Diabetes Education SERVICES

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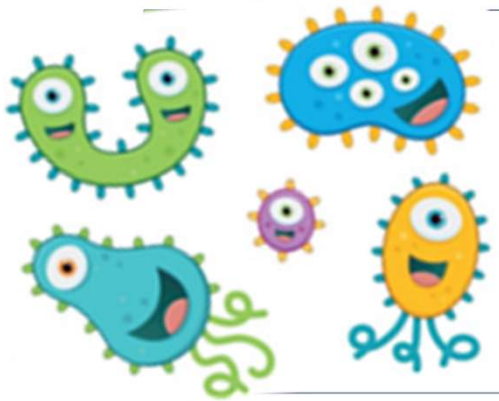
Advancing Your Career in Diabetes Education



Getting to the Gut & Skin
Meet your Microbiome

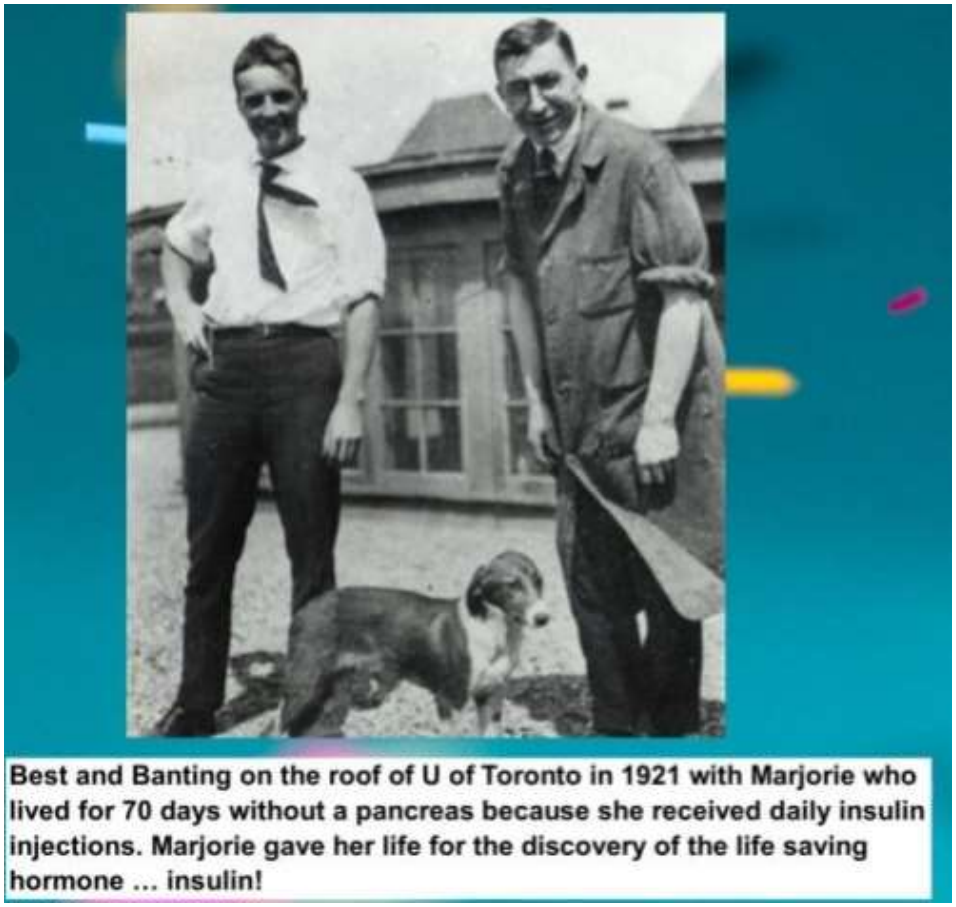
Beverly Thomassian, RN, MPH, CDCES, BC-ADM

2022 DiabetesedEd.net

Happy Diabetes Month

November Celebration Sales

Free Purple Tote + Medication Pocketcards with All Book & Teaching Tools Orders



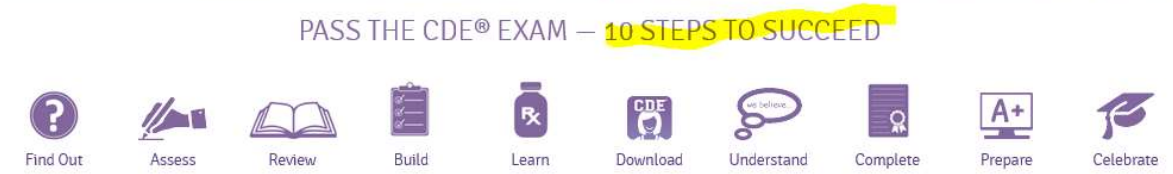
Best and Banting on the roof of U of Toronto in 1921 with Marjorie who lived for 70 days without a pancreas because she received daily insulin injections. Marjorie gave her life for the discovery of the life saving hormone … insulin!

November 28th – Cyber Monday Sale, 30% off

Diabetes Education SERVICES

Med and Insulin PocketCards

NEW Accordion 2-sided PocketCards



Download on Website

DiabetesEd.net

Glucagon Treatment for Diabetes-Related Hypoglycemia

Download Success! Get Our Free CDCES Coach App

Name / Delivery	Supplied	Dose Range		Age / Route / Storage
		Adults	Peds / Age Wt Dosing	
Glucagon Emergency Kit Injection requires mixing glucagon powder + diluent filled syringe	1mg / 1mL vial + syringe	1 mg	0.03mg/kg or < 6yr or < 25 kgs | 0.5mg ≥ 6yr or > 25kgs | 1mg	All ages approved SubQ or IM admin Expires in 2 years at room temp.
Gvoke Injectable liquid stable glucagon solution	0.5mg/1.0mg prefilled syringe or 0.5mg/1.0mg HypoPen auto-injector	1 mg	< 2yr: not recommended 2- 12 yrs < 45kg | 0.5mg ≥ 45kg | 1mg 12 years or older | 1mg	Approved Age 2+ SubQ admin in arm, thigh, abdomen Expires in 2 years at room temp (keep in foil pouch).
Baqsimi Nasal glucagon powder	3 mg intranasal device	3 mg	< 4 yrs: not recommended 3 mg dose for 4 years or older	Approved Age 4+ Nasal admin Expires ~ 2 yrs at room temp (keep in shrink-wrapped tube)

**All raise BG 20+ points. Can cause nausea, vomiting. After admin, roll person on side. Seek medical help. If no response after 1st dose, give 2nd dose in 15 mins. When awake, give oral carbs ASAP when safe to swallow. Please consult package insert for detailed info.*

All PocketCard content is for educational purposes only. Please consult prescribing information for detailed guidelines.

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Diabetes Education SERVICES

Meet Your Gut & Skin Bacteria

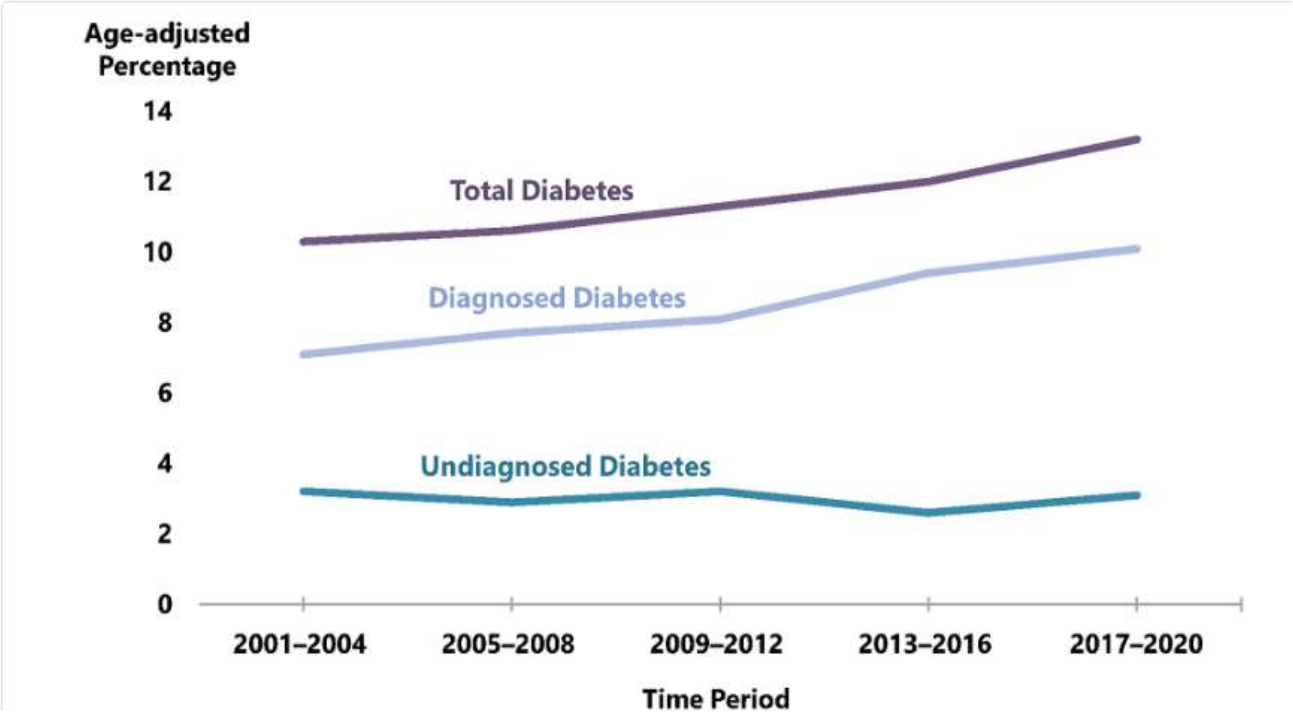
- Enjoy the state of wonder
- Discuss the role of gut and skin bacteria in relation to health.
- State strategies to improve intestinal health.

State of Wonder

Diabetes in America 2022 - CDC

- 11% of adults have diabetes (37.3 mil)
  - 23% of those don't know they have diabetes
- 38% of adults have prediabetes (96 mil)
  - 19% of reported being told they have prediabetes.

Figure 1. Trends in age-adjusted prevalence of diagnosed diabetes, undiagnosed diabetes, and total diabetes among adults aged 18 years or older, United States, 2001–2020.



CDC 2022 Report
https://www.cdc.gov/diabetes/data/statistics-report/diagnosed-diabetes.html

www.DiabetesEd.net

Diabetes in America

Figure 2. Age-adjusted, county-level prevalence of diagnosed diabetes among adults aged ≥20 years, United States, 2013

