

Lifestyle as Medicine; Can we get there from **here?**

David L. Katz, MD, MPH, FACPM, FACP, FACLM
Director, Prevention Research Center
Yale University / Griffin Hospital

*Immediate Past-President, American College of Lifestyle Medicine
Founder, The True Health Initiative*

JuicePlus

Tampa, FL

10-18



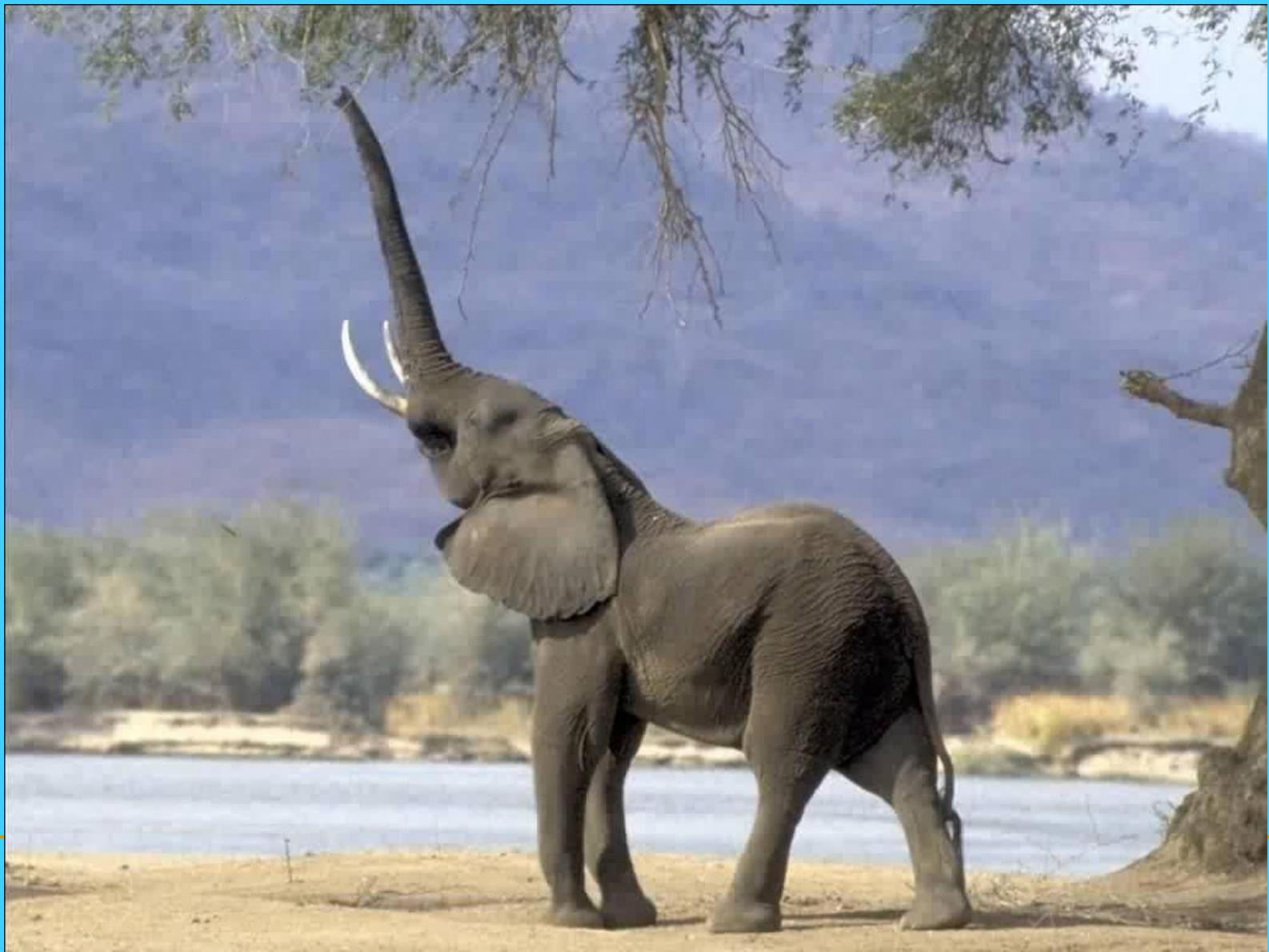




Pluribus -



Unum -



Pluribus -



HUMAN VARIATION

A Genetic Perspective on Diversity, Race, and Medicine



Editor
ARAVINDA CHAKRAVARTI

With the Arts
And Entertainment

5/21/91

Science Times

*Nutritional Adaptations of
native Americans to the
effects of cultural*

The New York Times

disintegration

To Preserve Their Health and Heritage, Arizona Indians Reclaim Ancient Foods

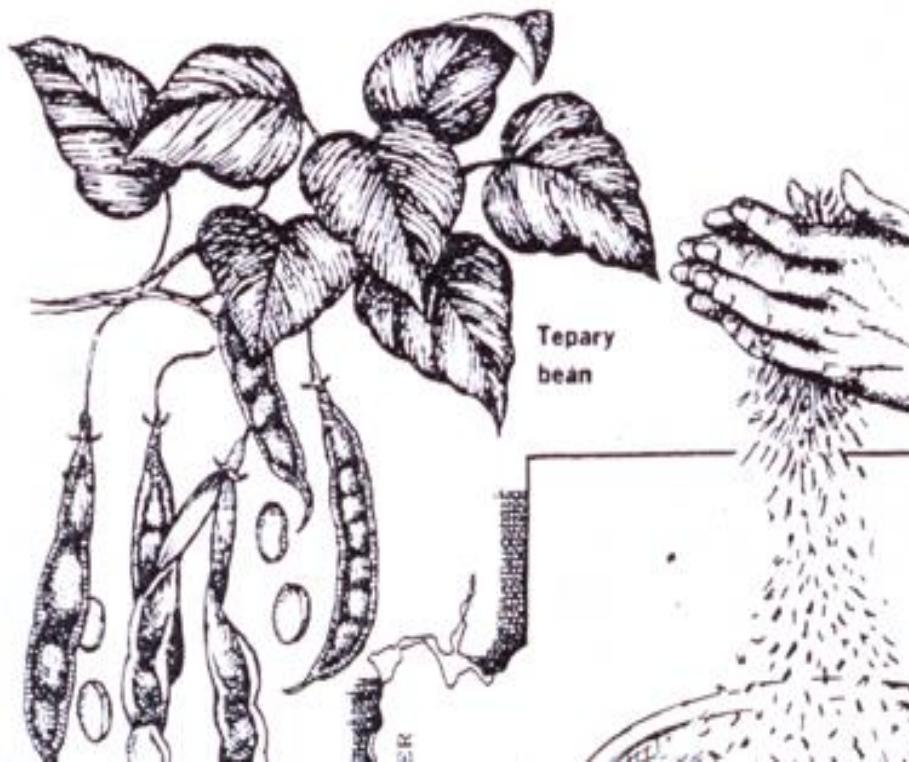
Desert's bounty cuts
overweight and
diabetes.

By JANE E. BRODY

GOING back to one's roots could soon take on a more literal meaning for the Indians of the American Southwest, as well as for peoples elsewhere in the world who are poorly adapted to rich, refined foods.

For the sake of their health, as well as their cultural heritage, the Pima and Tohono O'odham tribes of Arizona are being urged to rediscover the desert foods their people traditionally consumed until as recently as the 1940's.

Studies strongly indicate that peo-



Bodies Remodeled for a Life at Sea

By Carl Zimmer April 19, 2018



<https://www.nytimes.com/2018/04/19/science/bajau-evolution-ocean-diving.html>

Connecting the dots within...

- ❑ Article | OPEN | Published: 02 October 2018
- Longitudinal analysis of biomarker data from a **personalized nutrition platform** in healthy subjects
 - ❑ Kenneth Westerman, Ashley Reaver, Catherine Roy, Margaret Ploch, Erin Sharoni, Bartek Nogal, David A. Sinclair, David L. Katz, Jeffrey B. Blumberg & Gil Blander





If the diet fits...

- Gardner CD, Trepanowski JF, Del Gobbo LC, Hauser ME, Rigdon J, Ioannidis JPA, Desai M, King AC. **Effect of Low-Fat vs Low-Carbohydrate Diet on 12-Month Weight Loss in Overweight Adults and the Association With Genotype Pattern or Insulin Secretion: The DIETFITS Randomized Clinical Trial.** *JAMA*. 2018 Feb 20;319(7):667-679

Unum, or...?



On the menu-

- Elephant Bits
- E Pluribus, Unum?
- The Dark Wood
- Archimedes' Lever(s)
- A Fork in the Road
- Choices
- The Big Spoon
- Tip of the Spear
- Voices
- A Fork in the Road, Revisited
- Elephant Bounds

Death, in the dark wood...

- McGinnis JM, Foege WH. **Actual causes of death** in the United States. *JAMA*. 1993;270:2207-12
- Mokdad AH, Marks JS, Stroup DF, Gerberding JL. **Actual causes of death** in the United States, 2000. *JAMA*. 2004;291:1238-45

