C M B M

Webinar Series

This webinar is hosted by Kathie Madonna Swift, MS, RDN, LDN, Food As Medicine Education Director for the Center for Mind-Body Medicine, presented by Tanmeet Sethi, MD and made possible by a grant from the Scheidel Foundation.

Scheidel FOUNDATION

Built on the Love of Family and Community

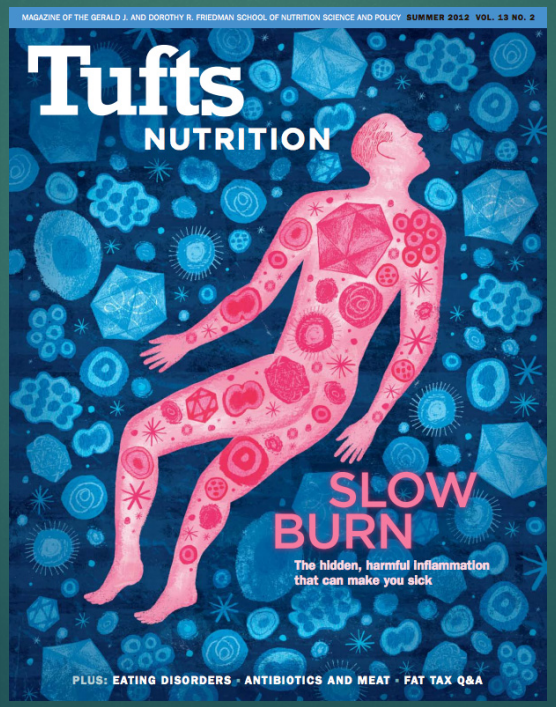
# Using Whole Foods as Medicine: Mind, Mood, & Food Webinar January 17, 2018

TANMEET SETHI, MD

# OBJECTIVES

- Understand the biochemical basis of inflammation in our body and how it is a source of chronic illness.
- Identify key phytonutrients and foods that can be used to fight chronic inflammation.
- Identify a Whole Foods approach for the health of mind and mood based on the components needed to fight inflammation.

# INFLAMMATION:
# How much is too much?


# What is chronic inflammation?

In Latin, ***inflammatio*** means "setting on fire"


- Claudio Franceschi, Judith Campisi; Chronic Inflammation (Inflammaging) and Its Potential Contribution to Age-Associated Diseases, *The Journals of Gerontology: Series A*, Volume 69, Issue Suppl_1, 1 June 2014, Pages S4–S9.
- Haapakoski et al. Cumulative meta-analysis of interleukins 6 and 1β, tumour necrosis factor a and C-reactive protein in patients with major depressive disorder. Brain, Behavior, and Immunity, Vol 49, October 2015, Pages 206-215
- Danesh J, Whincup P, Walker M, et al. Low grade inflammation and coronary heart disease: prospective study and updated meta-analyses. *BMJ : British Medical Journal*. 2000;321(7255):199-204
- Cefalu WT. Inflammation, Insulin Resistance, and Type 2 Diabetes: Back to the Future? *Diabetes*. 2009;58(2):307-308. doi:10.2337/db08-1656.