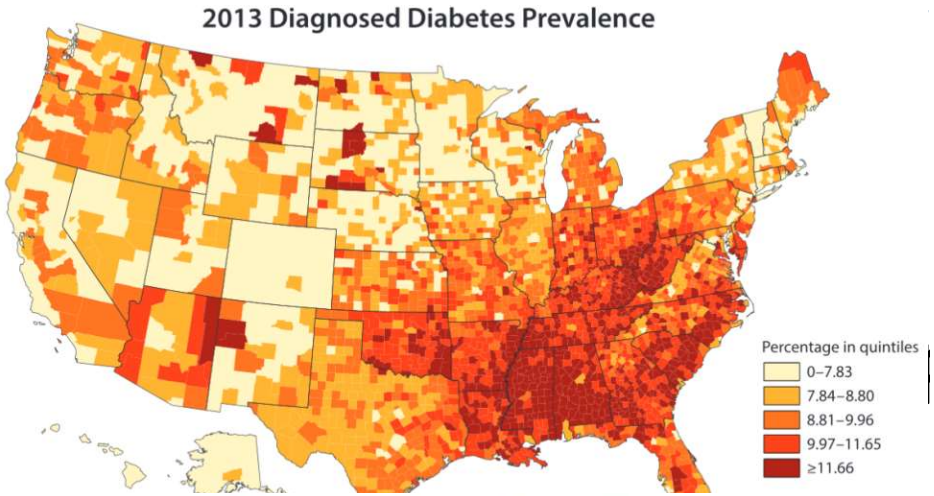
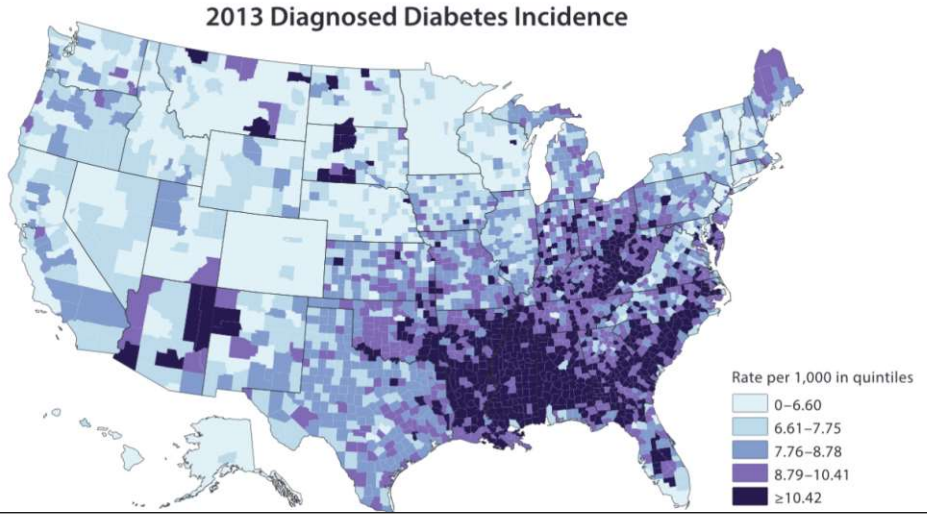
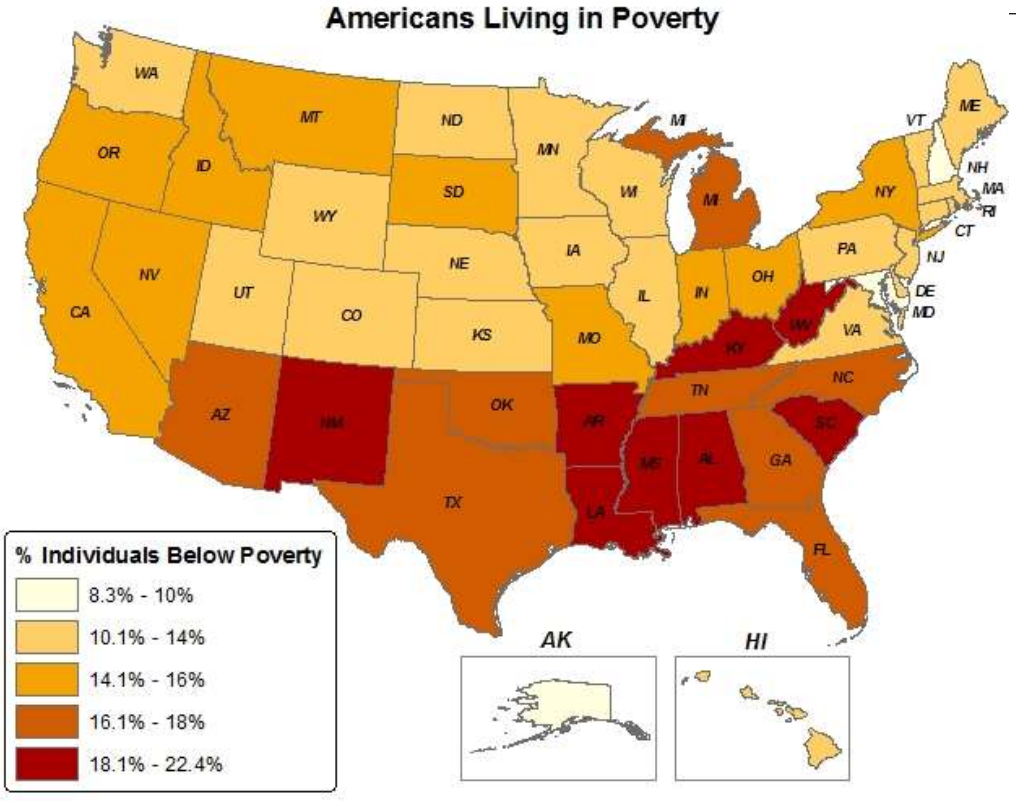


Figure 3. Age-adjusted, county-level incidence of diagnosed diabetes among adults aged ≥20 years, United States, 2013



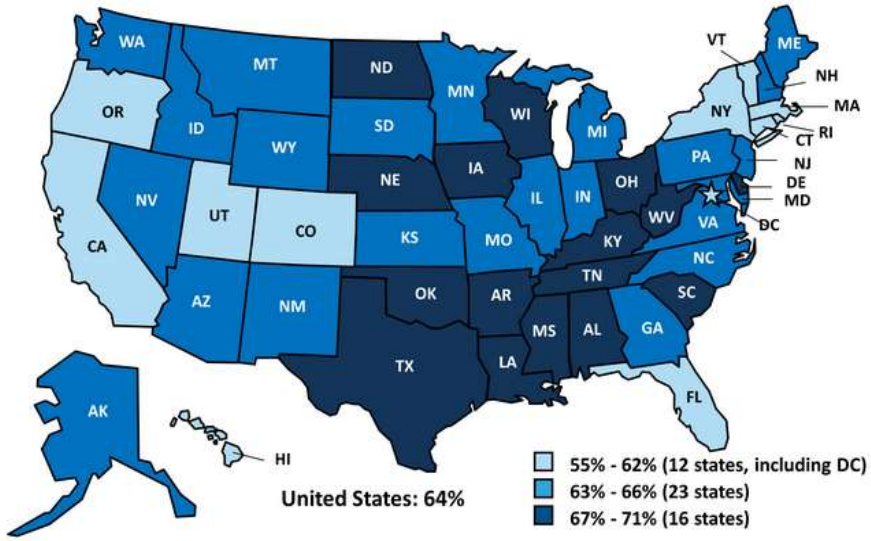


Source: U.S. Census 2010

Created by Social Science Research Center, DePaul University, April 2012

Figure 6

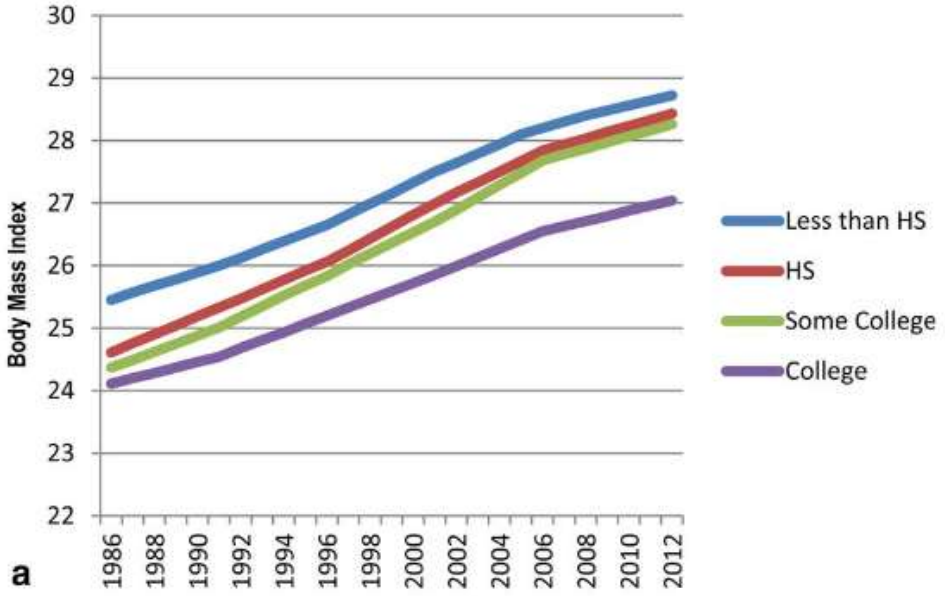
Percent of Adults Who are Overweight or Obese, 2014



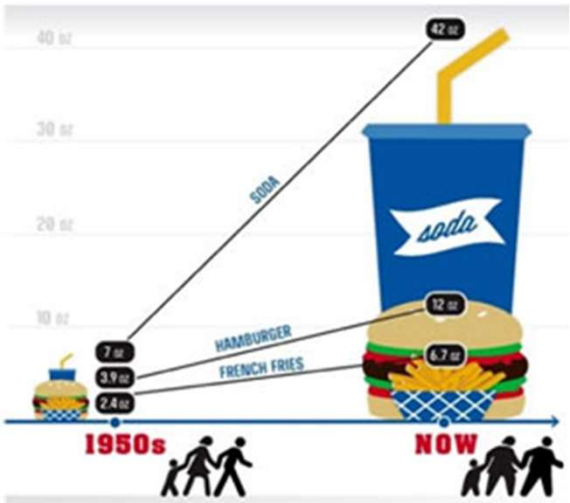
Source: KCMU analysis of the Center for Disease Control and Prevention (CDC)'s Behavioral Risk Factor Surveillance System (BRFSS) 2014 Survey Results.

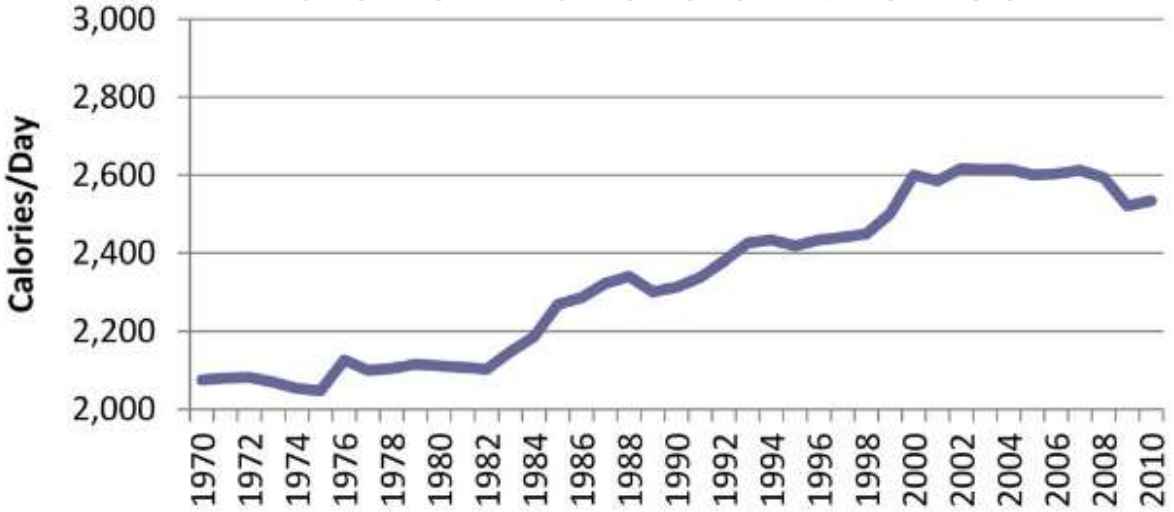
THE HENRY J. KAISER FAMILY FOUNDATION

U.S. Weight - 68% experiencing overweight or BMI >30



- 34% BMI 25-29
- 34% BMI 30 +
- 1/3 of all people with extra weight don't get diabetes
- We burn 100 cals less a day at work
- Overall, food costs ~ 10-15% of income
- Calorie Intake is on the rise





Average Daily Per Capita Calories Adjusted for Waste. Source: Economic Research Service of the United States Department
bility (Per Capita) Data System.

Quick Question 1

- What do you think is contributing to increasing prevalence of type 2 diabetes?