The People in Potsdam-

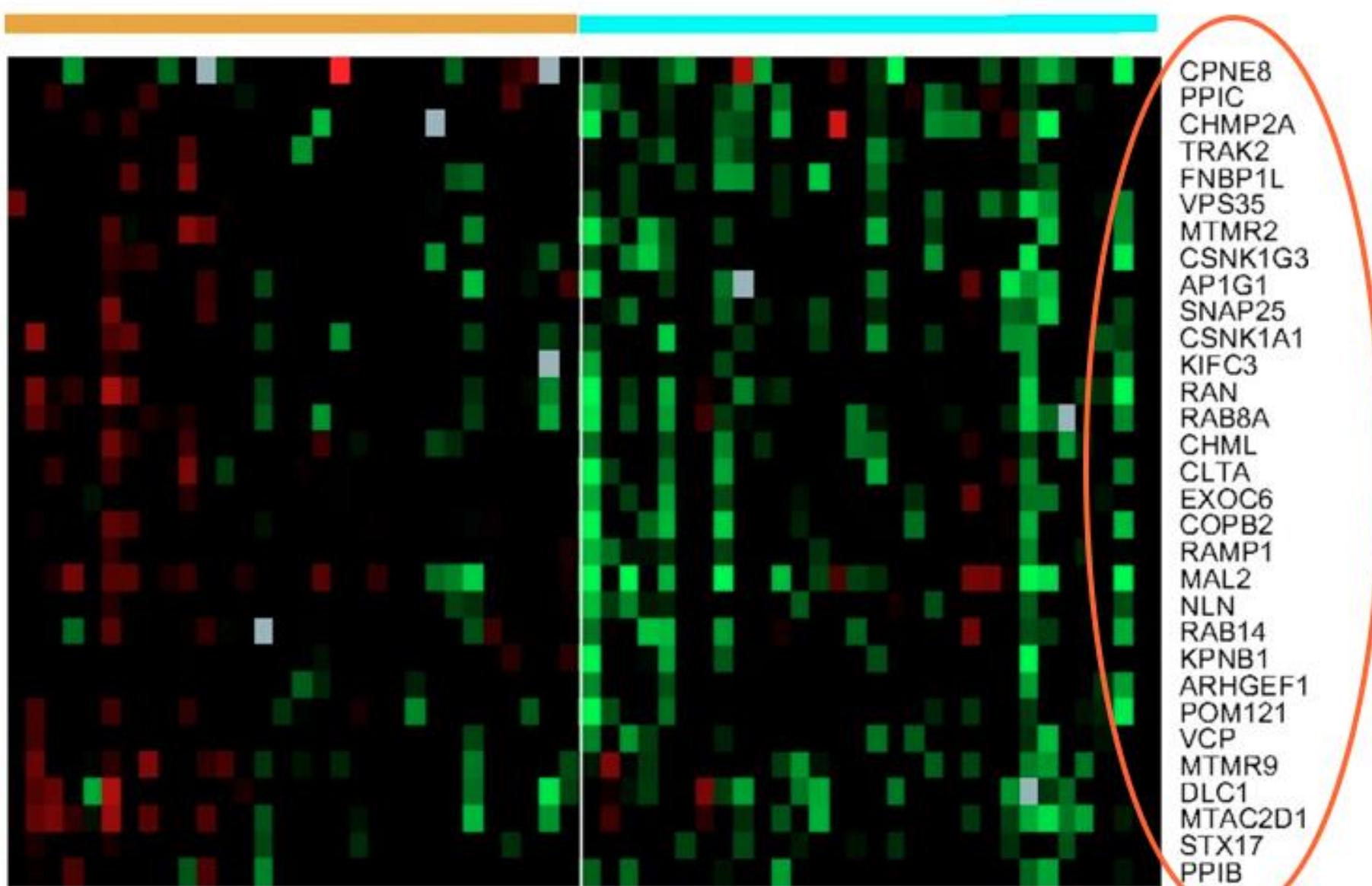
- Ford ES, Bergmann MM, Kröger J, Schienkiewitz A, Weikert C, Boeing H. **Healthy living is the best revenge: findings from the European Prospective Investigation Into Cancer and Nutrition-Potsdam study.** *Arch Intern Med.* 2009 Aug 10;169(15):1355-62
- ***Or the UK:***
 - Kvaavik E, Batty GD, Ursin G, Huxley R, Gale CR. **Influence of individual and combined health behaviors on total and cause-specific mortality in men and women:** the United Kingdom health and lifestyle survey. *Arch Intern Med.* 2010;170:711-8
- ***Or the US***
 - McCullough ML, Patel AV, Kushi LH, Patel R, Willett WC, Doyle C, Thun MJ, Gapstur SM. **Following cancer prevention guidelines reduces risk of cancer, cardiovascular disease, and all-cause mortality.** *Cancer Epidemiol Biomarkers Prev.* 2011;20:1089-97

Fresher still? The beat goes on...

- Akesson A, Larsson SC, Discacciati A, Wolk A. **Low-Risk Diet and Lifestyle Habits in the Primary Prevention of Myocardial Infarction in Men: A Population-Based Prospective Cohort Study**. *J Am Coll Cardiol.* 2014 Sep 30;64(13):1299-306
- Khawaja WC, Barrett-Connor E, Fowler SE, Hamman RF, Lachin JM, Walker EA, Nathan DM, Diabetes Prevention Program Research Group. **Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin.** *N Engl J Med.* 2002 Feb 7;346(6):393-403
- Nekludova K, et al. **Combined impact of healthy lifestyle factors on colorectal cancer: a large European cohort study.** *BMC Med.* 2014 Oct 10;12(1):168. Epub ahead of print
- Chomistek AK, Chiuve SE, Eliassen AH, Mukamal KJ, Willett WC, Rimm EB. **Healthy lifestyle in the primordial prevention of cardiovascular disease among young women.** *J Am Coll Cardiol.* 2015 Jan 6;65(1):43-51

Pre-intervention

Post-intervention



JANUARY 14, 2013

Joe Klein:
The CIA's
Afghan Disaster

Yemen: The
New Center
Of Terror

Why the Recession
Hasn't Been Cool
To Teens

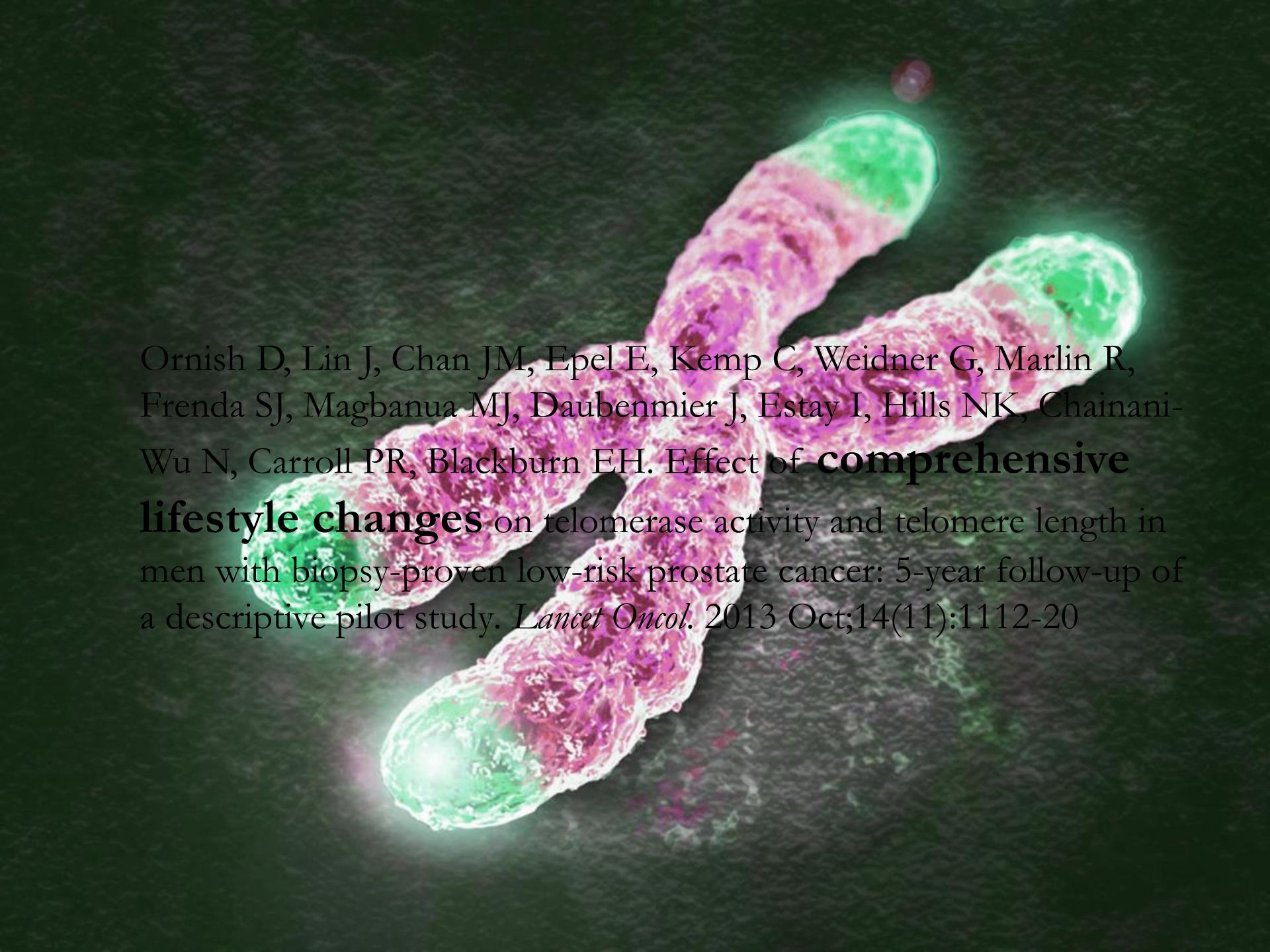
TIME

WHY YOUR DNA ISN'T YOUR DESTINY

The new science of epigenetics
reveals how the choices you
make can change your genes
—and those of your kids

BY JOHN CLOUD

PHOTOGRAPH BY JEFFREY M. STILLE FOR TIME



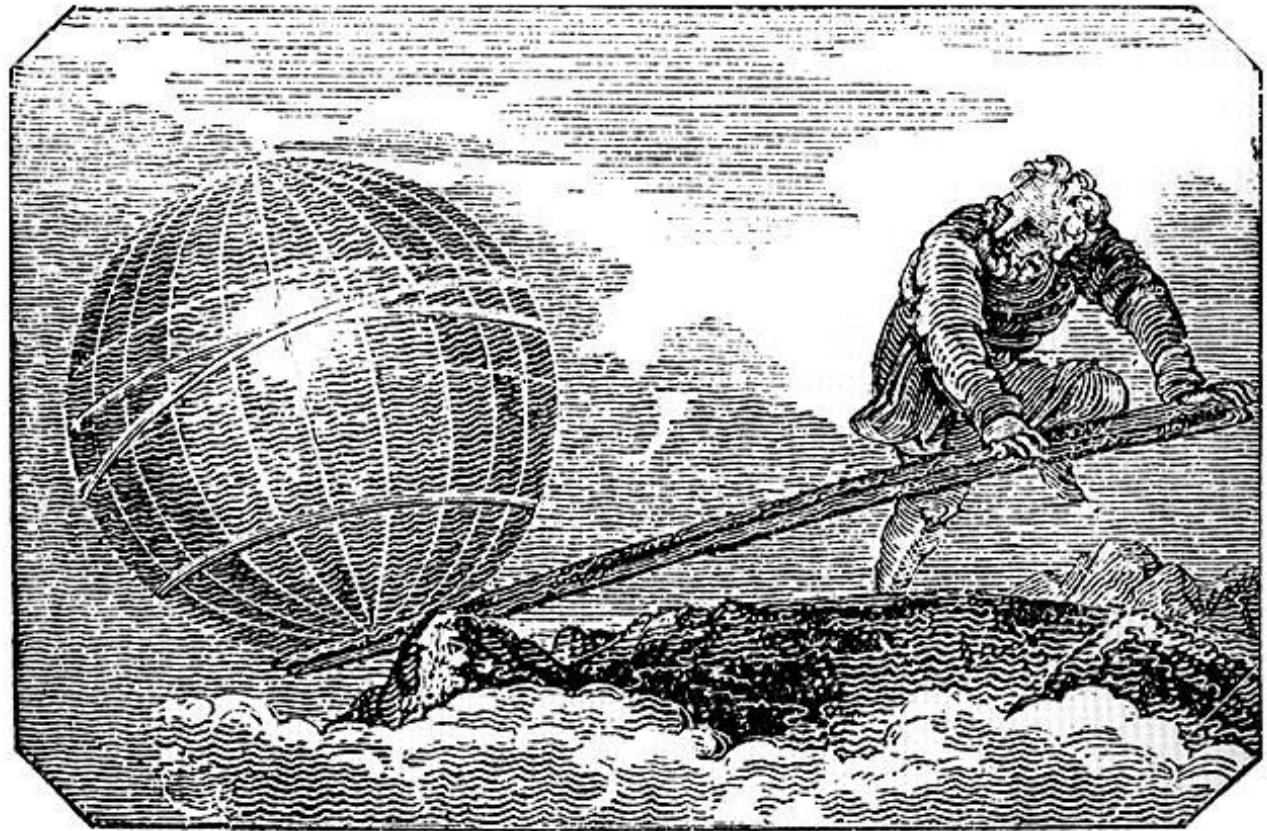
Ornish D, Lin J, Chan JM, Epel E, Kemp C, Weidner G, Marlin R, Frenda SJ, Magbanua MJ, Daubenmier J, Estay I, Hills NK, Chainani-Wu N, Carroll PR, Blackburn EH. Effect of **comprehensive lifestyle changes** on telomerase activity and telomere length in men with biopsy-proven low-risk prostate cancer: 5-year follow-up of a descriptive pilot study. *Lancet Oncol.* 2013 Oct;14(11):1112-20

