

100

100

100





Disclosures

None



OUTLINE

- **Stop Obsessing About Protein**
- ***Fiber - Feed your Friends***





Tropical Blend

Nutrition Facts	
Serving Size	1 Bottle (473mL)
Servings Per Container	1
Amount Per Serving	
Calories	50
Calories from Fat	0
% Daily Value	
Total Fat 0g	
Sodium 50mg	1%
Total Carb 8g	3%
Sugars 8g	
Protein 5g	10%
Not a significant source of Saturated Fat, Trans Fat, Cholesterol, Dietary Fiber, Vitamins A and C, or Iron.	
*Percent Daily Values are based on a 2,000 calorie diet.	
Ingredients: Water, contains two percent or less of sugar, whey protein isolate, citric acid, natural and artificial flavor, phosphoric acid, calcium lactate, calcium gluconate, acesulfame potassium, sucralose, yellow #6.	

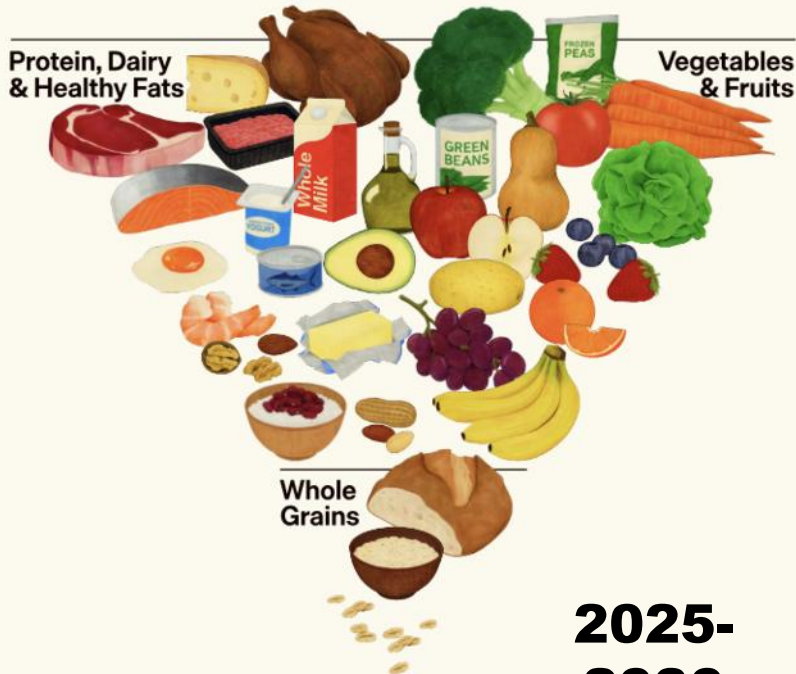
8 grams sugar
5 grams protein



42 grams Protein



Dietary Guidelines For Americans

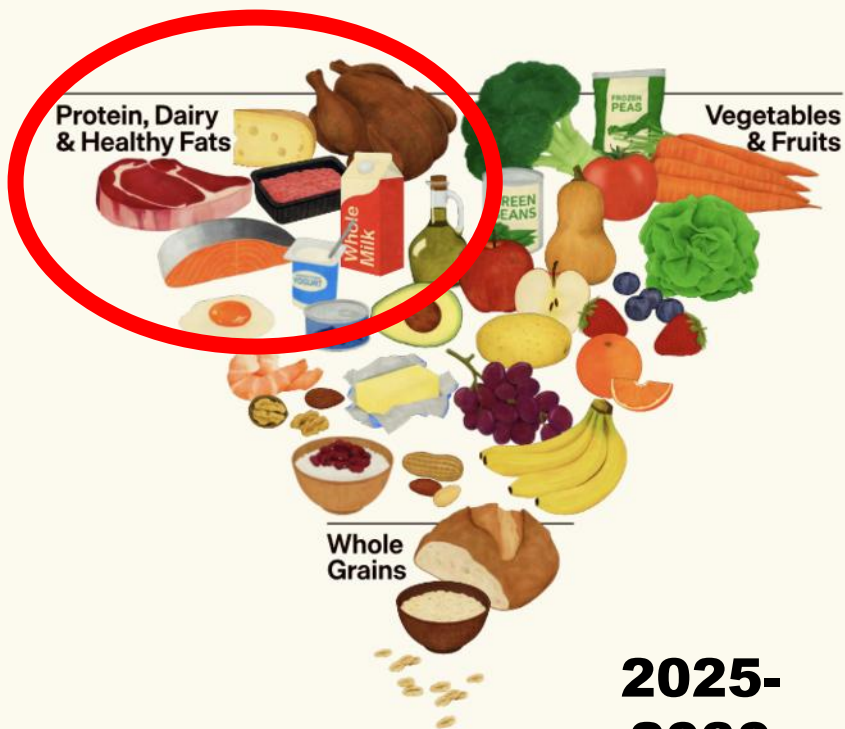


2025-
2030

Prioritize Protein Foods at Every Meal

Consume a variety of protein foods from animal sources including eggs, poultry, seafood and red meat, as well as a variety of plant-sourced protein foods, including beans, peas, lentils, legumes, nuts, seeds and soy.

Dietary Guidelines For Americans



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**2025-
2030**

Dietary Guidelines For Americans



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Consume a variety of protein foods from animal sources including eggs, poultry, seafood and red meat, as well as a variety of plant-sourced protein foods, including beans, peas, lentils, legumes, nuts, seeds and soy.

**2025-
2030**



Dietary
Guidelines
for Americans

2025 Dietary Guidelines Advisory Committee



Chair
Sarah Booth, PhD
Tufts University



Vice Chair
Angela Odoms-Young, PhD
Cornell University



Steven Abrams
MD
Univ Texas at Austin



Cheryl Anderson
PhD, MPH
UC San Diego



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PhD, RDN, LD
Ohio State Univ



Deirdre Tobias
ScD
Harvard University

Scientific Report of the 2025 Dietary Guidelines Advisory Committee



**Department of Health and Human Services
200 Independence Avenue, SW
Washington, DC 20201**



**Department of Agriculture
1400 Independence Avenue, SW
Washington, DC 20250**

Released December 10, 2024

421

Executive Summary

OVERARCHING ADVICE TO THE DEPARTMENTS

The Committee recommends that the proposed Eat Healthy Your Way Dietary Pattern emphasizes dietary intakes of beans, peas, and lentils while reducing intakes of red and processed meats

Executive Summary

OVERARCHING ADVICE TO THE DEPARTMENTS

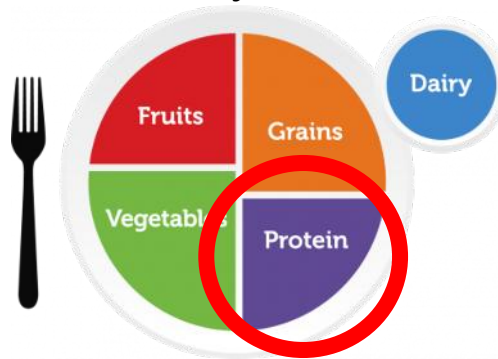
The Committee recommends that the proposed Eat Healthy Your Way Dietary Pattern emphasizes dietary intakes of beans, peas, and lentils while reducing intakes of red and processed meats

Executive Summary

OVERARCHING ADVICE TO THE DEPARTMENTS

The Committee recommends that the proposed Eat Healthy Your Way Dietary Pattern emphasizes dietary intakes of beans, peas, and lentils while reducing intakes of red and processed meats

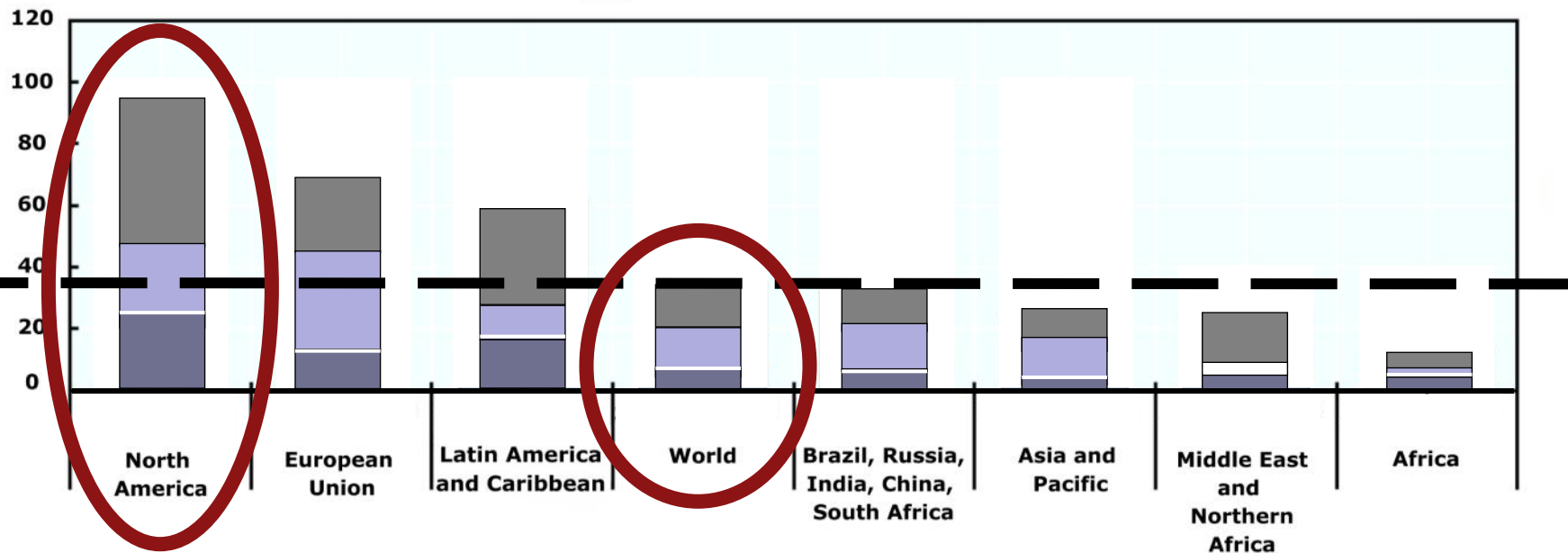
The Committee also proposes reorganizing the order of the Protein Foods Group to list Beans, Peas, and Lentils first, followed by Nuts, Seeds, and Soy products, then Seafood, and finally Meats, Poultry, and Eggs....



Per capita meat consumption by region

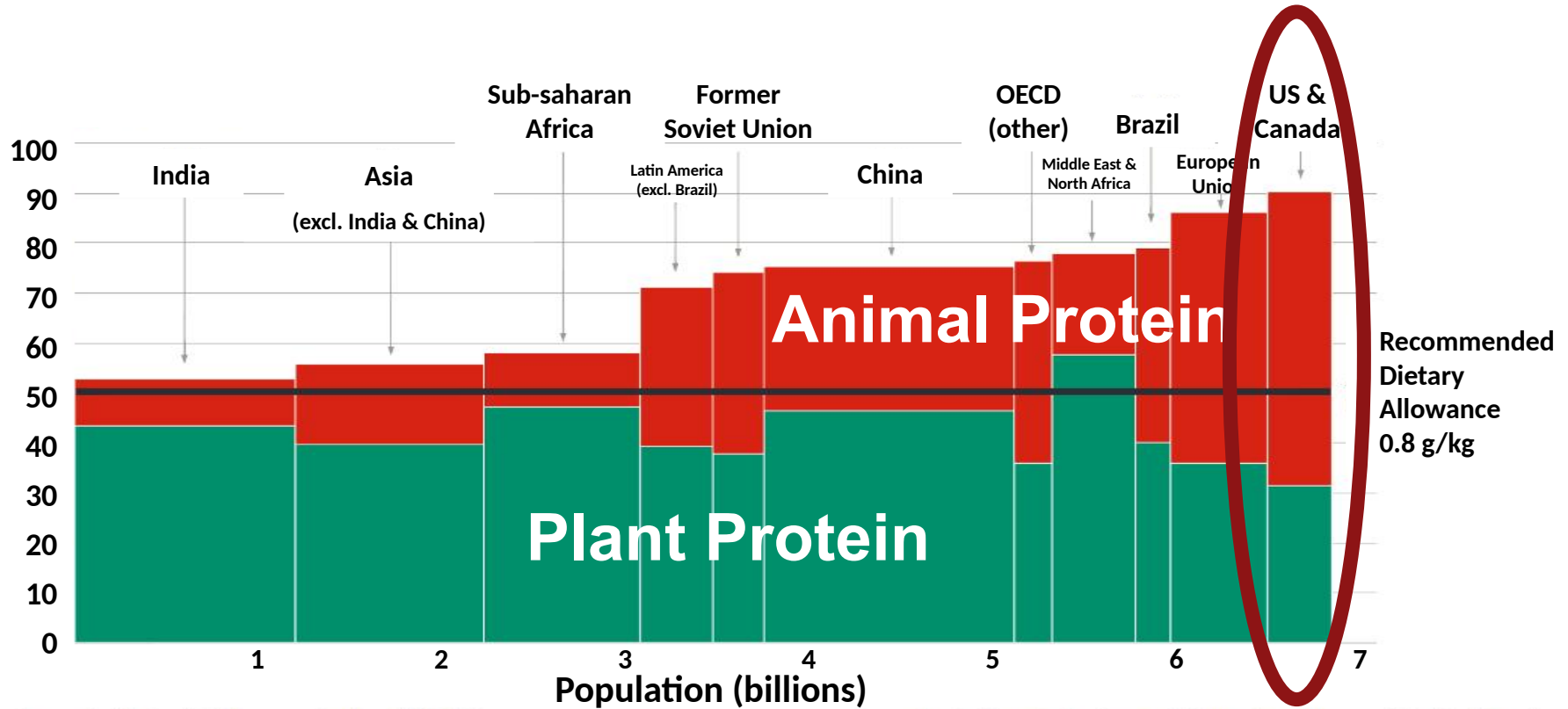
kg/person/year

Poultry Pork Sheep Red Meat



Source: OECD/FAO 2018

Protein Consumption Across All The World's Regions



Protein Requirement / Recommendation

		125 lbs (57 kg)	175 lbs (80 kg)	225 lbs (102 kg)	275 lbs (125 kg)
--	--	--------------------	--------------------	---------------------	---------------------

Recommended Dietary Allowance	0.36 g/lb	46 g	64 g	82 g	100 g
--	-----------	------	------	------	-------

**NATIONAL
ACADEMIES**

*Sciences
Engineering
Medicine*

Protein Requirement / Recommendation

		125 lbs (57 kg)	175 lbs (80 kg)	225 lbs (102 kg)	275 lbs (125 kg)
--	--	--------------------	--------------------	---------------------	---------------------

Recommended Dietary Allowance	0.36 g/lb	46 g	64 g	82 g	100 g
Average American Intake	0.6 g/lb (NHANES)	79 g	110 g	142 g	173 g