  A. Processed foods

  B. Increased sugar intake

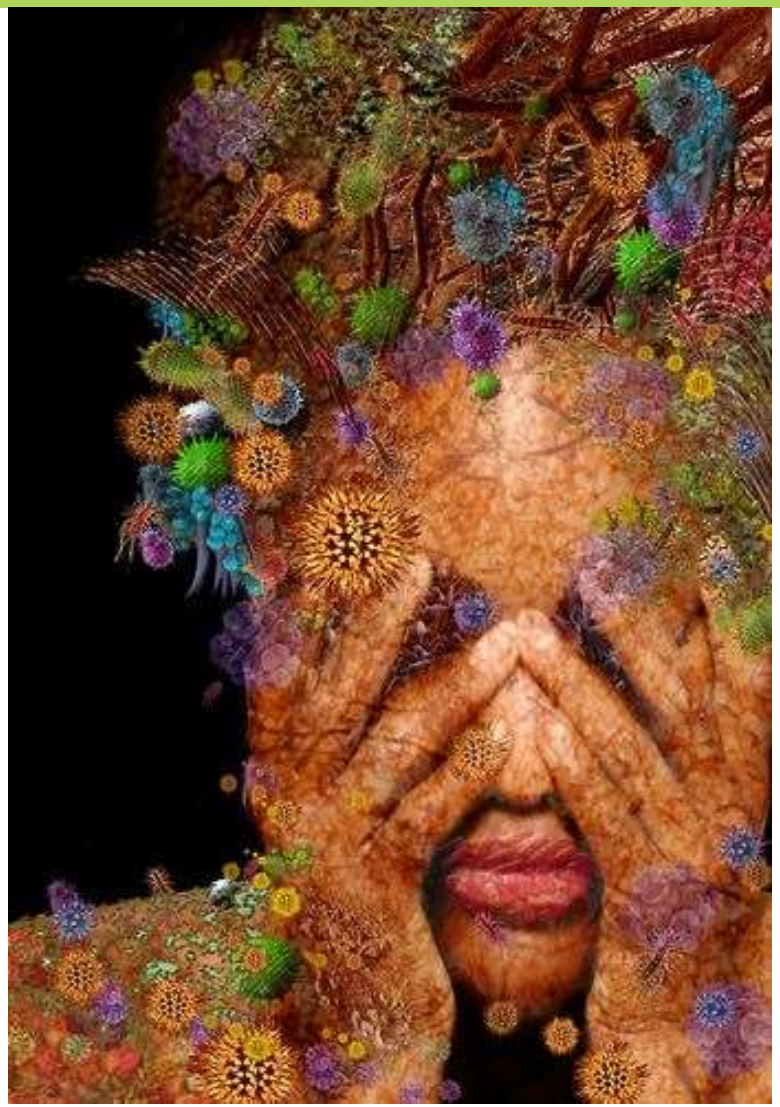
  C. Toxic Stress /ACEs

  D. Changes in gut microbiome

  E. Environment

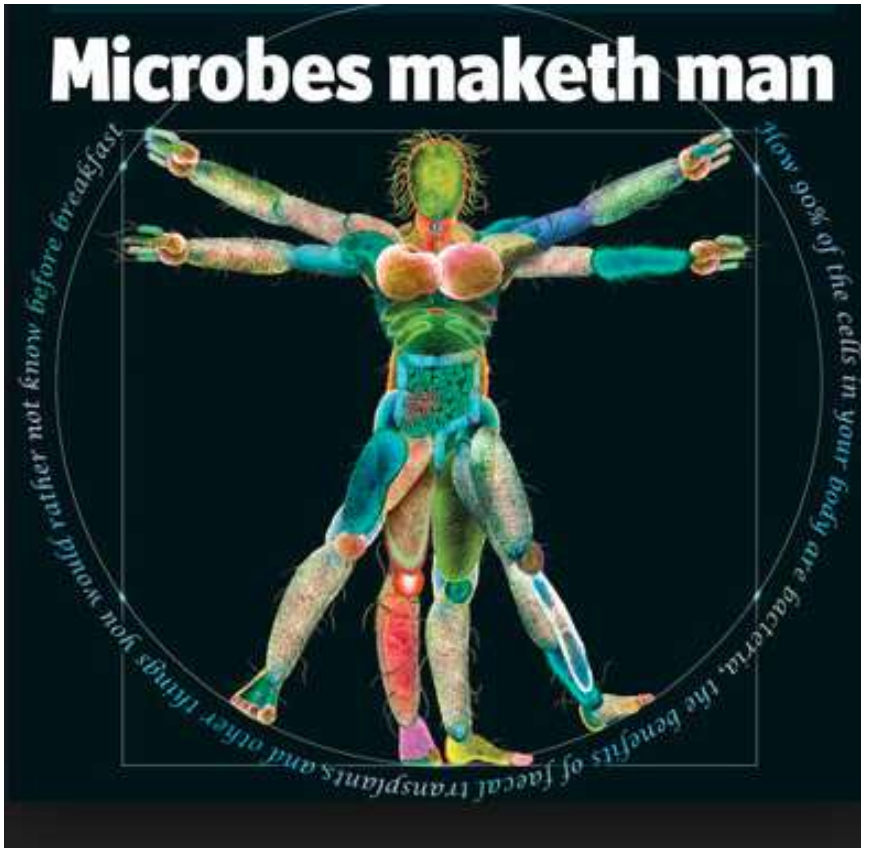
  F. All of the above

Bacterial Cells Outnumber Human Cells 10 to 1



Gut Microbiome

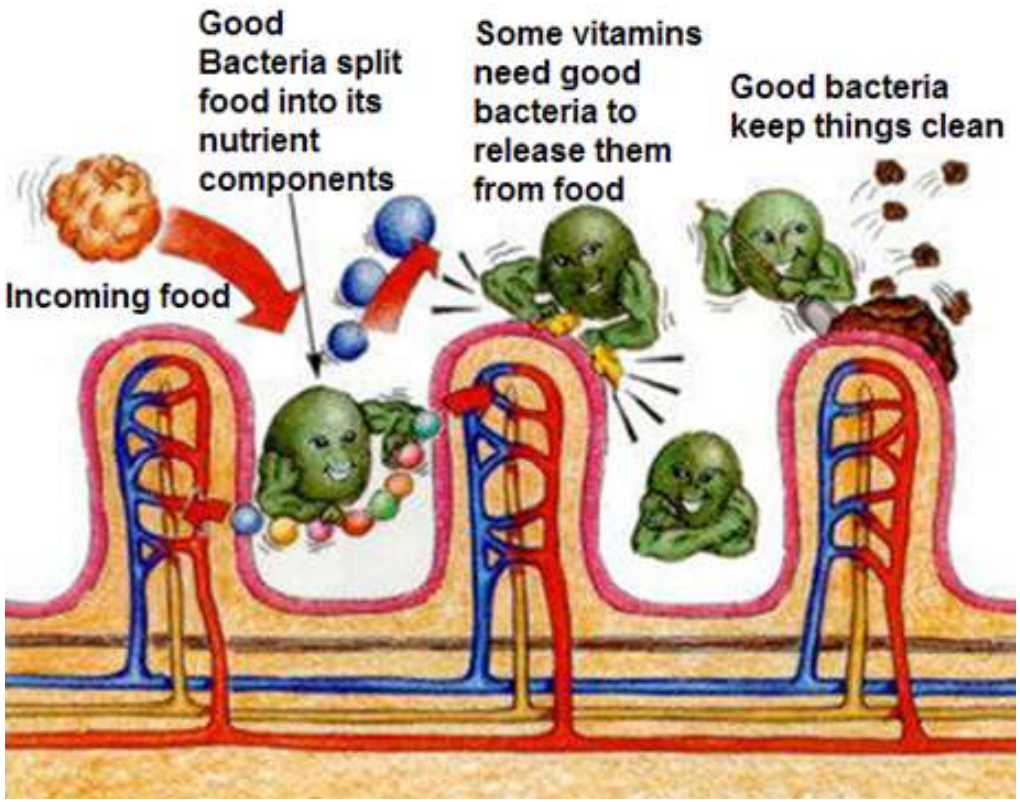
- Part of endocrine axis
- Stabilized by 3 years of age
- Influenced by:
  - Birth method
  - Breast fed
  - Early Antibiotic use
  - Environment
  - Travel
- Help us
  - utilize energy
  - fight off invaders



How do our bacteria help us?

- Maintain physiological homeostasis and metabolism.
- Other benefits
  - pathogen displacement
  - immune system development
  - barrier fortification
  - vitamin production
  - nutrient absorption

- Forgotten organ



Quick Question

- How much does your gut bacteria weigh?

  A. 24 ounces

  B. 3 pounds

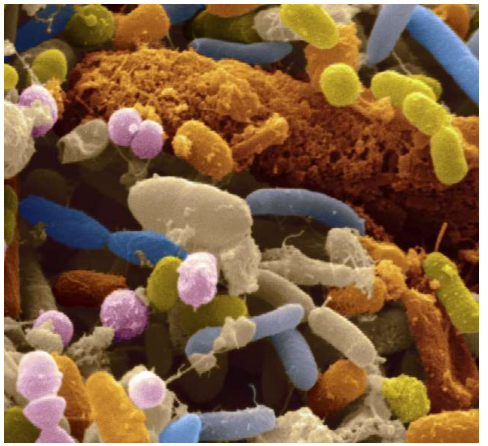
  C. Less than 1 pound

  D. 1.5 pounds

- How much does your brain weigh?

3 lbs of Microbes in our Gut

- Community of bacteria extra 'organ' "microbiome".
- Evolved together with our microbiome over millions of years.
- Ratios of these communities has changed over the past 30 years
- Mirrors global spikes in obesity, diabetes, allergic and inflammatory diseases



Bacterial Taxis?

For better or worse, we're "host-microbe ecosystems." Microbes shape us from without and also from within.

Standard American Diet is SAD

- What are we doing to change these bacteria?
- 70% of food consumed is processed
- Low fiber, high sugar
- Intake of fruit and veggies decreasing
- We are starving our good bacteria.

Quick Question 3

- In general, how does immigrating to the U.S. impact individual's gut microbiota?

A. Increased diversity due to new food exposure.
B. A generational decline in bacterial diversity
C. They experience a sudden increase in Akkermansia muciniphila
D. Decrease in helicobacter pylori.

HEALTH

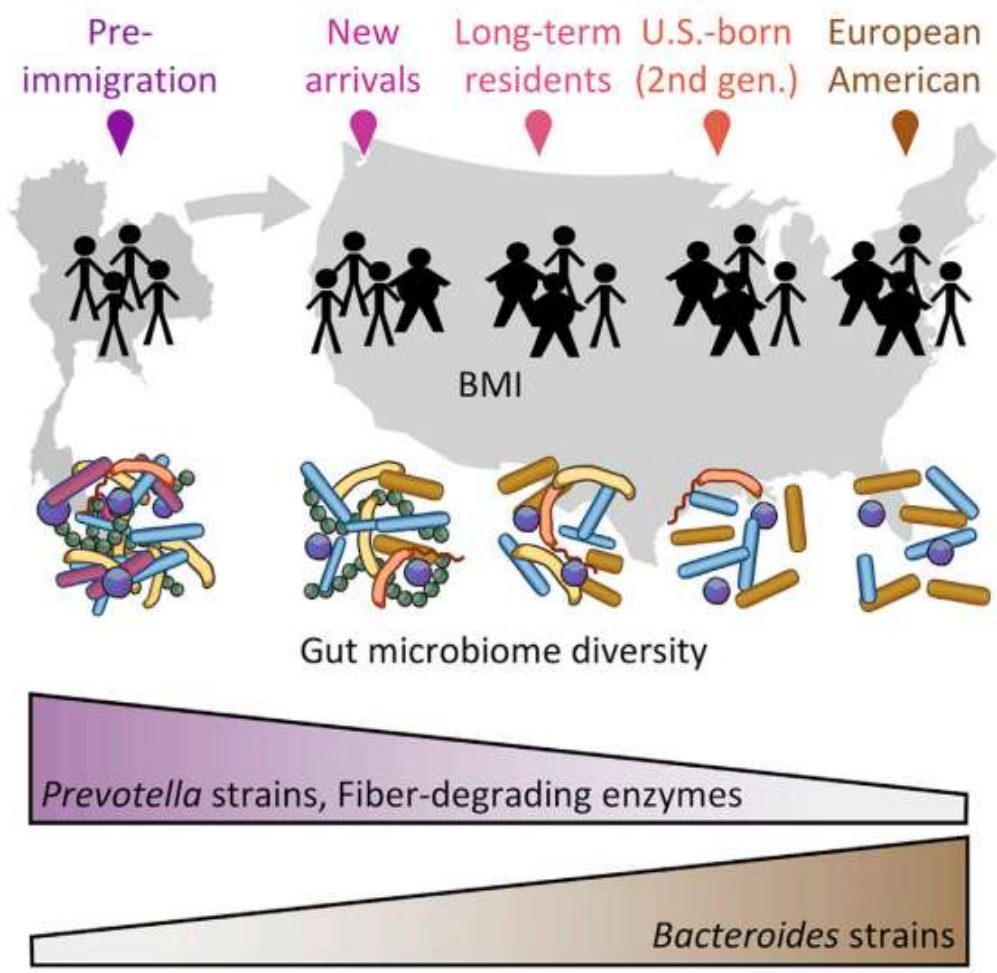
Just Months of American Life Change the Microbiome

Immigrants' gut bacteria "westernize" soon after they move to the U.S., which might influence obesity in immigrants and Americans alike.

