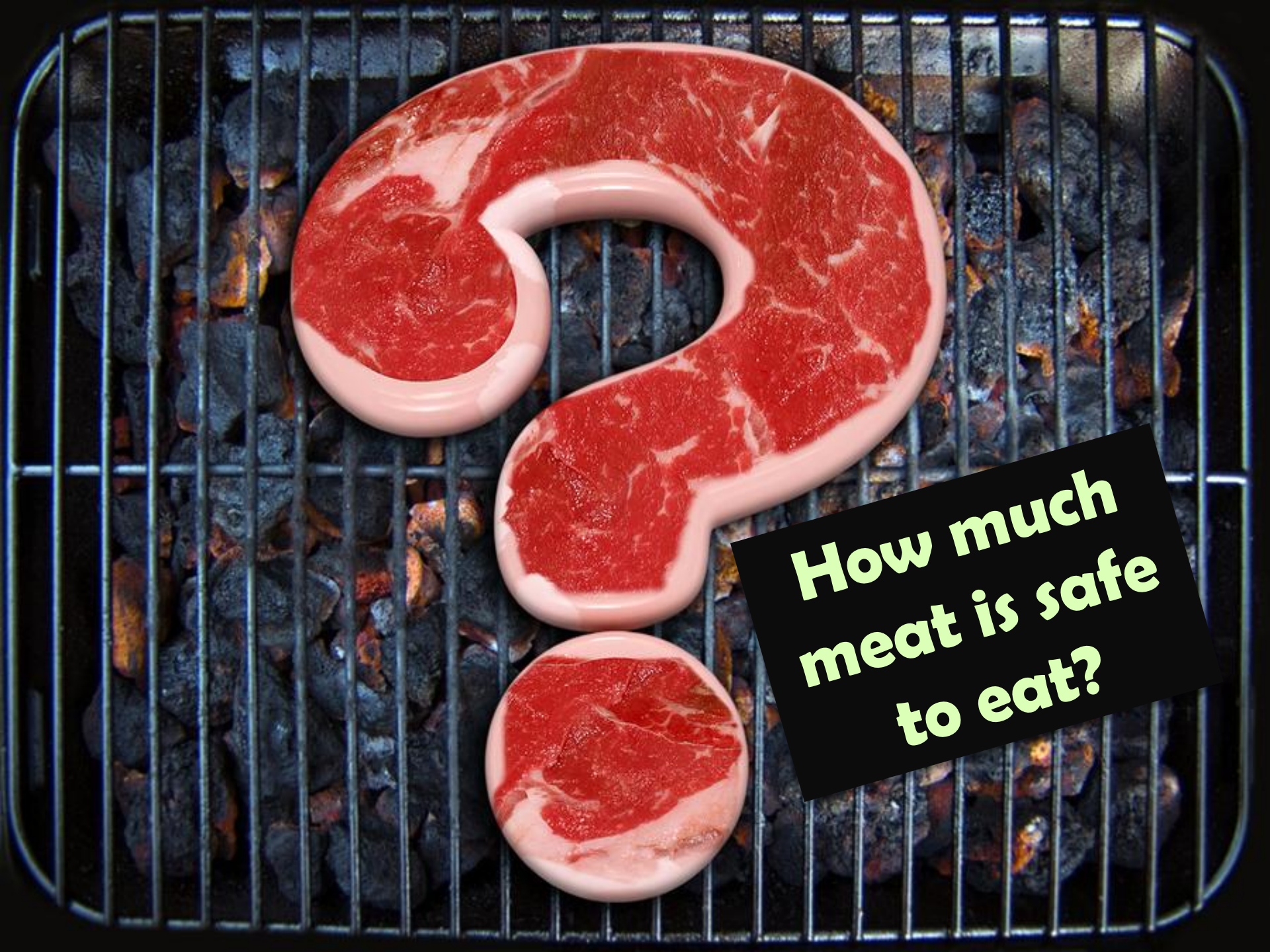


Salami, Parma ham and chorizo have cancer risks, according to the WHO.