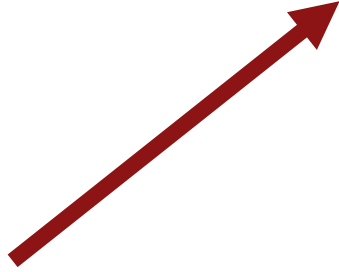
Source: National Health and Nutrition Examination Survey

Protein Requirement / Recommendation

		125 lbs (57 kg)	175 lbs (80 kg)	225 lbs (102 kg)	275 lbs (125 kg)
Estimated Average Requirement	0.30 g/lb	38 g	52 g	67 g	82 g
Recommended Dietary Allowance	0.36 g/lb	46 g	64 g	82 g	100 g
Average American Intake	0.6 g/lb (NHANES)	79 g	110 g	142 g	173 g

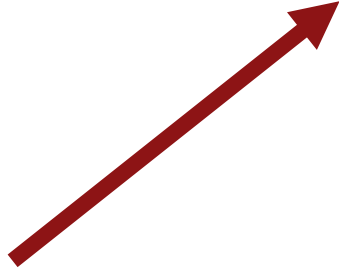
Source: National Health and Nutrition Examination Survey

Protein



1. Functional

Protein



**1. Functional
No Storage**

Protein

1. Functional
No Storage

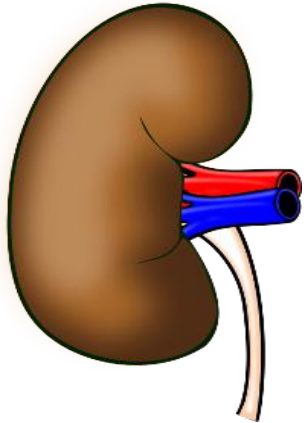
2. Carbohydrate

3. Fat

Nitrogen

NH₃

(Ammonia)





THE LANCET

January, 2019

www.thelancet.com

2019

Food in the Anthropocene: the EAT-Lancet
Commission on healthy diets from
sustainable food systems



~80% plants



THE LANCET

January, 2019

www.thelancet.com

2019

**Food in the Anthropocene: the EAT-Lancet
Commission on healthy diets from
sustainable food systems**

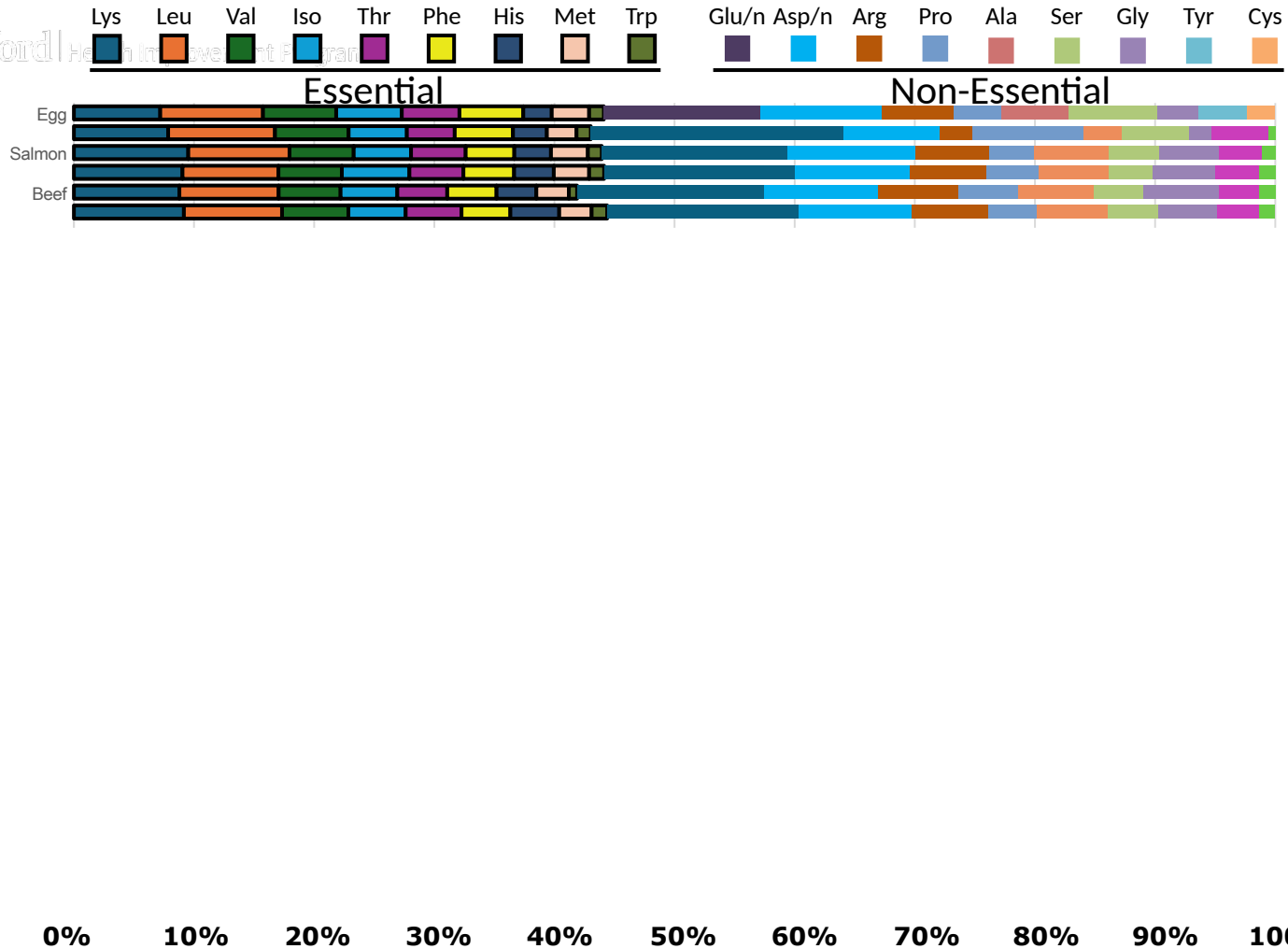




**WHERE WILL
I GET MY
PROTEIN??**



Animal foods



Source: Nutrition Database System for Research, University of Minnesota

Gardner et al.,
Nutr Reviews
2019



Stanford Health Intelligence

Lys Leu Val Iso Thr Phe His Met Trp Glu/n Asp/n Arg Pro Ala Ser Gly Tyr Cys

Essential

Non-Essential

Animal foods



Legumes, beans, lentils, peas



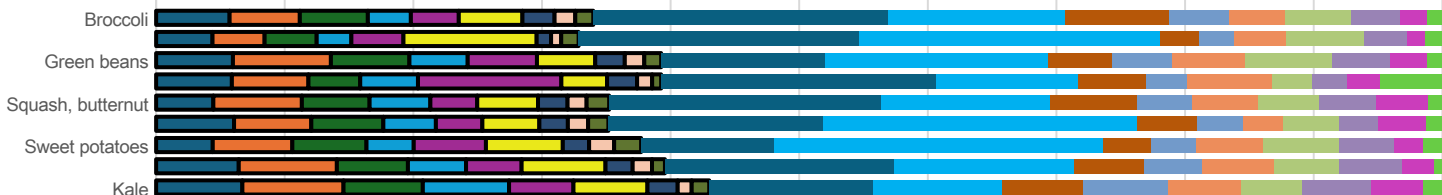
Grains, rice, pasta



Nuts



Vegetables



Fruits



Mushrooms

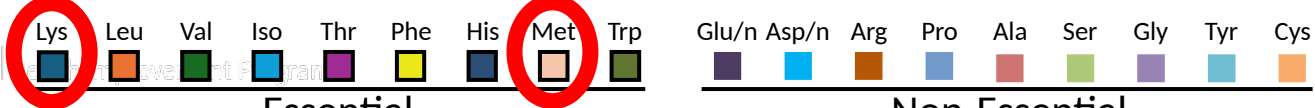


Source: Nutrition Database System for Research, University of Minnesota

Gardner et al., Nutr Reviews 2019



Stanford University



Animal foods

Legumes, beans, lentils, peas

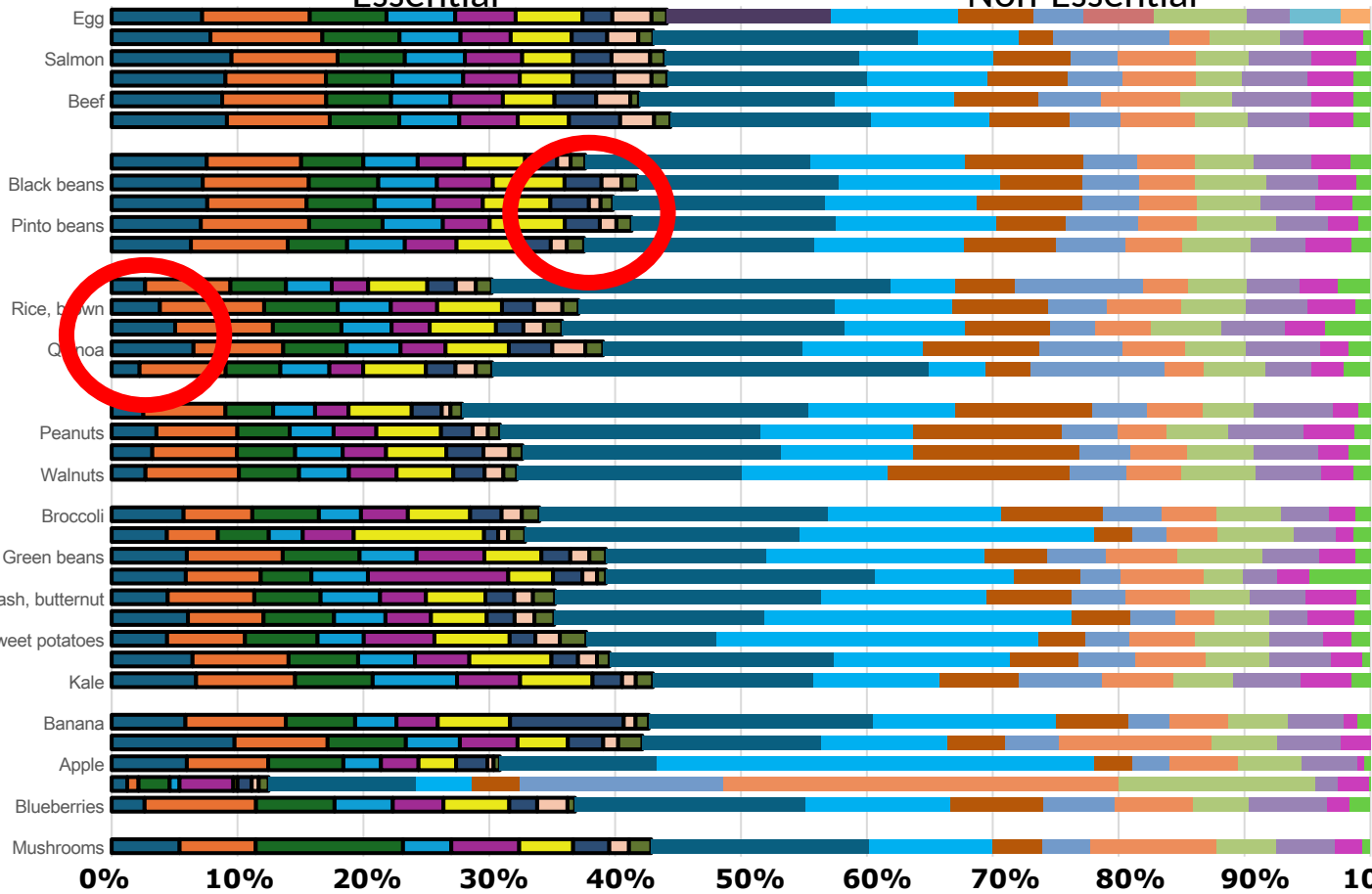
Grains, rice, pasta

Nuts

Vegetables

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Source: Nutrition Database System for Research, University of Minnesota

Gardner et al., Nutr Reviews 2019



Essential

Non-Essential



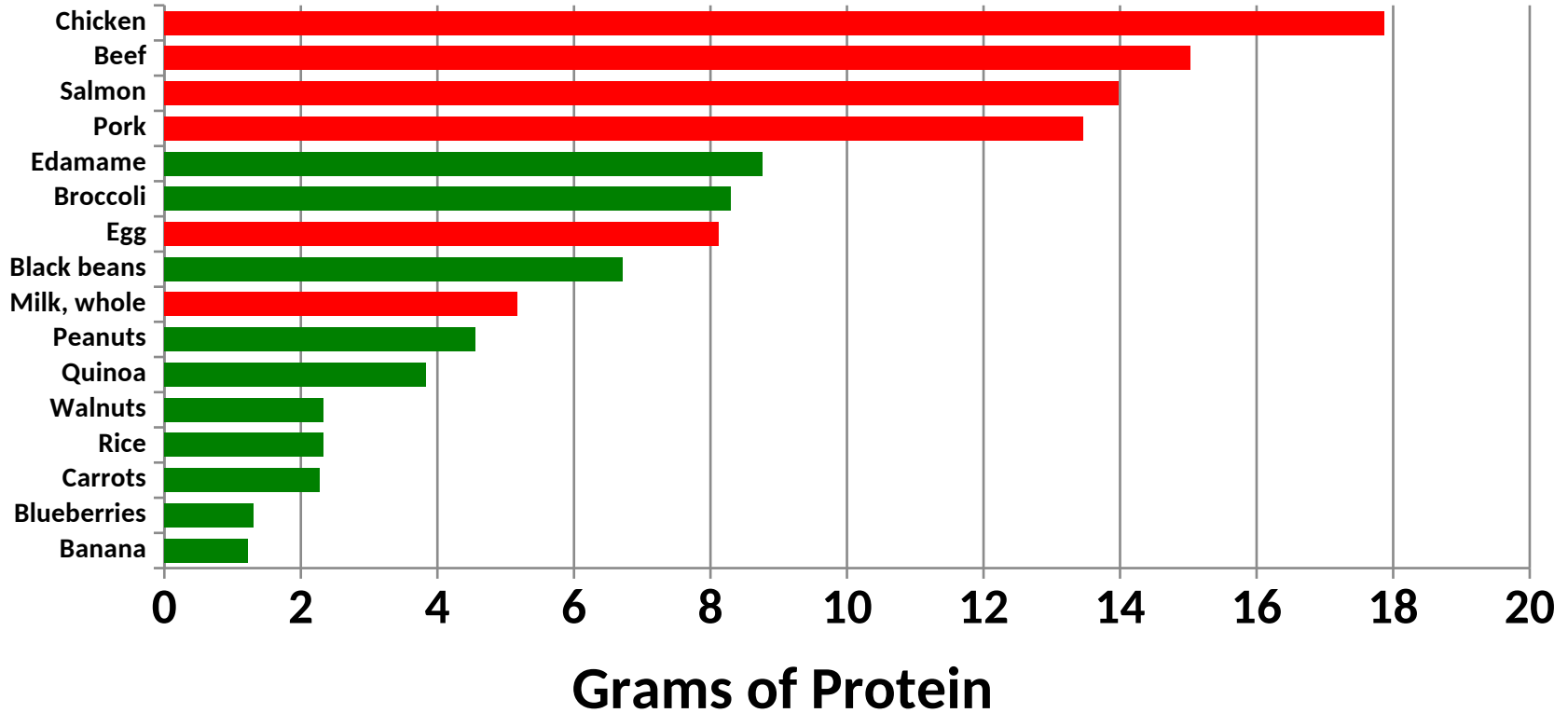
**All plant foods
have
all 20 amino acids**