OLGA KHAZAN NOV 1, 2018 Atlantic.com Nov 2018

A Hmong woman carries grass in Vietnam. (NGUYEN HUY KHAM / REUTERS)

Moving to America isn't good for your health



Cell

Researchers don't know if eating a less-healthy diet increases the rate of obesity *and* changes the microbiome,
or if a less healthy diet changes the microbiome *so* it makes people experience higher BMI.

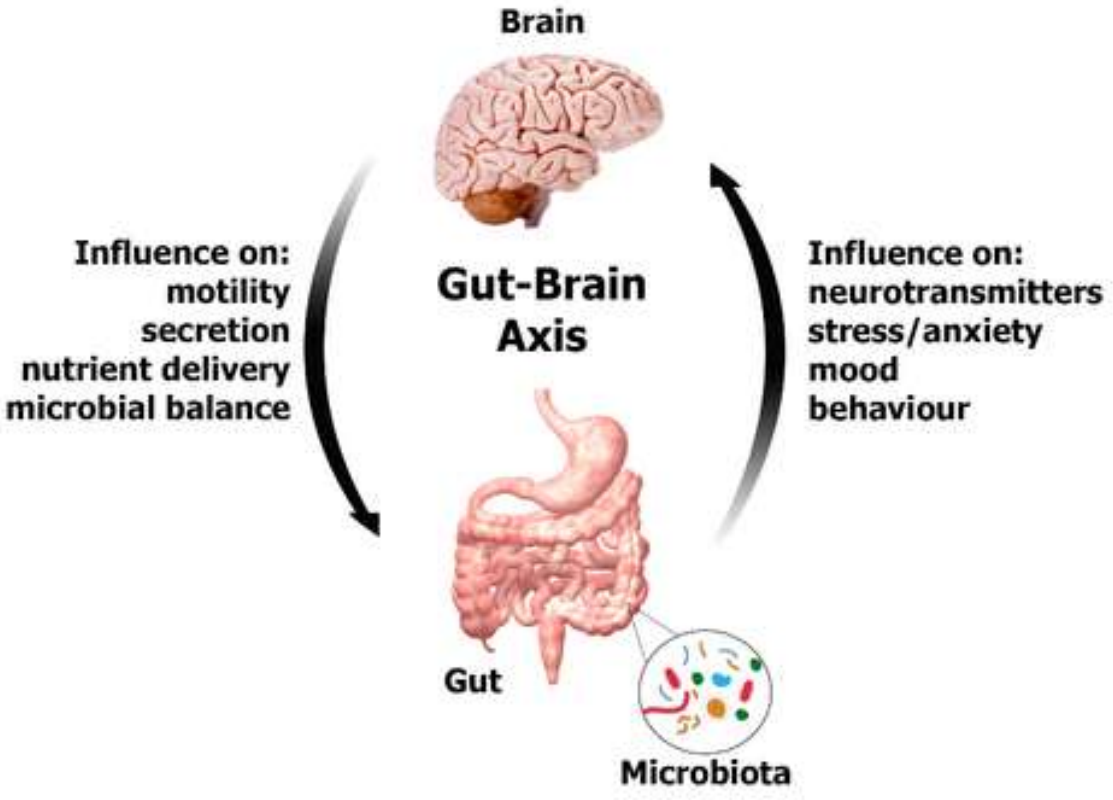
Atlantic.com Nov 2018

Keeping our Microbiome Healthy

- Use antibiotics wisely.
- Reduce the number of the unnecessary Cesarean sections.
- Promote breastfeeding.
- Reduce antimicrobial products in our environment.
- Improve nutrition by increasing the amount of fiber and diversity of foods to promote microbial diversity and benefit health.
- Adding functional foods containing prebiotics, probiotics to diets.

Gut Health affects our overall health.

Gut Neurons Direct Messaging



- Enteric Nervous System = Nervous System of Gut
- Sometimes referred to as "second brain".
- Critical part of Gut-Brain Axis

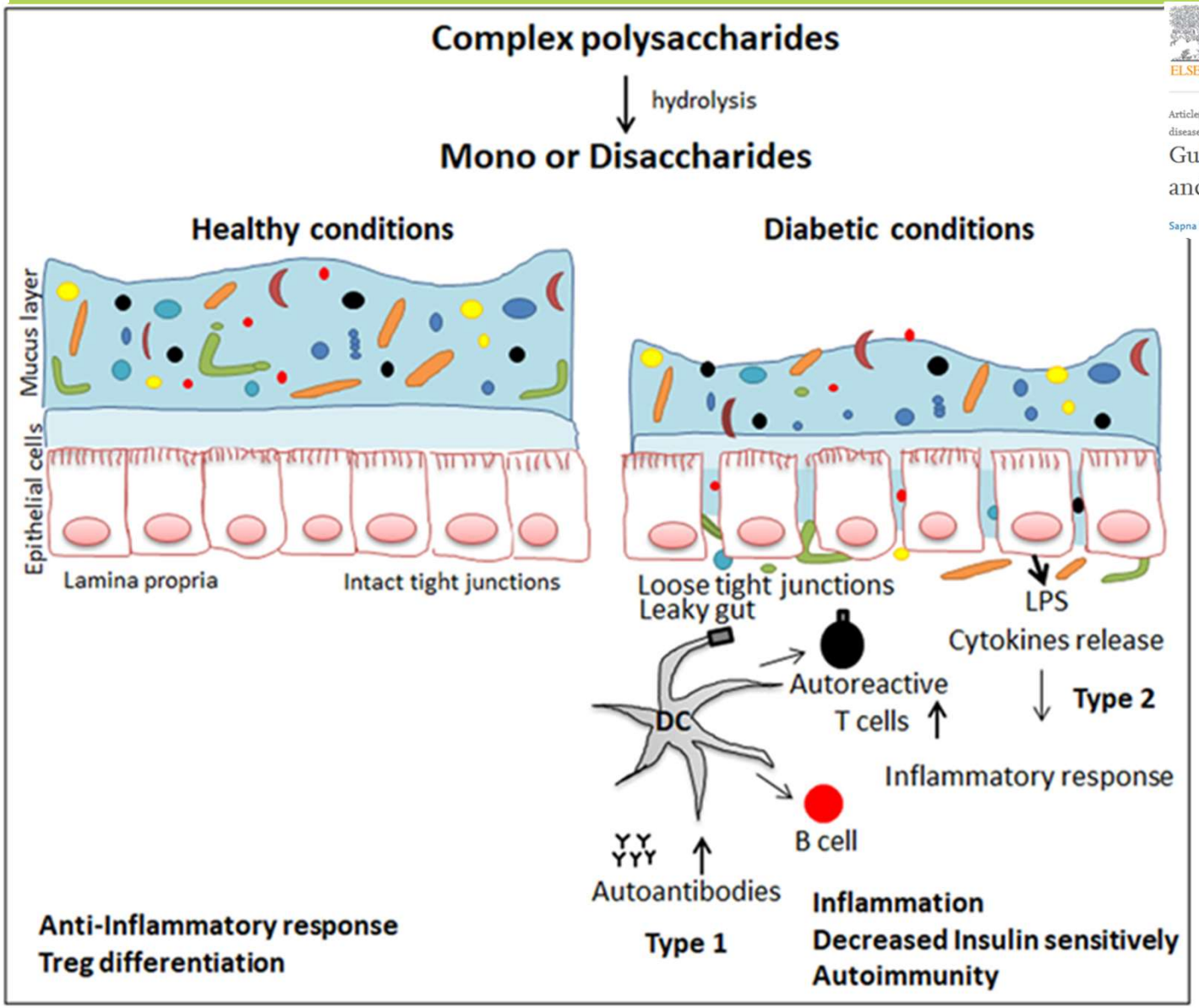
New way for gut neurons to communicate with brain. Medical News Today Aug 2020

Gut's Messaging Brain

- Gut has its very own nervous system
- Functions independently of brain or spinal cord
- Neurons in gut wall can activate spinal cord neurons
- Powerful mechanism to transmit info from gut to brain
- Viscerofugal neurons relay info from gut to sympathetic nervous system
- Brain can "sense" what is going in gut.
- Influences our decision, mood, general well being.
- Most serotonin, a chemical mood messenger, is found in gut
- Understanding how gut messaging controls other organs can lead to treatment breakthroughs

New way for gut neurons to communicate with brain. Medical News Today Aug 2020

Gut Microbiome and Diabetes



The Journal of Nutritional Biochemistry
Volume 63, January 2019, Pages 101-108

Article(s) from the Special Issue on Nutritional modulation of the gut microbiome in gastrointestinal and metabolic diseases; Edited by Kristina Martinez-Guryn, PhD, RD, Vanessa Leone, PhD, and Joseph F. Pierre, PhD

Gut microbiome and type 2 diabetes: where we are and where to go?

Sapna Sharma [a], Prabhanshu Tripathi [b]

https://www.sciencedirect.com/science/article/pii/S0955286318303073

LPS - lipopolysaccharide

Fig. 1. Interplay between diet and the gut microbiome. Regulatory role of diet and microbiota in healthy (left) and diabetic conditions (right) has different mechanisms. In T1D, the bacterial population in gut modulates gut permeability and signaling mechanisms, thereby initiating an autoimmune response. In T2D, dysbiosis due to carbohydrate hydrolysis causes low-grade inflammation and decrease in insulin sensitivity.