The epigenetic power of lifestyle -

- Khera AV, Emdin CA, Drake I, Natarajan P, Bick AG, Cook NR, Chasman DI, Baber U, Mehran R, Rader DJ, Fuster V, Boerwinkle E, Melander O, Orho-Melander M, Ridker PM, Kathiresan S. **Genetic Risk, Adherence to a Healthy Lifestyle, and Coronary Disease.** *N Engl J Med.* 2016 Dec 15;375(24):2349-2358

The Master Levers of Destiny-

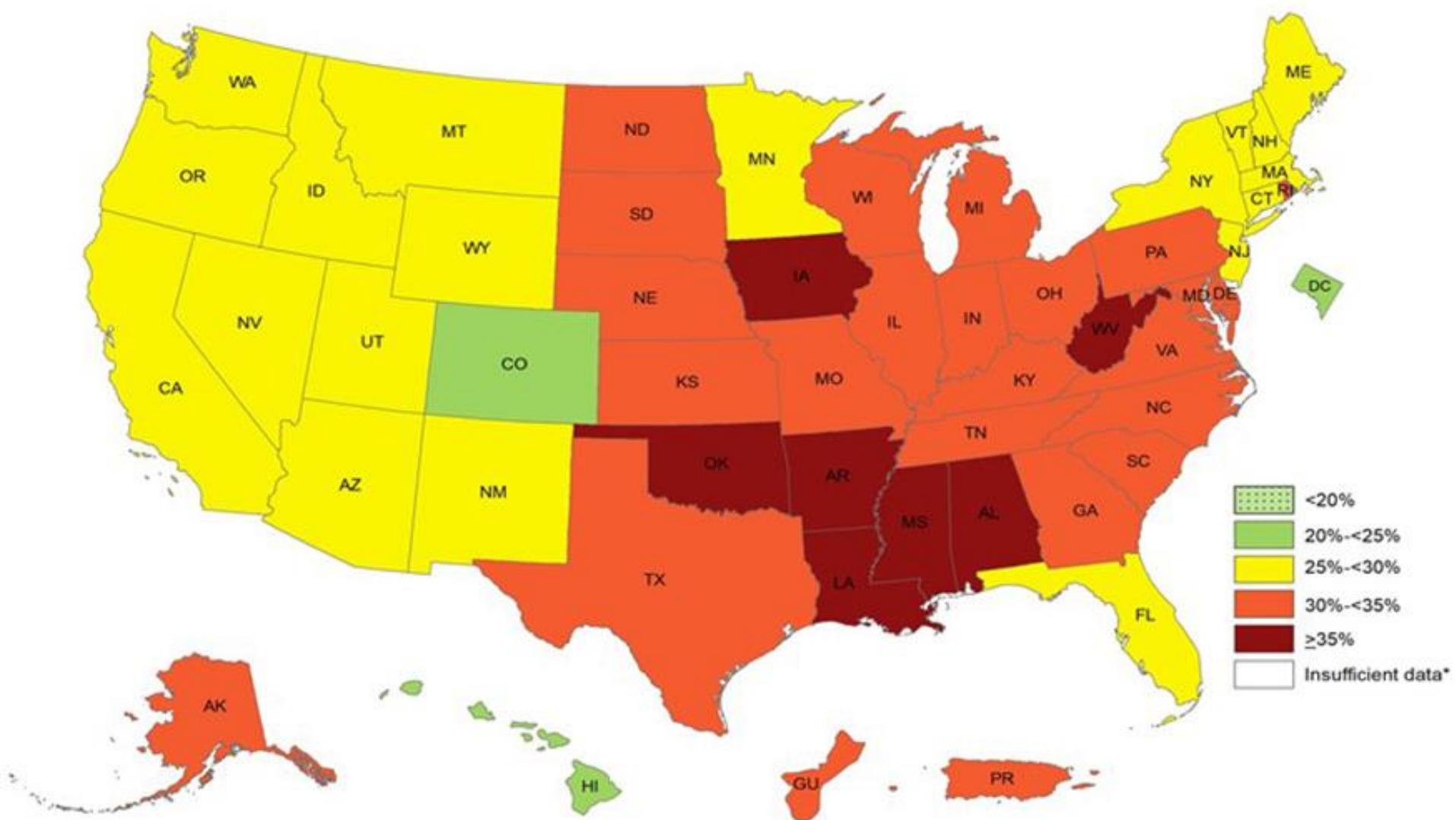
- *Feet*
- *Forks*
- *Fingers*



But...

Lost in translation...

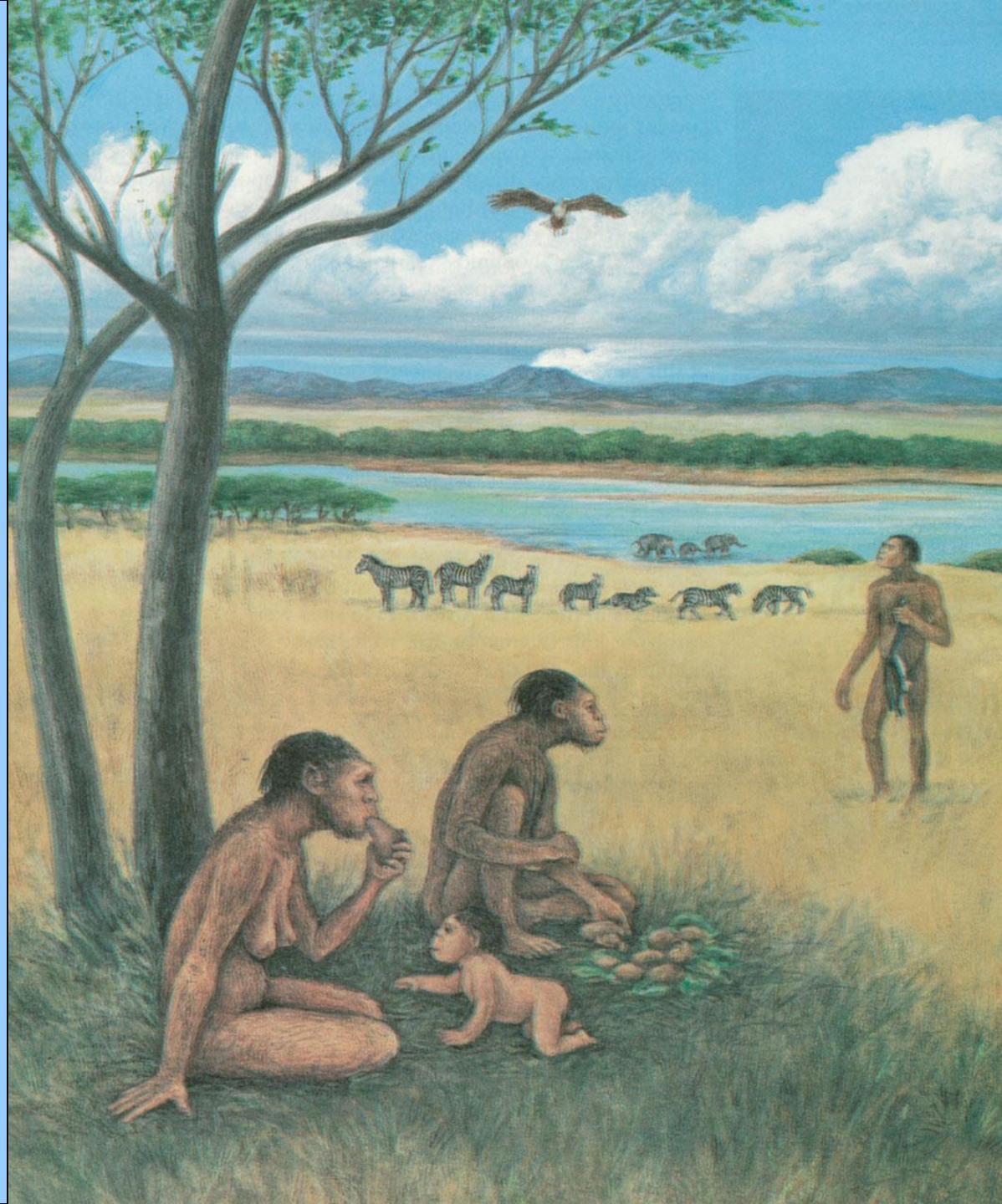
- Knowledge, alas, isn't power...
 - Katz DL. **Life and death, knowledge and power: why knowing what matters isn't what's the matter.** *Arch Intern Med.* 2009 Aug 10;169(15):1362-3



LV Comment

UV Articles

The Problem-



Health. Weight Control. Happiness with Food!



YUCKY CHEESE'S

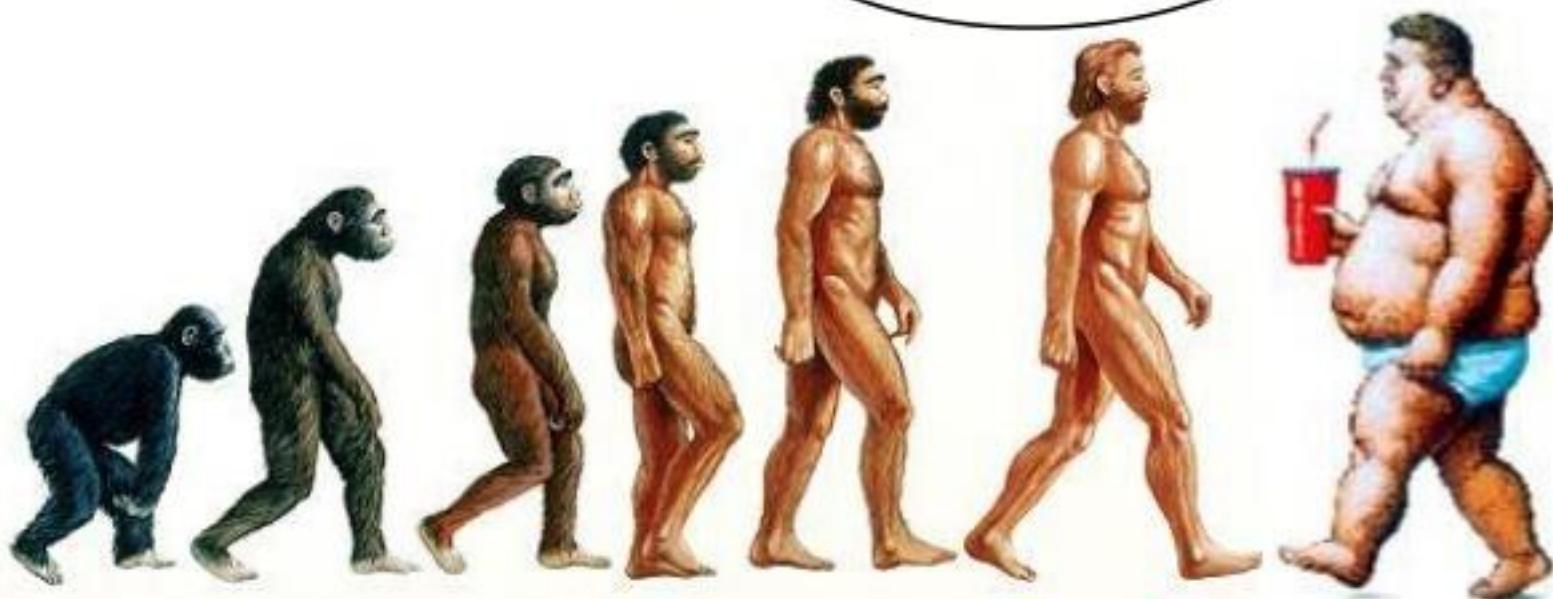
Krappy Kreme

BURGER
QUEEN



Before its too late...