Protein/100 Kcals

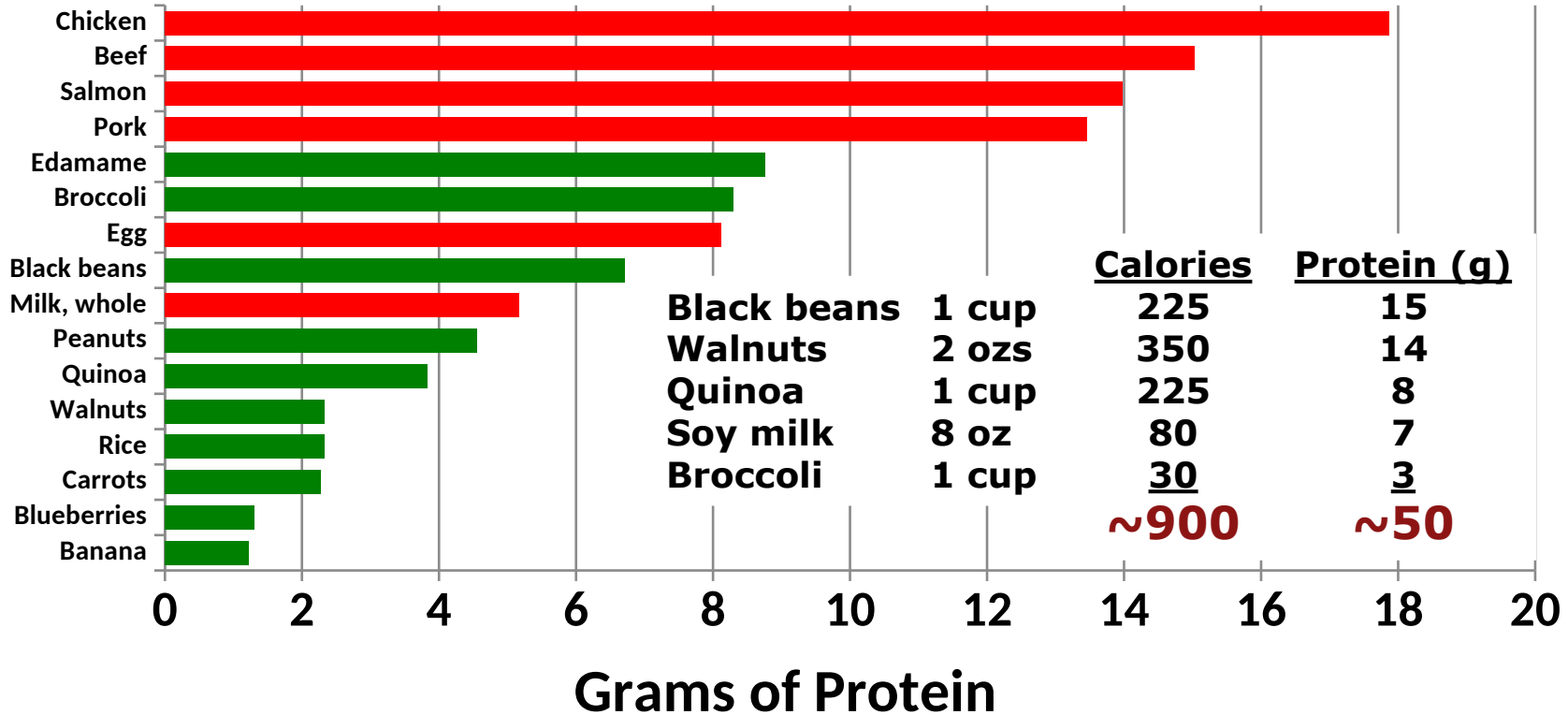
Animal
Plant





Protein/100 Kcals

Animal
Plant





Stanford | Health Improvement Program



Culinary Institute
of America

THE PROTEIN FLIP

A DELICIOUS STRATEGY FOR CHANGE

TRANSFORMING PROTEIN MENU CONCEPTS
FOR THE HEALTH OF OUR CUSTOMERS AND OUR PLANET

THE PROTEIN FLIP



Culinary Institute
of America

WHEN IT COMES TO PLANT AND ANIMAL PROTEINS, IT'S NOT EITHER/OR



THE PROTEIN FLIP

WHEN IT COMES TO PLANT AND ANIMAL PROTEINS, IT'S NOT EITHER/OR

**Grain
Salad**



Pasta

**2 oz
meat
per serving**



Tacos



Stir fry



Salad

Original Investigation | Nutrition, Obesity, and Exercise

Cardiometabolic Effects of Omnivorous vs Vegan Diets in Identical Twins

A Randomized Clinical Trial

Matthew J. Landry, PhD, RDN; Catherine P. Ward, PhD, RD; Kristen M. Cunanan, PhD; Lindsay R. Durand, MPH, RD; Dalia Perelman, MS, RDN; Jennifer L. Robinson, PhD; Tayler Hennings, MPH; Linda Koh, PhD, MS, RN; Christopher Dant, PhD; Amanda Zeitlin, MPH; Emily R. Ebel, PhD; Erica D. Sonnenburg, PhD; Justin L. Sonnenburg, PhD; Christopher D. Gardner, PhD

CONCLUSIONS AND RELEVANCE In this randomized clinical trial of the cardiometabolic effects of omnivorous vs vegan diets in identical twins, **the healthy vegan diet led to improved cardiometabolic outcomes** compared with a healthy omnivorous diet. Clinicians can consider this dietary approach as a healthy alternative for their patients.

YOU ARE WHAT YOU EAT A TWIN EXPERIMENT

NETFLIX



**October
2025**




EMMY® AWARD
WINNER

Protein

1. Functional
No Storage

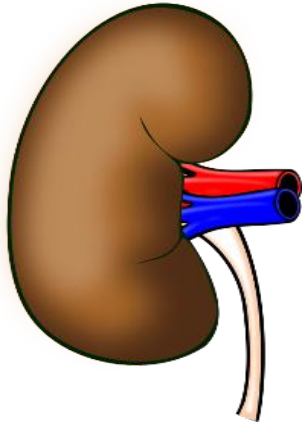
2. Carbohydrate

3. Fat

Nitrogen

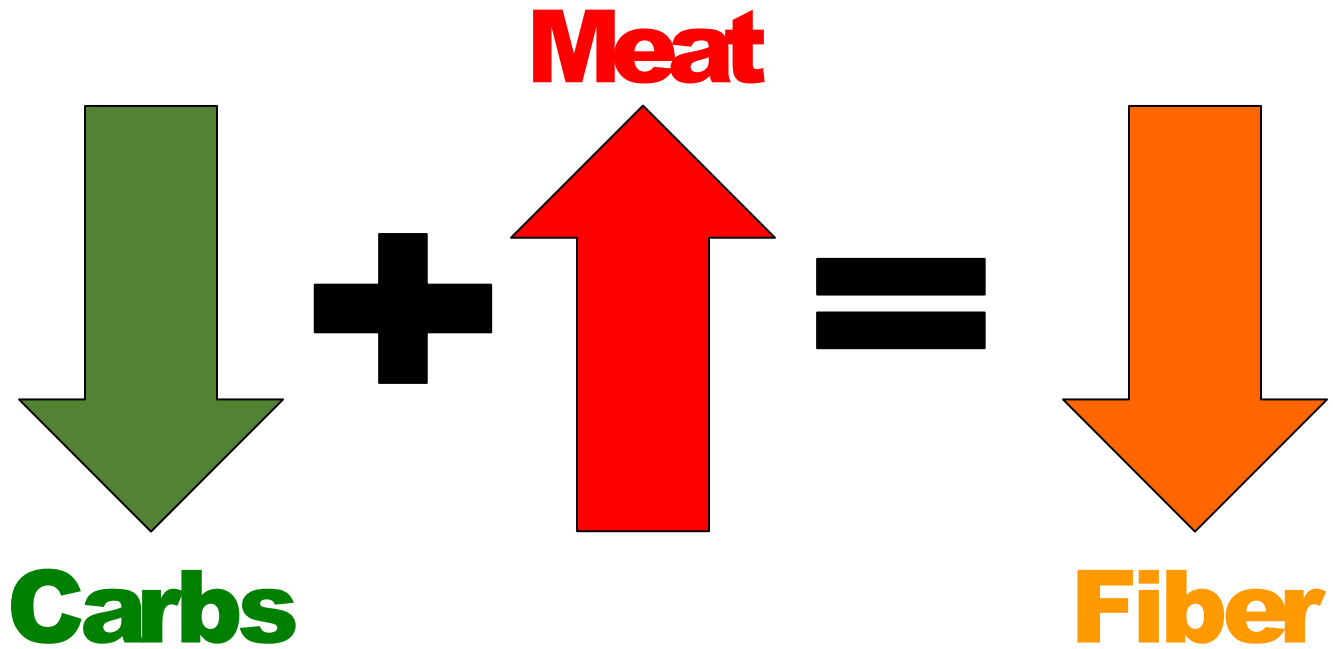
NH₃

(Ammonia)