TheScientist
EXPLORING LIFE, INSPIRING INNOVATION

July 25, 2022
Cleveland Clinic

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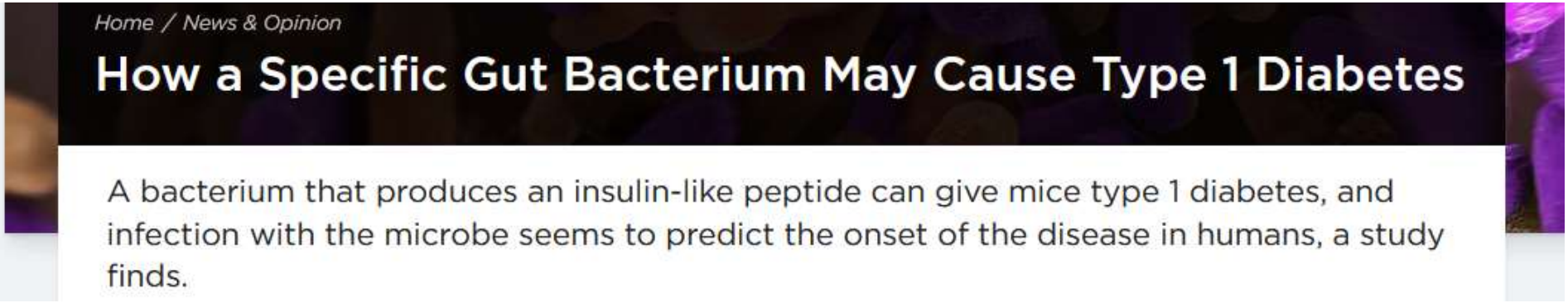
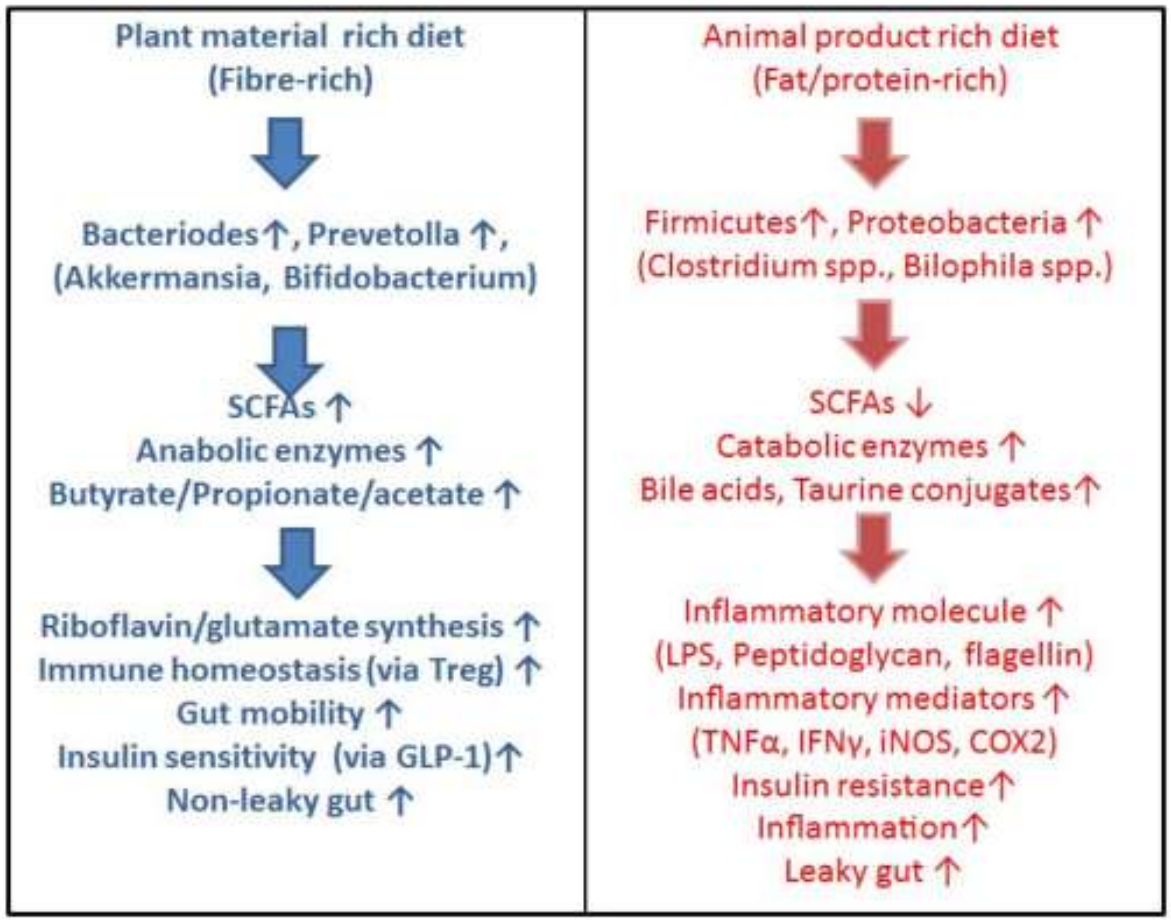
Now, research published July 25 in *PNAS* may have revealed a key piece of the puzzle. The presence of the bacterium *Parabacteroides distasonis* in the gut microbiome causes type 1 diabetes in a mouse model and seems to predict the onset of the disease in humans. This is likely because the microbe produces a peptide similar enough to part of an insulin molecule that it can lead to the production of insulin-targeted antibodies, priming the immune system to launch an attack against insulin and the cells that produce it. Thus, the researchers have identified a microbial culprit for doctors to examine as they look for new ways to screen for and perhaps eventually prevent the disease.



https://www.the-scientist.com/news-opinion/how-a-specific-gut-bacterium-may-cause-type-1-diabetes-70414

Plant & Fiber Diet = Less inflammation



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Volume 63, January 2019, Pages 101-108

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Gut microbiome and type 2 diabetes: where we are and where to go?

Sapna Sharma [a], Prabhanshu Tripathi [b]

SCFA – short chain fatty acids

https://www.sciencedirect.com/science/article/pii/S0955286318303073

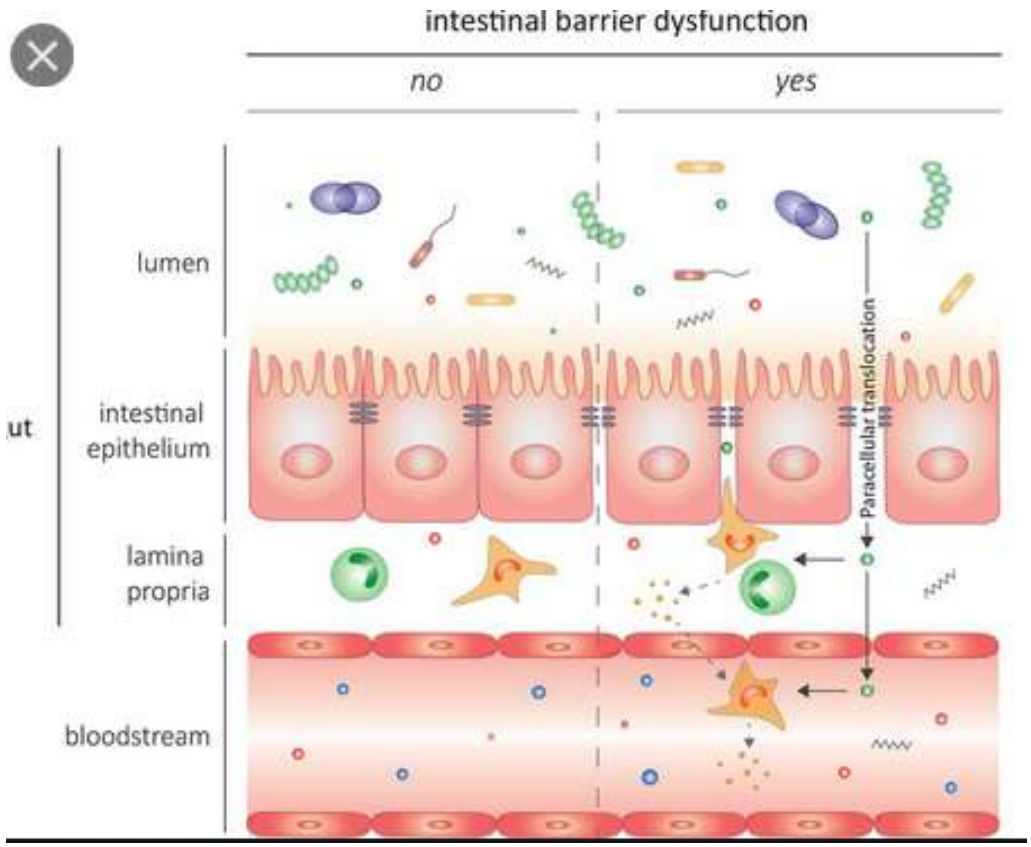
Fig. 2. Flowcharts representing the effect of diet pattern on bacterial population in the human gut. The flowchart on the left panel (blue) indicates fiber-rich diet and the right panel (red) indicates fat/protein-rich diet.

Metformin helps gut microbiota in diabetes

- Induces GLP-1 secretion
- Changes in *Bacteroidetes/Firmicutes* ratio
- Capacity to induce mucin expression similar to *Akkermansia* muciniphila
- Improves the metabolic profile by lowering tissue inflammation in the presence of extra weight

Especially increases Akkermansia and Bifidobacterium.

Akkermansia Muciniphila



A. muciniphila in our mucus lining is inversely correlated with obesity and diabetes in both mice and humans.

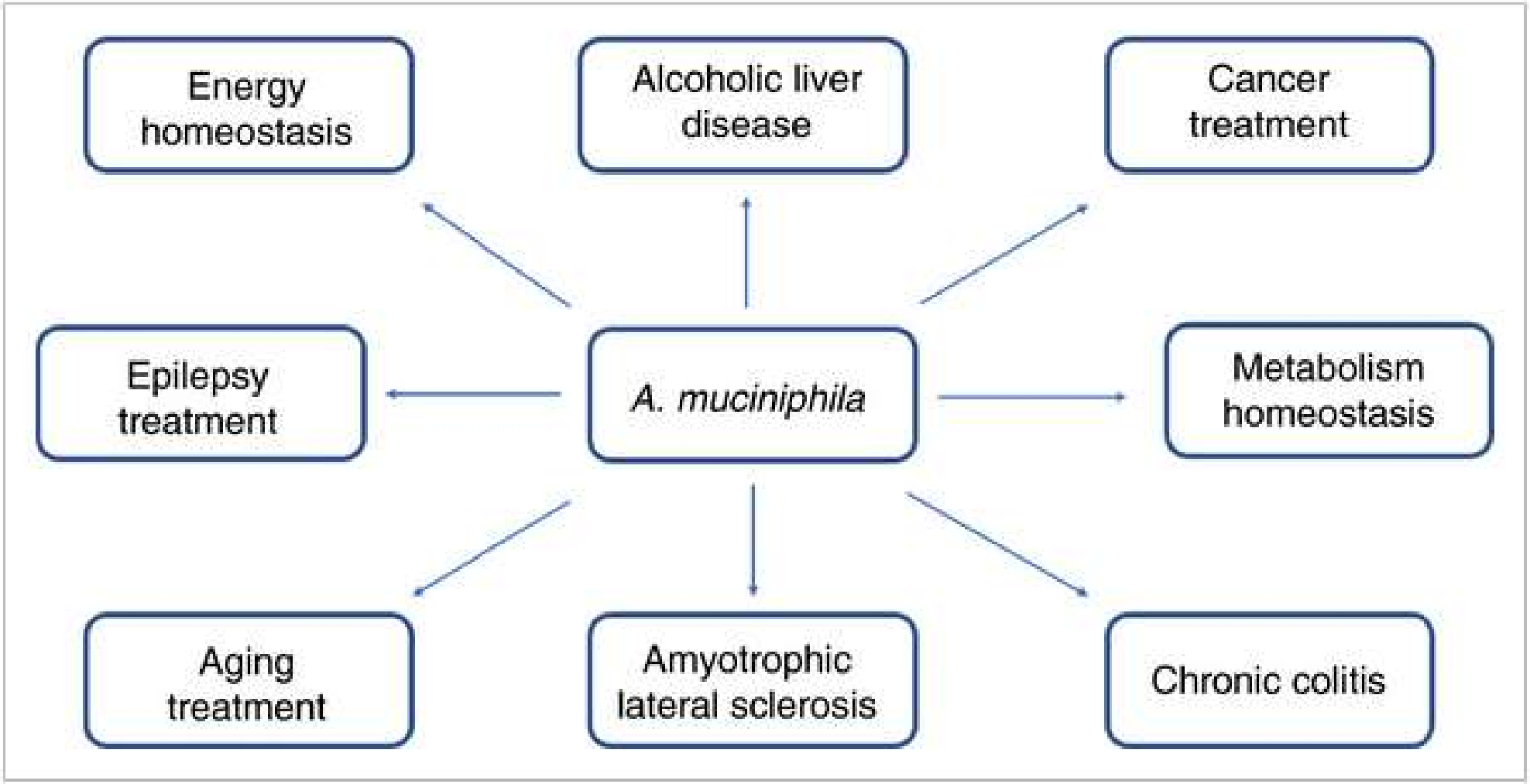
Mucus lining protector and increases presence of short chain fatty acids.

High levels of A. muciniphila is associated with improved health.

"AKK" is associated with enhanced intestinal barrier function and incretin secretion from intestinal endocrine cells. Together, these actions suppress obesity, insulin resistance, and intestinal inflammation.

Depommier C, Everard A, Druart C, et al. Supplementation with *Akkermansia muciniphila* in overweight and obese human volunteers: a proof-of-concept exploratory study. *Nat Med*. 2019. doi: 10.1038/s41591-019-0495-2.

The benefits of *Akkermansia muciniphila* for the host physiology



https://sfamjournals.onlinelibrary.wiley.com/doi/10.1111/jam.14911

Journal of Applied Microbiology
Applied Microbiology International
Review Article | Free Access
A review of a potential and promising probiotic candidate —*Akkermansia muciniphila*
D. Cheng M.Z. Xie
First published: 28 October 2020 | https://doi.org/10.1111/jam.14911 | Citations: 3

Pregnant Moms diet impacts baby's gut bacteria

What you eat while pregnant may affect your baby's gut microbiota and growth – Oct 21, 2020 Gut Microbiota for Health

- Mother's diet shapes gut microbiota during pregnancy, in birth and when breastfeeding
- Impact babies' gut microbial community and infant growth during first 18 months
- Disruption in gut colonization can lead to extra weight, allergies and CV diseases later in life
- Diet is one of most powerful factors driving gut microbiota diversity

The Study – 86 Baby Mom Pairs

- Pregnant women's diet was based on a high amount of dietary fiber, omega-3 fatty acids and polyphenols.

- Pregnant women's diet with significantly higher intake of carbohydrates, saturated fatty acids and animal protein.