Go Back, we
[REDACTED] up
everything...







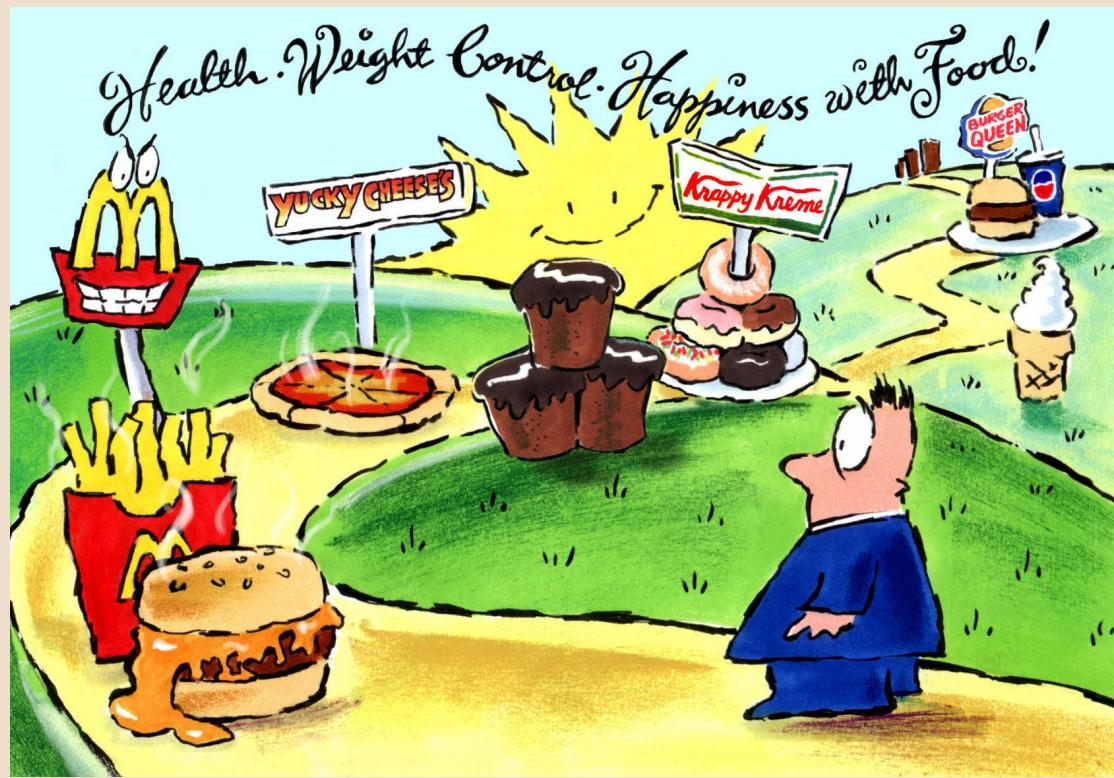


When clear where “there” is-

(Can We Say What Diet Is "Best"? David L. Katz; Huffington Post, 9/7/11:
http://www.huffingtonpost.com/david-katz-md/best-diets_b_950672.html)

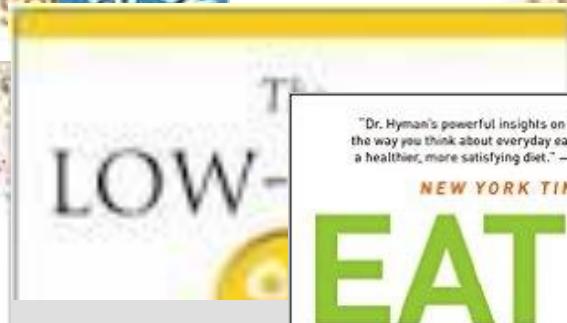
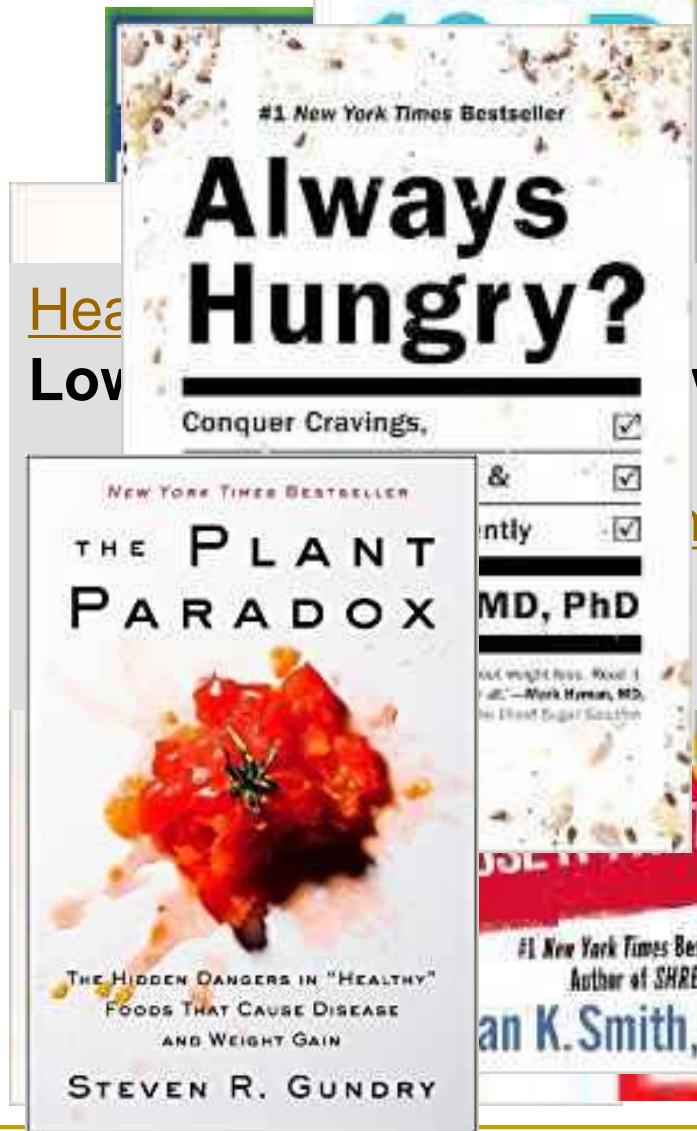
-it may still seem...

- you can't get *there* from *here*:

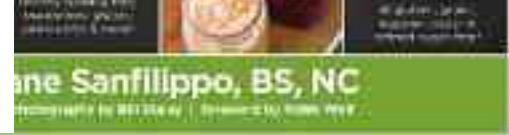


...& the other problem:

- Is it clear where “there” is?



ndyoaklan



W to **T** about **F** ?!?



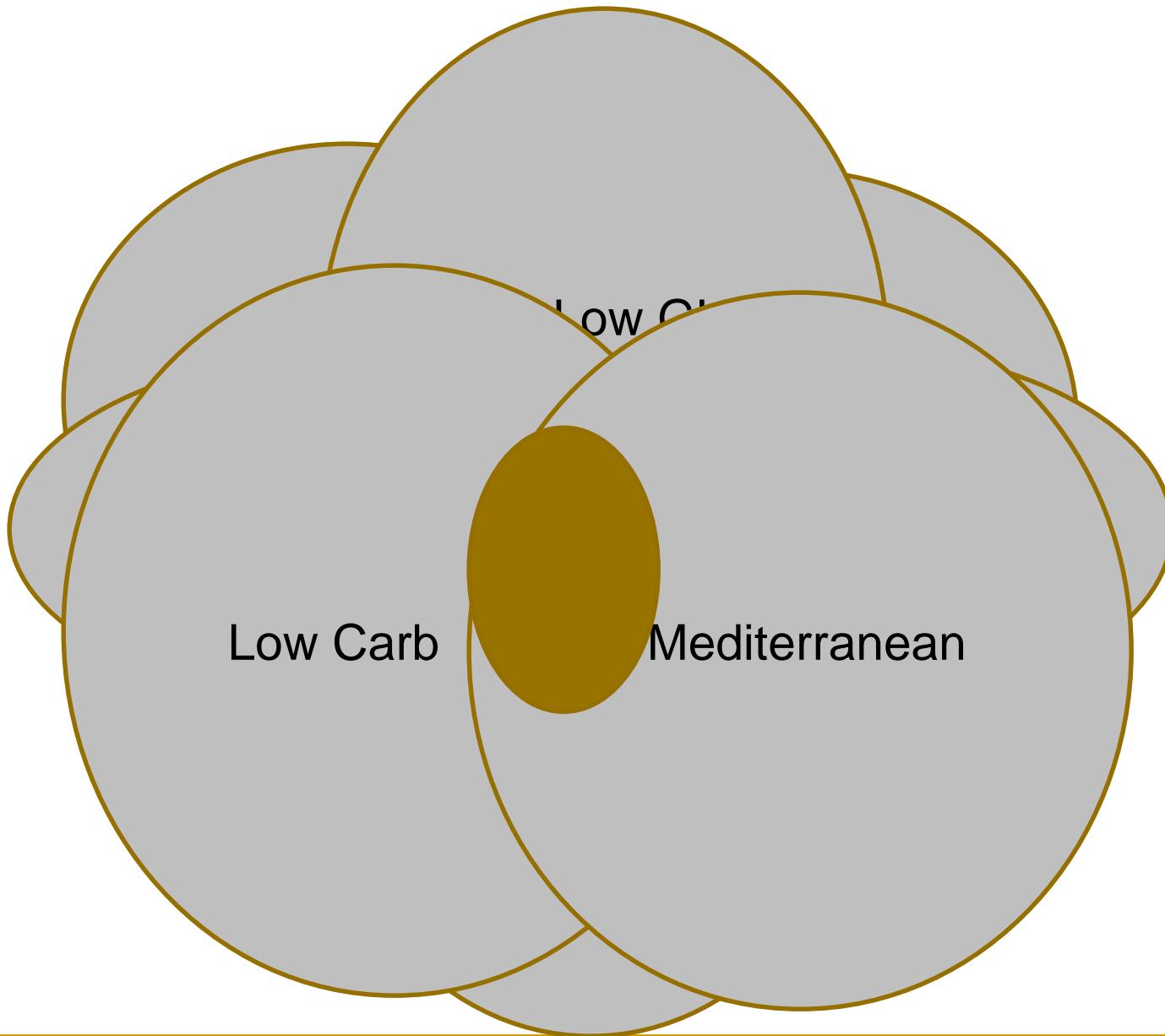
Bird's (Katz'?) eye view-

- Katz DL et al. Can we say what diet is best for health? *Annu Rev Public Health*. 2014 Mar 18; 35:83-103
- **Science Compared Every Diet, and the Winner Is Real Food**
 - Researchers asked if one diet could be crowned best in terms of health outcomes. If diet is a set of rigid principles, the answer is a decisive no. In terms of broader guidelines, it's a decisive yes.
 - James Hamblin Mar 24 2014, 1:14 PM ET
- Katz DL et al. **Nutrition in Clinical Practice, 3rd Edition**. Wolters Kluwer/Lippincott Williams & Wilkins. September, 2014

the Atlantic

Other eyes, on the same prize -

- Mozaffarian D. **Dietary and Policy Priorities for Cardiovascular Disease, Diabetes, and Obesity: A Comprehensive Review.** *Circulation.* 2016 Jan 12;133(2):187-225
 - Micha R, Peñalvo JL, Cudhea F, Imamura F, Rehm CD, Mozaffarian D. **Association Between Dietary Factors and Mortality From Heart Disease, Stroke, and Type 2 Diabetes in the United States.** *JAMA.* 2017 Mar 7;317(9):912-924
- Mann J et al. **Low carbohydrate diets: going against the grain.** *Lancet.* 2014 Oct 25;384;1479-80
- Ley SH, Hamdy O, Mohan V, Hu FB. **Prevention and management of type 2 diabetes: dietary components and nutritional strategies.** *Lancet.* 2014 Jun 7;383:1999-2007
 - **Katz DL, Hu F.** Knowing what to eat, refusing to swallow it. *Huffington Post.* 7/2/14