OUTLINE

- *Stop Obsessing About Protein*
- **Fiber - Feed your**



Fiber
g/day

150

125

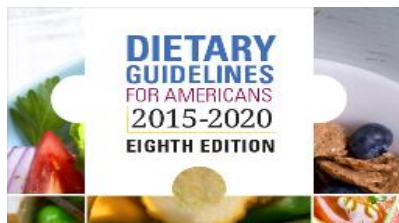
100

75

50

25

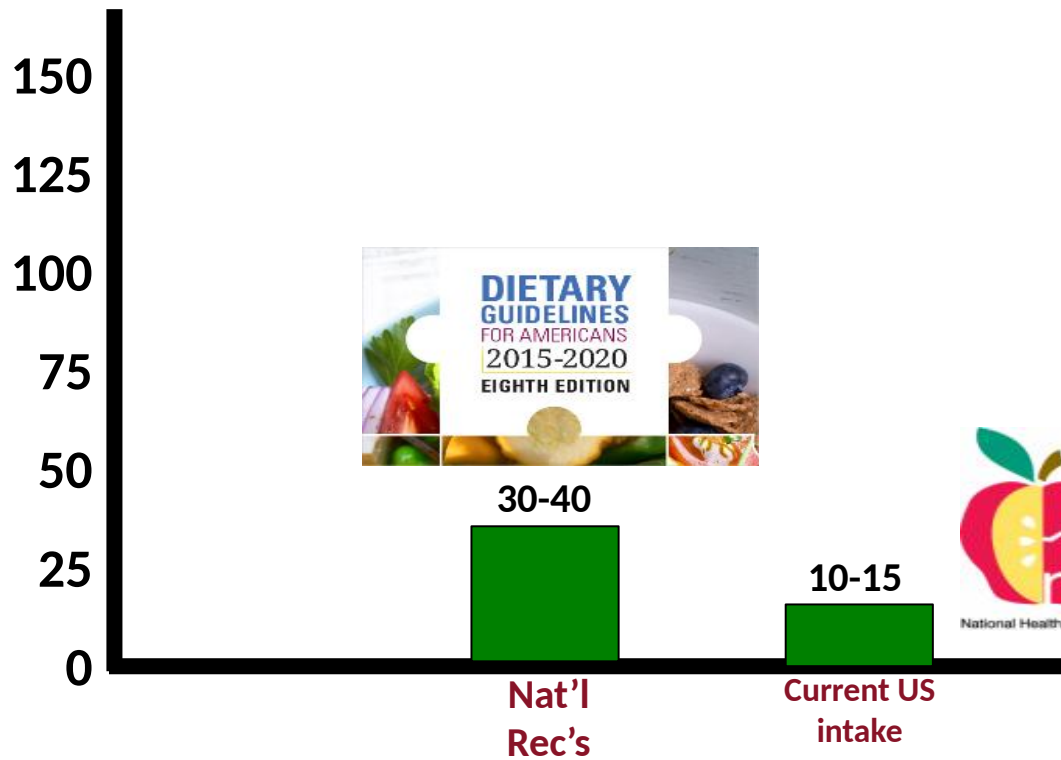
0



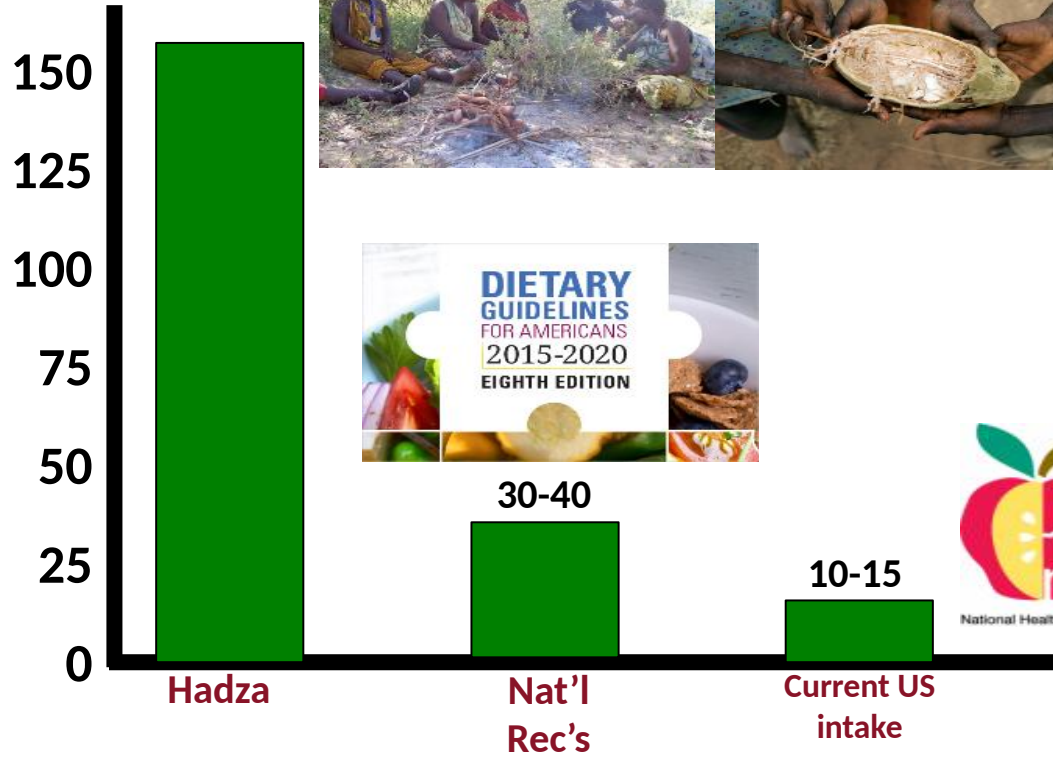
30-40

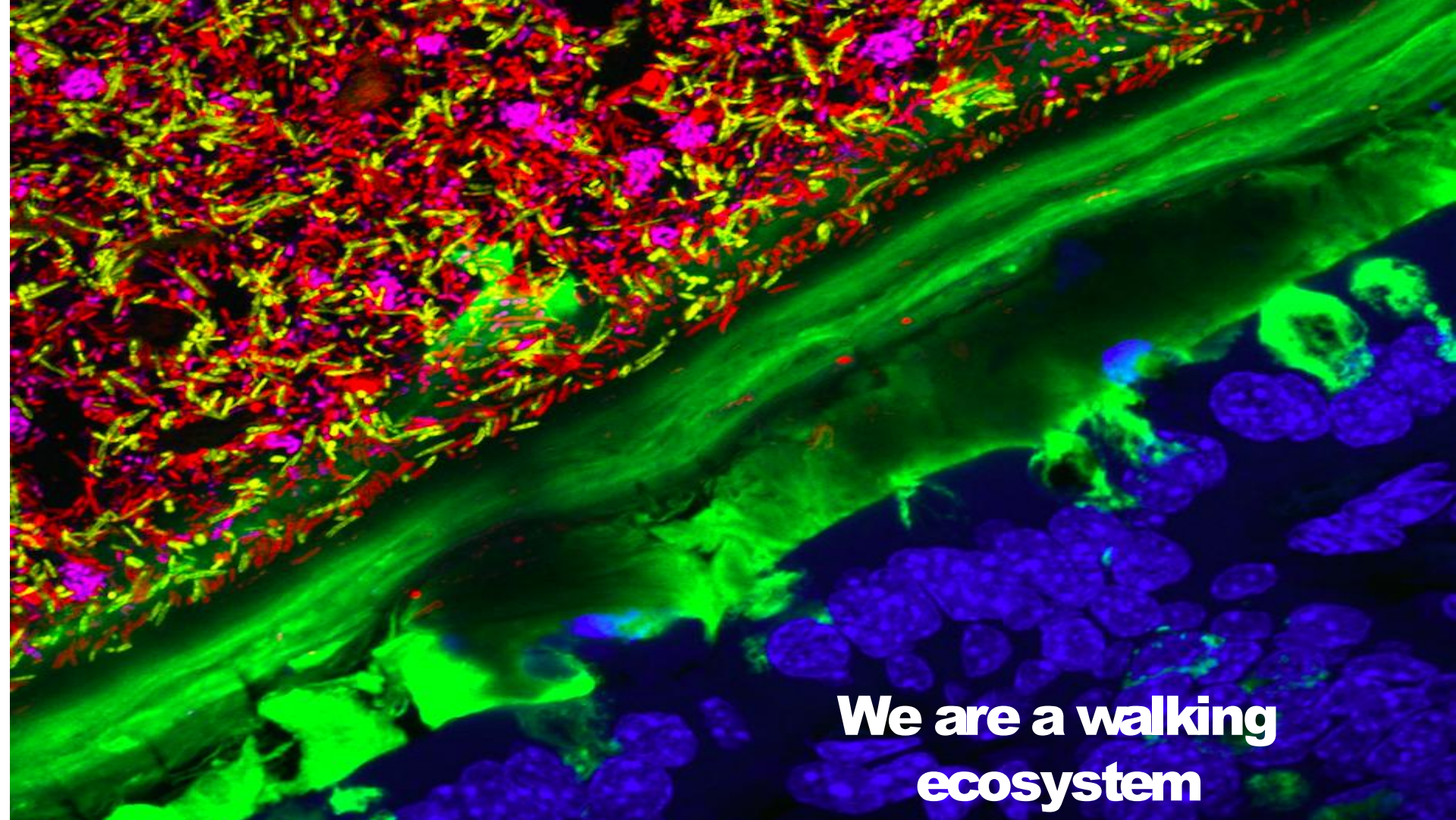
Nat'l
Rec's

Fiber
g/day



Fiber
g/day

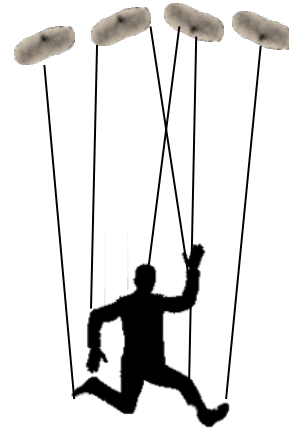




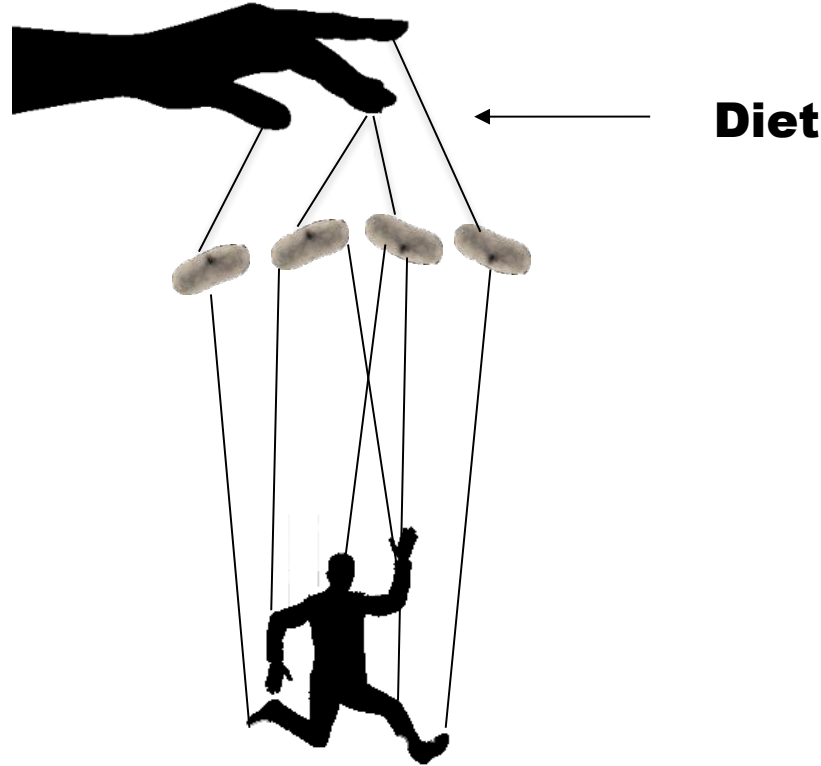
**We are a walking
ecosystem**

The microbiota is integrated into all aspects of human biology

- Metabolism/Obesity
- Immune System
- Central Nervous System

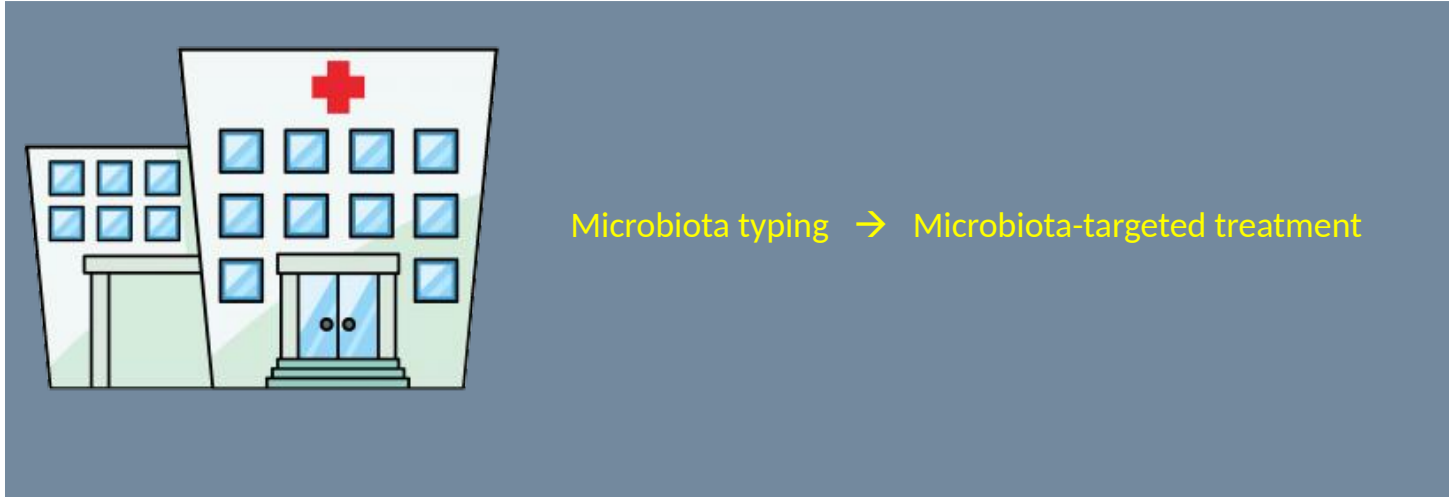


How can we manipulate the microbiota to improve health?



A vision of future microbiota-based medicine

Using the malleability of the microbiota for improved human health



**Microbiota-based, Precision
Medicine**

**Precision Health applications...but also
deterioration is possible**

Our gut ecosystem is losing diversity. Why?



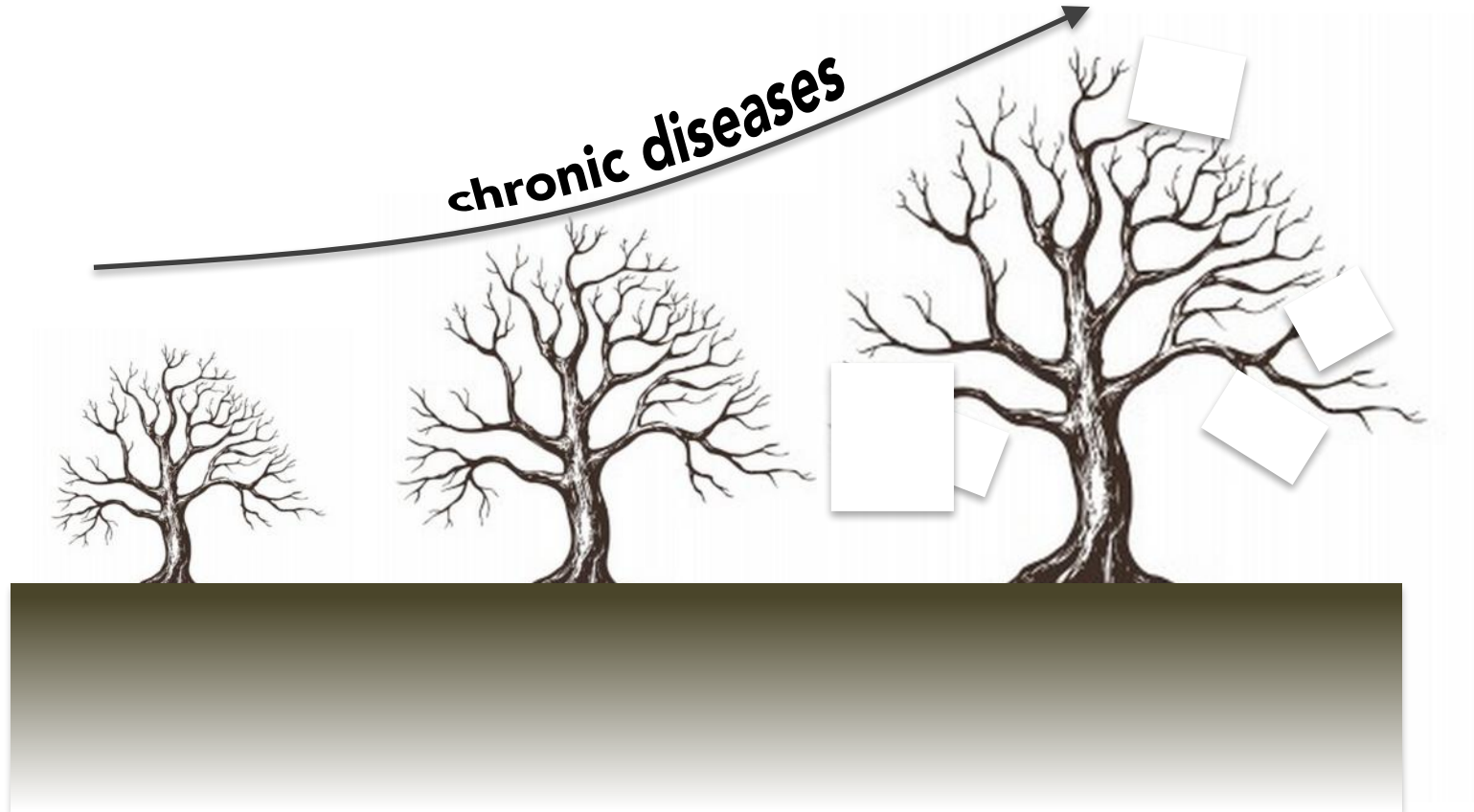
High diversity gut microbiome
→ Better health