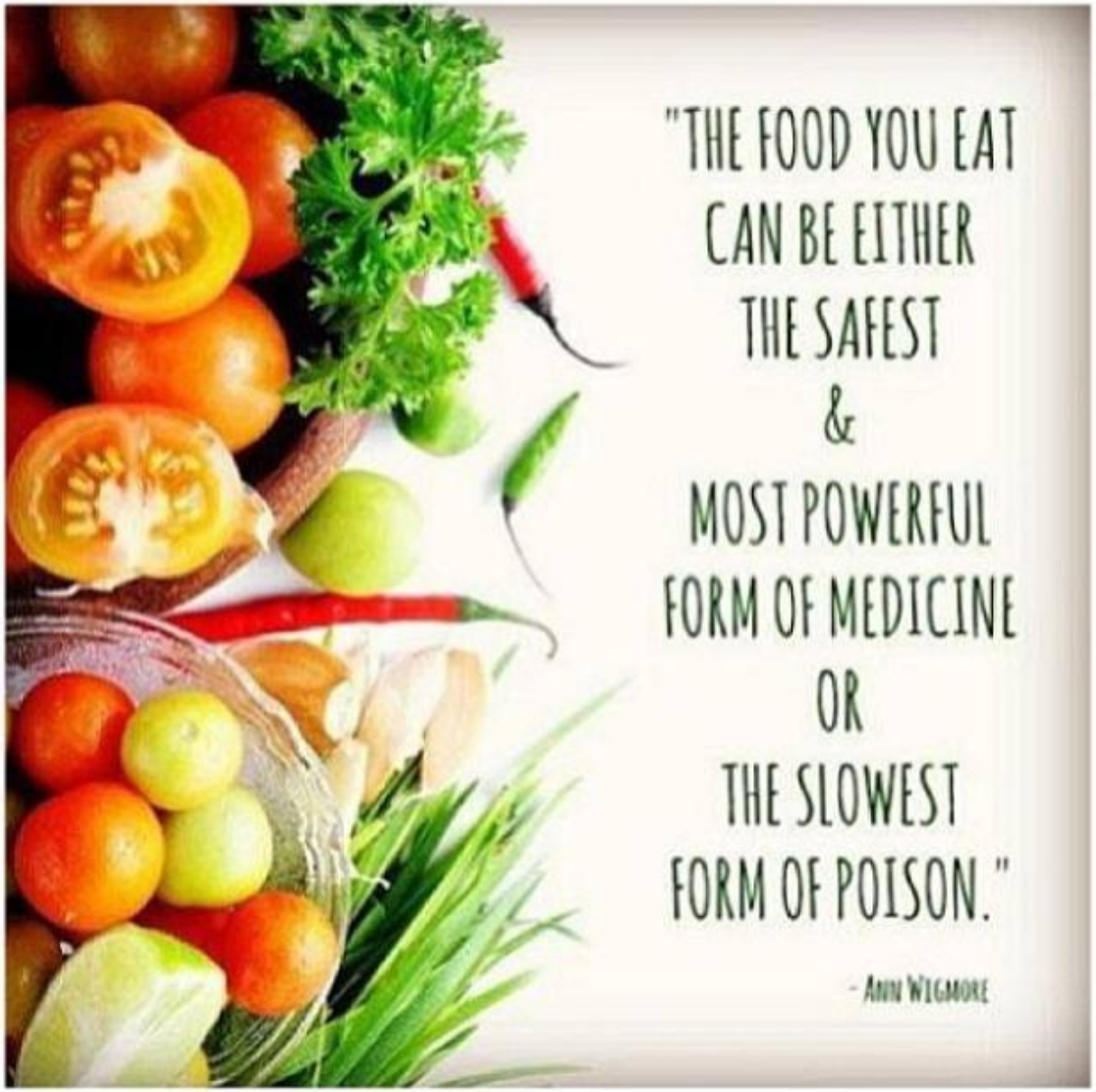
# Causes of chronic inflammation

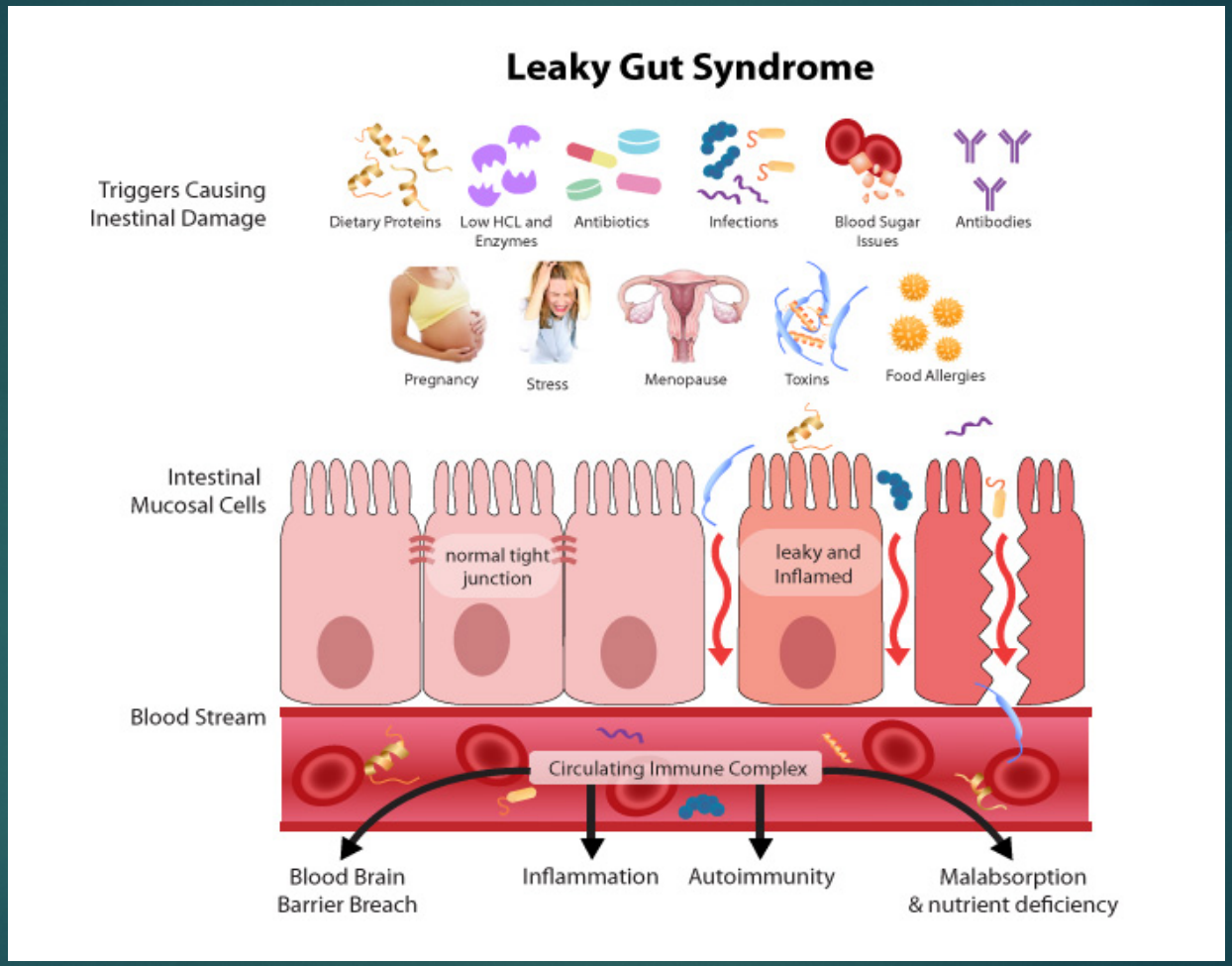
- Stress and childhood trauma
- Low fiber, high glycemic, processed diet
- Sedentary lifestyle
- Obesity
- Gut permeability
- Smoking
- Atopic disorders

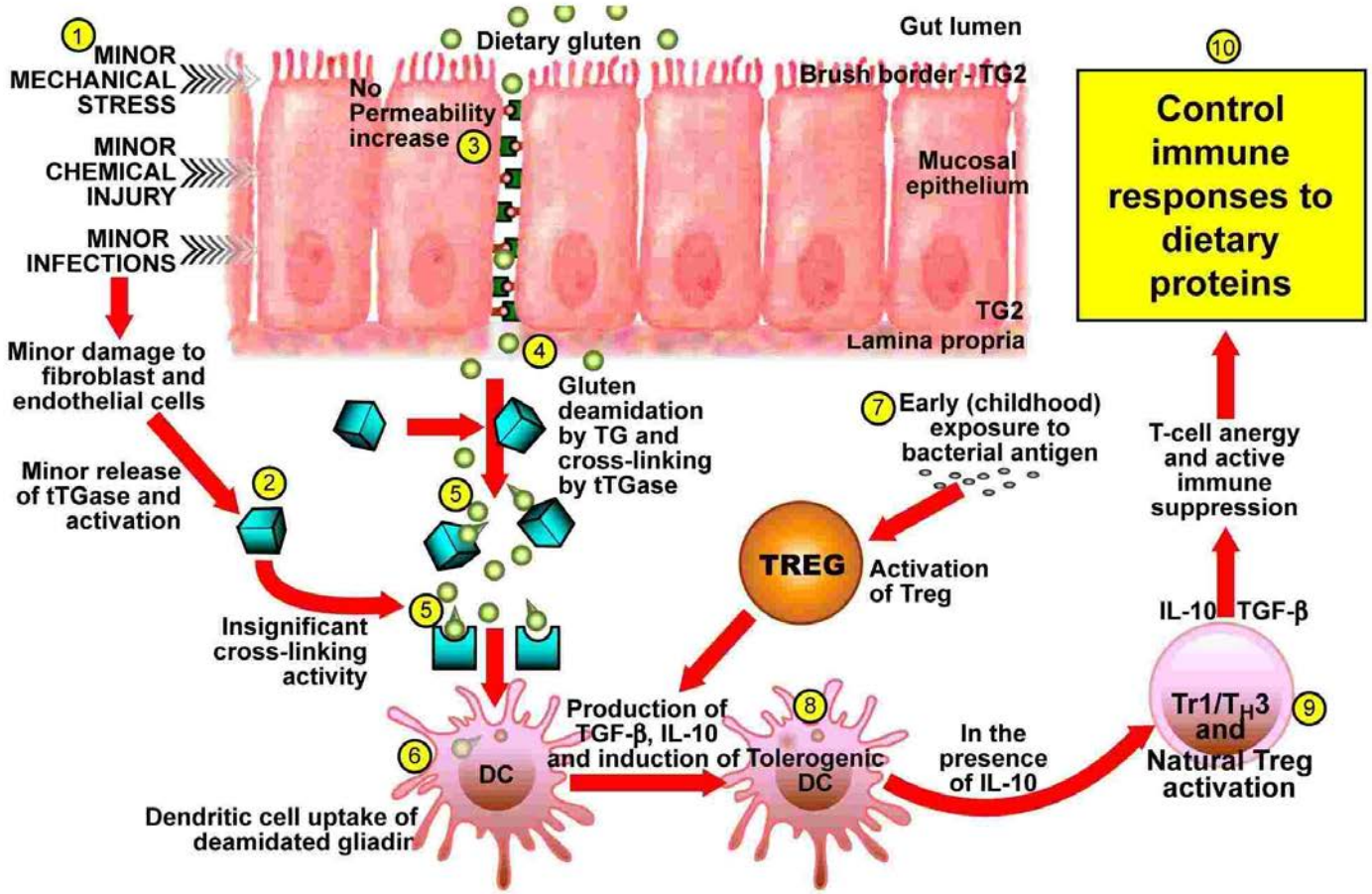
# Causes of chronic inflammation

- Stress and childhood trauma
- **Low fiber, high glycemic, processed diet**
- Sedentary lifestyle
- **Obesity**
- **Gut permeability**
- Smoking
- Atopic disorders

Berk et al. So depression is an inflammatory disease, but where does the inflammation come from? *BMC Medicine*201311