Press release No 240
Oct. 26/ 2015



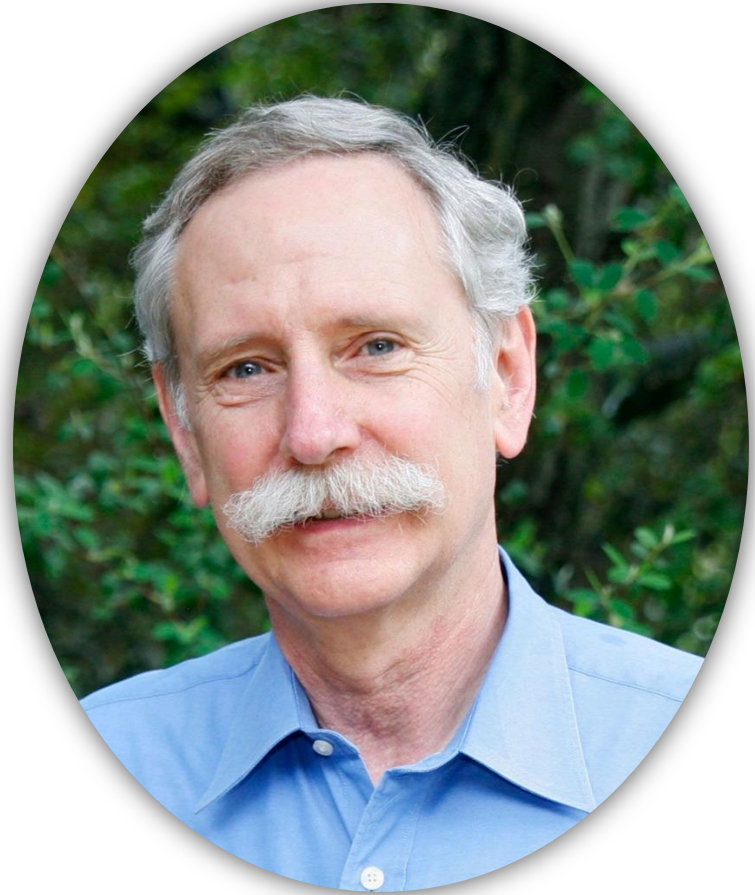
World Health Organization



**How much
meat is safe
to eat?**

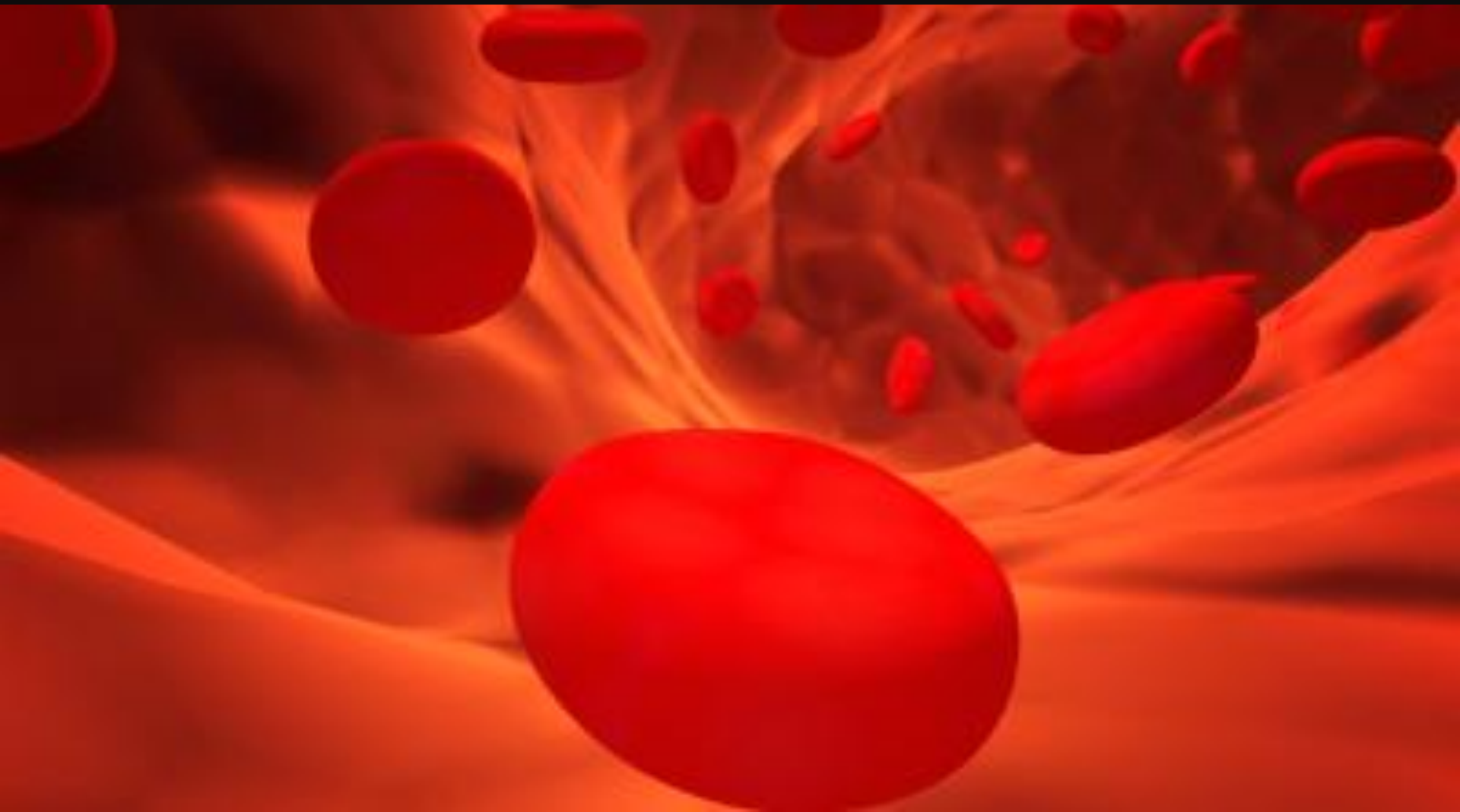
Walter Willet's Answer

“If you step back and look at the data, the optimum amount of red meat you eat should be zero.”



HARVARD
SCHOOL OF PUBLIC HEALTH

Iron



How much iron do we need?

Group	RDA
Women (child bearing age)	18 mg
Men and older women	8 mg
UL-Tolerable Upper Intake Level	45 mg



Actual Intakes



Study	# People	Nonveg	Lacto-Ovo Veg	Vegan
AHS-2 2013 (US/Canada)	71,751	20 mg	22.1 mg	22.2 mg
EPIC-Oxford 2016 (UK)	30,251	17.6 mg	18.3 mg	19.9 mg
Diet Quality 2014 (Belgium)	1,475	17 mg	20 mg	23 mg

Vegetarian Iron Status?

- ▶ Vegetarians **do not** have a higher incidence of iron deficiency.
- ▶ Iron stores (serum ferritin) are typically lower in those on plant-based diets.



Lower Iron Stores

Iron stores at the lower end of the normal range do not affect how a person feels and are not a disadvantage when diet replenishes iron losses.



May turn out to be an advantage.

Both high ferritin and heme iron (iron in meat) are associated with:

- Insulin resistance, metabolic syndrome and type 2 diabetes
- CVD
- Some cancers
- Oxidative stress



Heme Iron



- ▶ Found in animal tissue (meat, poultry, fish).
- ▶ About 40-45% of the iron in meat is heme; traces in other foods.
- ▶ Rapidly absorbed, regardless of how much is needed.
- ▶ Can act as pro-oxidant. For every **1 mg heme iron consumed per day**, disease risk increases an estimated:
 - **27-57%** for heart disease
 - **16%** for diabetes
 - **12%** for colon or lung cancer



Non-heme Iron

- ▶ Absorbed and released in a controlled manner, as the body needs it.
- ▶ Protects against iron overload and oxidative stress.
- ▶ Not associated with increased disease risk.



Maximizing Iron Status

1. Select iron-rich foods within each food group.
2. Be aware of absorption inhibitors.
3. Boost intake of iron absorption enhancers.
4. Replace meat with legumes rather than dairy.



1. Select Iron Rich Foods

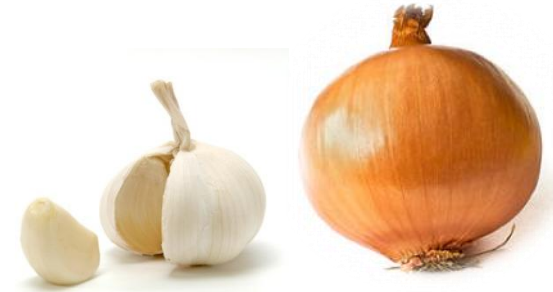
Food Group	Richest Iron Sources in Each Group
Legumes	Soybeans, tofu, lentils, black beans, lima beans, chickpeas 
Whole Grains	Amaranth, quinoa, wheat, kamut, spelt, iron-fortified cereals 
Seeds and nuts	All seeds, almonds, Brazil nuts, cashews, pine nuts   
Vegetables	Green leafy vegetables, peas, string beans, olives 
Fruits	Prune juice, dried fruits 
Other	Fortified meat analogs, blackstrap molasses 

2. Be Aware of Absorption Inhibitors

- ▶ Phytates
- ▶ Polyphenolic compounds
- ▶ Zinc (single mineral supplements)
- ▶ Calcium (and dairy products)



3. Boost Absorption Enhancers



- ▶ Foods rich in vitamin C and organic acids.
- ▶ Allium vegetables such as onions and garlic.
- ▶ Beta-carotene-rich foods such as carrots.
- ▶ Spices such as pepper, turmeric, and ginger.



4. Replace meat with legumes rather than dairy.

Why?

1. Dairy is low in iron; meat is high in iron.
2. Dairy inhibits iron absorption.



Vitamin



How Much B₁₂ Do We Need?



AGE	B ₁₂ RDA (mcg/day)
1-3 years	0.9
4-8 years	1.2
9-13 years	1.8
14+ years	2.4
Pregnancy	2.6
Lactation	2.8

Actual B₁₂ Intakes



Study	# People	Nonveg	Lacto-Ovo Veg	Vegan
AHS-2 2013 (US/Canada)	71,751	22.1 mcg	24.2 mcg	23.3 mcg
EPIC-Oxford 2016 (UK)	30,251	8.24 mcg	3.11 mcg	0.75 mcg

B₁₂ Status of Vegetarians/Vegans

- ▶ Vegetarians, especially vegans, are at increased risk for vitamin B₁₂ deficiency.

% of Participants With Low Serum B₁₂

Study	Omnivores	LOV	Vegans
AHS-2	6%	9%	13%
EPIC Oxford	1%	17%	73%

Low Serum B₁₂ = < 200 pg/ml (149 pmol/L)



Why the differences?

In North America (AHS-2), there is greater use of B₁₂ supplements, and more B₁₂-fortified foods than in the UK (EPIC-Oxford).



Plant vs Animal Sources?

- ▶ Unfortified plant foods are NOT reliable sources of vitamin B₁₂.
- ▶ However, B₁₂-fortified foods are MORE reliable sources than animal products for many individuals.

WHY?

- ▶ In many people over 50 years, B12 is not efficiently absorbed from animal foods.