- Western Diet
- Sanitization
- Antibiotics
- Baby Formula
- C-sections

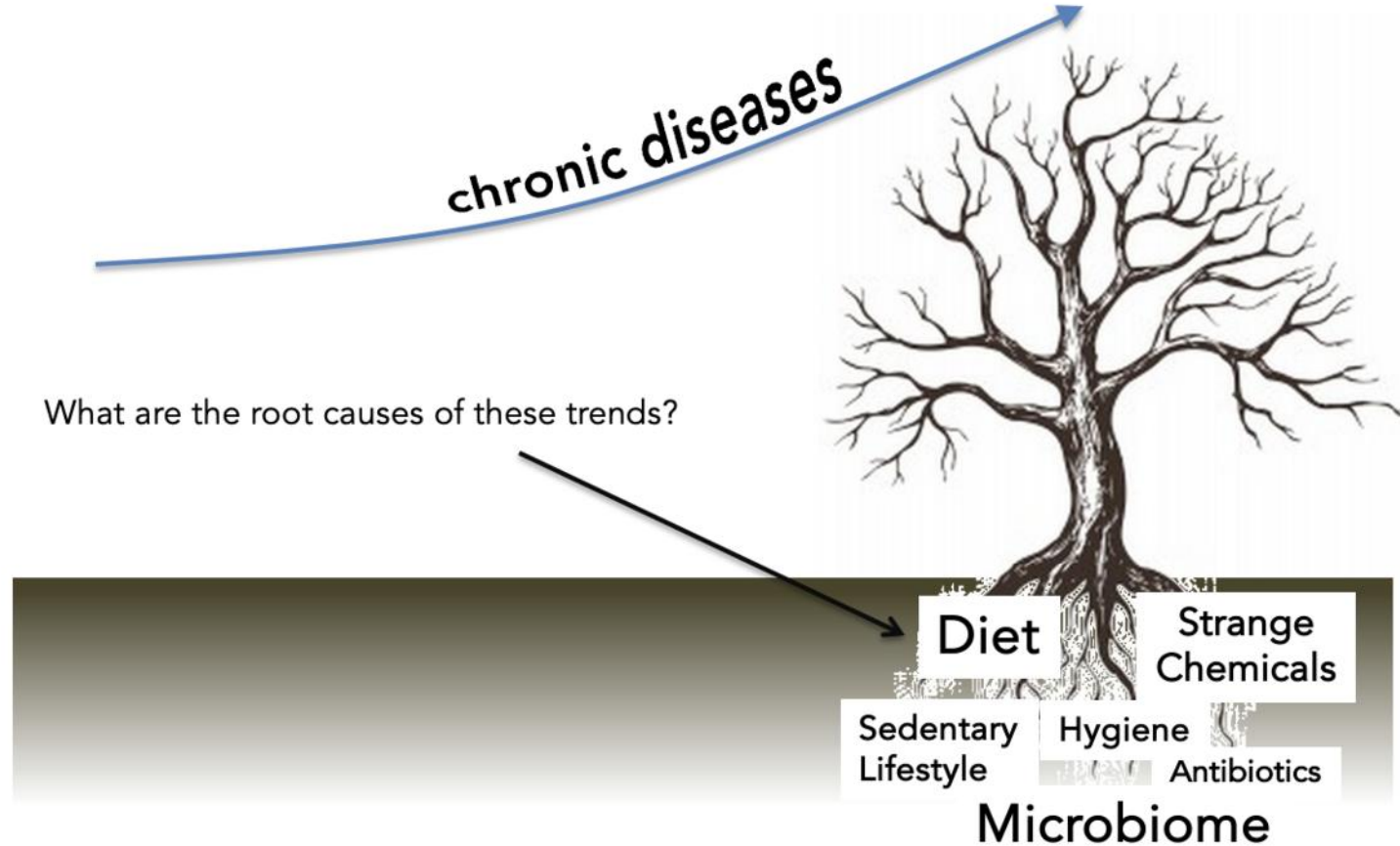


Chronic inflammatory diseases are on the rise

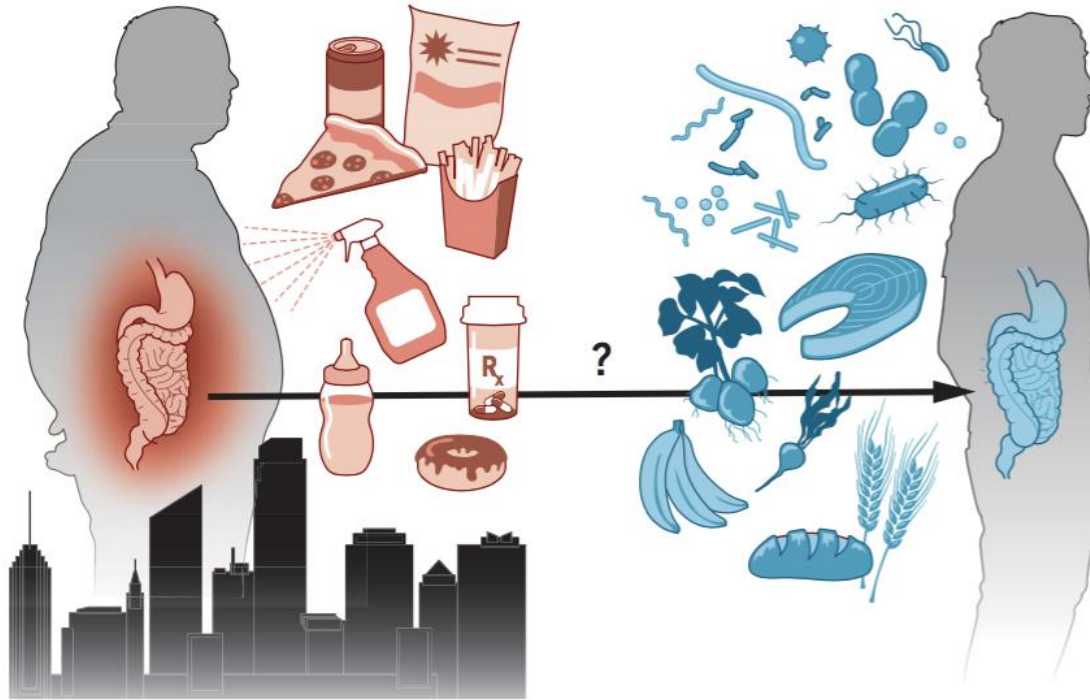
Is prevention possible?



Is a modern microbiota the basis for chronic inflammatory disease?



Can we repair our microbiome and improve health?

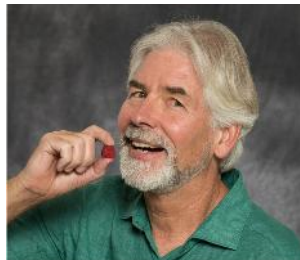


Are there principles that apply to most of the population?
How much information needs to be personalized?