*“Eat food
plants.”*

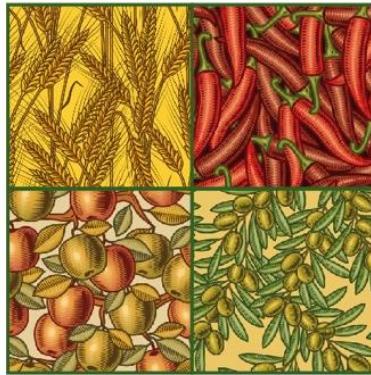
-N



Much the same in 572 pages -
And the bedrock of common ground -

■ Scientific Report of the 2015 Dietary
Guide

[http://ww
scientific](http://www.oldwayspt.org/scientific-report-of-the-2015-dietary-guide)



OLDWAYS ee
FINDING yes/2015-
COMMON
GROUND

A SCIENTIFIC AND MEDIA CONFERENCE

USDA

<http://oldwayspt.org/programs/oldways-common-ground/oldways-common-ground-consensus>

And, by the way...

■ Dietary Guidelines...1980!

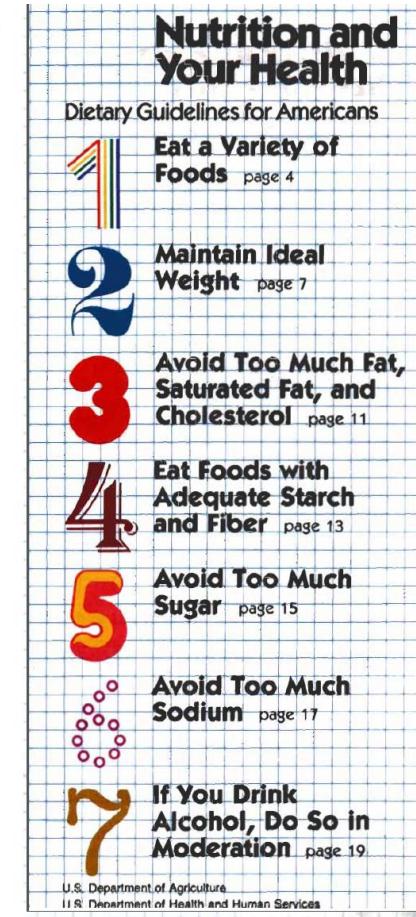
U.S. DIETARY GOALS

1. Increase carbohydrate consumption to account for 55 to 60 percent of the energy (caloric) intake.
2. Reduce overall fat consumption from approximately 40 to 30 percent energy intake.
3. Reduce saturated fat consumption to account for about 10 percent of total energy intake; and balance that with poly-unsaturated and mono-unsaturated fats, which should account for about 10 percent of energy intake each.
4. Reduce cholesterol consumption to about 300 mg. a day.
5. Reduce sugar consumption by about 40 percent to account for about 15 percent of total energy intake.
6. Reduce salt consumption by about 50 to 85 percent to approximately 3 grams a day.

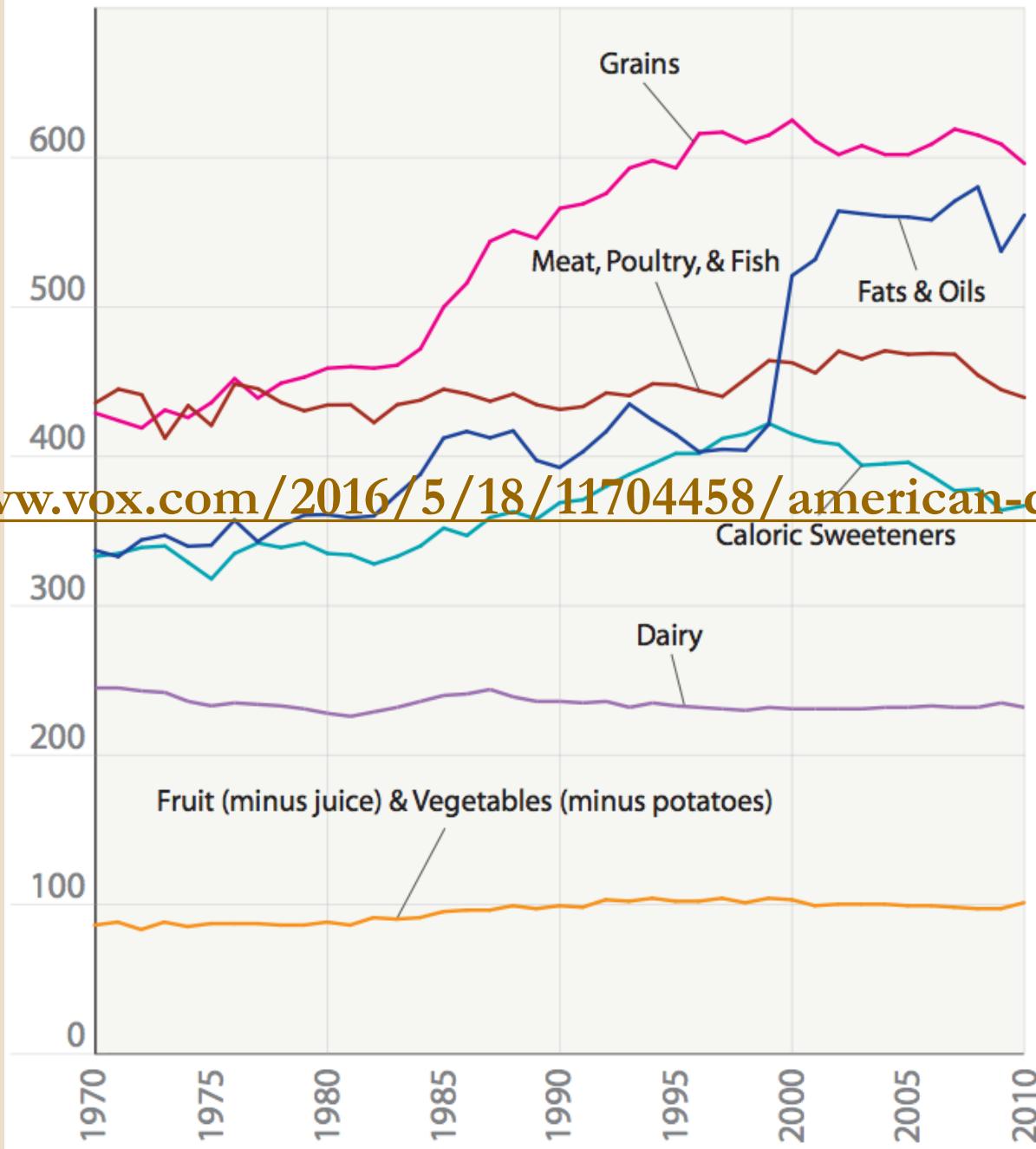
13

The Goals Suggest the Following Changes in Food Selection and Preparation

1. Increase consumption of fruits and vegetables and whole grains.
2. Decrease consumption of meat and increase consumption of poultry and fish.
3. Decrease consumption of foods high in fat and partially substitute poly-unsaturated fat for saturated fat.
4. Substitute non-fat milk for whole milk.
5. Decrease consumption of butterfat, eggs and other high cholesterol sources.
6. Decrease consumption of sugar and foods high in sugar content.
7. Decrease consumption of salt and foods high in salt content.