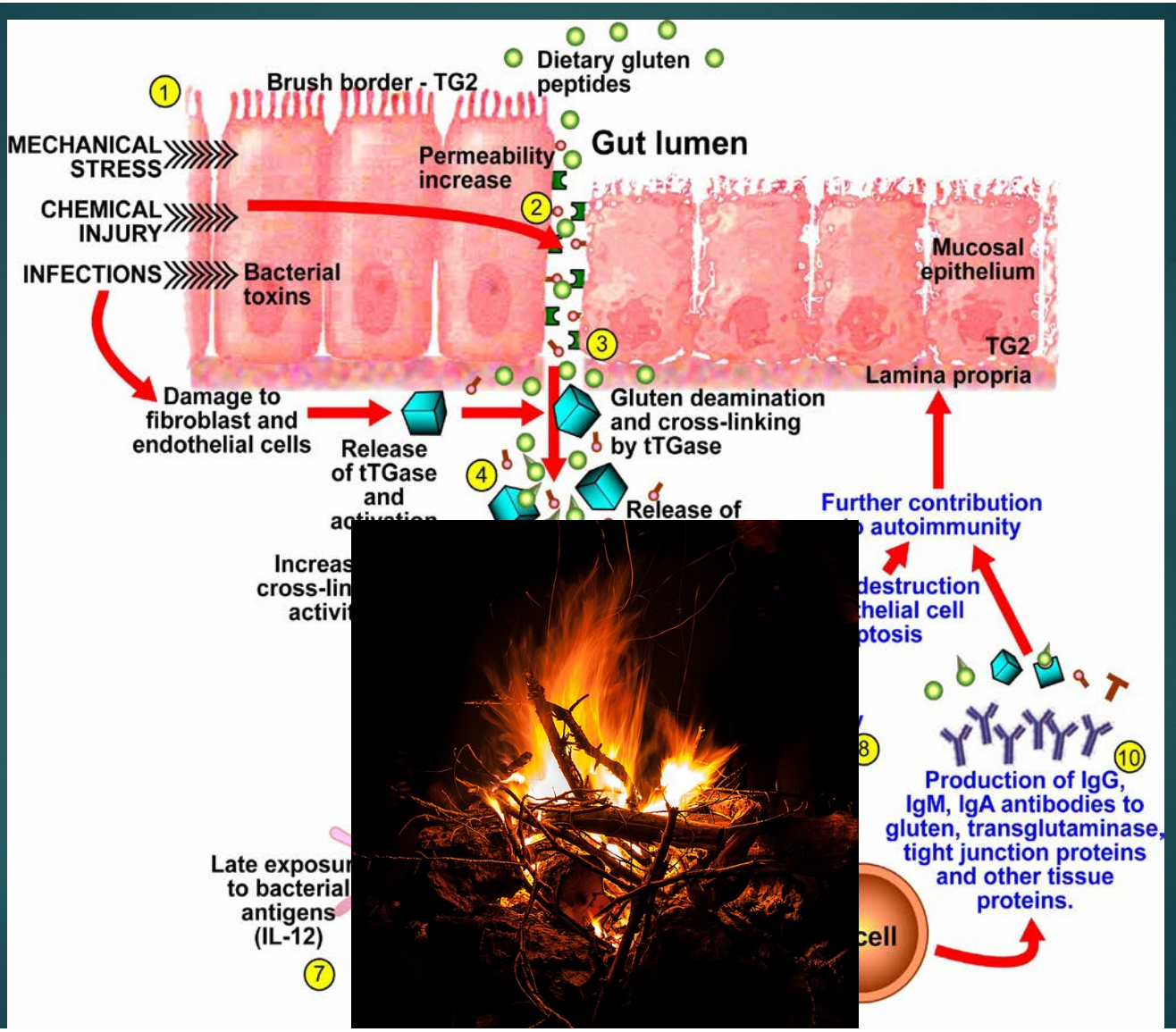

"THE FOOD YOU EAT
CAN BE EITHER
THE SAFEST
&
MOST POWERFUL
FORM OF MEDICINE
OR
THE SLOWEST
FORM OF POISON."
- Ann Wigmore

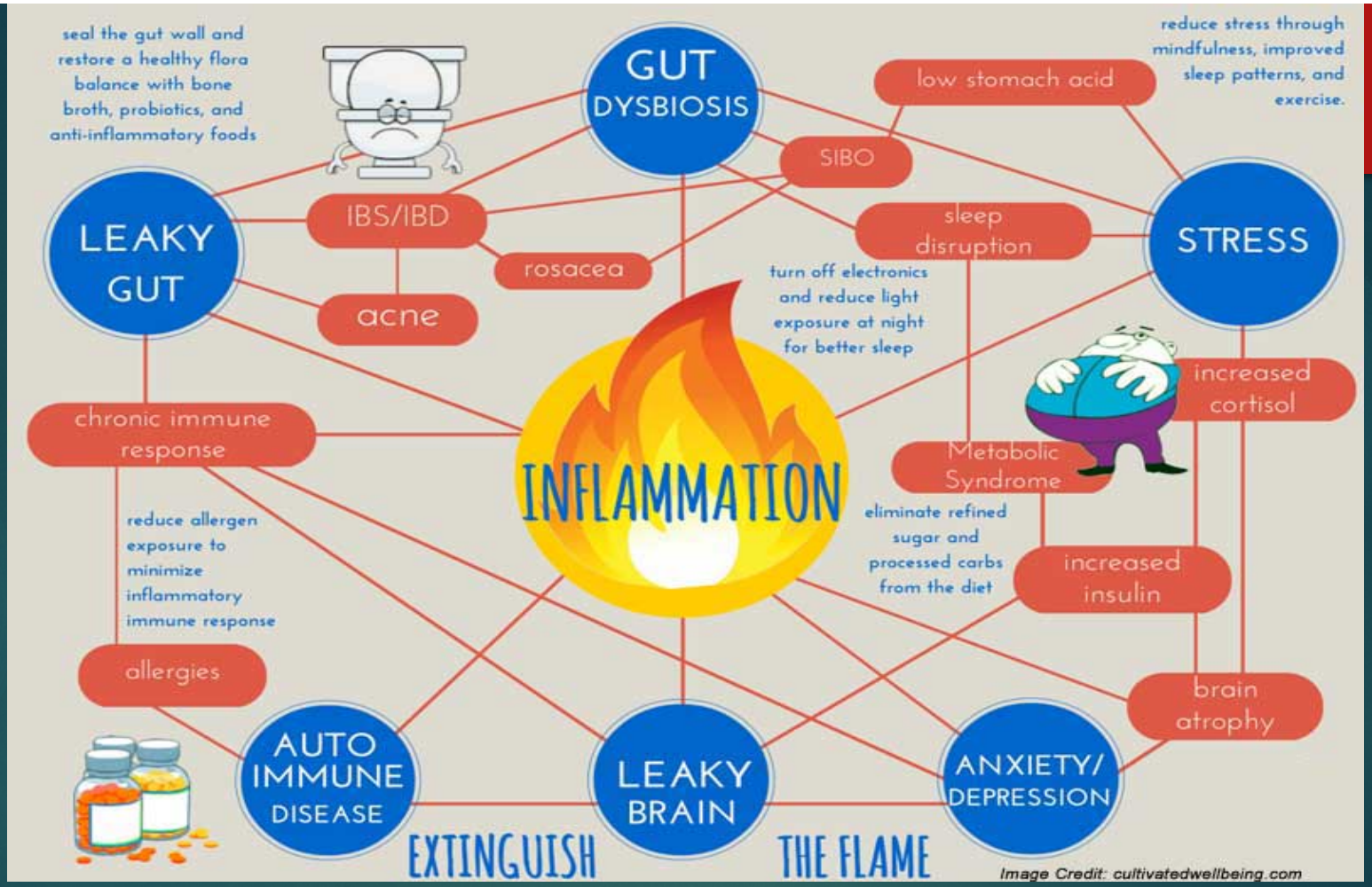

Leaky Gut Syndrome
Triggers Causing Inestinal Damage
Dietary Proteins
Low HCL and Enzymes
Antibiotics
Infections
Blood Sugar Issues
Antibodies
Pregnancy
Stress
Menopause
Toxins
Food Allergies
Intestinal Mucosal Cells
normal tight junction
leaky and Inflamed
Blood Stream
Circulating Immune Complex
Blood Brain Barrier Breach
Inflammation
Autoimmunity
Malabsorption & nutrient deficiency