Discovery through diet-induced microbiome alterations



Erica Sonnenburg



Christopher Gardner

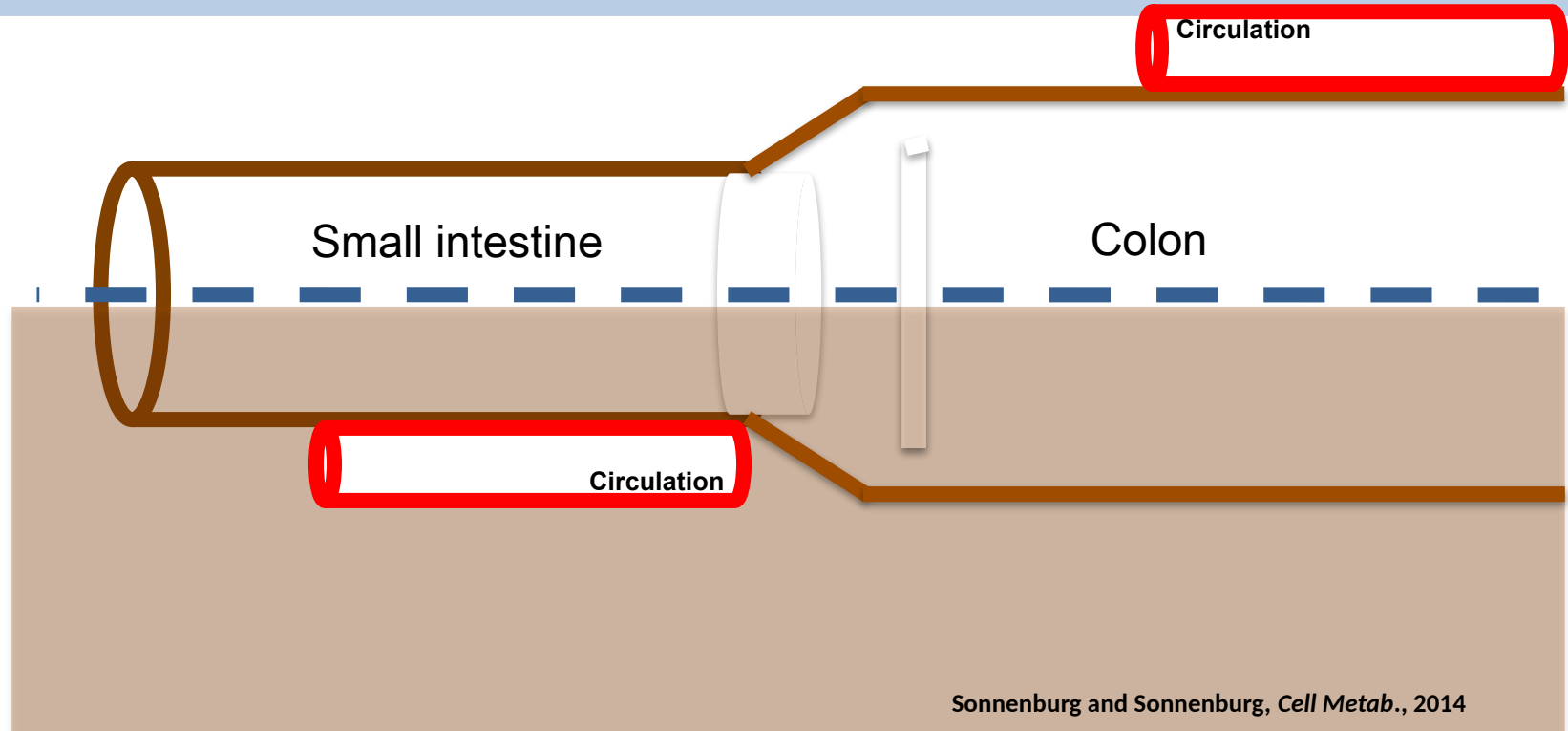


Mark Davis

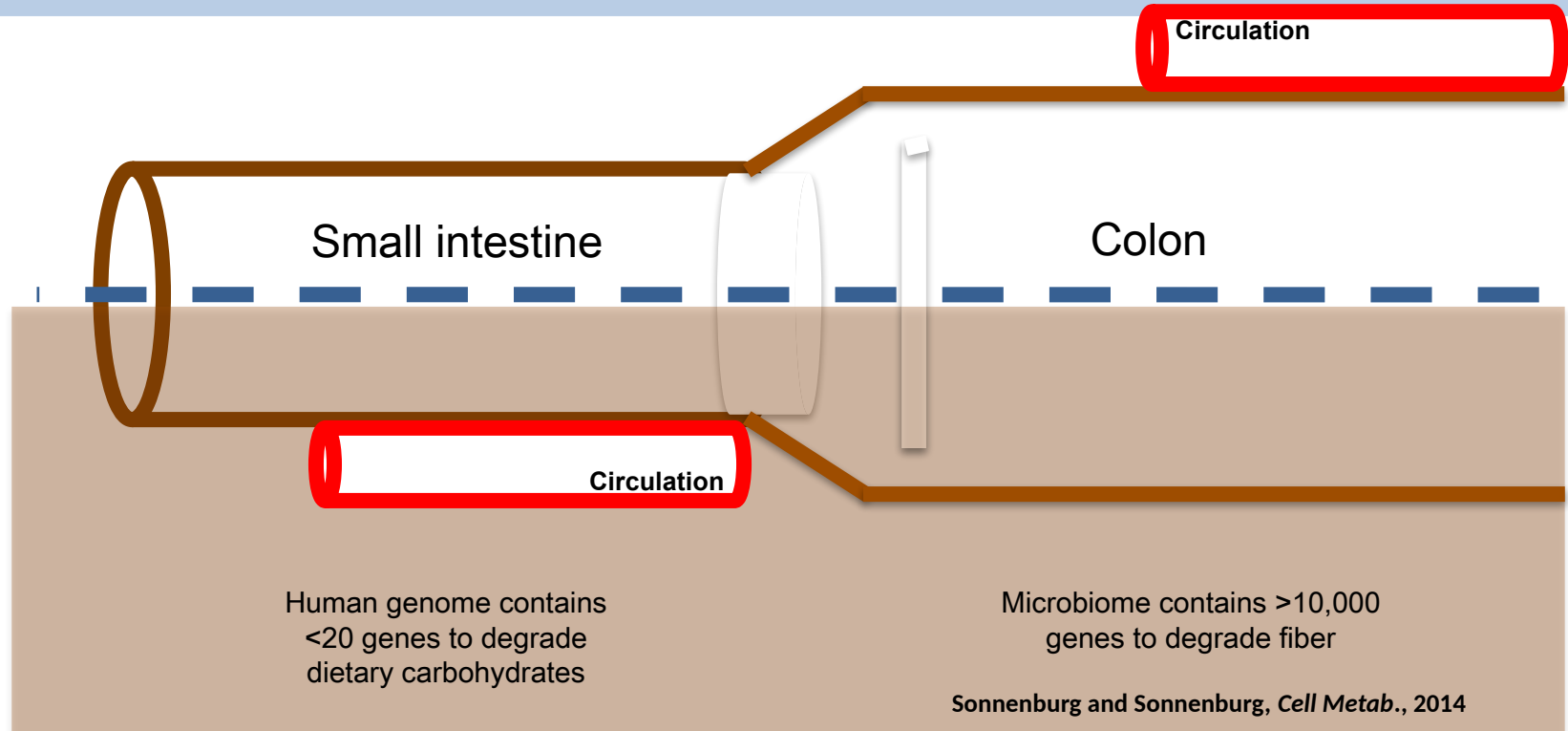


Justin Sonnenburg

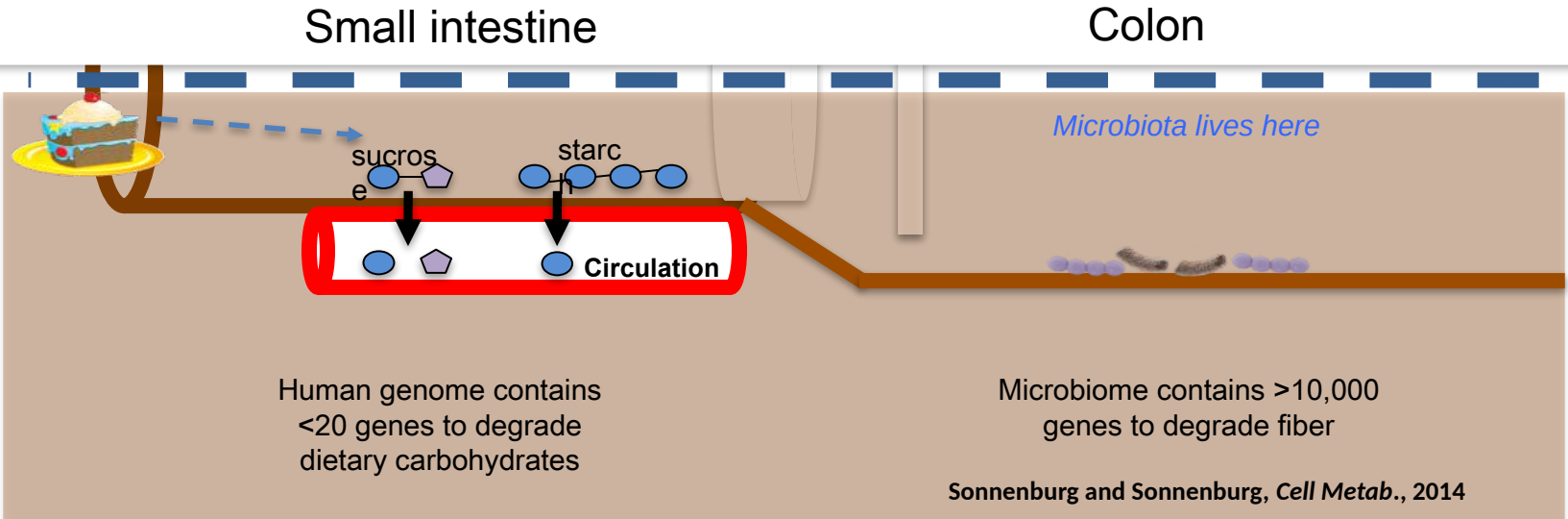
Small Intestine and Colon



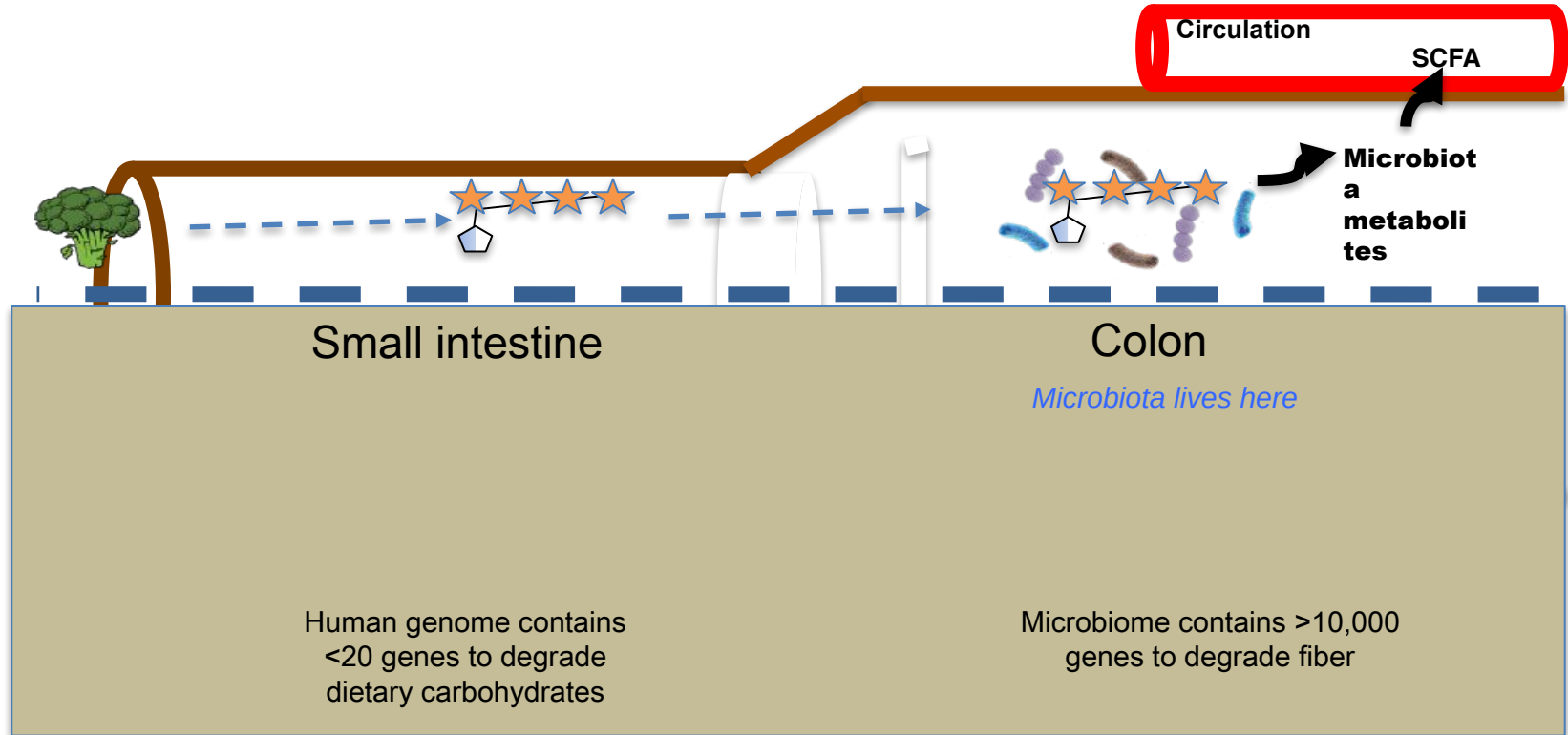
Small Intestine and Colon



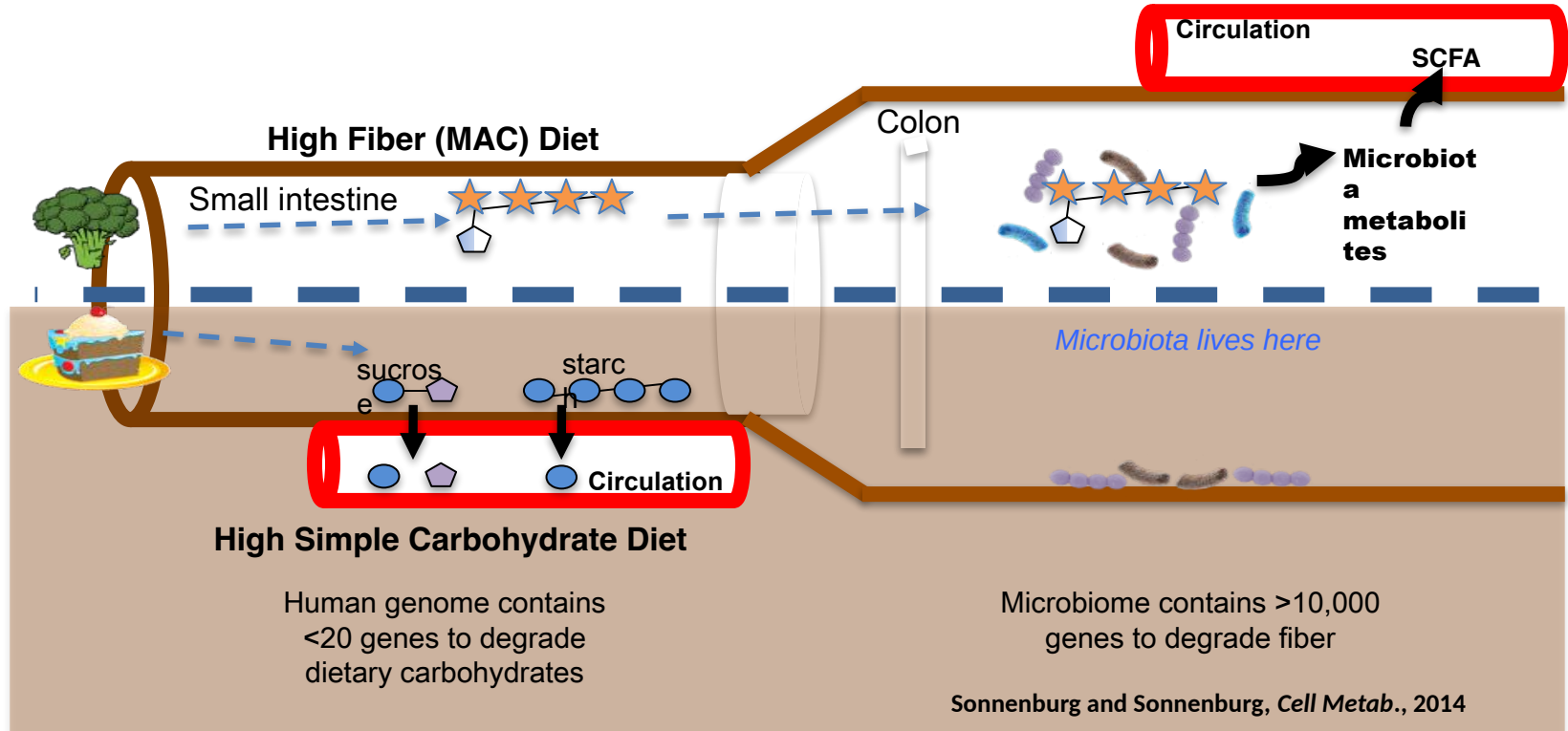
High Simple Carbohydrate Diet



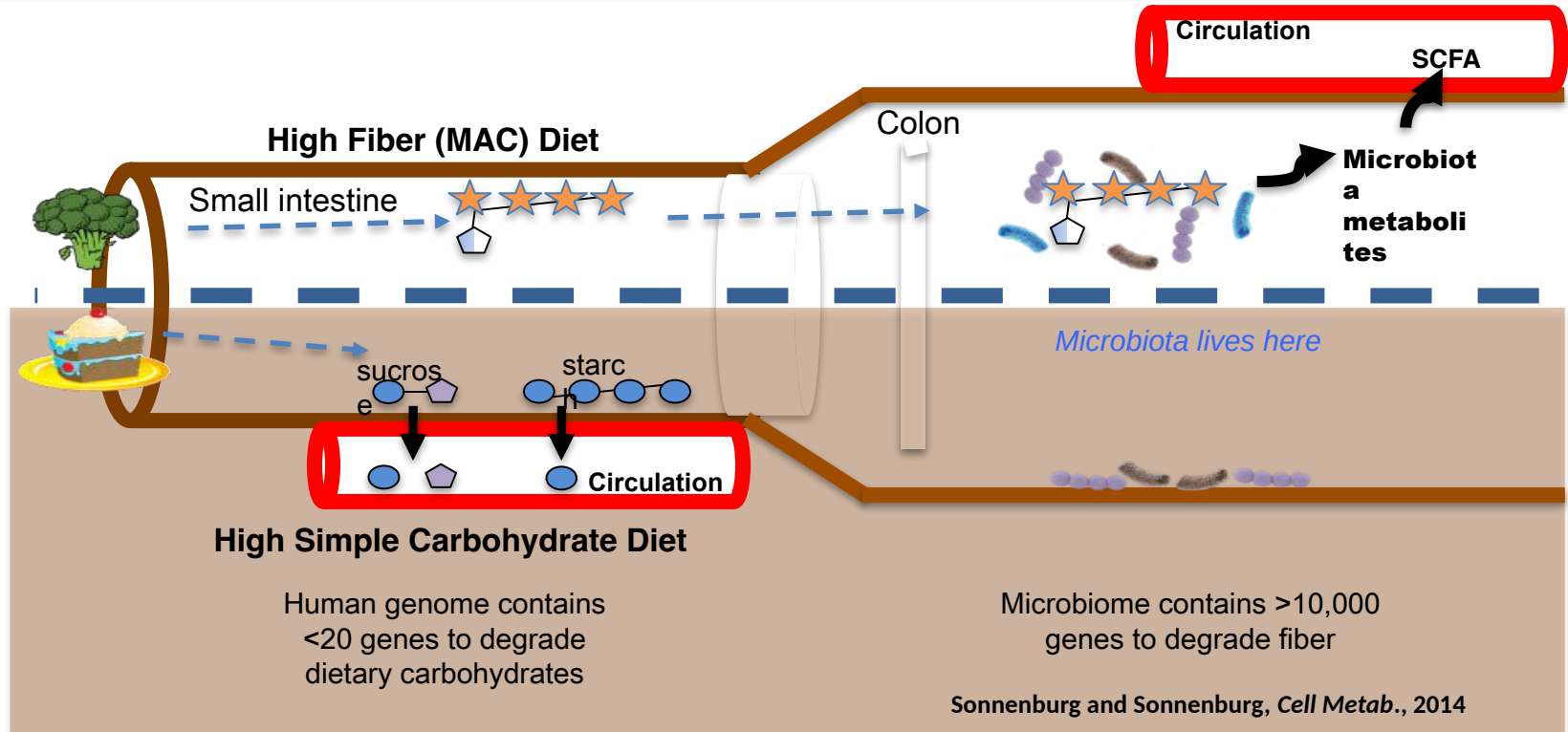
High Fiber (Microbiota Accessible Carbohydrate [MAC]) Diet



Two Very Different Metabolic Scenarios

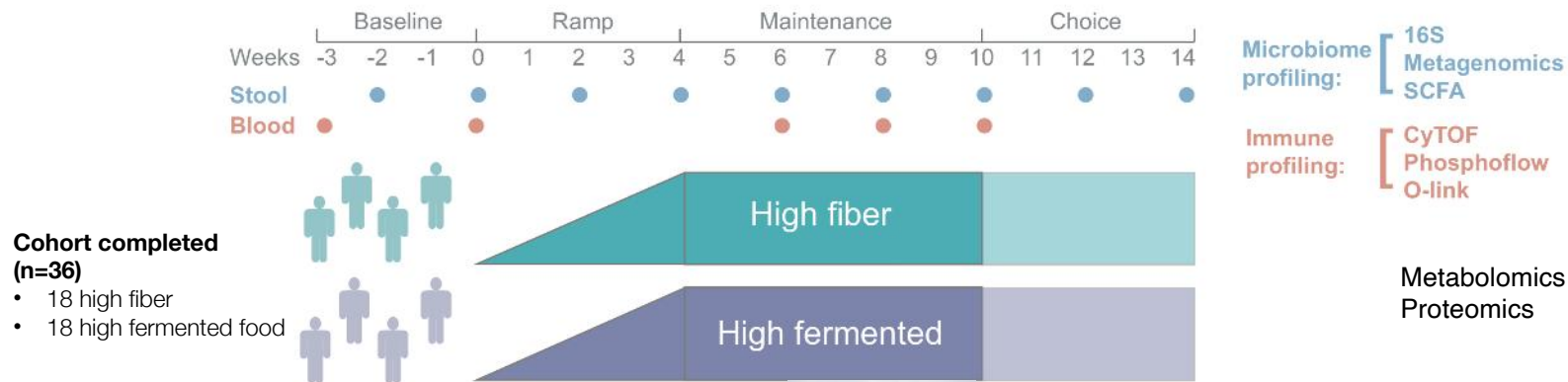


Microbiota-Accessible Carbohydrates (MACs) fuel the gut microbiota



The FeFiFo: (Fermented-Fiber-Food) Study

Can we modulate the immune system via a microbiome-targeted diet?