Results after 18 mo's of Study

High fiber diet & other nutrients

- Greater presence of *Ruminococcus,*
  - a type of bacteria that produce butyrate
  - Butyrate is a biomarker of gut health and is associated with anti-inflammatory properties.

Less healthy diet

- Diet mainly composed of carbohydrates, saturated fatty acids and animal proteins, showed a greater presence of *Prevotella*
  - an oral bacteria linked to an increased risk of disease and complications in pregnancy.
  - Infants had a higher risk of becoming overweight in the first 18 months.

Study Implications

- A maternal diet high in fiber, vegetable protein and omega-3 acids has a significant effect on the baby's microbiome and contributes to a child's development and a health during the first months of life.

What you eat while pregnant may affect your baby's gut microbiota and growth – Oct 21, 2020 Gut Microbiota for Health

One of the best gifts a mother can give her newborn is a balanced, healthy and diverse gut microbiota, and the most efficient way to achieve that is through diet during pregnancy.

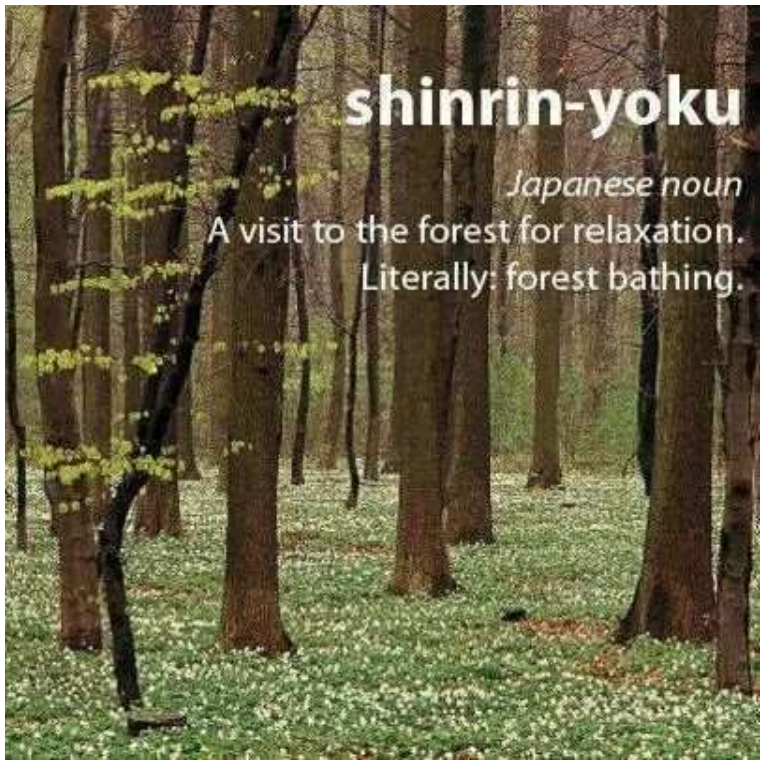
In the Beginning

- Earth
- Human
- Spirit

Humans Benefit from Nature

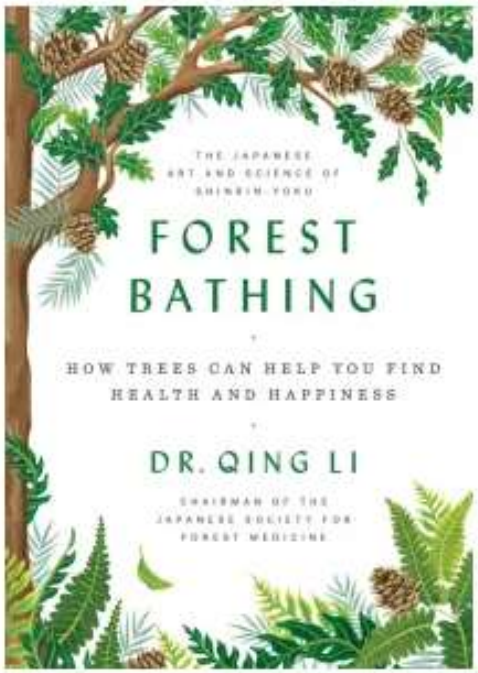
- Quiet: think tank of soul
- Trips to forest, enhance bodies immune system by increasing the number and activity of lymphocytes –

  2008 Nippon Med School Tokyo
- Tranquility lowers BP, reduces muscle tension, decreases stress related illness and improves sleep.



Shinrin in Japanese means "forest," and *yoku* means "bath." *Shinrin-yoku* means bathing in forest atmosphere, or taking in the forest through our senses.

Forest Bathing Steps



The key to unlocking the power of the forest is in the five senses.

- Let nature enter through your ears, eyes, nose, mouth, hands and feet.
- Listen to the birds singing and the breeze rustling in the leaves of the trees.
- Look at the different greens of the trees and the sunlight filtering through the branches.
- Smell the fragrance of the forest and breathe in the natural aromatherapy of phytoncides.
- Taste the freshness of the air as you take deep breaths.
- Place your hands on the trunk of a tree. Dip your fingers or toes in a stream. Lie on the ground. Drink

This is your sixth sense, a state of mind.

Now you have connected with nature. You have crossed the bridge to happiness.

Phytoncides – Immune Boosters

- Exposure to forests boosts our immune system.
- We breathe in phytoncides
  - airborne chemicals that plants give off to protect themselves from insects.
  - Phytoncides have antibacterial and antifungal qualities which help plants fight disease.
  - When people breathe in these chemicals, our bodies respond by increasing the number and activity of a type of white blood cell called natural killer cells or NK.
  - These cells kill tumor- and virus-infected cells in our bodies.
  - In one study, increased NK activity from a 3-day, 2-night forest bathing trip lasted for more than 30 days.
  - Japanese researchers are currently exploring whether exposure to forests can help prevent certain kinds of cancer.

https://www.dec.ny.gov/lands/90720.html

The clinical response to identification of toxic stress should include:

1. Applying principles of trauma-informed care, including establishing trust, safety, and collaborative decision-making.

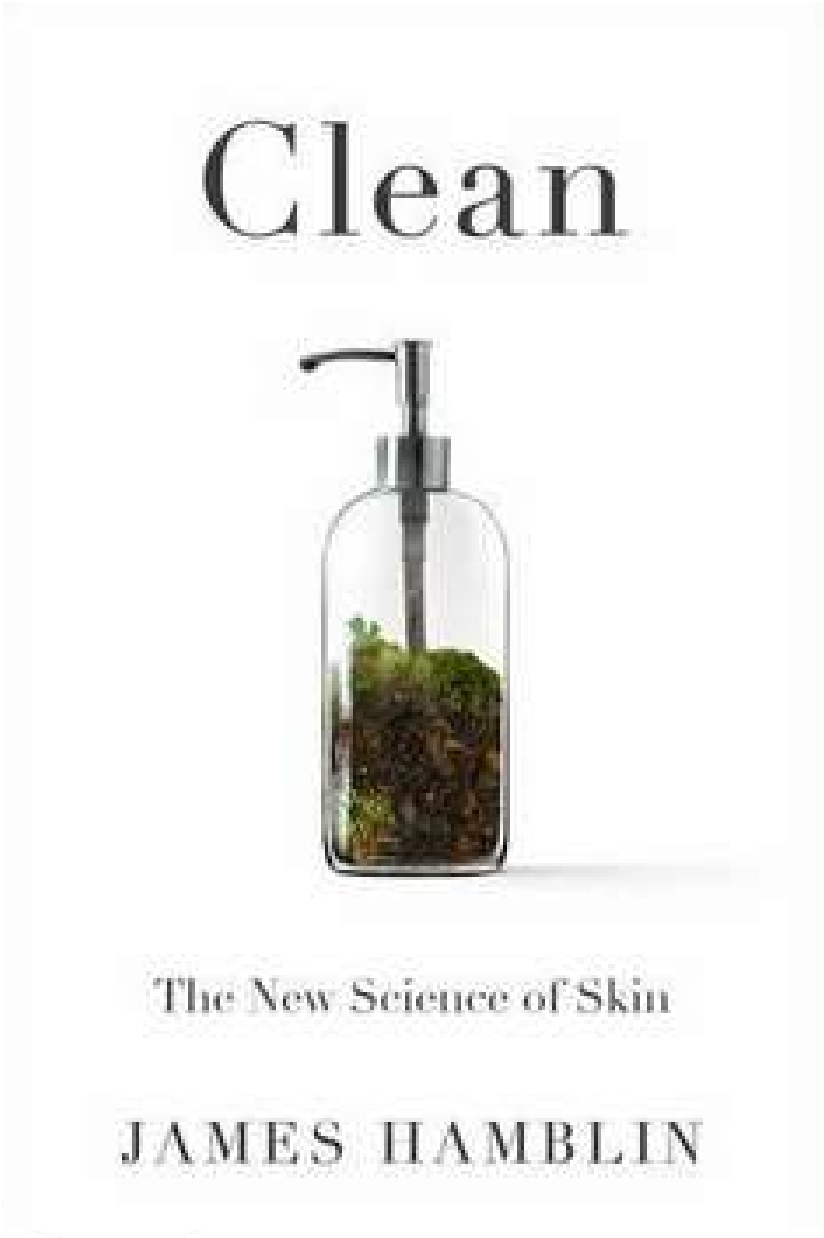
2. Supplementing usual care for ACE-Associated Health Conditions with patient education on toxic stress and discussing strategies that can help regulate the stress response, including:

- Supportive relationships, including with caregivers (for children), other family members, and peers
- High-quality, sufficient sleep
- Balanced nutrition
- Regular physical activity
- Mindfulness and meditation
- Experiencing nature
- Mental health care, including psychotherapy or psychiatric care, and substance use disorder treatment, when indicated

3. Validating existing strengths and protective factors.

4. Referrals to patient resources or interventions, such as educational materials, social workers, school agencies, care coordination or patient navigation, and community health workers.

Are we over doing it?



Diabetes Education SERVICES

How often did people bathe in the 18th century?

- As time went on, the rising middle class was particularly attentive to both personal and household cleanliness because the status of "being able to be clean" was significant to people for whom it was important to rise socially.

Deborah Truscott, Researcher and writer on 18th century topics. (Author of the Out of Time series)

Just for Fun – Poll Question

- How many times a week do you take a shower or bath?
- 1-2 a day
- Daily
- Every other day
- A few times a week
- Once a week or less