**Cellular and molecular induction of immune tolerance to dietary proteins (gliadin).**

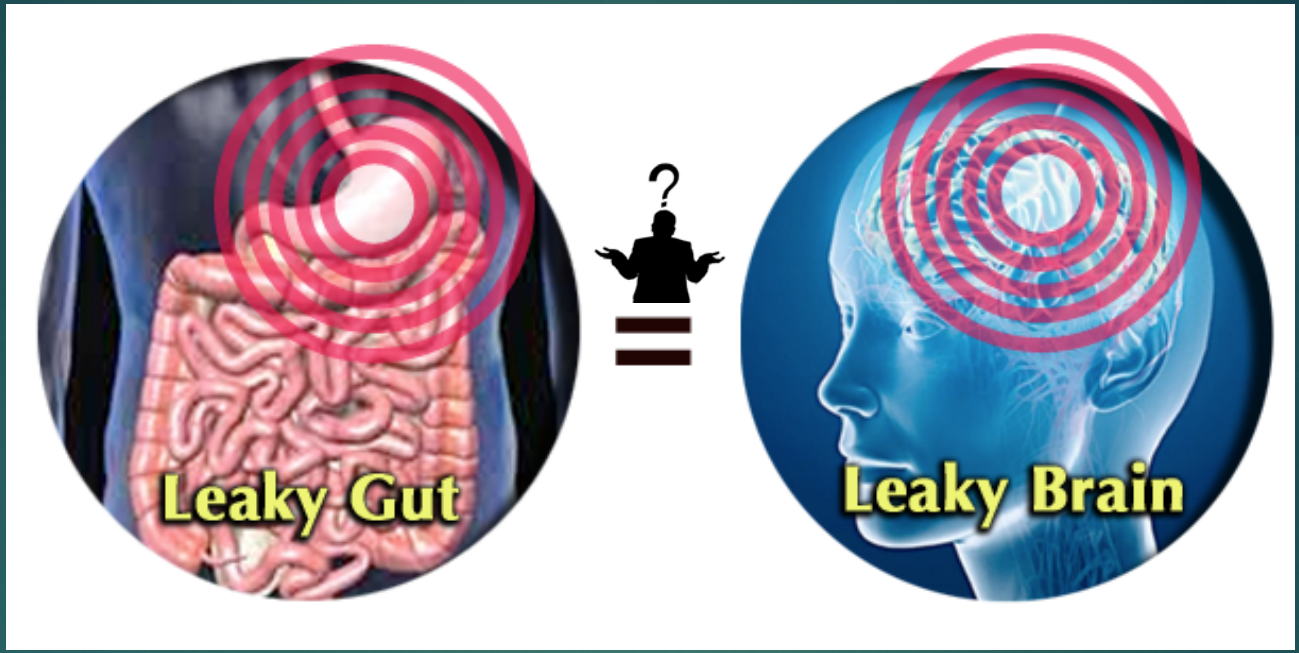
Healthy Gut


Dietary gluten peptides
1
Brush border - TG2
MECHANICAL STRESS
CHEMICAL INJURY
INFECTIONS
Bacterial toxins
Permeability increase
Gut lumen
2
Mucosal epithelium
3
TG2
Lamina propria
Damage to fibroblast and endothelial cells
Release of tTGase and
Gluten deamination and cross-linking by tTGase
4
Release of
Further contribution
autoimmunity
destruction
helial cell
ptosis
Increas
cross-lin
activi
8
10
Production of IgG, IgM, IgA antibodies to gluten, transglutaminase, tight junction proteins and other tissue proteins.
Late exposu
to bacterial
antigens
(IL-12)
7
cell




Wolburg et al. Actions of the blood–brain barrier: development, composition and regulation. Vascular Phamacology, Vol 38, Issue 6, June 2002, Pages 323-337.

Block et al. Microglia and inflammation-mediated neurodegeneration: Multiple triggers with a common mechanism. Progress in Neurobiology, Vol 76, Issue 2, June 2005, Pages 77-98



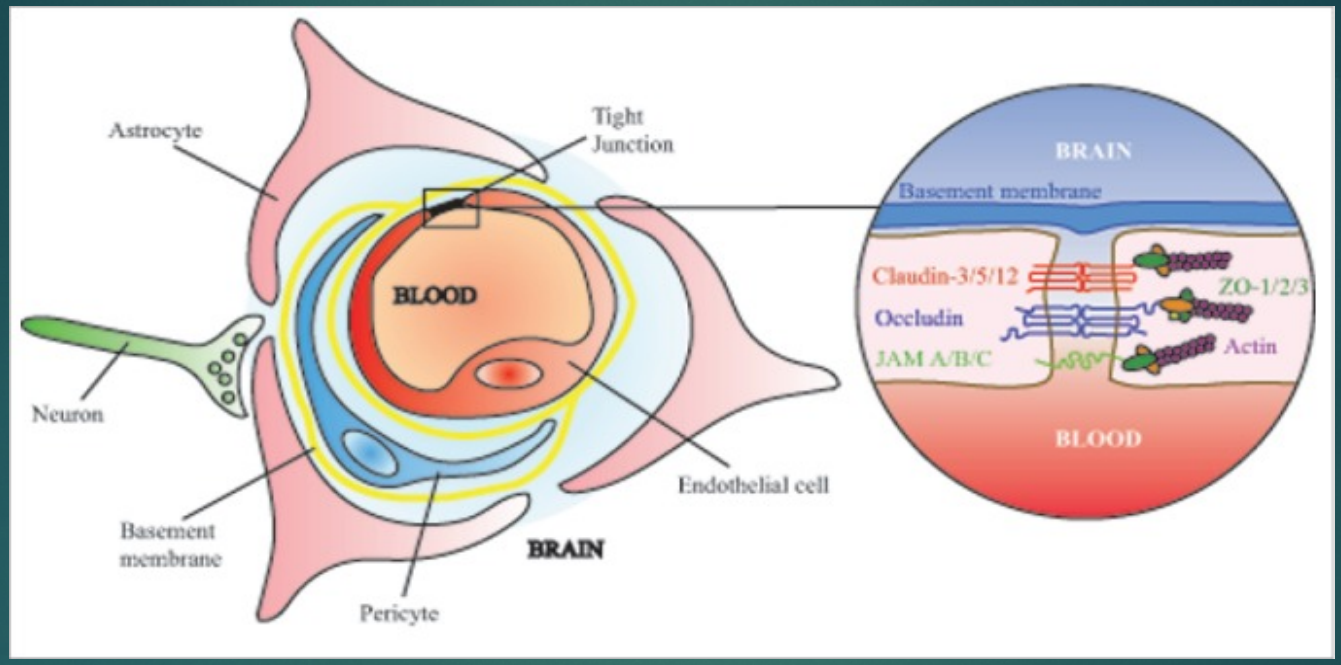

Fasano A. Physiological, Pathological, and Therapeutic Implications of Zonulin-Mediated Intestinal Barrier Modulation : Living Life on the Edge of the Wall. *The American Journal of Pathology*. 2008;173(5):1243-1252. doi:10.2353/ajpath.2008.080192.

Perry, V.H. Acta Neuropathol (2010) 120: 277.

Banks et al. The blood-brain barrier as a regulatory interface in the gut-brain axes. Physiiol Behav. 2006 Nov 30;89(4):472-6.

Banks WA. The Blood-Brain Barrier: Connecting the Gut and the Brain. *Regulatory peptides*. 2008;149(1-3):11-14. doi:10.1016/j.regpep.2007.08.027

# Remember those tight junctions?




Tissue Barriers. 2016 Jan-Mar; 4(1): e1138017.

# Let's not forget our microbiota

- Majority of our microbes are in the colon (greater than 2 orders magnitude)
- They are as much of our genome as our human DNA, estimated to be 1:1
- Established mostly after birth in first few years
- They thrive on our leftovers (Feed your bacteria well!)
- A second fingerprint

http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002533

"It is reasonable to propose that the composition of the microbiome and its activities are involved in most, if not all, of the biological processes that constitute human health and disease"

Martin J Blaser, MD
J Clin Invest. 2014;124(10):4162-4165

COLONIC INFLAMMATION

# Comparative study of the intestinal mucus barrier in normal and inflamed colon

Alexander Swidsinski, Vera Loening-Baucke, Franz Theissig, Holger Engelhardt, Stig Bengmark, Stefan Koch, Herbert Lochs, Yvonne Dörffel

Gut 2007;56:343-350. doi: 10.1136/gut.2006.098160

Gut bacteria, which create a 30 µm"biofilm" barrier, are decreased as inflammation increases. This inflammation increases intestinal permeability.

Gut 2007;56:343-350

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Revised 27 July 2006
Accepted 1 August 2006
**Published Online First**
**14 August 2006**

luminal bacteria and the epithelial cells in all parts of the normal colon. Colonic inflammation is always accompanied by breaks in the mucus barrier. Although the inflammatory response gradually reduces the number of bacteria in mucus and faeces, the inflammation itself is not capable of preventing bacterial migration, adherence to and invasion of the mucosa.