The Sonnenburg lab



Maddie Topf



Hannah Wastyk



Gabi Fragiadakis



Dalia Perelman



The Gardner group

(Wastyk/Fragiadakis et al., *Cell*, 2021)

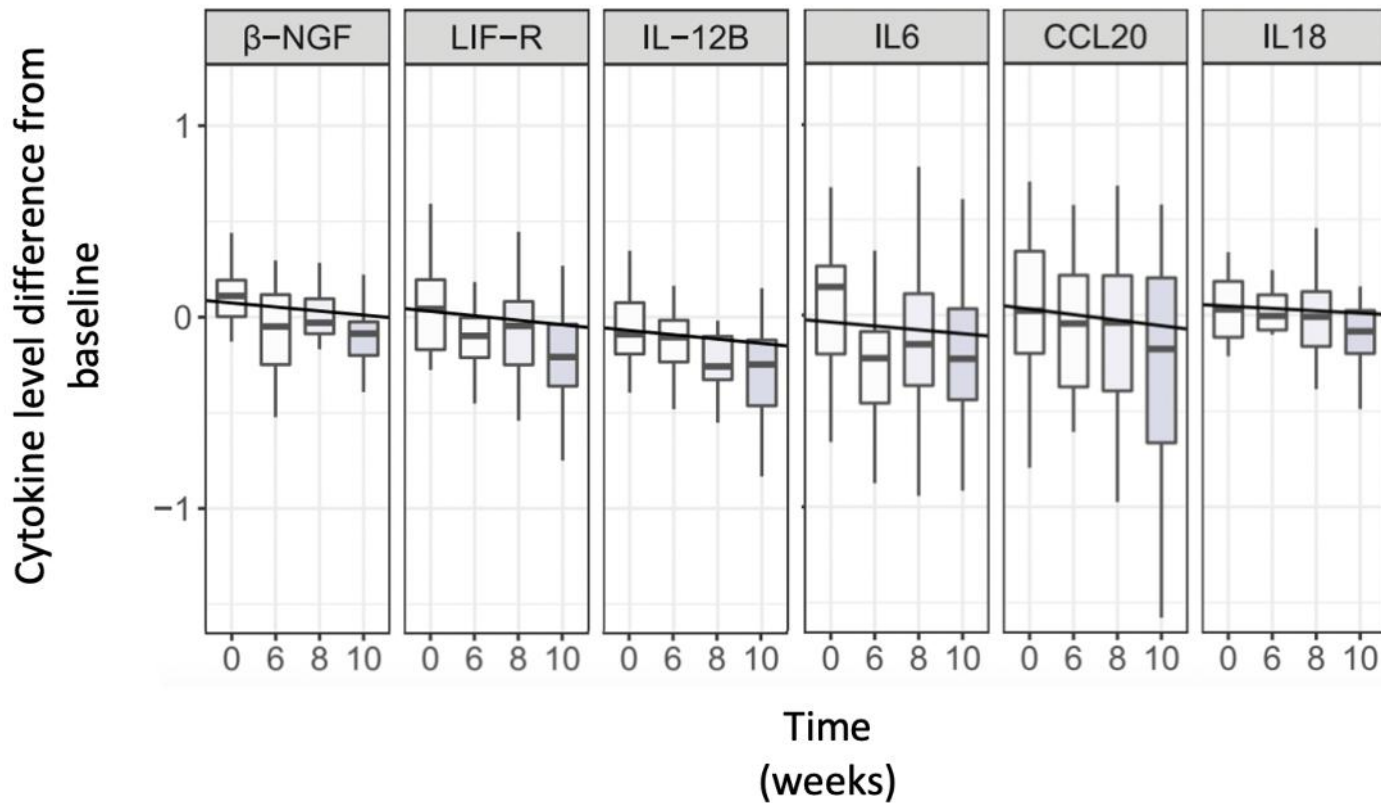
High Fiber Diet



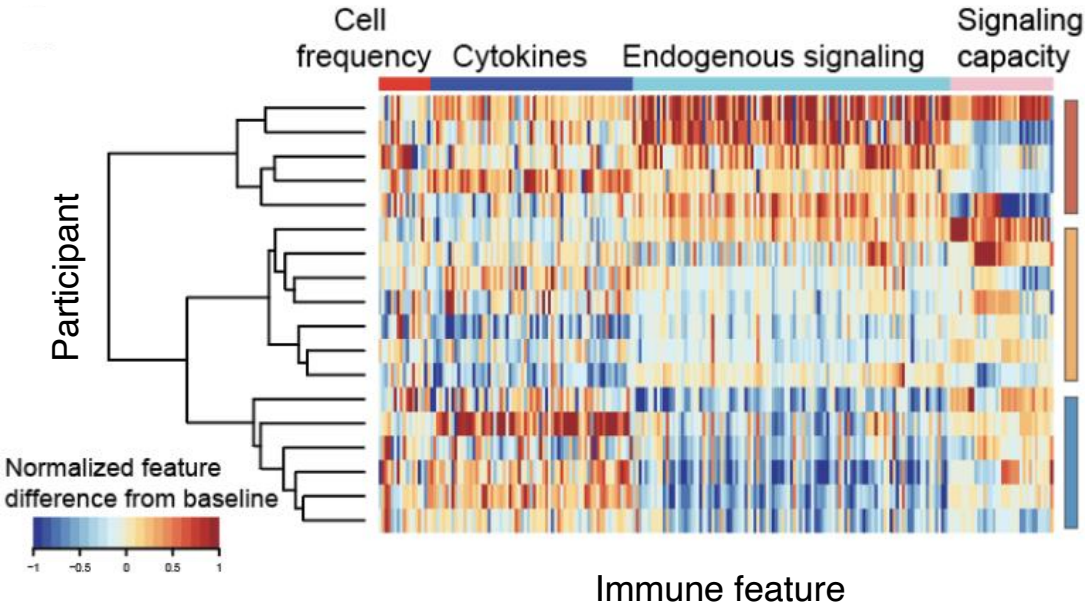
High Fermented Foods



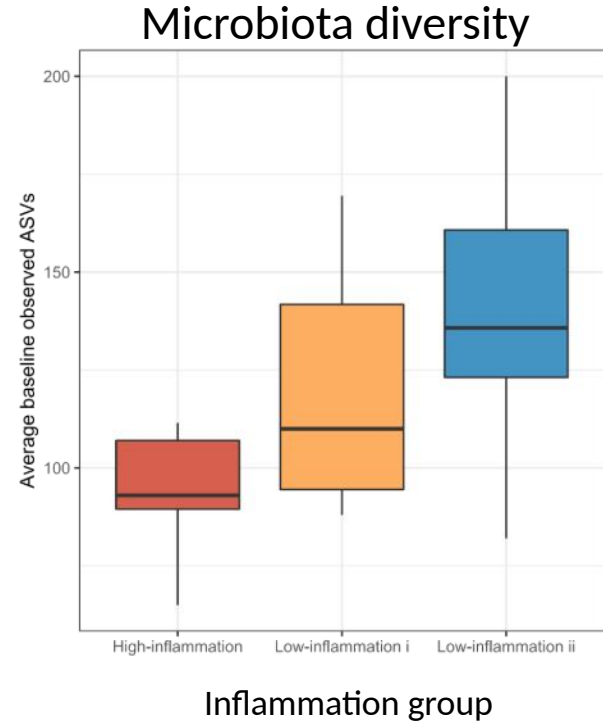
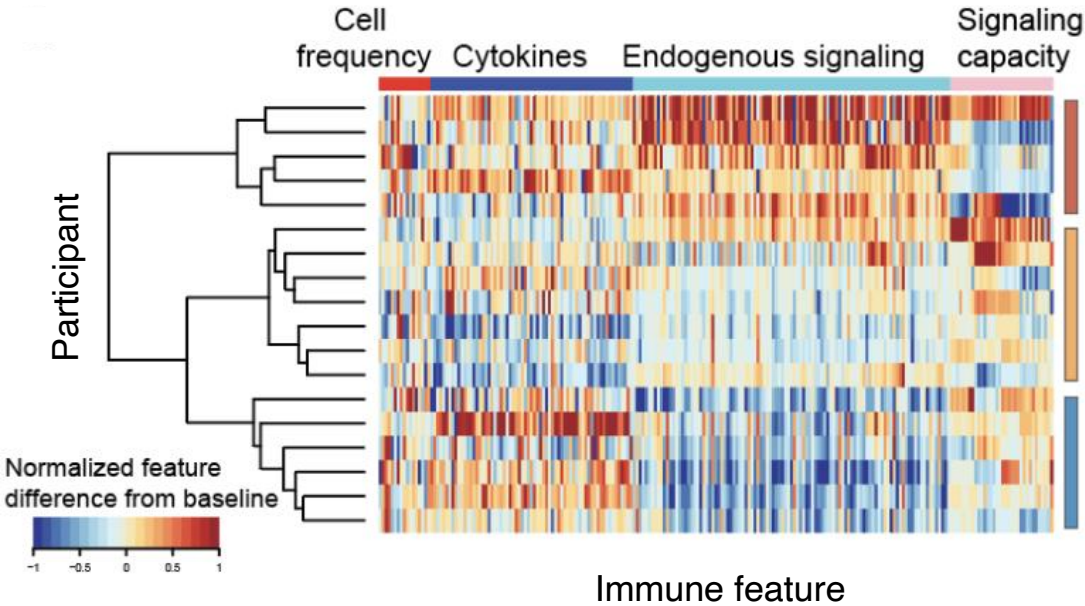
Fermented food cohort: broad decrease in inflammatory markers



Immune status changes in High Fiber linked to microbiome diversity



Immune status changes in High Fiber linked to microbiome diversity



FeFiFo Study: Take Home Messages

- Fermented foods increased microbiota and decreased inflammation
- High fiber foods resulted in individualized immune responses
 - Responses corresponded to baseline microbiota diversity

FeFiFo Study: Take Home Messages

- Fermented foods increased microbiota and decreased inflammation
- High fiber foods resulted in individualized immune responses
 - Response diversity



biota

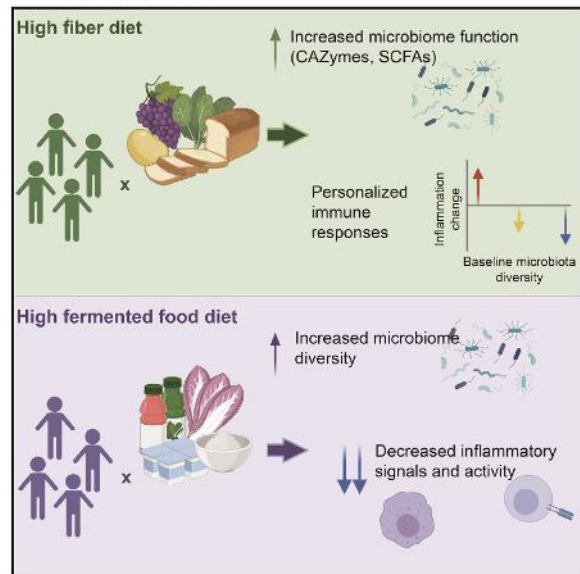
Fe-Fi-Fo > 1,500 citations

Cell

Article

Gut-microbiota-targeted diets modulate human immune status

Graphical abstract



Authors

Hannah C. Wastyk,
Gabriela K. Fragiadakis,
Dalia Perelman, ..., Erica D. Sonnenburg,
Christopher D. Gardner,
Justin L. Sonnenburg

Correspondence

cgardner@stanford.edu (C.D.G.),
erica.sonnenburg@stanford.edu (E.D.S.),
jsonnenburg@stanford.edu (J.L.S.)

In brief

A prospective randomized multiomics study in humans investigating the longitudinal effects of a high-fiber or fermented-food diet shows their differential effects on the diversity of the microbiome, with the latter having a noticeable impact on reducing inflammatory markers and modulating immune responses.



About this Attention Score

In the top 5% of all research outputs scored by Altmetric

MORE...

Mentioned by

- 171 news outlets
- 15 blogs
- 1058 X users
- 13 Facebook pages
- 1 Wikipedia page
- 6 Redditors
- 1 research highlight platform
- 18 YouTube creators

Four Take-home Messages

- The Western gut microbiota has low diversity, which is associated with poor health.

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- Dietary fiber (MACs, microbiota accessible carbohydrates) can help retain and increase microbiota diversity.

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- The Western gut microbiota has low diversity, which is associated with poor health.
- Dietary fiber (MACs, microbiota accessible carbohydrates) can help retain and increase microbiota diversity.
- Fermented foods have many health benefits and can help increase microbiota diversity.

Four Take-home Messages

- The Western gut microbiota has low diversity, which is associated with poor health.
- Dietary fiber (MACs, microbiota accessible carbohydrates) can help retain and increase microbiota diversity.
- Fermented foods have many health benefits and can help increase microbiota diversity.
- Most claims about knowing what foods will impact what bacteria for what health outcomes, are beyond the science available today – MORE STUDIES NEEDED.

A vision of future microbiota-based medicine

Using the malleability of the microbiota for improved human health



Microbiota typing → Microbiota-targeted treatment

**Microbiota-based, Precision
Medicine**



"Virtually every aspect of health . . . is influenced by the . . . microbes living within us. *The Good Gut* empowers [us] to embrace this leading-edge science in an actionable, user-friendly way." —DAVID PERLMUTTER, MD,
#1 New York Times bestselling author of *GRAIN BRAIN*

The GOOD GUT

TAKING CONTROL of

YOUR
WEIGHT,

YOUR MOOD,

and YOUR
LONG-TERM HEALTH

*With a
Family-Friendly
7-Day Menu*

Justin Sonnenburg *and*
Erica Sonnenburg, PhDs



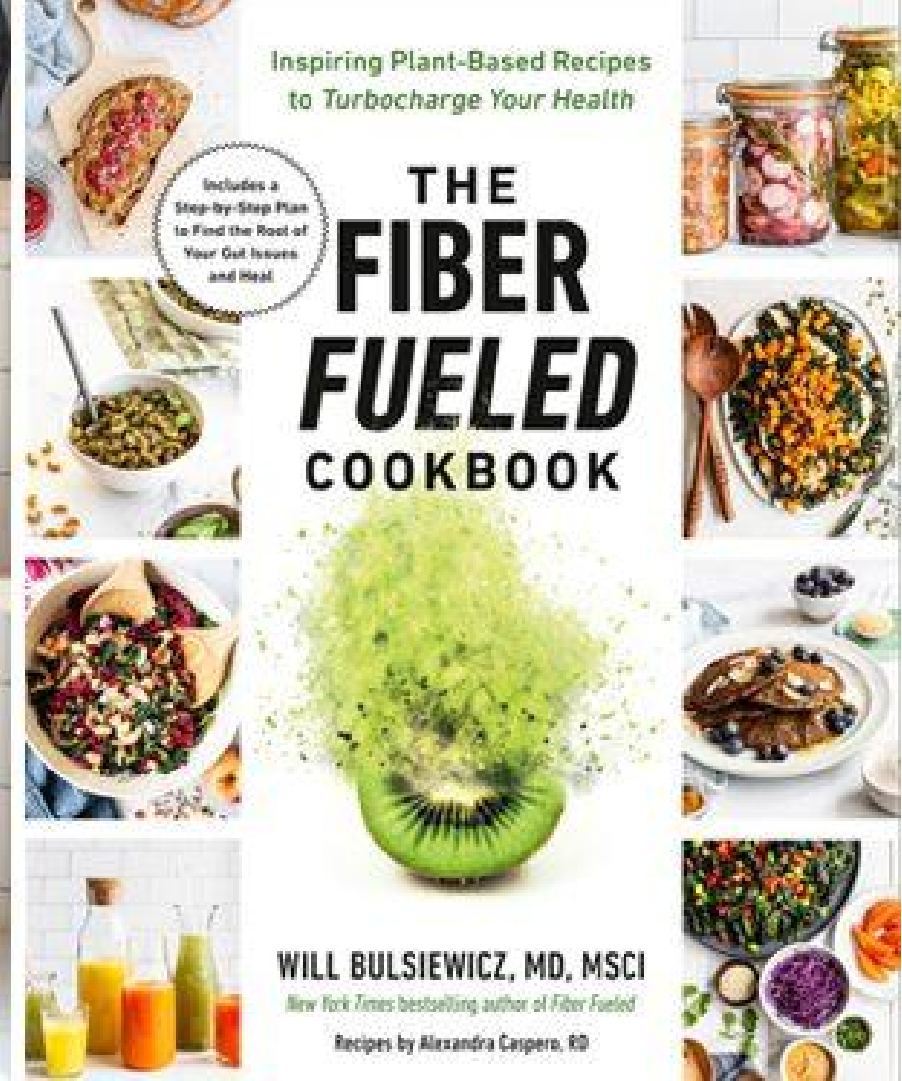
Foreword by Dr. Andrew Weil

Microbiome Expert Sean Spencer, MD, PhD: On a Mission to Prove that Food is Medicine