B12 Absorption and Aging

- ▶ Vitamin B₁₂ is bound to protein in animal foods.
- ▶ Aging reduces enzymes and gastric acid needed cleave vitamin B₁₂ off the protein it is bound to.
- ▶ Many health authorities recommend B₁₂ come from supplements or fortified foods for everyone 50+ years.



Don't Mess With Vitamin B₁₂!

**Older adults (50+),
vegetarians and
vegans are advised to:**

- Ensure reliable daily sources of vitamin B₁₂.
- Regularly monitor vitamin B₁₂ status.



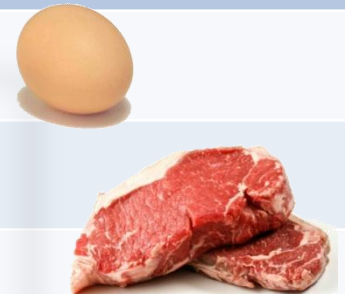
Reliable B₁₂ Sources?

- ▶ For vegans and lacto-ovo vegetarians (LOV):
 - Supplements
 - Fortified foods
- ▶ Additional food sources for LOV under 50 yrs:
 - Dairy products and eggs



Best Plant-based B₁₂ Sources

Food	Vitamin B ₁₂ Content
<u>Fortified Foods</u>	
Meat Analogs	1-8.5 mcg/serving
Ready To Eat (RTE) Cereal	1-6 mcg/serving
Non-Dairy Milk	0.6-3.0 mcg/cup
Some Nutritional Yeasts (e.g. Vegetarian Support Formula)	4 mcg/ heaping Tbsp
<u>Animal Products (for comparison)</u>	
Eggs	0.5 mcg/ large egg
Milk	0.9 mcg/cup
Meat	2.0-3.0 mcg/3 oz



How Much is Enough?

To prevent elevated homocysteine and maintain optimal B₁₂ status:

- *From supplements*

- 1,000 µg 2-3 times a week

- 25-250 µg per day

- *From fortified foods*

- 3 servings/day with 2 µg per serving



Omega-3 Fatty Acids

Don't we need fish for omega 3s?



No! We can get them from plants.

LAND PLANTS - ALA

- ▶ Seeds - chia, flax, hemp
- ▶ Nuts – walnuts
- ▶ Greens

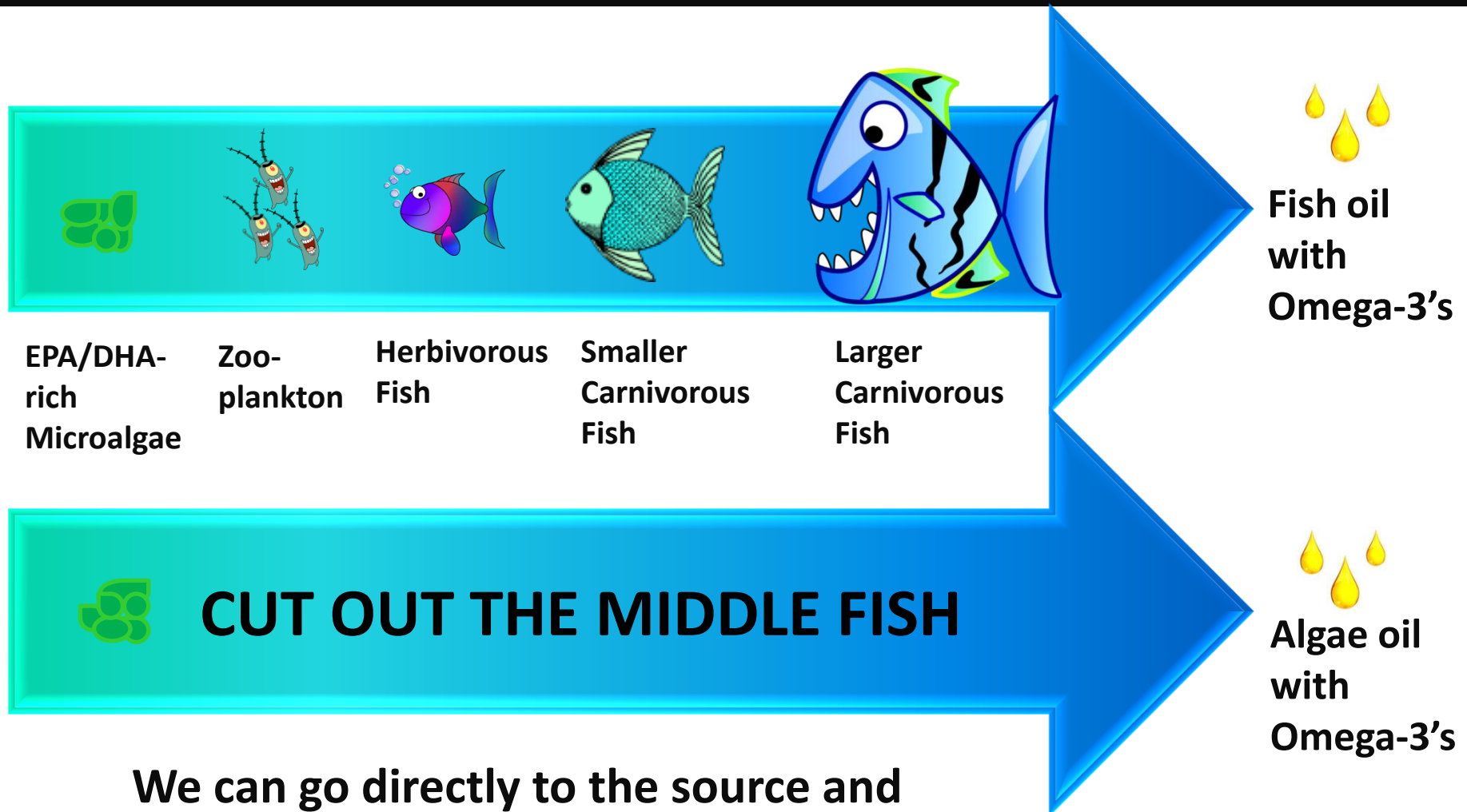


SEA PLANTS - EPA/DHA

- ▶ Microalgae (supplements)
- ▶ Macroalgae (seaweed) (EPA only)



Fish do not make EPA and DHA; they are made by microalgae!



We can go directly to the source and
get DHA and EPA from microalgae.

Do plant-based eaters get enough?



Compared to NV, EPA/DHA in blood, tissue and breast milk are about 30% lower in LOV and 40-70% lower in vegans.

**How Can
People Who
Don't Eat
Fish
Optimize
Omega-3s?**



Ensure sufficient omega-3 fatty acids.



For those who do not eat fish, 2-4 g/day is recommended.