Mic

SPECIAL FOCUS REVIEW

Gut Microbes 3:4, 1-10; July/August 2012; © 2012 Landes Bioscience

# Involvement of gut microbiota in the development of low-grade inflammation and type 2 diabetes associated with obesity

**We and others have provided evidence that gut microbiota participates in whole-body metabolism by affecting energy balance, glucose metabolism and low-grade inflammation associated with obesity and related metabolic disorders.**

Key v

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diseases. We and others have provided evidence that gut microbiota participates in whole-body metabolism by

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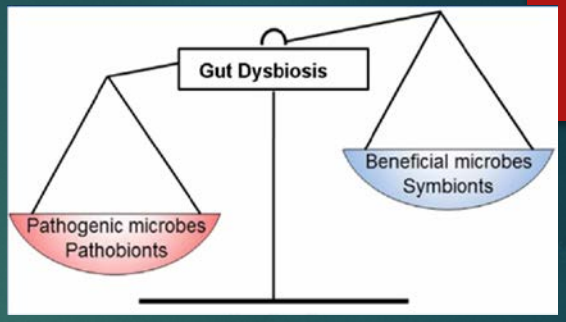
e.[2-8]

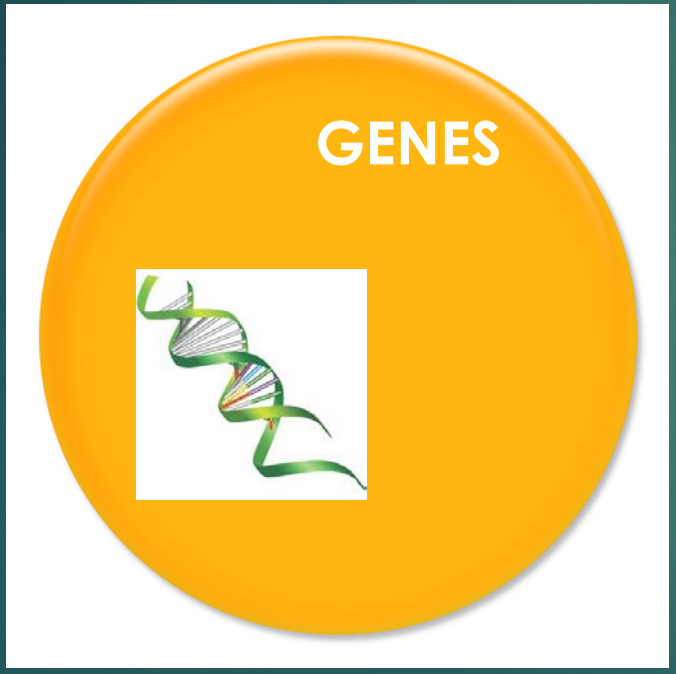
Hence, the major pathogenic mechanism linking inflammation with changes in liver and adipose tissue metabolism remain to be determined. Given the plethora of inflammatory markers caus-

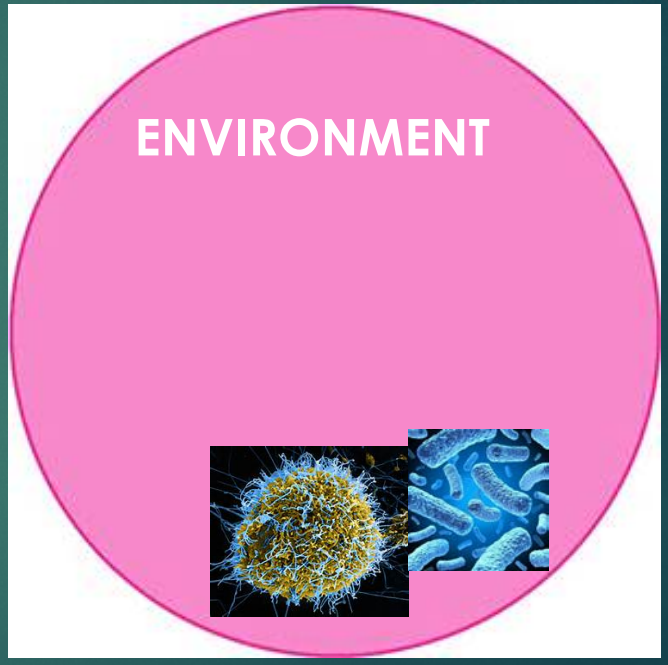
# Microbiota Balance

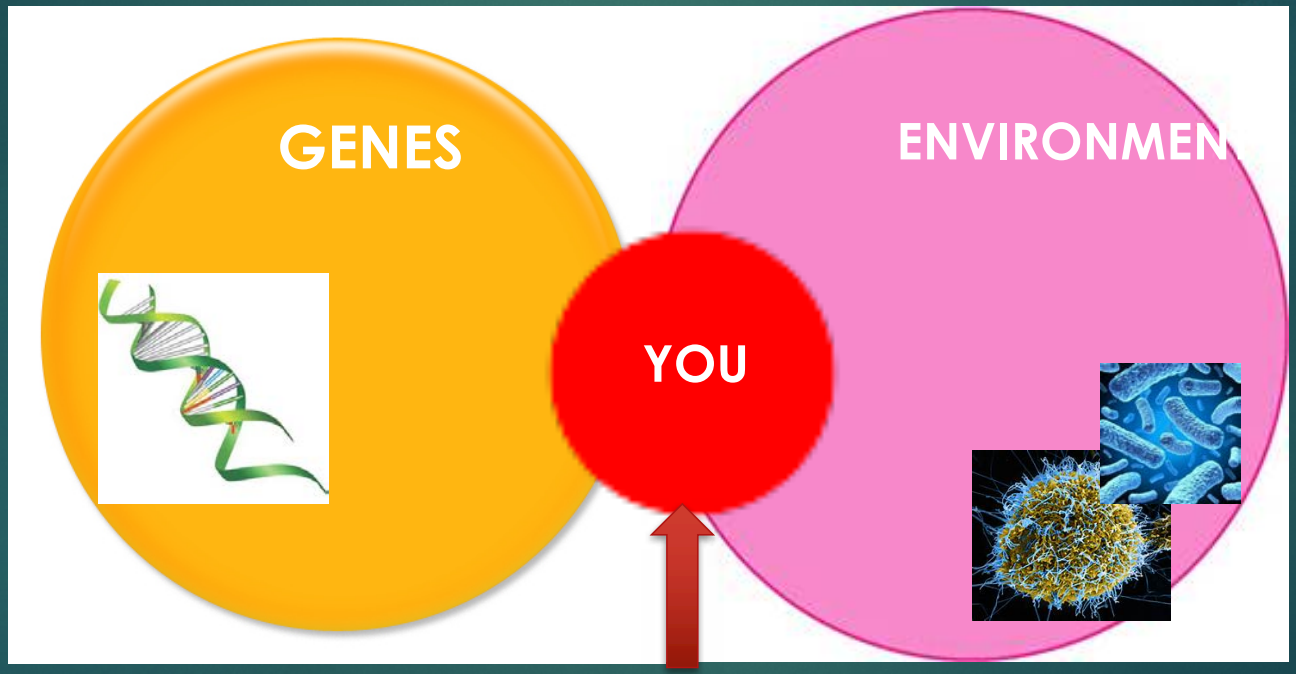
- Causes of Dysbiosis
  - SAD! = low fiber, high in fat & simple carbohydrates
  - Broad-spectrum antibiotics
  - Chronic maldigestion (including PPIs)
  - Chronic constipation
  - Stress, Fear, and Anger