April 8, 2024 / in Gut Health, Healthful Nutrition /

By Sharon Brock, MEd, MS







Top Nutrition Scientist Tim Spector Eats 30 Plants a Week. Here's How. - Business Insider

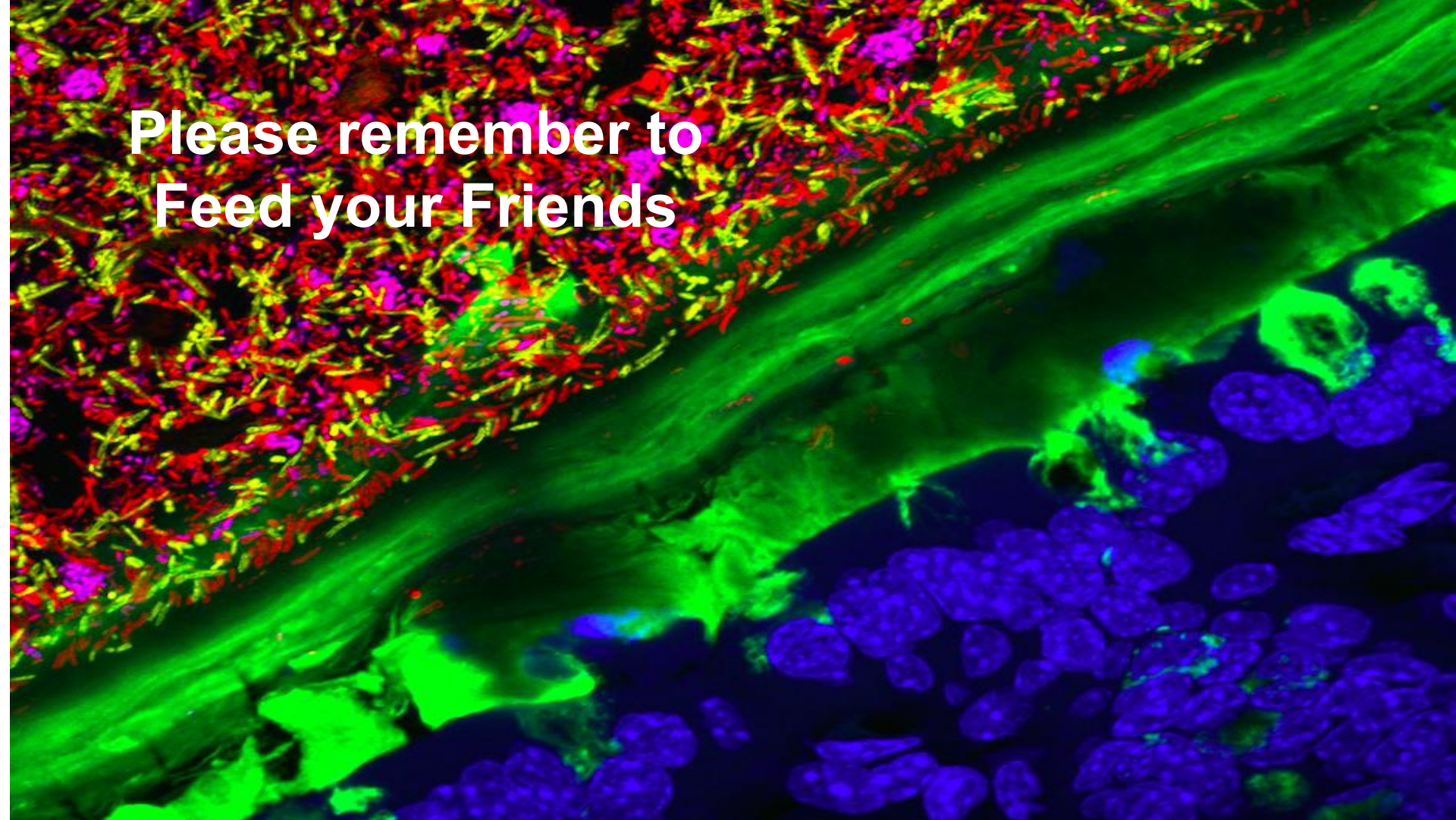
From the no.1 bestselling
author of *SPOON-FED*

Tim
Spector

Food for Life

The New
Science of
Eating Well

**Please remember to
Feed your Friends**



OUTLINE

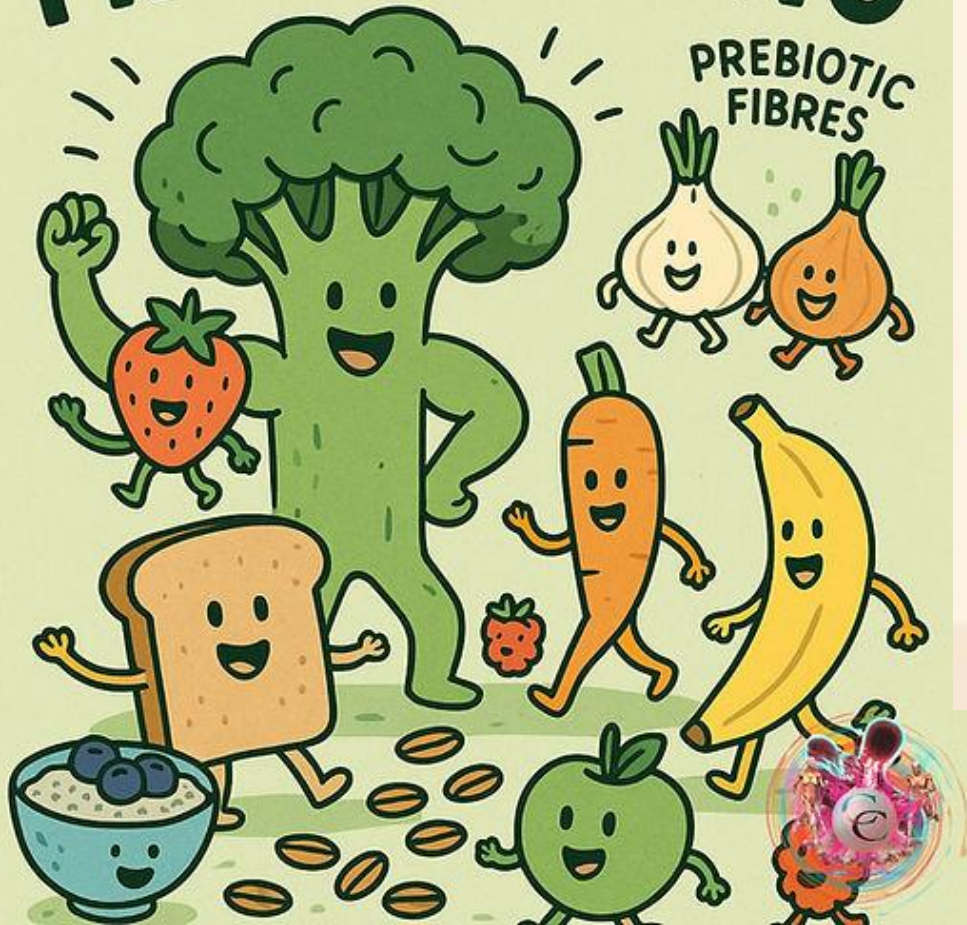
- *Stop Obsessing About Protein*
- *Fiber - Feed your Friends*

Protein Maxing

**FIBER
MAXING?!?!**



FIBREMAXING



TREND ALERT: 🌿

Fibermaxxing'

The Smart Gut Health Move!

- ✓ Boost digestion
- ✓ Support heart & blood sugar health
- ✓ Feel fuller for longer

⚠ Start slow + stay hydrated!

Best sources:

Beans • Lentils • Veggies • Fruits
Whole grains

Good for your gut. Great for your health.

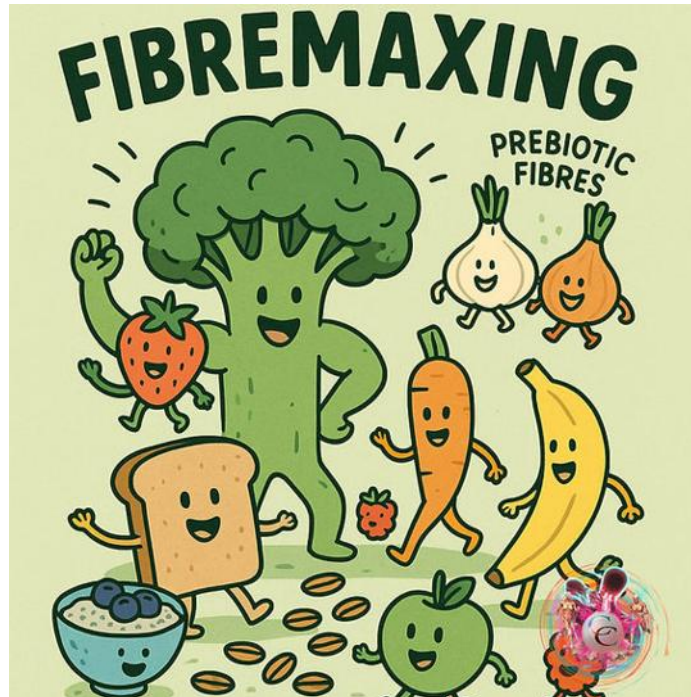
Post

Beans • Lentils • Veggies • Fruits



Protein Maxing

**FIBER
MAXING?!?!**



TREND ALERT: 🌾
Fibremaxxing'
The Smart Gut Health Move!

- ✓ Boost digestion
- ✓ Support heart & blood sugar health
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⚠️ Start slow + stay hydrated!

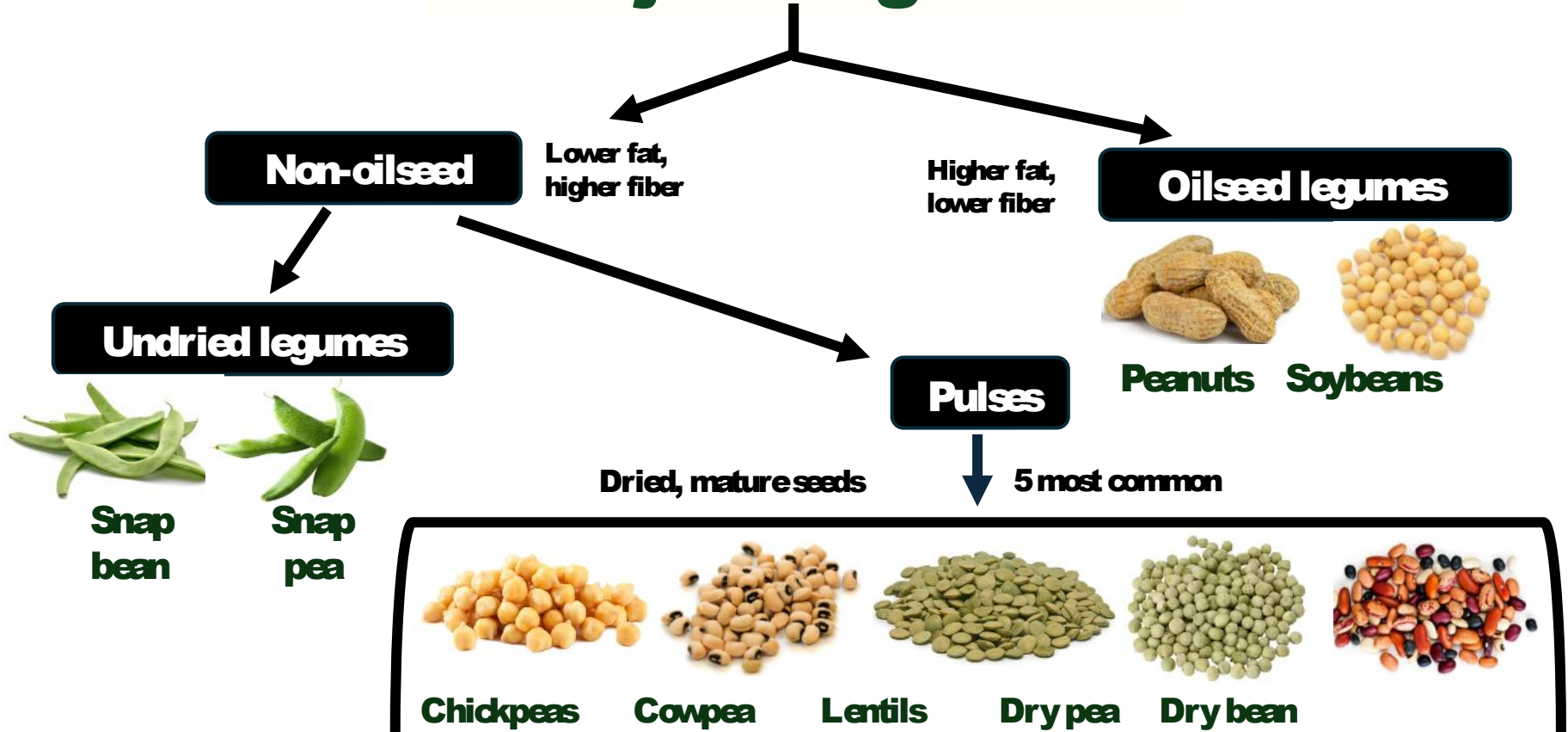
Best sources:
Beans • Lentils • Veggies • Fruits
Whole grains

Good for your gut. Great for your health.

Post
Beans • Lentils • Veggies • Fruits



9 Major Legumes





Asian Tofu and Tempeh Stir Fry

Indian Red Lentil Dal





Mediterranean an Hummus



Middle Eastern Vegetable Salad

Ghanaian n Red Red Cowpea Stew





Latin America n Black Bean Tacos

Indonesian Gado Gado Peanut Sauce





Acknowledgements

Sonnenburg Lab:

Justin Sonnenburg
Erica Sonnenburg
Steven Higginbottom
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And take care of your microbiome friends



THANK YOU!

QUESTIONS

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