Skin Microbiome

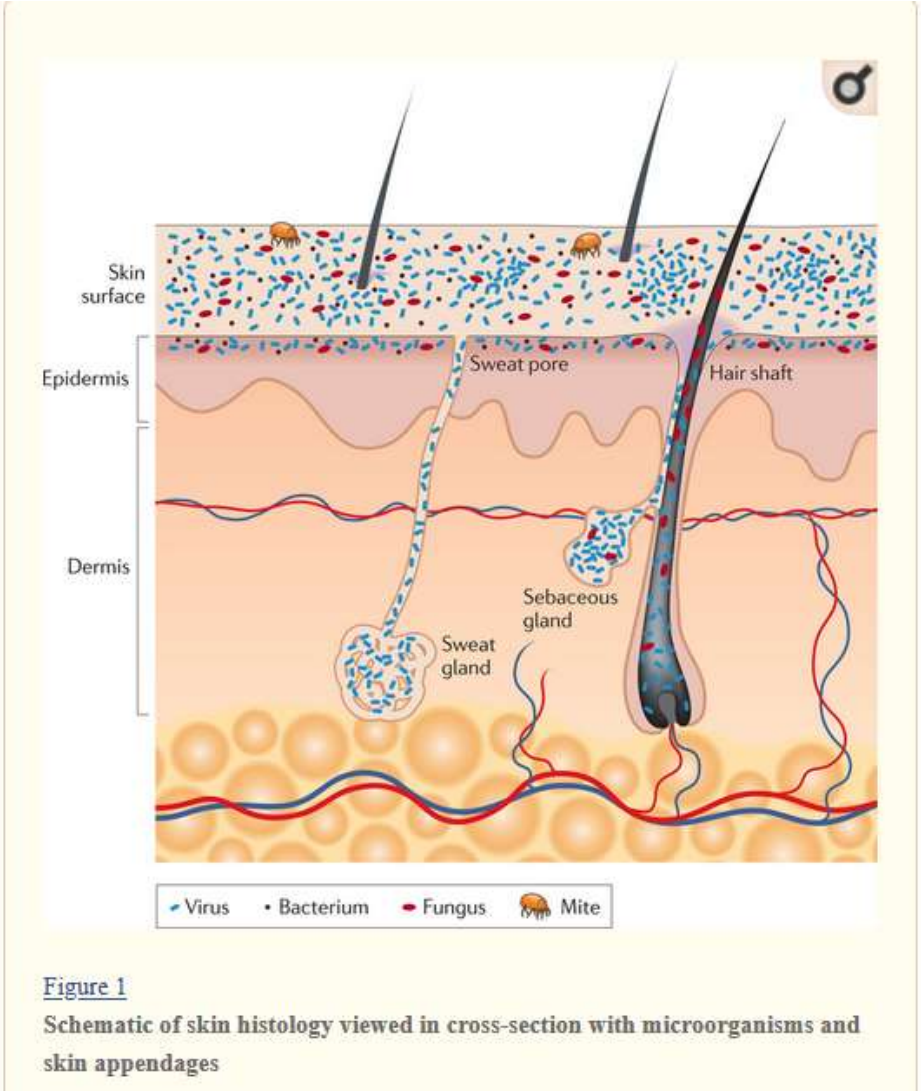
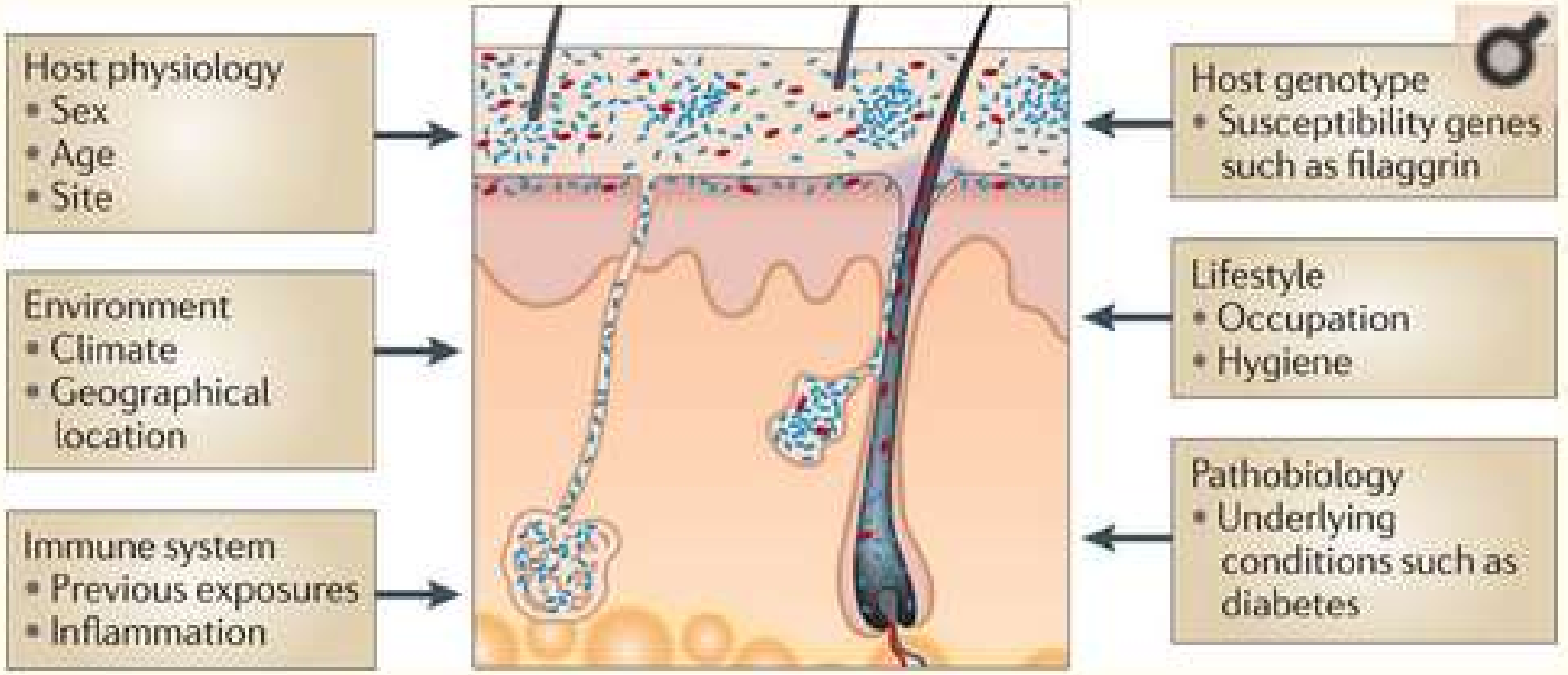


Figure 1
Schematic of skin histology viewed in cross-section with microorganisms and skin appendages

- The skin is largest organ
- Colonized by a diverse milieu of microorganisms, most of which are harmless or even beneficial to their host.
- Colonization is driven by the ecology of the skin surface, which is highly variable depending:
  - on topographical location,
  - endogenous host factors and
  - exogenous environmental factors
- The cutaneous innate and adaptive immune responses can modulate the skin microbiota, but the microbiota also functions in education of the immune system

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3535073/

Factors the Affect Skin Microbiome



https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3535073/

Figure 2

Factors contributing to variation in the skin microbiome

Exogenous and endogenous factors discussed in this Review that contribute to variation between individuals and over the lifetime of an individual.

Original Article

Beyond the gut: Skin microbiome compositional changes are associated with BMI

Michael Brandwein [a], Idan Katz [a], Ariel Katz [a], Ron Kohen [a, b]

Show more

https://doi.org/10.1016/j.humic.2019.100063

"skin microbiome may therefore be used as a biomarker for disease manifestations"

https://www.sciencedirect.com/science/article/pii/S2452231719300120

Gut and skin microbial diversity associated with BMI.

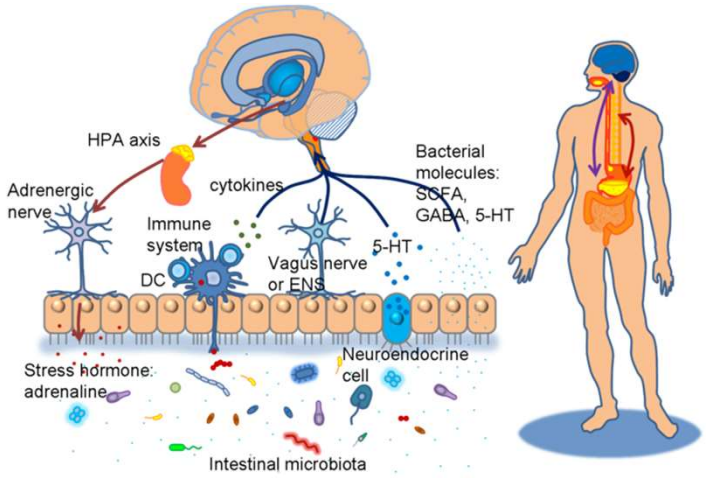
- Gut-Skin microbiome axis – two interconnected systems
- Diet affects skin physiology and microbiology
- Western individuals have less skin microbial diversity
- BMI of 25+ have less microbial diversity

More studies needed

- Statistical correlation between individuals BMI and skin microbiome.
- Corynebacterium is significantly correlated with BMI, and can be used as a weight marker.

https://www.sciencedirect.com/science/article/pii/S2452231719300120

- Further studies needed to investigate link between metabolic syndrome and skin microbiome



Questions

- **Does what we eat affect our skin microbiome?**
- **Does our skin microbiome affect our gut microbiome?**

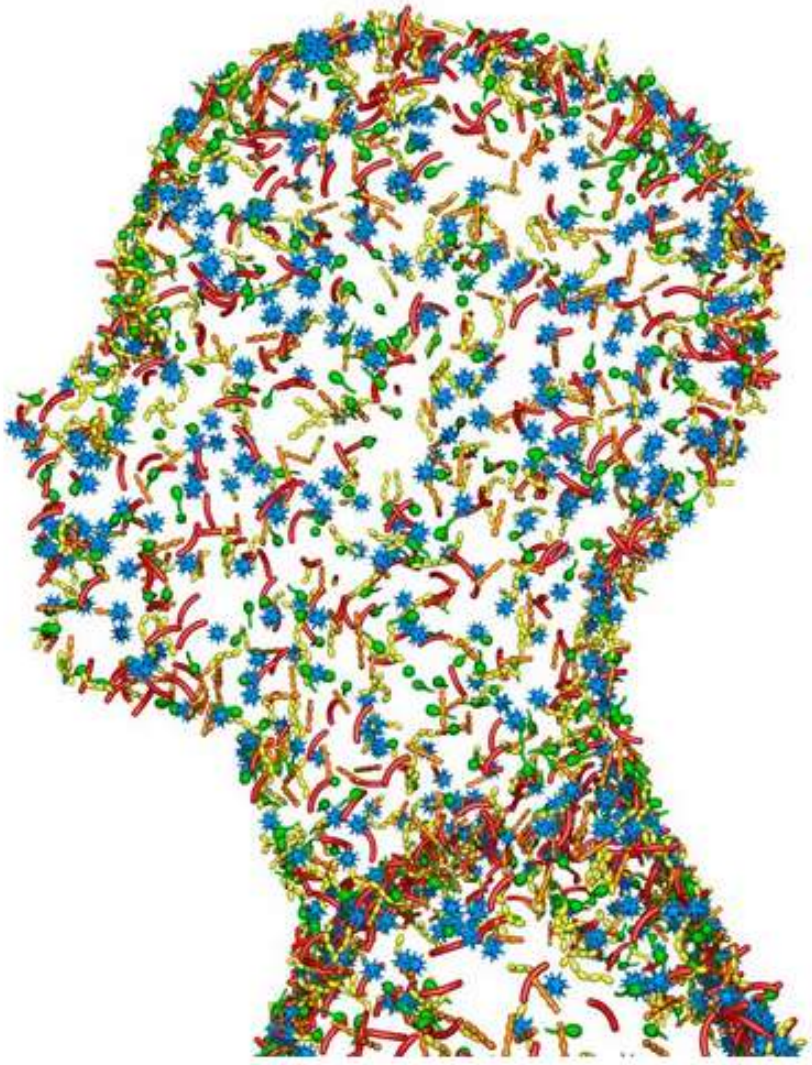
Skin Microbiome and Cleansers

- Should we suds up less?
  - Showering uses lots of water takes time
  - Do we need all these cleaning solutions, plastics?
  - We have been sold on importance of “getting clean”
- Is this daily wipe-out of our envelope of bacteria
  - Unnecessary
  - Harming us?

https://www.pinterest.com/pin/548173204496676 94/

What is the Ideal Balance?

- From occasionally jumping in the river to daily shower.
- *Skin immunity* is achieved through interaction between the external and internal skin layers and compartments, which operate in balance with the skin colonizing microbes.



https://www.origimm.com/skin-microbiome/

Cultural Norms and Hygiene

- Cleaning rituals associated with class and wealth signaling
  - Whitening teeth, wearing deodorant
  - enormous industry-complex of self-care, skin care, hygiene and cosmetics — which is barely regulated
- Hygiene
  - more scientific public health term
  - Avoidance or disease prevention behaviors
  - Brushing teeth, hand washing, cleaning open wounds, mask wearing

Quote from Clean – Dr. Hamblin

- A steady barrage of exposure to microbes trains our immunes systems on how and when to react
- Yet, our indoor lifestyle has the altered the function and role of our primary immune system – the skin
- If we carry dirt, dust, mud it is considered that we are "unclean".

Stop Killing All the Bacteria
The Hygiene Hypothesis

- In studies, mouse raised in clean environment is higher risk for DM than one raised in dirty one
- "Clean living" may increase risk for autoimmune diseases
- Diabetes risk is higher in urban than rural settings
- Daycare, other early exposures, lower risk for DM
- Children exposed to dirt, farm animals, and other kids have less reactive immune systems

Just wash your “Bits”

- Armpits, genitals, feet, hands

- What do you think?

Take Home Messages

- What can we pass on to people and our communities to promote healthy microbiomes?