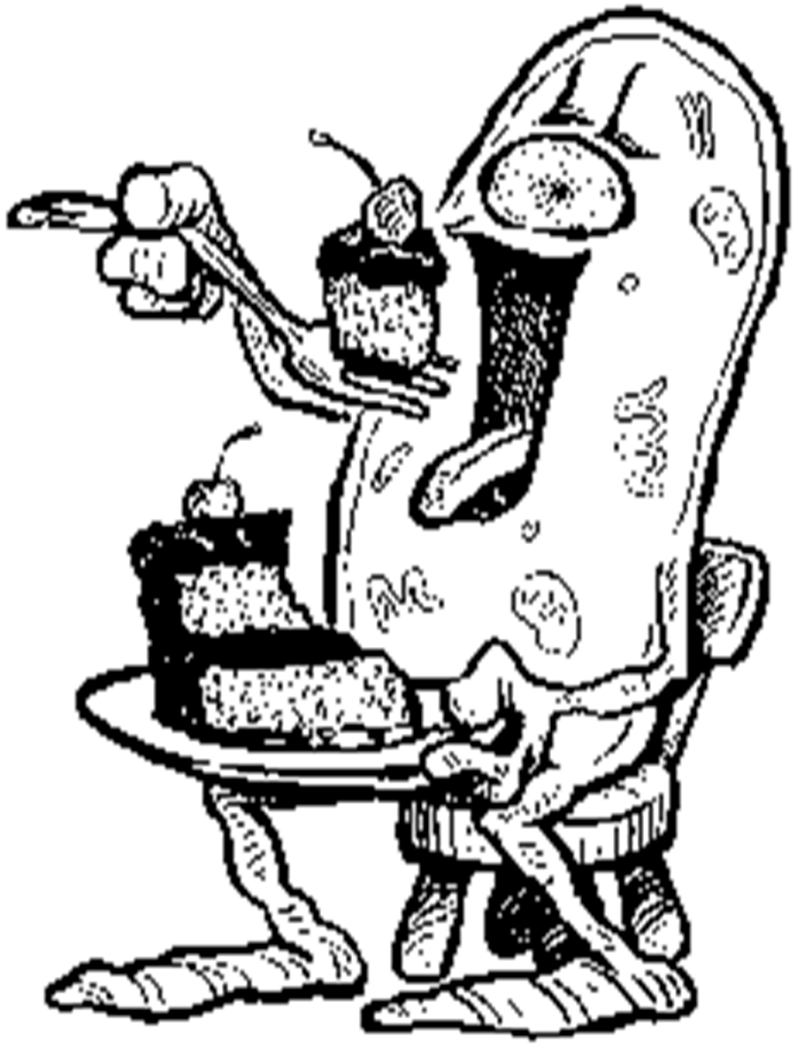





GENES


ENVIRONMENT


GENES
ENVIRONMEN
YOU
PHENOTYPE



# What we eat influences the population and metabolic activity of our microbiota

# OBJECTIVES

- Understand the biochemical basis of inflammation in our body and how it is a source of chronic illness.
- Identify key phytonutrients and foods that can be used to fight chronic inflammation.
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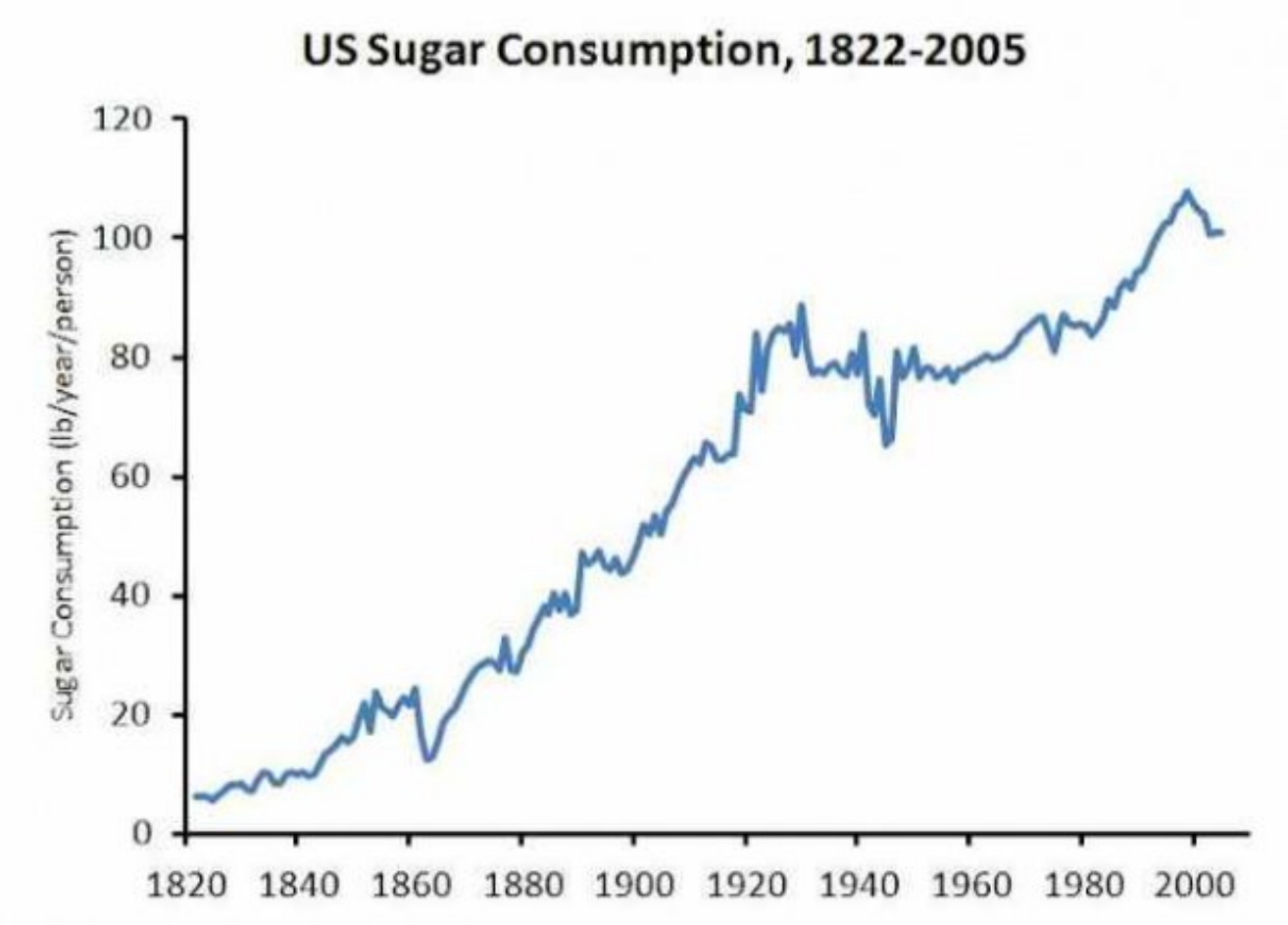
# Let's first try not to work uphill!

# The Deadliest White Powder

- Sugar in the amount we consume it is a toxin
- More addictive than cocaine in animal studies
- Highly inflammatory
- Major cause of obesity
- Hidden in most packaged and premade foods




(The average American consumes around 22.2 teaspoons of added sugar every day)

# WHO recommends max 25g/day (That's 6tsp)

- 20 oz Classic Coke
  - 65 grams
- Arizona Green Tea with Ginseng and Honey
  - 51 grams
- 16 oz Red Bull
  - 52 grams
- 15 oz Minute Maid Apple Juice
  - 49 grams
- 8 oz Skim milk
  - 11 grams
- 8 oz Silk Almond Milk Original
  - 7 grams sugar

# Remember sugar is everywhere!

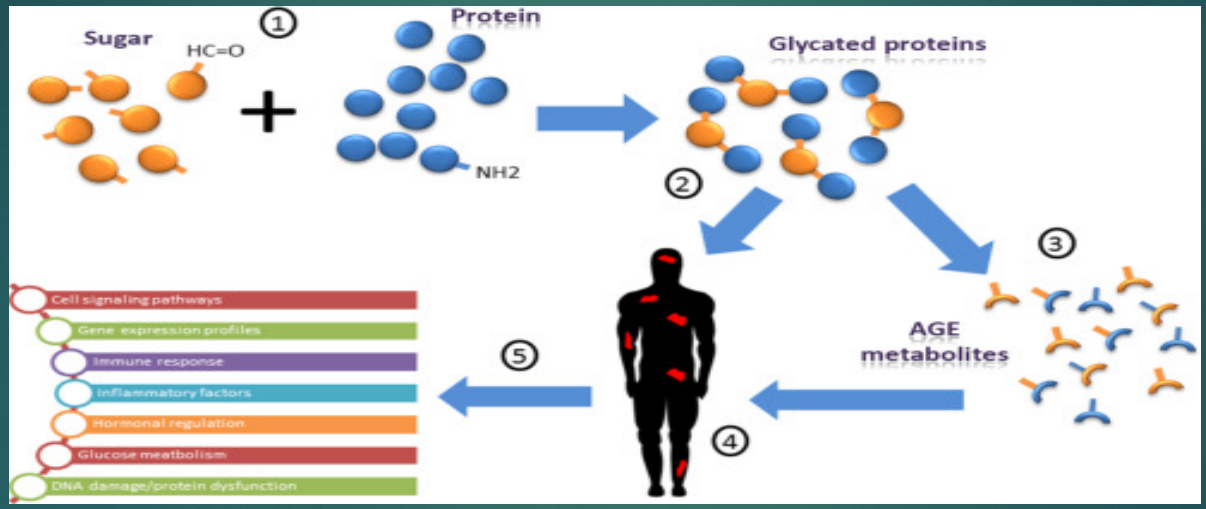
| | |
|---|---|
| **Plain Bagel** | 5.05 grams of sugar, 4.8 of which are added |
| **Whole-Wheat Bread (One Slice)** | 5.57 grams of sugar, 5 of which are added |
| **Regular Soda** | 8.97 grams of sugar, all of it added |
| **Fruit Punch** | 11.29 grams of sugar, 4.4 of which are added |
| **Bowl Of Corn Flakes** | 6.11 grams of sugar, all of it added |
| **Fruit-Flavored Yogurt** | 19 grams of sugar, 11.4 of which are added |
| **Italian Salad Dressing** | 8.85 grams of sugar, 6.9 of which are added |
| **Fruit Cocktail** (Canned In Light Syrup) | 13.93 grams of sugar, 6.4 of which are added |
| **Smooth Peanut Butter** | 9.22 grams of sugar, 3.1 of which are added |
| **Granola Bars** | 21.8 grams of sugar, 20.4 of which are added |
| **Low-Sodium Spaghetti Sauce** | 11.57 grams of sugar, 6.5 of which are added |