Plant Sources of Omega-3 (ALA)

Food	Omega-3 (grams)
Walnuts, 30 g	2.6
Flaxseeds, 15 ml	2.4
Chia seeds, 15 ml	1.7
Hempseeds, 15 ml	0.9
Leafy greens, 250 ml	0.1



Consider Direct Sources of EPA/DHA



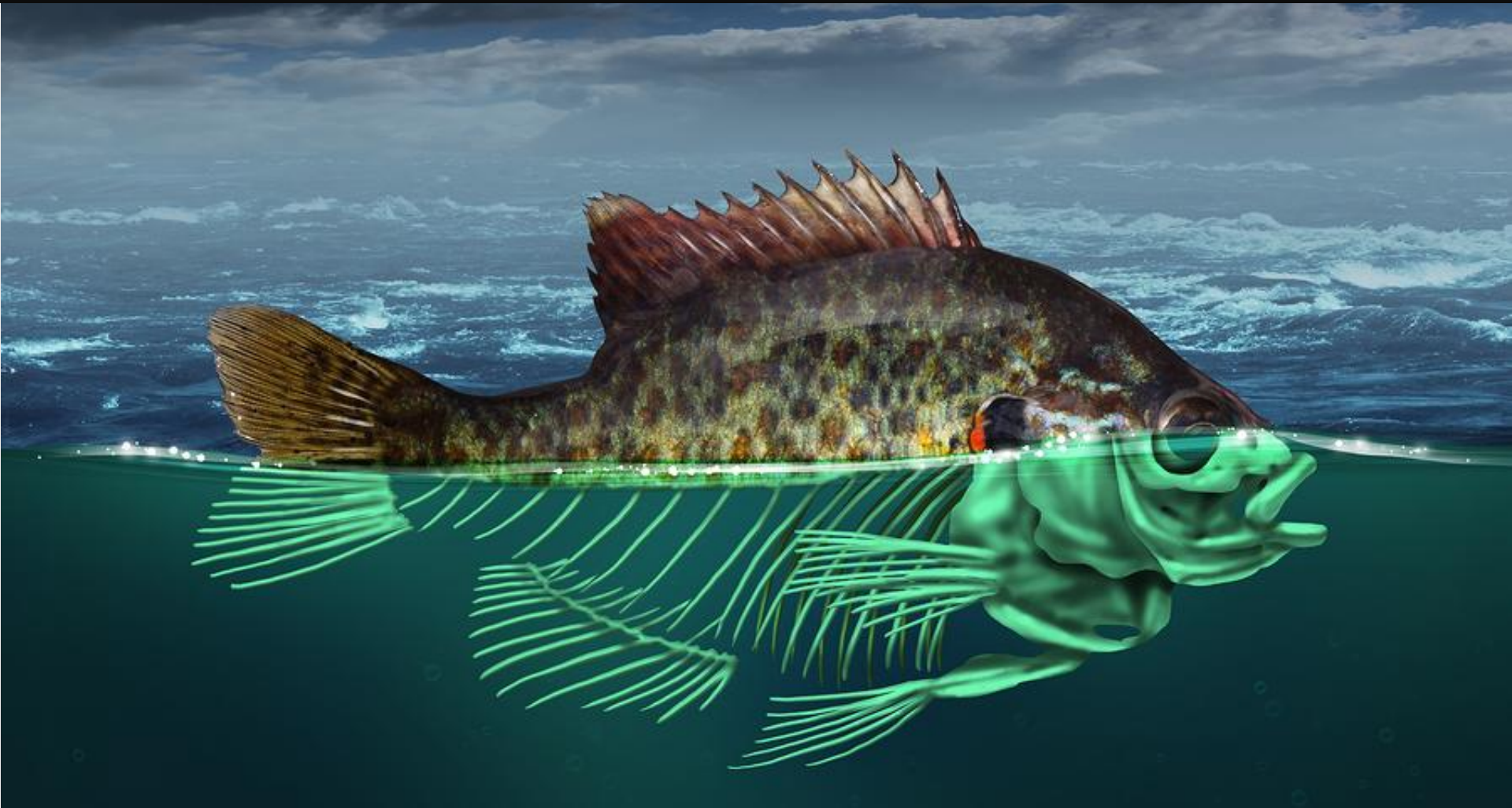
Microalgae-based Supplements

- ▶ Some people may do better with direct sources of EPA/DHA. Microalgae-based supplements are widely available.
- ▶ Generally 200-300 mg day are recommended; some need more.



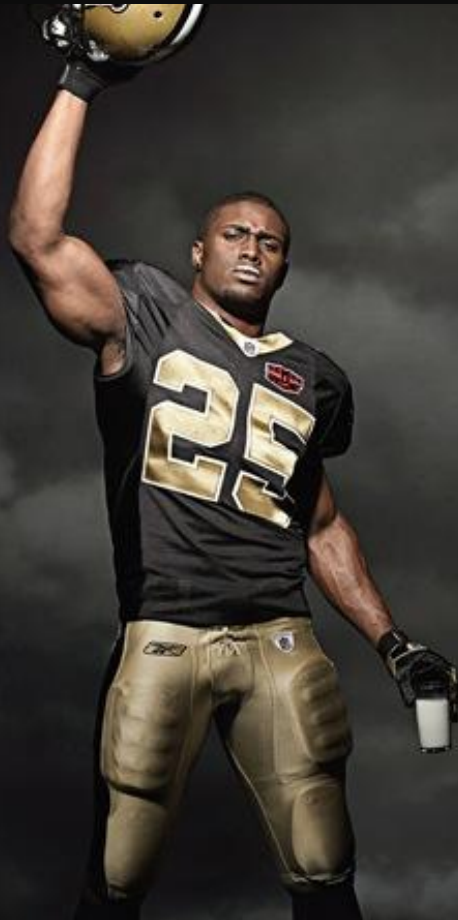
Advantages of Plant Options

Clean, sustainable, cruelty-free.



Calcium

Isn't cow's milk necessary for strong bones?



It's mine.

And nothing can take it away from me. Milk helped me fuel up to play 60. And it's got nutrients I need to refuel after the Super Bowl. So down the milk, and play for keeps.

got milk?

bodybymilk.com/reggiebush



Model behavior.

Want strong bones?
Your bones grow until about age 35 and the calcium in milk helps. After that, it helps keep them strong. Which means milk is always in fashion.

got milk?

© 2004 Milk. All rights reserved. All other trademarks and service marks are the property of their respective owners.

No More than Moose Milk!

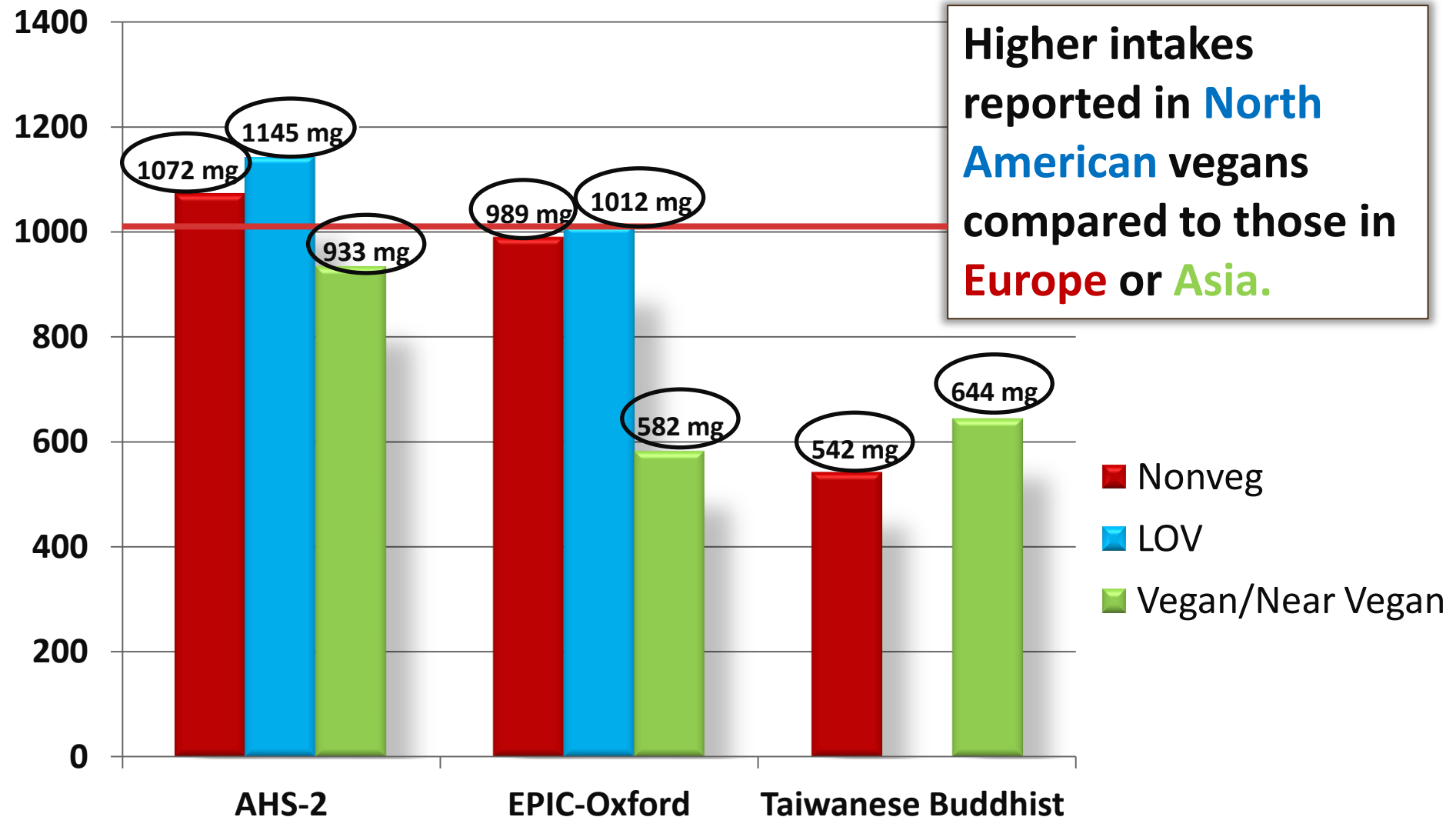
- ▶ Cow's milk has a lot of calcium – about 300 mg per cup. Moose milk has about 600 mg per cup, yet we don't consider it an essential food.
- ▶ In pre-agricultural populations, humans averaged about 1,000-2,000 mg calcium per day – without a single drop of cow's milk.