Reunite with “Old Friends”

But while your inherited genes are more or less fixed, it may be possible to reshape, even cultivate, your “second genome”

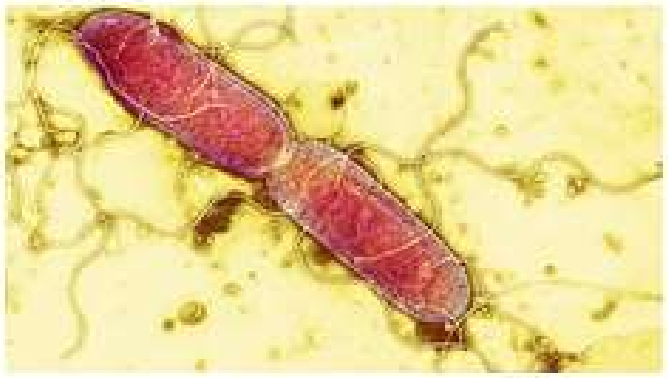
shots - health news

Staying Healthy May Mean Learning To Love Our Microbiomes

July 22, 2013 • Scientists are investigating the microscopic world that lives in and on our bodies. It's becoming clear that these tiny companions play a much more complex and important role in human health than thought. But we don't yet know enough about the microbiome to use it to prevent and treat disease.

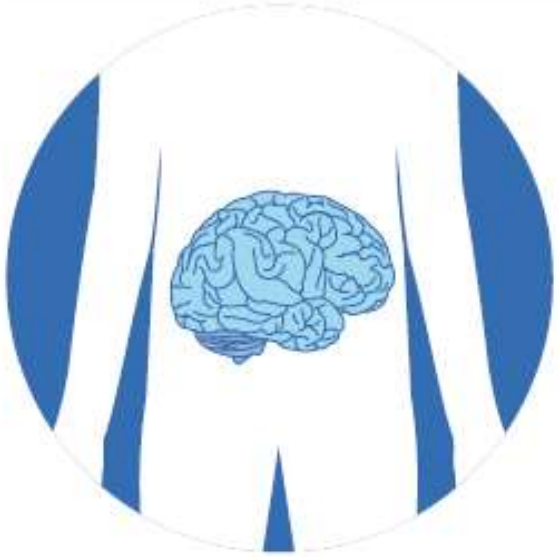
Listen 8:59

+ Playlist Download Embed



Centre For Infections/Science Photo Library/Corbis

GUT MICROBIOME AND SLEEP



All of the microbes that live in our intestines are known as the gut microbiome. Some even call it our "second brain."

Taking special care of your gut health can have great effects on the quality of your sleep. This is true even if you are going through a stressful period which would normally disrupt your sleep length and quality.

HOW ARE SLEEP AND MICROBIOME CONNECTED?

Elderly get better sleep with better microbial composition

Better sleep showed a increase in Verrucomicrobia strain which is believed to be linked with better cognitive function.

Study authors hope that improving gut microbiome could lead to a new way of cognitive decline treatment in older adults.

Diversity matters for health

Find out how to maintain a diverse microbiota through diet.

GUT MICROBIOTA FOR HEALTH *by* ESNM

Although gut microbiota has a genetic component

diet, lifestyle, environment and antibiotics influence gut microbiota composition the most.

What you eat can impact the gut microbiota within 24 hours of a dietary change.

The more diverse the diet, the more diverse the microbiota.

How do you eat your way to a diverse microbiota?

Include dietary fibers that can be metabolically used by gut microbes

Cooked and cooled potatoes, legumes and root vegetables, onions, garlic, bananas, chicory root, and artichokes.

Add probiotic foods

such as fermented milk, yogurt and kefir.

Choose a balanced amount of animal and plant-based proteins

plant-based (legumes, nuts and seeds) and animal-based (meat, fish, shellfish, eggs and dairy products).

Include foods rich in omega-3 and omega-6 fatty acids

omega-3: walnuts, flax seeds, algae and oily fish; omega-6: avocado, nuts, seeds and vegetable oils (except for palm and coconut oil).

Eat plenty of vitamins and minerals

found in a variety of animal foods, in fruits and vegetables, wholegrain cereals, nuts and legumes, such as beans or lentils.

Diversity matters on the plate and in the gut!

GutMicrobiotaWW www.gutmicrobiotaforhealth.com Food4Gut_Health

https://www.gutmicrobiotaforhealth.com/how-to-eat-for-a-diverse-microbiota/

Getting to Better Gut Bacterial Health

Eat more PREbiotics

- Foods with indigestible fibers that nourish the good bacteria:
  - High fiber foods like, whole grains, fruits, veggies, nuts
  - High in prebiotic fibers include: Jerusalem artichokes, onions, kale, Brussels sprouts, bananas, dandelion greens & more

PRObiotics

- These foods contain healthy bacteria like *Bifidobacterium* and *lactobacillus.*
  - Yogurt, Kefir – look for "live or active cultures"
  - Fermented foods like: Sauerkraut, Kimchi, Miso soup, kombucha

12 Super Foods to Enjoy

- Beans
- Dark Green Leafy Vegs
- Citrus Fruit
- Sweet Potatoes
- Berries
- Garlic

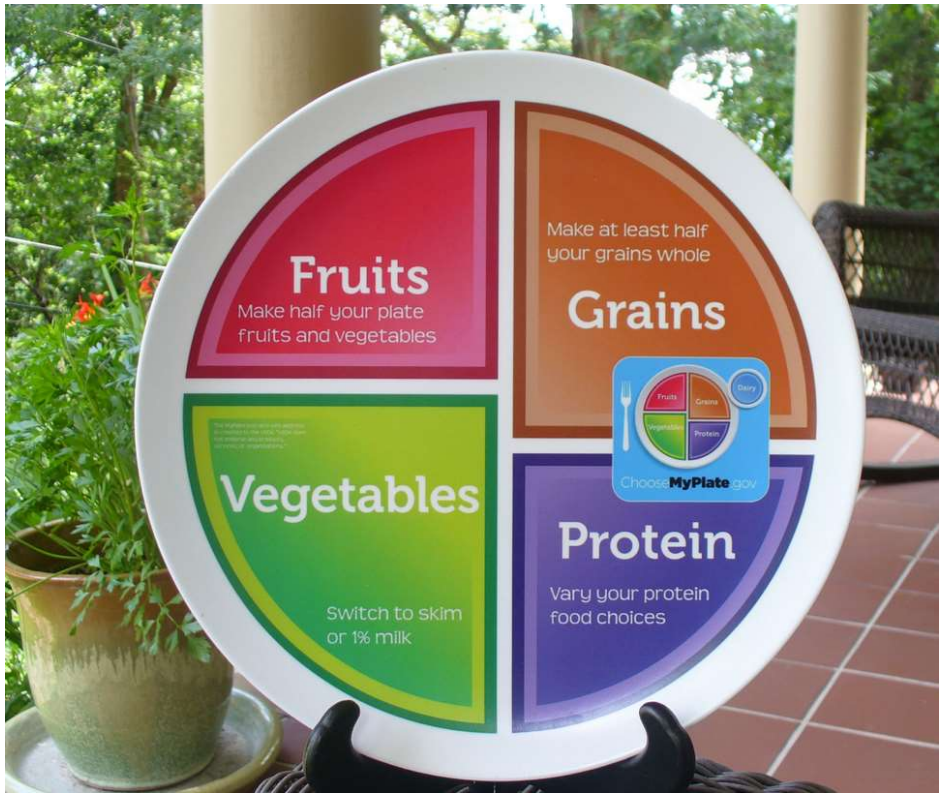
- Tomatoes
- Onions
- Fish High in Omega-3 Fatty Acids
- Whole Grains
- Nuts
- Fat-Free Milk and Yogurt

Kefir – Fermented Milk

From the Turkish word *keyif*, which means "feeling good" after eating

GET Lots of Diverse Fiber Foods
Goal is 25 – 30 gms day

American Food Project



Full Plate Diet

- Helps increase fiber in usual meals

Fiber is suddenly hip. Grandma, it turns out, was just ahead of her time.

—*Health & Nutrition Letter*
Tufts University
February 2009

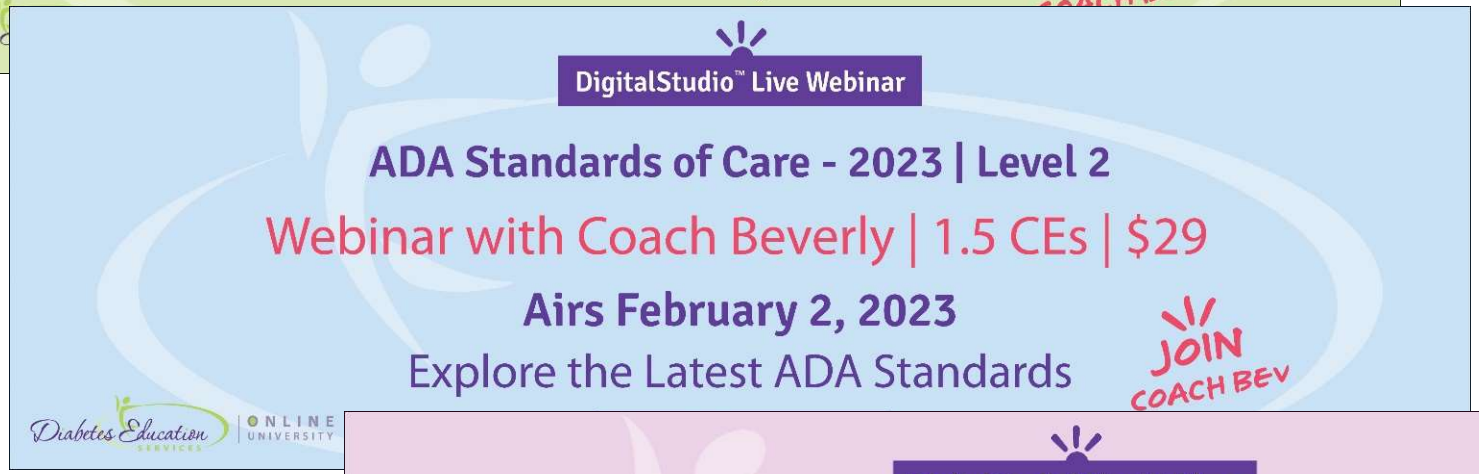
Diabetes Education SERVICES

Upcoming 2022 Events

28 Nov.	8 Dec.	20 Dec.
Cyber Monday 30% off Online Courses	DKA/HHS	Assess Coping Skills

1 Dec.	13 Dec.
ADA /EASD Meds Management Update	Test Taking Toolkit

What is Up for 2023?



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Sign up for Blog Bytes – Question of Week

- https://diabetesed.net/diabetes-blog-bytes-sign-up/

Sign Up | Diabetes Blog Bytes

Like

Diabetes Education SERVICES

diabetes blog bytes
keeping it short and sweet

100 Trillion Friends to Call Your Own

From way back when, to current time
man and bacteria have been intertwined.

Start with your head, it's a happening place,
there's staphylococcus all over your face.

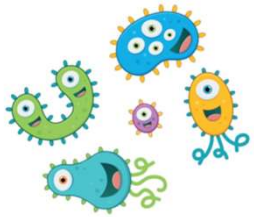
Next up is gums, teeth and mouth,
You'll find streptococcus inside and out!

Now to your stomach, to keep the pH,
H. pylori is on the case!

Inside the intestines, 30 feet of tube,
3 pounds of bacteria digesting your food.

From Bacteroidetes to keep you lean,
to Firmicutes, a junk food digesting machine!

Prevotella another bug on the scene,
breaks down fiber, veggies and beans!



Lactobacillus is a newborn's friend,
lining birth canal from tip to end.
Down to your feet, in-between the toes,
that's where lots of pseudomonas grows!

Short chain fatty acids, you wanna keep them around
Protects gut mucous lining from breakin' down

So here's my message, always nourish your gut
With fresh fruit, grains, veggies, beans and nuts

More kefir, miso, sauerkraut, kimchi
Less sugar and fast foods to keep away disease

Breast feed, get dirty, limit antibiotic use
Let newborns come out through the natural shoot

Be reassured that you're never alone
You've got 100 trillion friends to call your own!

100 Trillion Friends to Call Your Own by Beverly Thomassian, RN, MPH, CDE, BC-ADM to the tune "Yeah" in the style of Usher.

Thank You

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  bev@diabetesed.net
- Web
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