Calories per person per year

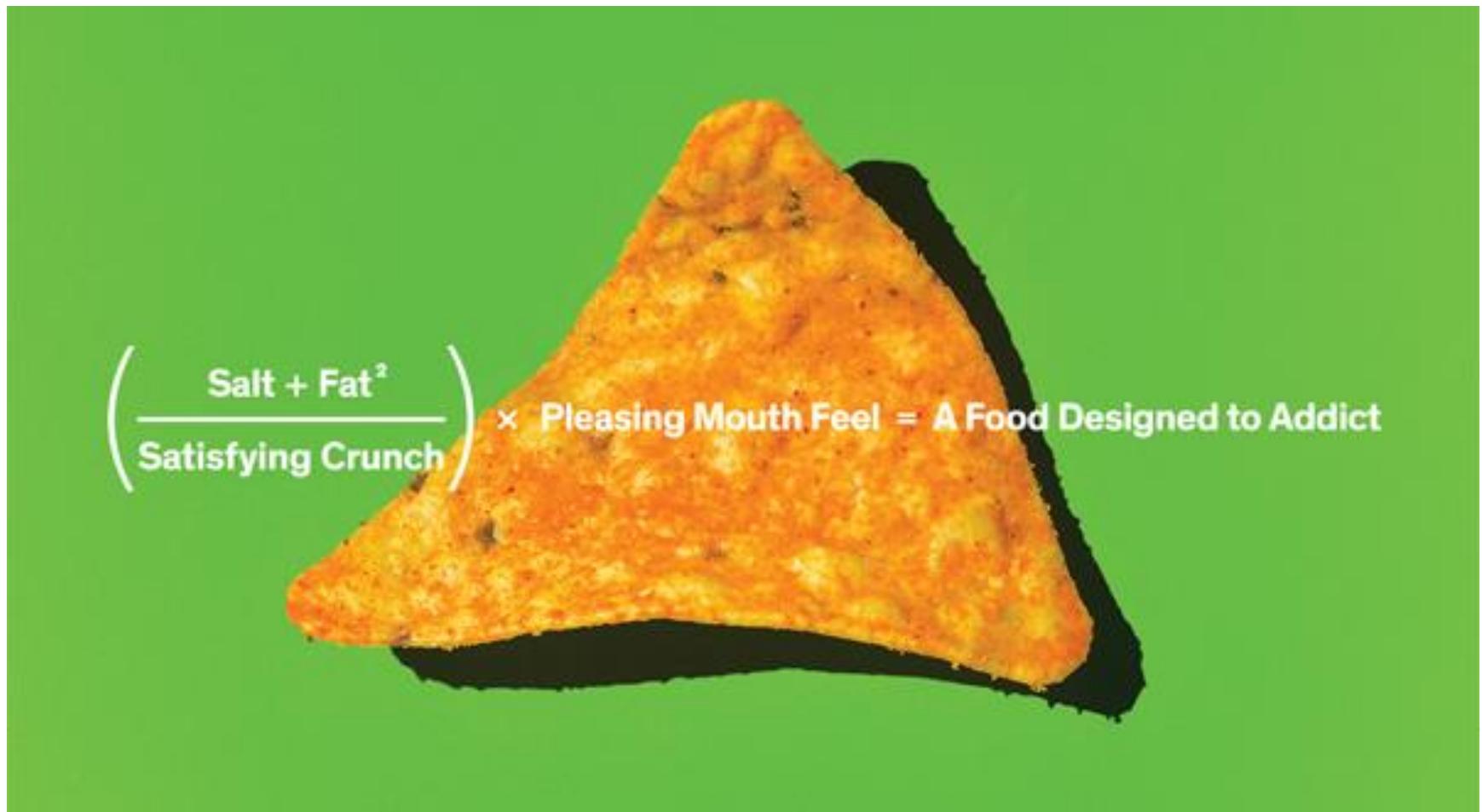


<http://www.vox.com/2016/5/18/11704458/american-diet-changes>

The Extraordinary Science of Addictive Junk Food -

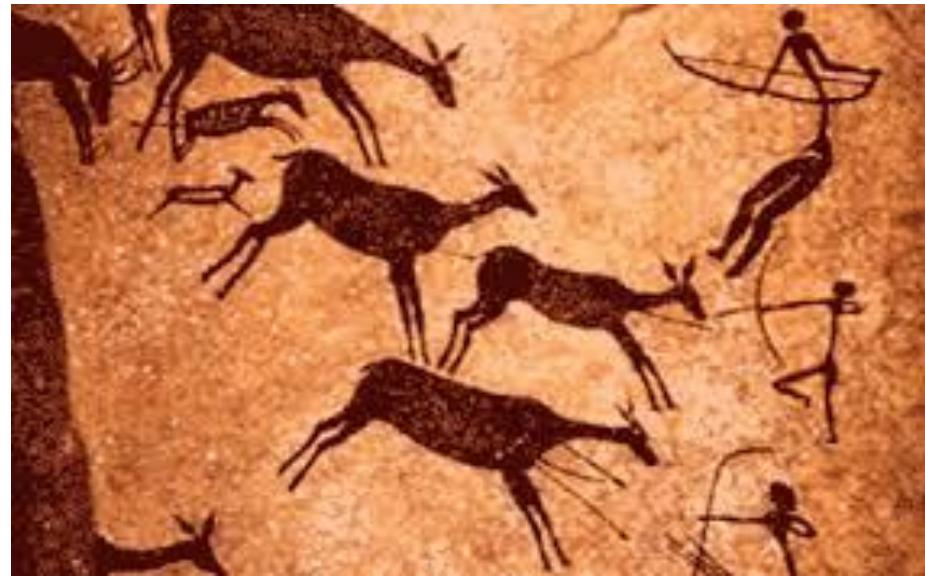
By MICHAEL MOSS FEB. 20, 2013

The New York Times





We are constitutional omnivores, and
so...



- we have **CHOICES** -

We have choices for fat -

Wang DD, Li Y, Chiuve SE, Stampfer MJ, Manson JE, Rimm EB, Willett WC, Hu FB. Association of **Specific Dietary Fats With Total and Cause-Specific Mortality.** *JAMA Intern Med.* 2016 Aug 1;176(8):1134-45

Yet, we wind up here...



Less pepperoni, more..._____?

- Siri-Tarino PW, Sun Q, Hu FB, Krauss RM. **Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular disease.** *Am J Clin Nutr.* 2010 Mar;91(3):535-46
- Chowdhury R, Warnakula S, Kunutsor S, Crowe F, Ward HA, Johnson L, Franco OH, Butterworth AS, Forouhi NG, Thompson SG, Khaw KT, Mozaffarian D, Danesh J, DiAngelantonio E. **Association of dietary, circulating, and supplement fatty acids with coronary risk: a systematic review and meta-analysis.** *Ann Intern Med.* 2014 Mar 18;160(6):398-406

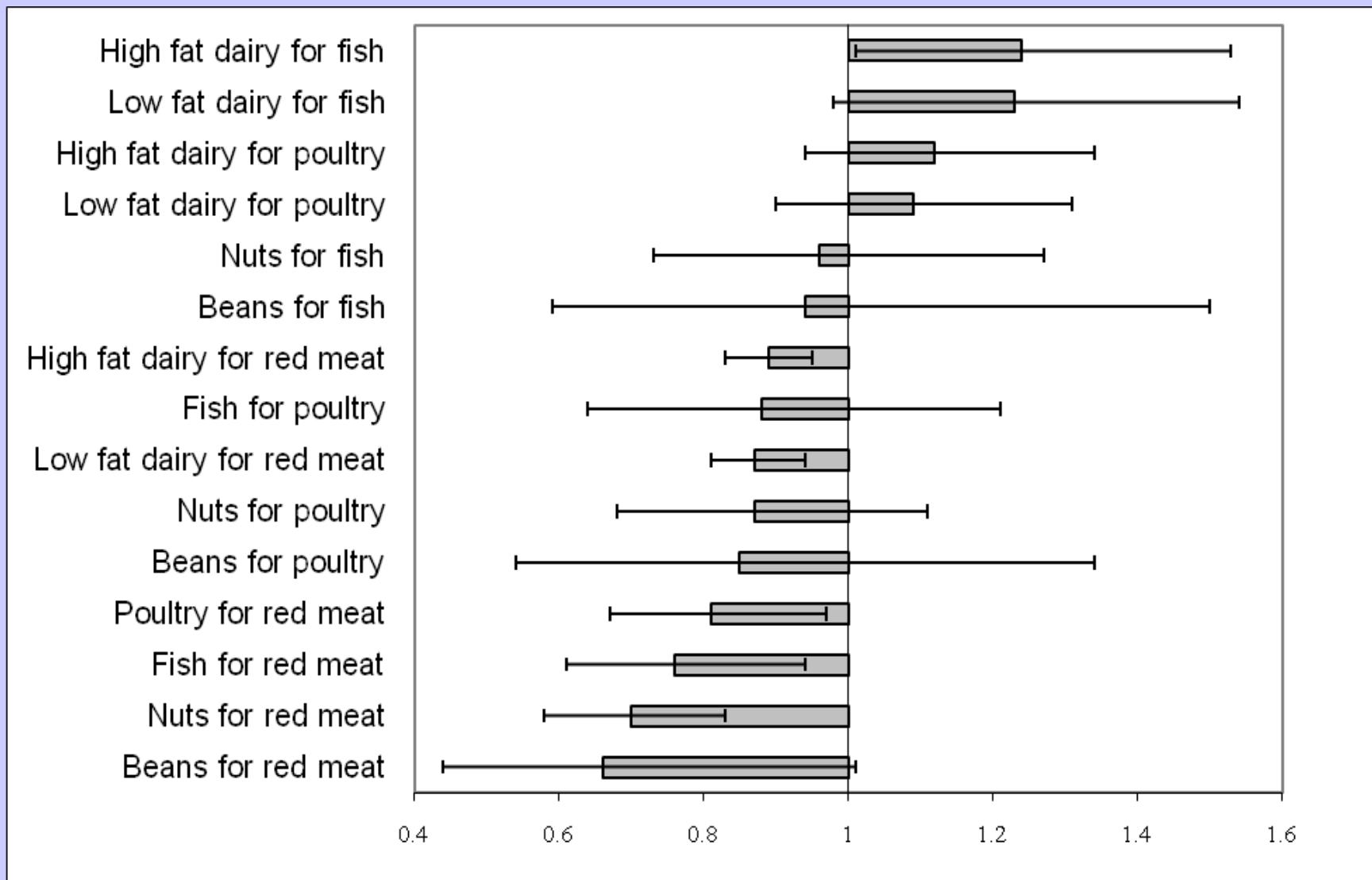


Li Y, Hruby A, Bernstein AM, Ley SH, Wang DD,
Chiuve SE, Sampson L, Rexrode KM, Rimm EB,
Willett WC, Hu FB. Saturated Fats Compared With
Unsaturated Fats and Sources of Carbohydrates
in Relation to Risk of Coronary Heart Disease: A
Prospective Cohort Study. *J Am Coll Cardiol.* 2015
Oct 6;66(14):1538-48

We have choices for protein -

- Song M, Fung TT, Hu FB, Willett WC, Longo VD, Chan AT, Giovannucci EL. **Association of Animal and Plant Protein Intake With All-Cause and Cause-Specific Mortality.** *JAMA Intern Med.* 2016 Aug 1. doi: 10.1001/jamainternmed.2016.4182. [Epub ahead of print]

Substitution of Protein Sources (1 sv/day) and Risk of CHD in NHS, 1980-2006 (3162 cases)



We have choices for water preservation -



We have choices for the climate -

- Meat is a complex health issue but a simple climate one: the world needs to eat less of it
 - July 5, 2015 4.18pm EDT



We have choices for biodiversity-

- Machovina B, Feeley KJ, Ripple WJ.
Biodiversity conservation: The key is reducing meat consumption. *Sci Total Environ.* 2015 Dec 1;536:419-31

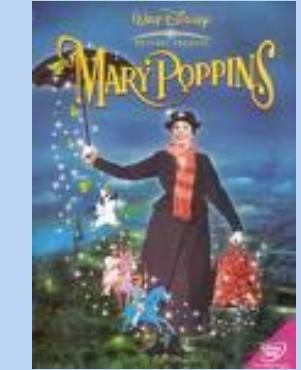


And the choice of a grand confluence -

Walker C, Gibney ER, Hellweg S. **Comparison of Environmental Impact and Nutritional Quality among a European Sample Population** - findings from the Food4Me study. *Sci Rep.* 2018 Feb 5;8(1):2330