How Much Calcium Do We Need?

Life Stage Group		Calcium RDA (mg/day)
1-3 years		700
4-8 years		1000
9-18 years		1300
19-50 years - females		1000
51-70 years - males		1200
51-70 years - females		
>70 years - males		

Actual Calcium Intakes



Dietary Patterns & Bone Health

EPIC-Oxford

Diet Group	Fracture Incidence Rate Ratio (95% CI)*	Fracture Incidence Rate Ratio (95% CI)* (≥525 mg calcium/day)
Meat Eaters	1.00	1.00
Fish Eaters	1.01 (0.88-1.17)	1.05
LOV	1.00 (0.89-1.13)	1.02
Vegans	1.30 (1.02-1.66)	1.00

*Adjusted for age, sex, non-dietary factors.



45% of vegans had calcium intakes < 525 mg/day.
76% of vegans had intakes < 700 mg/day.

Take Home Message

- ▶ Bone health of vegans may be compromised when calcium intake is very low.
- ▶ Vegans need to consume at least 525 mg calcium per day, and preferably meet the RDA for calcium.



Personal Experience

- ▶ 59-year old female; family history of osteoporosis; 30 years vegan.
- ▶ **BMD done after 20 years vegan:**
 - BMD 2-2.5 standard deviations ***above*** expected for my age.



What are the Best Dairy-free Calcium Sources?



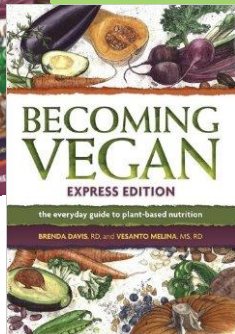
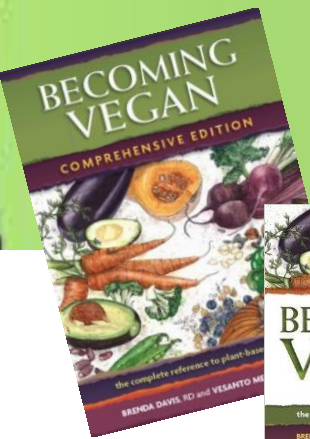
Calcium Content of Foods

Food	Calcium (mg)
Tofu (with calcium sulfate), ½ c (125 ml)	~160 to 861
Blackstrap molasses, 2 Tbsp (30 ml)	400
Roasted hempseeds, ¼ c (60 ml)	347
Fortified non-dairy or cow's milk, 1 c (250 ml)	300
Kale, scotch, cooked, 1 c (250 ml)	172
Tahini, 2 Tbsp (30 ml)	128
Navy beans, cooked, 1 c (250 ml)	126
Almonds, ¼ c (60 ml)	96
Butternut squash, cubed, 1 c (250 ml)	84
Figs, dried, 5	70
Orange, 1	66

Menu With >1200-1500 mg Calcium

Food	Calcium (mg)
Breakfast: Oatmeal, 1 c (250 ml)	27
Blueberries, 1 c (250 ml)	9
Fortified non-dairy milk, 1 c (250 ml)	300
Almonds, 3 Tbsp (45 ml)	54
Lunch: Pita with ½ c (125 ml) hummus	70
Kale salad, 2 c (500 ml)	274
Fresh orange, 1	71
Dinner: Stir fry (4 oz/ 120 g tofu, 3 c/750 ml Chinese greens, peppers, snow peas , broccoli)	450-750
Brown rice, 1 c (250 ml)	20
Fresh apple slices with cinnamon (1 large apple)	16
TOTAL	1250-1591





The Vegan Plate

Grains
3 or more
servings

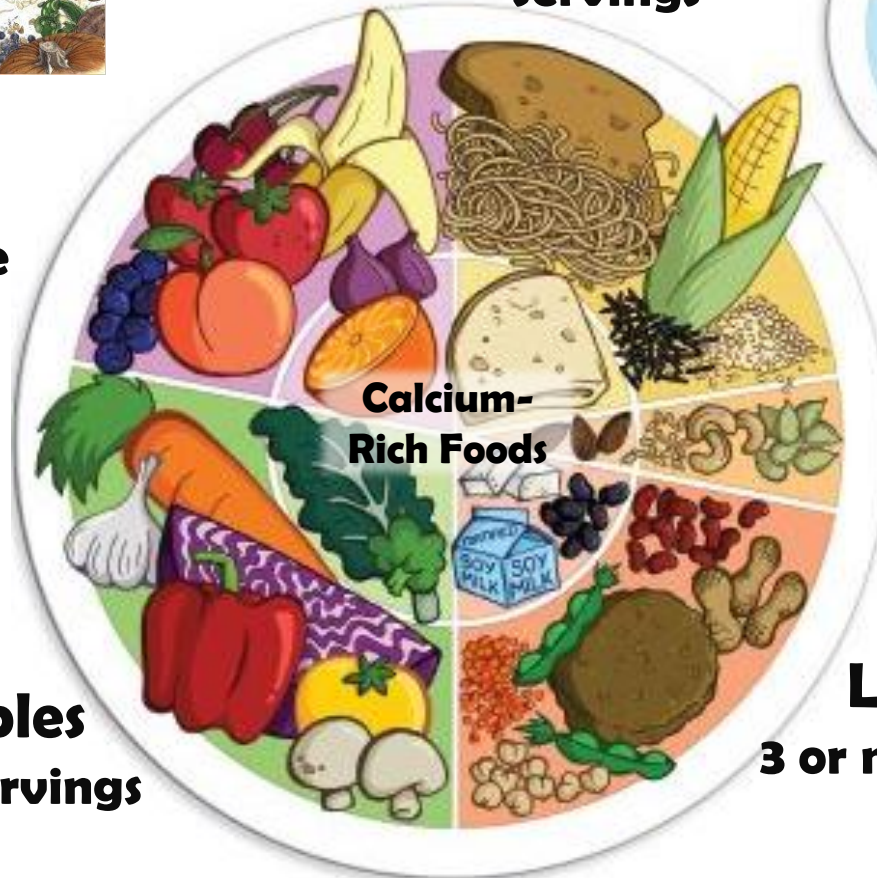


Other Essentials
B12 + Vitamin D + Iodine

Nuts and Seeds
1 or more servings

Legumes
3 or more servings

**Calcium-
Rich Foods**



Fruits
4 or more
servings

Vegetables
5 or more servings

Can we absorb calcium from plants?