# Increased blood sugar disrupts BBB and promotes inflammation


- Kamada H, Yu F, Nito C, Chan PH. Influence of Hyperglycemia on Oxidative Stress and MMP-9 Activation After Focal Cerebral Ischemia/Reperfusion in Rats: Relationship to Blood-Brain Barrier Dysfunction. *Stroke; a journal of cerebral circulation*. 2007;38(3):1044-1049
- Banks, William. The blood–brain barrier as a regulatory interface in the gut–brain axes. Physiology & Behavior, Vol 89, Issue 4, 30 November 2006, Pages 472-476.

# AGEs

Higher AGE's lead to greater cognitive decline

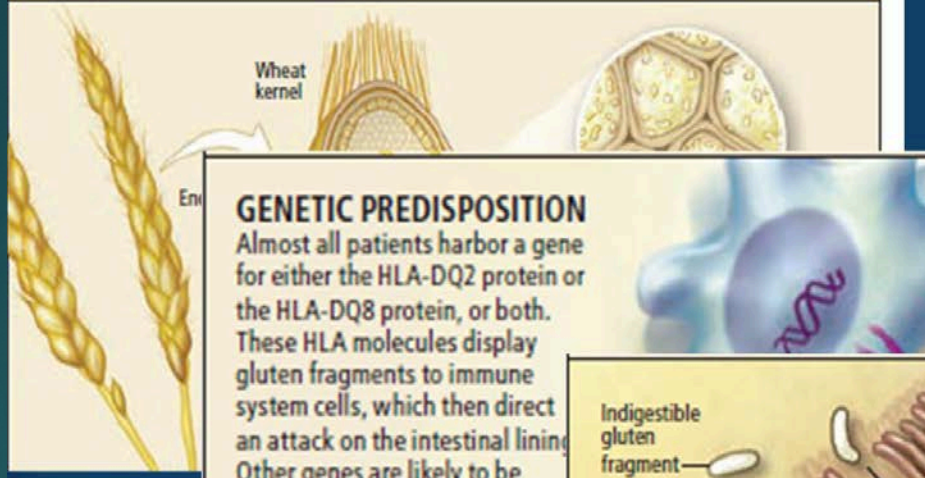



Yaffe et al. Diabetes, Glucose Control, and 9-Year Cognitive Decline Among Older Adults Without Dementia. *Arch Neurol.* 2012.
C. Enzinger Risk factors for progression of brain atrophy in aging: six-year follow-up of normal subjects. Neurology May 2005

# Is gluten affecting your brain?

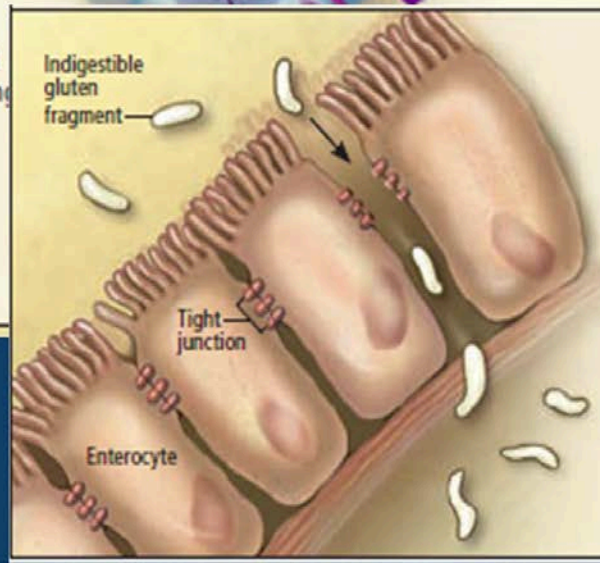
# A TRIO OF CAUSES

Three factors underlie celiac disease: an environmental trigger, a genetic susceptibility and, according to the author's research, an unusually permeable gut (*below*). The author suspects that the same basic triad contributes to other autoimmune diseases, although each disorder will have its own triggers and genetic components.




## GENETIC PREDISPOSITION

Almost all patients harbor a gene for either the HLA-DQ2 protein or the HLA-DQ8 protein, or both. These HLA molecules display gluten fragments to immune system cells, which then direct an attack on the intestinal lining. Other genes are likely to be involved as well, but these additional culprits may differ from person to person.




## LEAKY SMALL INTESTINE

In most people, links known as tight junctions "glue" intestinal cells together. In those with celiac disease, the junctions come apart, allowing a large amount of indigestible gluten fragments to seep into the underlying tissue and incite immune system cells. Treatments that reduced leakiness could potentially ease not only celiac disease but also other autoimmune disorders involving unusually permeable intestines.

# And don't forget…Humans frequently respond to stress with a primitive "famine" response

Groesz et al. What is eating you? Stress and the drive to eat. 2011.

# LET'S PRACTICE…

What ways do you slow down with food?

# Inflammation of depression

- Diet
- Obesity
- Gut microbiome and gut permeability
- Smoking
- Stress
- Lack of exercise
- Lack of sleep

Berk M, Williams et al. So depression is an inflammatory disease, but where does the inflammation come from? *BMC Medicine*. 2013.

# Inflammation of depression

- **Diet**
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- Stress
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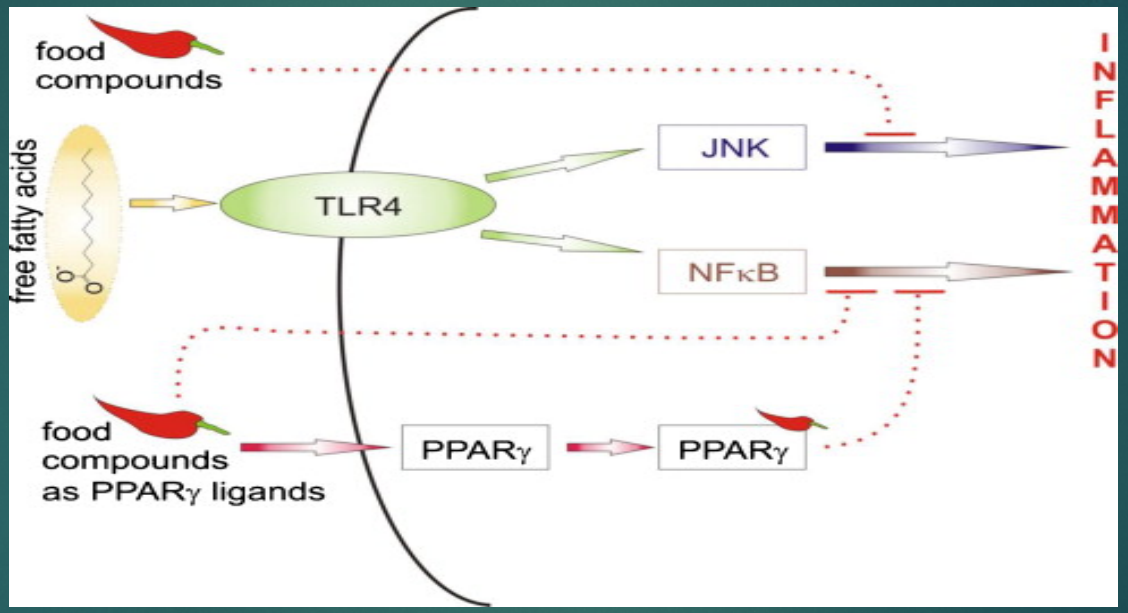
Berk M, Williams et al. So depression is an inflammatory disease, but where does the inflammation come from? *BMC Medicine*. 2013.