<https://www.nature.com/articles/s41598-018-20391-4>

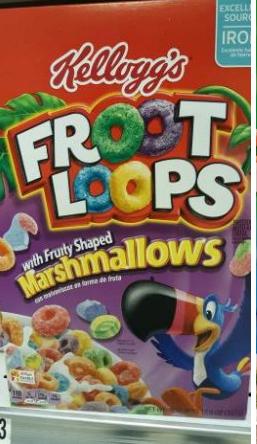


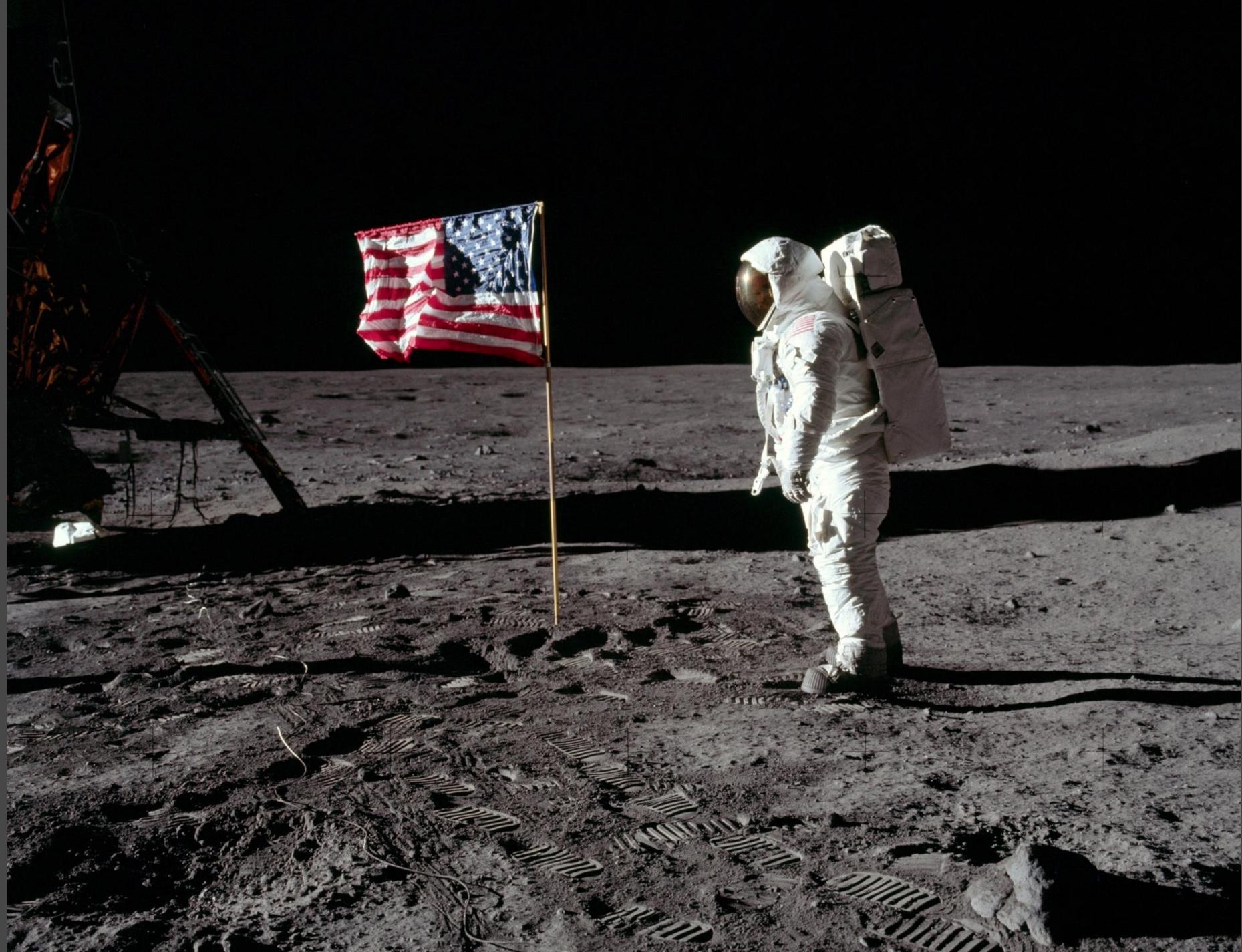




WHY OBESITY RATES KEEP RISING

New Kellogg's & General Mills Cereals introduced over the last six-months.







From -



To the Amazon -

- **Amazon men in their 80s have the arteries of Americans in their 50s**
 - Lancet study shows diet low on processed carbs, sugar, cholesterol, while active living boosts heart health
 - By Amina Zafar, [CBC News](#) Posted: Mar 17, 2017 12:24 PM ET Last Updated: Mar 19, 2017 10:20 AM ET



- **Coronary atherosclerosis in indigenous South American Tsimane: a cross-sectional cohort study. *Lancet*, Published: 17 March 2017**

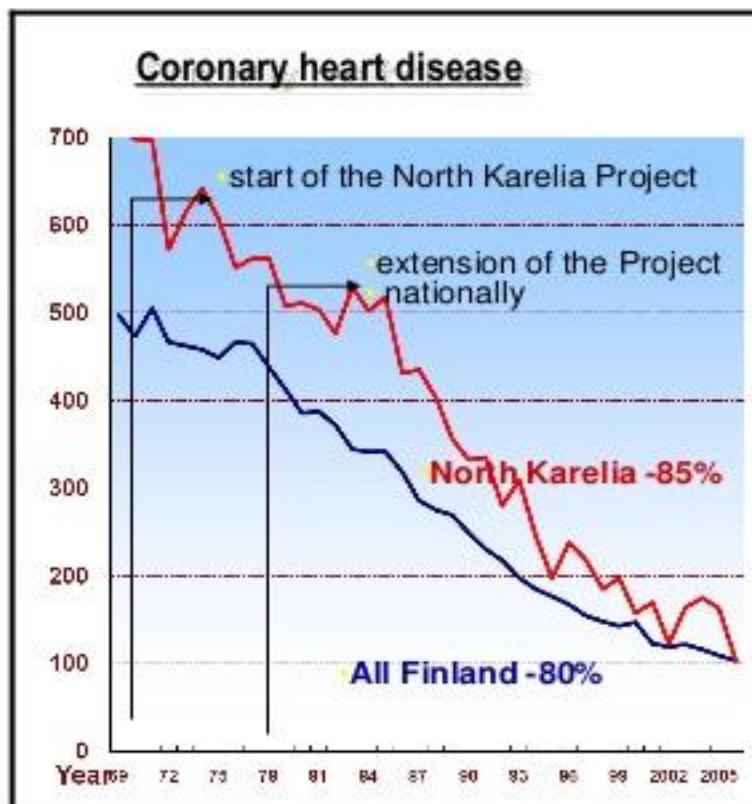
“The Finnish Town That Went on a Diet” -

- <http://www.theatlantic.com/health/archive/2015/04/finlands-radical-heart-health-transformation/389766/>



Change in age-adjusted mortality rates

North Karelia, males aged 35–64 (per 100 000 population)



	Rate per 100 000		
	1969-1971	2006	Change from 1969-1971 to 2006
All causes	1509	572	-62%
All cardiovascular	855	182	-79%
Coronary heart disease	672	103	-85%
All cancers	271	96	-65%

Gain of nearly 10 healthy years
in North Karelian population



The Spiral Stair-

■ Holistic

- Poster
- <http://md/holistic.html>



More than either/or:

CARE construct: *Clinical Applications of Research Evidence.* Adapted from: Katz

DL, Ali A. Preventive Medicine, Integrative Medicine & The Health Of The Public. National Academies of Science. 2/09

Effectiveness	Safety	Support	Alternatives	Confluence with Patient Preference	<i>Overall Rank</i>
High	High	Strong	Absent	Yes	High
Low	Low	Weak	Numerous	No	Low



I N T E G R A T I V E
M E D I C I N E
C E N T E R
AT GRIFFIN HOSPITAL

AHA SCIENCE ADVISORY

Medical Nutrition Education, Training, and Competencies to Advance Guideline-Based Diet Counseling by Physicians

A Science Advisory From the American Heart Association

ABSTRACT: Growing scientific evidence of the benefits of heart-healthy dietary patterns and of the massive public health and economic burdens attributed to obesity and poor diet quality have triggered national calls to increase diet counseling in outpatients with atherosclerotic cardiovascular disease or risk factors. However, despite evidence that physicians are willing to undertake this task and are viewed as credible sources of diet information, they engage patients in diet counseling at less than desirable rates and cite insufficient knowledge and training as barriers. These data align with evidence of large and persistent gaps in medical nutrition education and training in the United States. Now, major reforms in undergraduate and graduate medical education designed to incorporate advances in the science of learning and to better prepare physicians for 21st century healthcare delivery are providing a new impetus and novel ways to expand medical nutrition education and training. This science advisory reviews gaps in undergraduate and graduate medical education in nutrition in the United States, summarizes reforms that support and facilitate more robust nutrition education and training, and outlines new opportunities for accomplishing this goal via multidimensional curricula, pedagogies, technologies, and competency-based assessments. Real-world examples of efforts to improve undergraduate and graduate medical education in nutrition by integrating formal learning with practical, experiential, inquiry-driven, interprofessional, and population health management activities are provided. The authors conclude that enhancing physician education and training in nutrition, as well as increasing collaborative nutrition care delivery by 21st century health systems, will reduce the health and economic burdens from atherosclerotic cardiovascular disease to a degree not previously realized.

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On behalf of the American
Heart Association Nutrition
Committee of the
Council on Lifestyle and
Cardiometabolic Health;
Council on Cardiovascular
and Stroke Nursing;
Council on Cardiovascular
Radiology and
Intervention; and Stroke
Council

Key Words: AHA Scientific Statements
■ diet ■ nutrition ■ obesity

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Lifestyle Medicine Core Competencies Program

LifeMed Online CME

ACLM Online CME

Lifestyle Medicine Core
Competencies Program

Core Competencies of
Lifestyle Medicine

Lifestyle Medicine Program
Design & Details

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Pricing

Board Review

Lifestyle Medicine Core Competencies Program

The Lifestyle Medicine Core Competency Online Program is an evidence-based program designed to provide a comprehensive foundation for doctors as well as nurses, nurse practitioners, physician assistants, dietitians, health coaches, and other allied health professionals with an interest in learning the basic foundational principles of lifestyle medicine. Maintenance of Certification (MOC) is available for **select medical specialties**.

What is Lifestyle Medicine?

Lifestyle medicine is the evidence-based therapeutic approach to prevent, treat and reverse lifestyle-related chronic diseases. Comprehensive lifestyle interventions (including nutrition, physical activity, stress management, sleep, social support and environmental exposures) address underlying disease risks, thereby decreasing illness burden and improving clinical outcomes within value-based medicine. Lifestyle medicine should be seen as a core competency for preventive and primary care medicine.

Important examples of where these competencies have already been employed include:

- NIH's booklet "[Living Well With Heart Disease](#)"
- The [DASH Diet](#), based on research by the National Heart, Lung, and Blood Institute (NHLBI)
- Dozens of articles available in MedlinePlus on [healthy living](#) that underpin lifestyle medicine



Cooking With Your Doctor: The New Culinary Medicine

February 18, 2016 · 11:40 AM ET

BARBARA J. KING



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Healthy Kitchens, Healthy Lives®



SCHOOL OF PUBLIC HEALTH
Department of Nutrition

Caring for Our Patients and Ourselves

Welcome

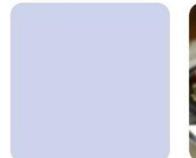
Overview

Conference Program

Grants & Exhibitors

Registration

Planning Your Trip



REGISTER
FOR THE CONFERENCE

A Leadership Conference Bridging Nutrition
Science, Healthcare, and the Culinary Arts



A close-up portrait of Matt Damon's face, which is heavily covered in reddish-brown dust or soil. He has a weary expression with dark circles under his eyes. The background is dark and appears to be the interior of a spacecraft or a survival shelter.