Calcium Absorption From Foods

High (40%+)	Moderate (30%+)	Fair (20%+)	Low (~5%)
Greens (low oxalate,  ▸ broccoli ▸ Chinese greens ▸ kale ▸ mustard greens ▸ turnips greens	Dairy products ▸ cheese ▸ milk ▸ yogurt 	Legumes (most)  Sweet potatoes 	Greens (high oxalate) ▸ beet greens ▸ Spinach ▸ Swiss chard 
Juice (with calcium citrate malate) 	Tofu (with calcium)  Fortified soymilk 		Rhubarb 

Plant vs Animal Sources?



Nutritional Pluses of Plants!

Calcium-rich plant foods offer impressive advantages over dairy:

- Low in saturated fat
- Cholesterol-free
- Rich sources of:
 - ✓ fiber
 - ✓ antioxidants and phytochemicals
 - ✓ vitamin C and K, and folate
 - ✓ magnesium, potassium, and boron



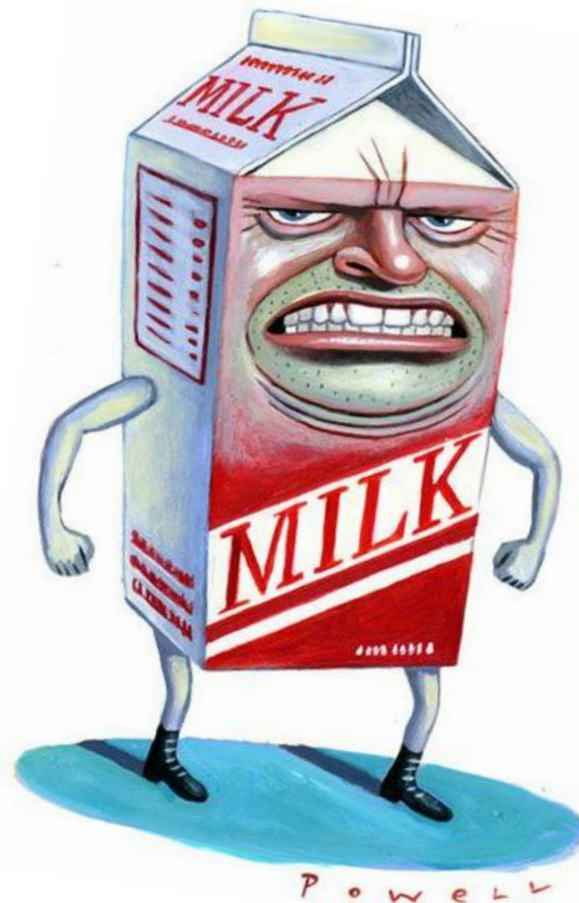
Milk from Mammals

- ▶ Cultures around the world, including populations of long lived healthy people, use the milk of various mammals.
- ▶ However, this does not mean dairy is necessary; nor does it mean that consuming dairy is without risk.



Downside of Dairy

- ▶ Saturated fat
- ▶ Natural and added hormones
- ▶ Antibiotics
- ▶ IGF-1
- ▶ Environmental residues
- ▶ Health risks



Saturated fat

- ▶ Cheese is the #1 source of saturated fat in the US diet.
- ▶ Replacing 5% of calories from dairy fat with equal calories from polyunsaturated fat was associated with a 24% reduction in risk of cardiovascular disease.



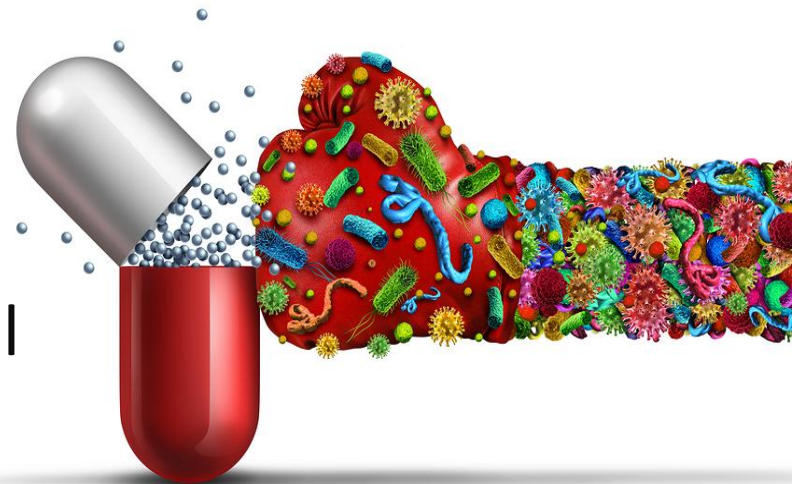
Natural and Added Hormones

- ▶ Cow's milk contains the natural hormones, estrogen and progesterone. In some countries such as the United States, synthetic hormones can also be given to increase milk production.
- ▶ Drinking cow's milk increases estradiol and progesterone in the blood and urine of consumers.



Antibiotics

- ▶ Use of antibiotics to prevent infection and promote growth is widespread.
- ▶ Use of antibiotics in animals without disease is associated with the growth of antibiotic-resistant bacteria.
- ▶ These bacteria enter the environment through manure and can infect people and are highly resistant to conventional treatment.



IGF-1

- ▶ IGF-1 is a hormone that promotes growth – very important during the growing years.
- ▶ High levels increase risk of several cancers, and growth of cancer cells.
- ▶ There is a strong link between animal product consumption, especially milk and dairy products, and serum IGF-1 levels. Reducing intake results in lower levels.



Environmental Residues

- ▶ **POPs (persistent organic pollutants such as dioxins and PCBs)** –accumulate in fat of animals; disrupt hormones, increase cancer risk, damage the nervous system, increase food sensitivities.
- ▶ **Heavy metals** – damage the central nervous system and increase cancer risk. More concentrated in conventional than organic milk.



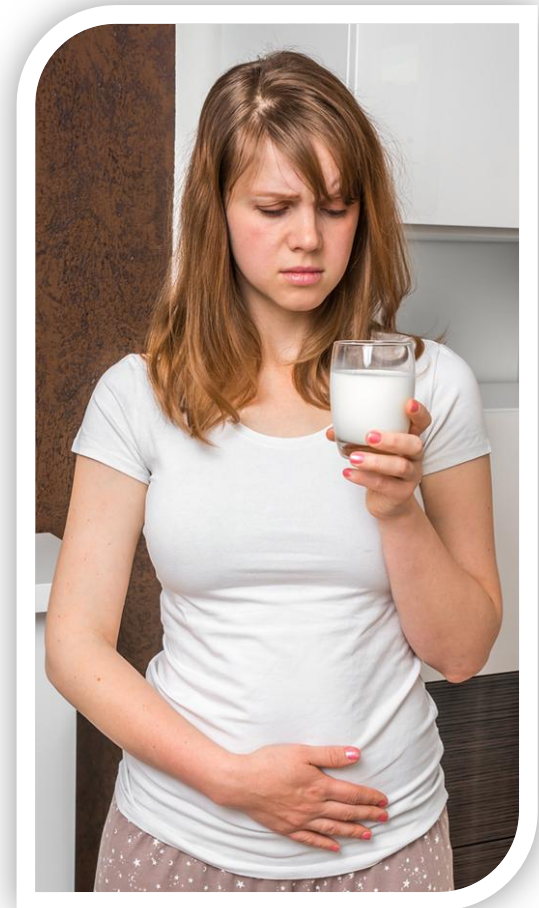
Health Risks?

- Lactose intolerance
- Prostate cancer
- Acne
- Type 1 diabetes



Lactose Intolerance

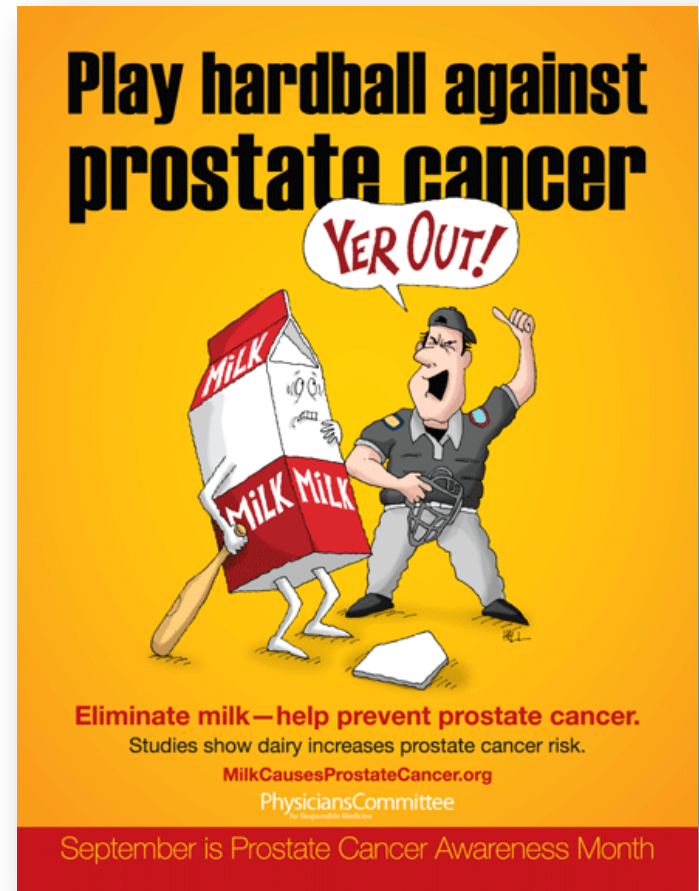
- ▶ Lactose intolerance affects about 70% of the world's population once past weaning age.
- ▶ Rates are lowest in some parts of Northern Europe highest in Asia, Africa and South America.
- ▶ Lactose intolerance generally results in stomach upset, bloating, cramps, and diarrhea.



Prostate Cancer

Dairy intake is linked to increased risk of prostate cancer.

- ▶ **2018 study** – whole milk increased risk of prostate cancer recurrence in overweight men.
- ▶ **2017 study** – men who consumed ≥ 3 servings high-fat milk/day had $>6x$ higher risk of death from prostate cancer than men consuming <1 serving/day.



Acne

- ▶ A positive link has been found between milk intake, especially skim milk and acne.
- ▶ There is also a link between milk and severity of acne.



Type 1 Diabetes

- ▶ There is a link between A1 beta-casein milk protein and type 1 diabetes.
- ▶ Early evidence suggests high fiber diets protect against type 1 diabetes.



Words of Wisdom

Dr. Michael Klaper



- ▶ The purpose of cow's milk is to turn a 65 pound calf into a 400 pound cow as rapidly as possible. Cow's milk is baby calf growth fluid.
- ▶ Everything in that white liquid – the hormones, the fat, the protein, the growth factors, the IGF-1 – every one of those is meant to blow that cow up to a great big cow or it wouldn't be there.

**Plant-based diets have benefits for
ourselves and beyond ourselves...**



**By getting our
nutrition from plants...**



We All Win

The Planet



United Nations Environmental Program



Expert panel concluded that two activities have a disproportionately large effect on the planet's life-support systems:

- 1. Animal agriculture –**
especially raising
livestock for meat and
dairy.
- 2. Fossil fuels.**

UN urges global move to meat and dairy-free diet

Lesser consumption of animal products is necessary to save the world from the worst impacts of climate change, UN report says



📷 An cattle ranch in Mato Grosso, Brazil. The UN says agriculture is on a par with fossil fuel consumption because both rise rapidly with increased economic growth. Photograph: Daniel Beltra/Greenpeace HO/Reuters

Recommendation → a global shift to a plant-based diet.

Proceedings of the National Academy of Sciences, 2016

By 2050, greenhouse gas emissions would be reduced by:

- ▶ 29% if we followed global dietary guidelines (eat more fruits and vegetables; eat less meat, sugar and calories)
- ▶ 70% if we ate a vegan diet



Recommendation → a global shift to a plant-based diet.

People



Human Health Impacts

By 2050, deaths per year would be reduced by:

- ▶ 5.1 million people if global dietary guidelines were followed.
- ▶ 8.1 million people if a vegan diet was adopted.



More than half of avoided deaths would be due to decreased red meat consumption.