MATT DAMON

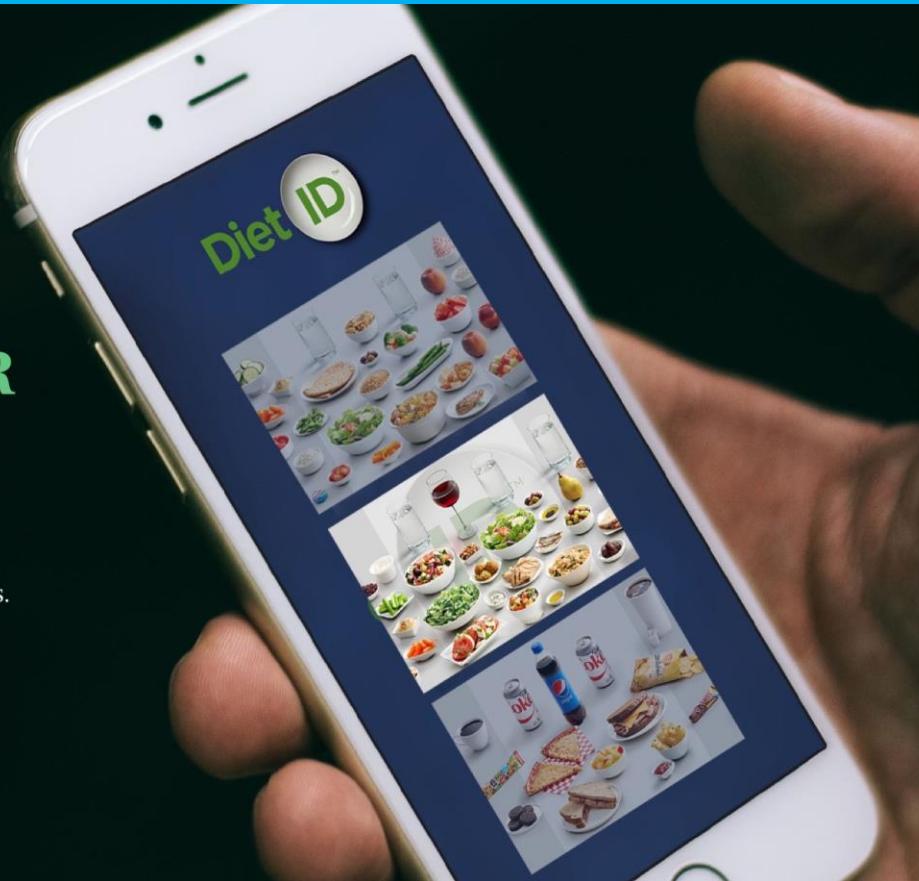
THE MARTIAN



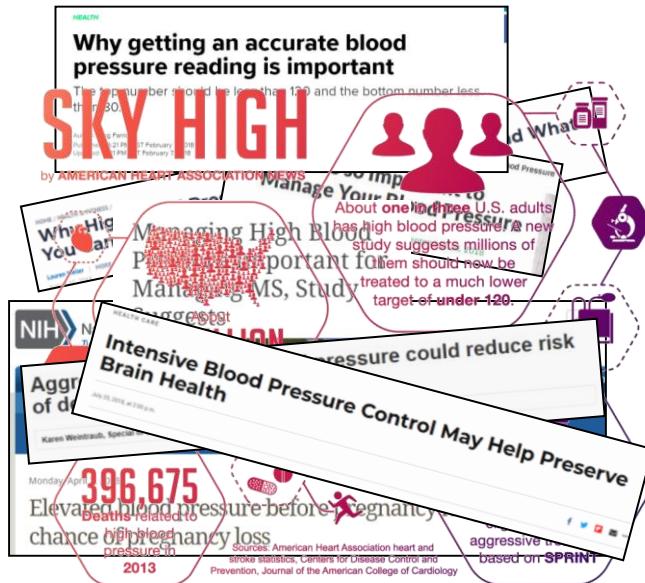
GETTING TO A BETTER DIET IS A JOURNEY

You need to know where you are, where you want to go, and the best way to get there. Navigate your way to a better diet in seconds. Select photos that best match the way you eat today, and the way you'd like to eat in the future.

[Get Started](#)



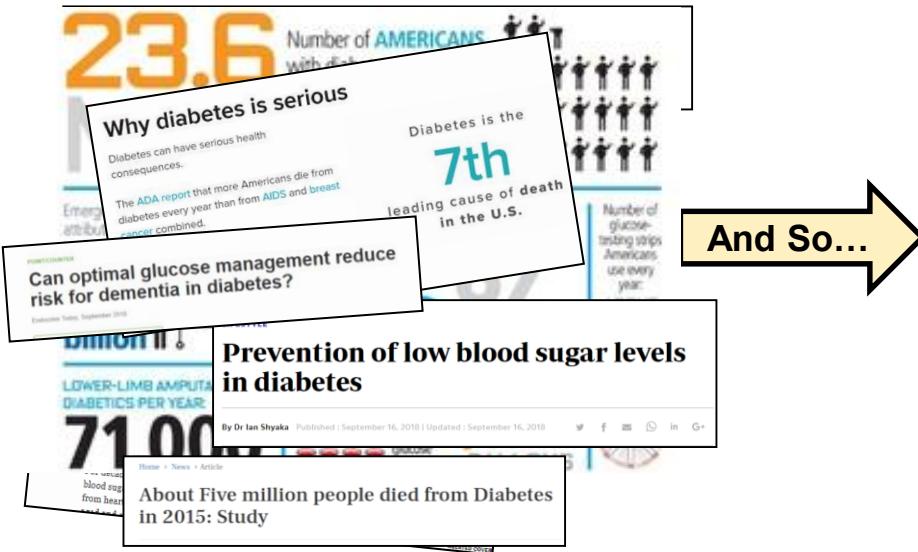
Blood pressure is enormously important to health...



And So...



Blood glucose is enormously important to health...



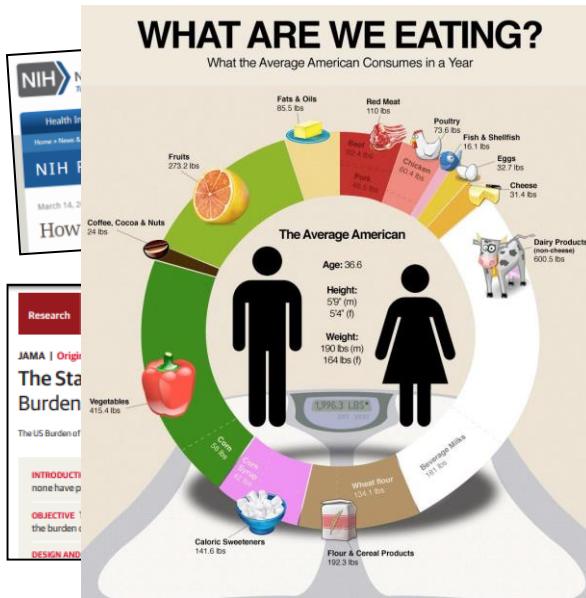
Fitness is enormously important to health...



And So...



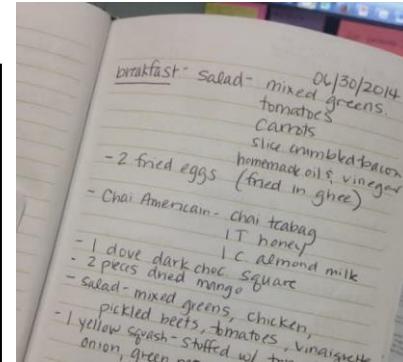
But DIET is MOST important to health ...



And So... 



There WAS no good way to measure and track the most important variable in the health equation...



Until Now... *Introducing Diet ID*



A revolutionary approach to diet and health assessment



Reinventing Diet Assessment

Diet Quality Photo Navigation (DQPN) uses the concepts of **pattern recognition** and **blink decision making**.



Vision Test: Which of these is more in focus?



Diet Test: Which of these is more like your diet?





LET'S SEE WHERE YOU ARE

Which picture looks
most like your current
diet?

▲ BACK ▲



OR





[◀ Back to dashboard](#)

WHERE TO?

Which picture most closely represents your IDEAL diet?

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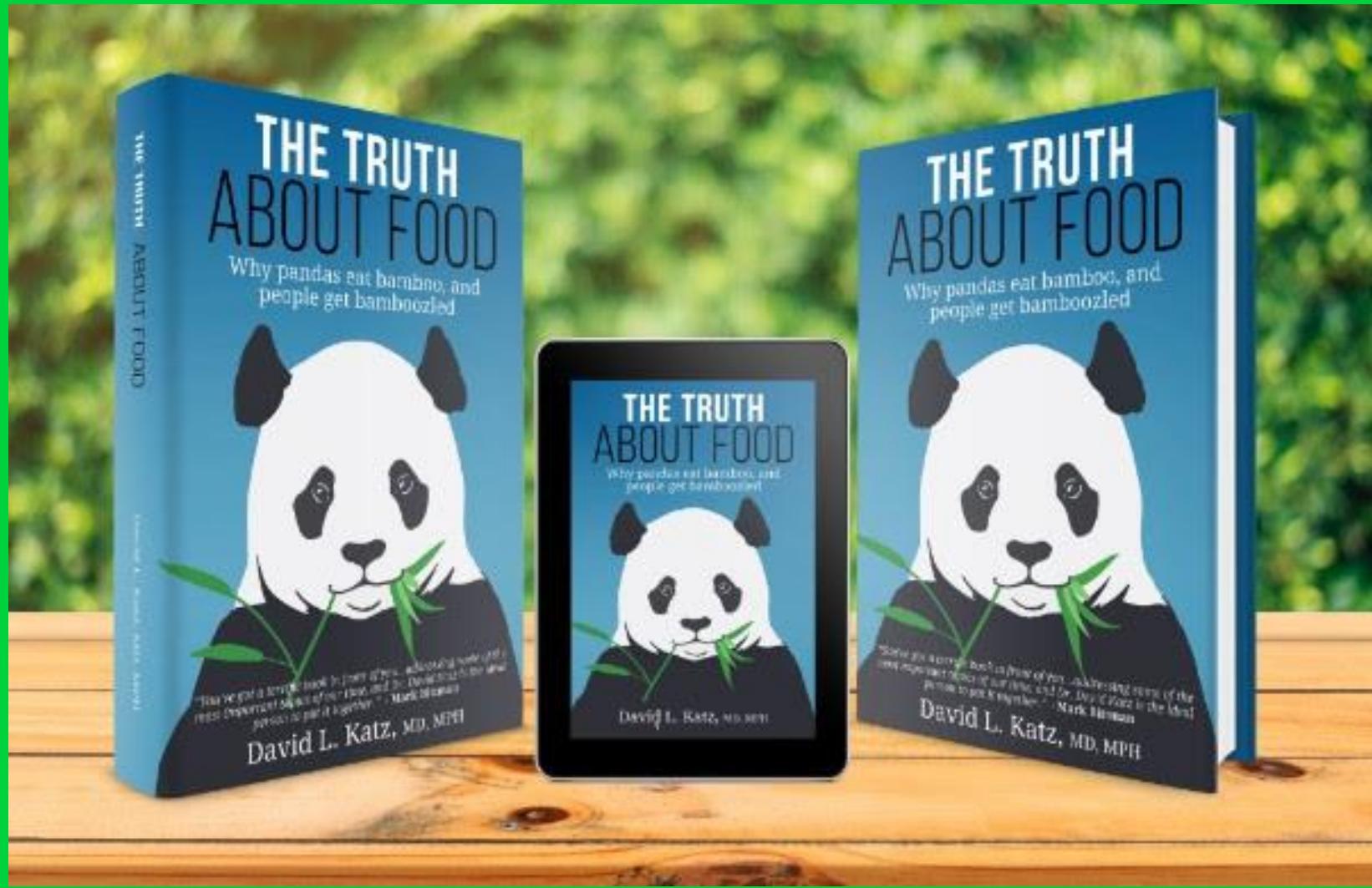


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Thank you!

It's not what we don't know
about diet that most threatens

Davids health, my life's aim, means tract, M

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