Other Animals





**70 billion land animals slaughtered for food each year.
The vast majority are raised in CAFOs.**

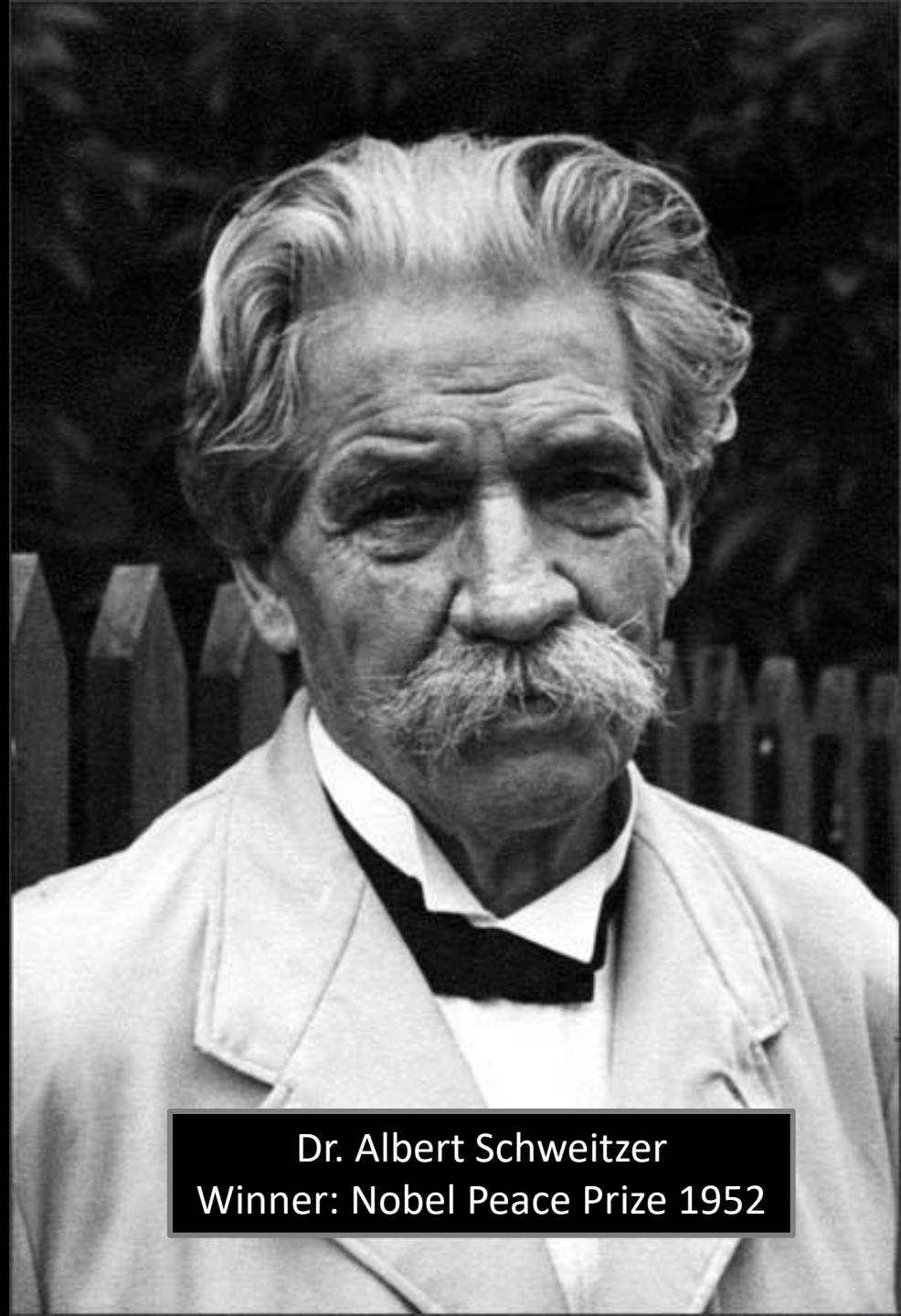


Why contribute to pain, suffering and death when it is completely unnecessary?



Food for Thought

“...the time is coming when people will be amazed that the human race existed so long before it recognized that thoughtless injury to life is incompatible with real ethics. Ethics is in its unqualified form extended responsibility to everything that has life.”



Dr. Albert Schweitzer
Winner: Nobel Peace Prize 1952



We have to do the best we can.
This is our sacred human responsibility. Albert Einstein

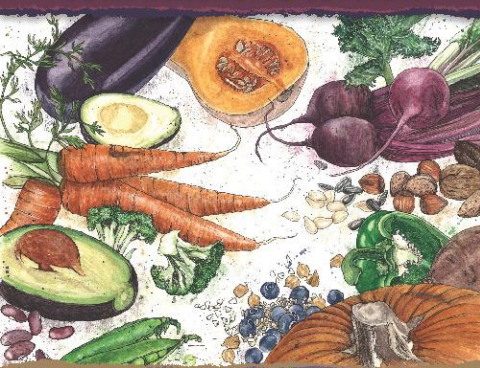
We have a choice.

When we consider the consequences of our food choices, not just for ourselves but beyond ourselves, a plant-based diet becomes both an ecological and ethical imperative.



BECOMING VEGAN

COMPREHENSIVE EDITION



the complete reference to plant-based nutrition

BRENDA DAVIS, RD and VESANTO MELINA, MS, RD



BECOMING VEGAN

EXPRESS EDITION

the everyday guide to plant-based nutrition

BRENDA DAVIS, RD and VESANTO MELINA, MS, RD



BECOMING RAW

The Essential Guide to a
NUTRITIOUS RAW VEGAN DIET



BRENDA DAVIS, RD & VESANTO MELINA, MS, RD
with Rynn Berry

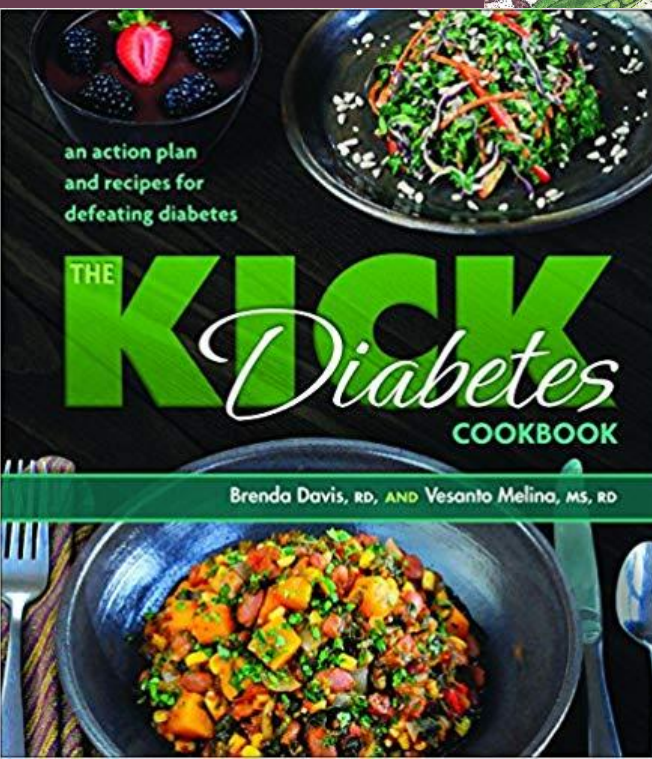
The New BECOMING VEGETARIAN



THE ESSENTIAL GUIDE TO
A HEALTHY VEGETARIAN DIET

complete nutrition information for all age groups
♦ recipes ♦ vegetarian food guide ♦ disease prevention ♦

VESANTO MELINA, MS, RD & BRENDA DAVIS, RD



an action plan
and recipes for
defeating diabetes

THE KICK Diabetes COOKBOOK

Brenda Davis, RD, AND Vesanto Melina, MS, RD

Personal Health Solutions

Defeating DIABETES

A No-Nonsense Approach to
Type 2 Diabetes
and the Diabetes Epidemic

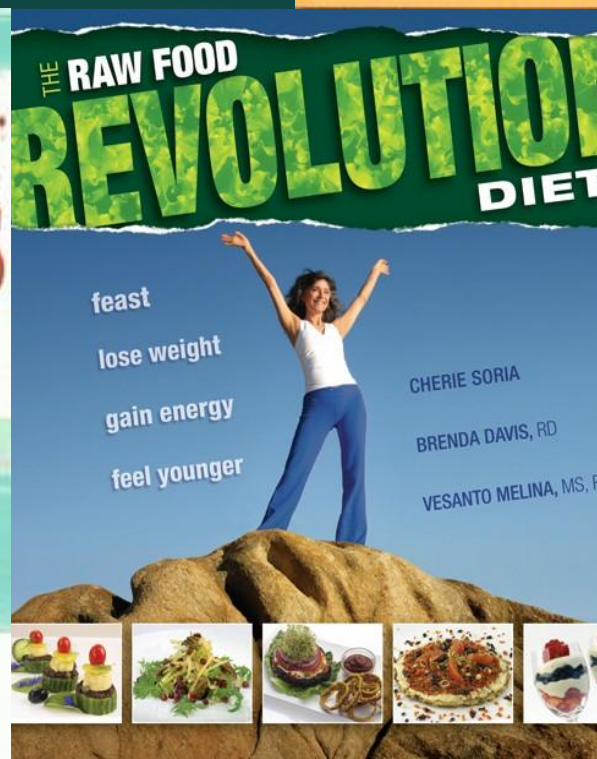
EVERYTHING YOU NEED TO KNOW TO:

- Take control of your blood sugar levels;
- Find out which carbohydrates are actually good for you;
- Achieve and maintain a healthy body weight;
- Arm yourself with protective dietary fats;
- Use nutritional supplements for blood sugar control;
- Improve exercise, sex, sleep, and self-care.

by Brenda Davis, RD & Tom Barnard, MD

Foreword by David J. A. Jenkins, MD

with 50 easy recipes by Barb Bloomfield



THE RAW FOOD REVOLUTION DIET

feast
lose weight
gain energy
feel younger

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Thank you.