# Food's interplay in inflammation




Jungbauer. Anti-inflammatory properties of culinary herbs and spices that ameliorate the effects of metabolic syndrome. Maturitas. 2012.

# Decrease in inflammation with vegetable/fruit intake

- We know that serum CRP concentrations are inversely associated with dietary flavonoid intake in U.S. adults *(Chun. J of Nutrition. 2008)*
- We know that a a DASH diet (higher in fruits/vegetables, low in refined grains) compared to std ADA diet showed CRP decrease of 26.9% comp to 5.1% (p=.02) *(Azadbakht. J Nutr. 2011)*
- We know Bing Cherry consumption decreased ($P < 0.05$) plasma concentrations of AGE products (29.0%), CRP (20.1%) *(Kelley. J Nutr. 2013)*
- We know that strawberries and blueberries can dec postprandial insulin secretion and CRP levels *(Torronen. J Nutr. Apr 2013; McDougall. Biofactors 23. 2005; Edirisinghe. Br J Nutr. 2011)*
- We know that quercetin and other flavonoids have been shown to modify eicosanoid biosynthesis (antiprostanoid and antiinflammatory responses) *(Prior. Amer J of Clin Nutr. 2003)*

# Fiber and CRP levels

- In a crossover intervention trial, 35 participants (18 lean normotensive and 17 obese hypertensive individuals) were randomized to 2 diets: a high-fiber (30 g/day) DASH diet or fiber-supplemented diet (30 g/day).
- The diets were implemented after a baseline (regular) diet period of 3 weeks.
- Overall, the mean CRP level changed from 4.4 to 3.8 mg/L (-13.7%; *P = .046) in the high-fiber DASH diet group and to 3.6 mg/L (-18.1%) in the fiber-supplemented diet group ( P = .02)*

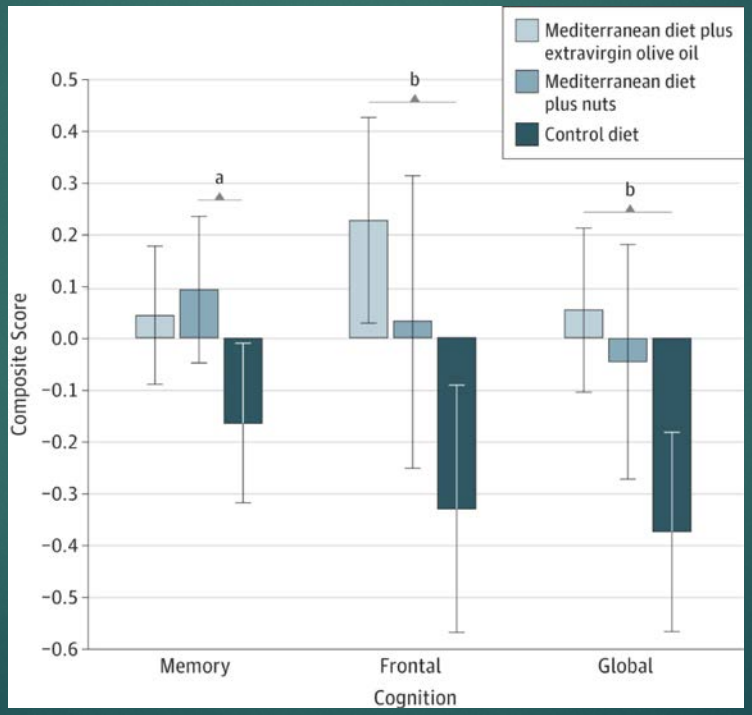
***King et al. Effect of a high-fiber diet vs a fiber-supplemented diet on C-reactive protein level.*** *Arch Intern Med. 2007 Mar 12;167(5):502-6.*

# Mood and Food

- 10,000+ patients, followed for 4+ years
- Med diet: high fruits/veg, legumes, olive oil, nuts, fish
- Showed 42% dec risk of depression
- "Depressive disorders are associated with increased production of proinflammatory cytokines, such as interleukins 1 and 6 and C-reactive protein. These cytokines, whose levels are in part determined by dietary intake, may inhibit BDNF expression, interfere with neurotransmitter metabolism, and alter neurotransmitter messenger RNA. The MDP has been shown to reduce the levels of these cytokines and inflammatory modulators."

Sanchez-Villegas et al. Association of the Mediterranean dietary pattern with the incidence of depression. Arch Gen Psychiatry 2009

# Med Diet (super-boosted) and Cognitive Decline

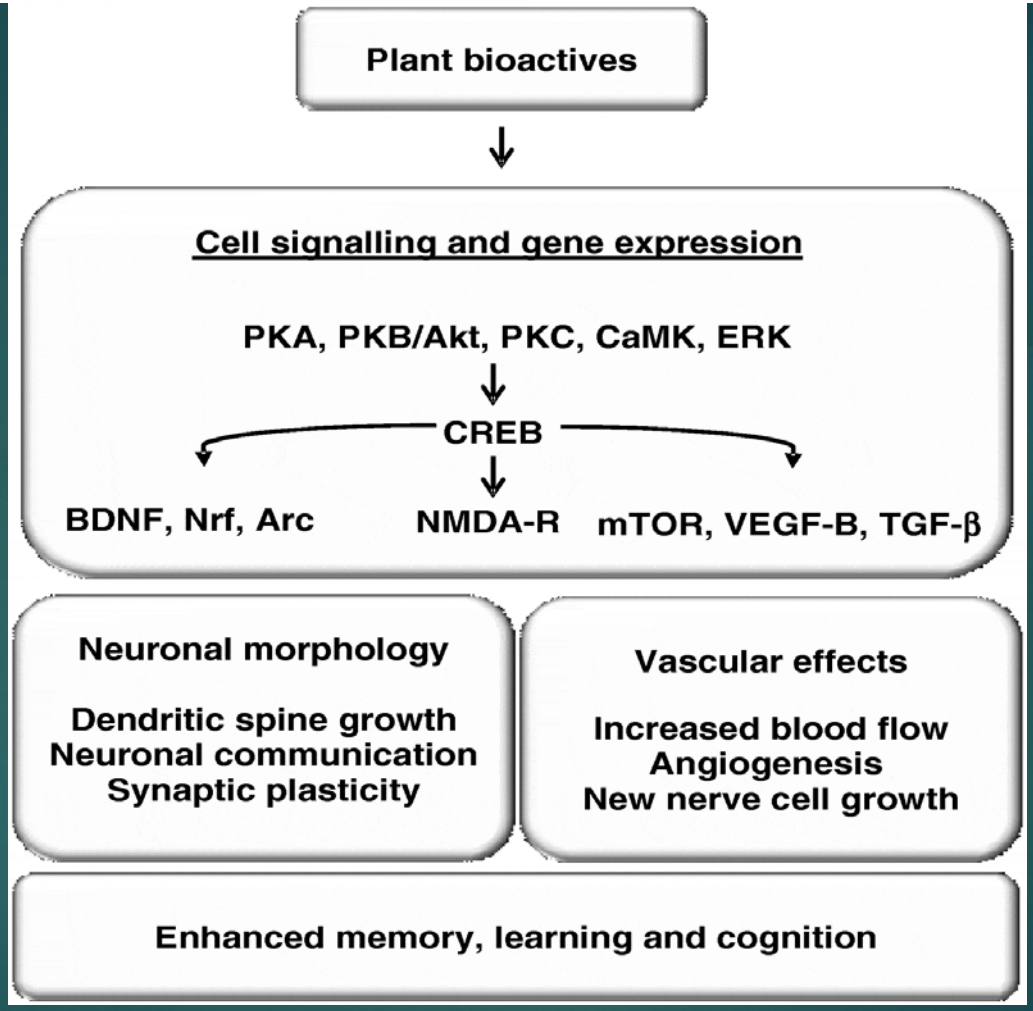




Valls-Pedret et al. Mediterranean Diet and Age-Related Cognitive Decline:A Randomized Clinical Trial. *JAMA Intern Med.* 2015

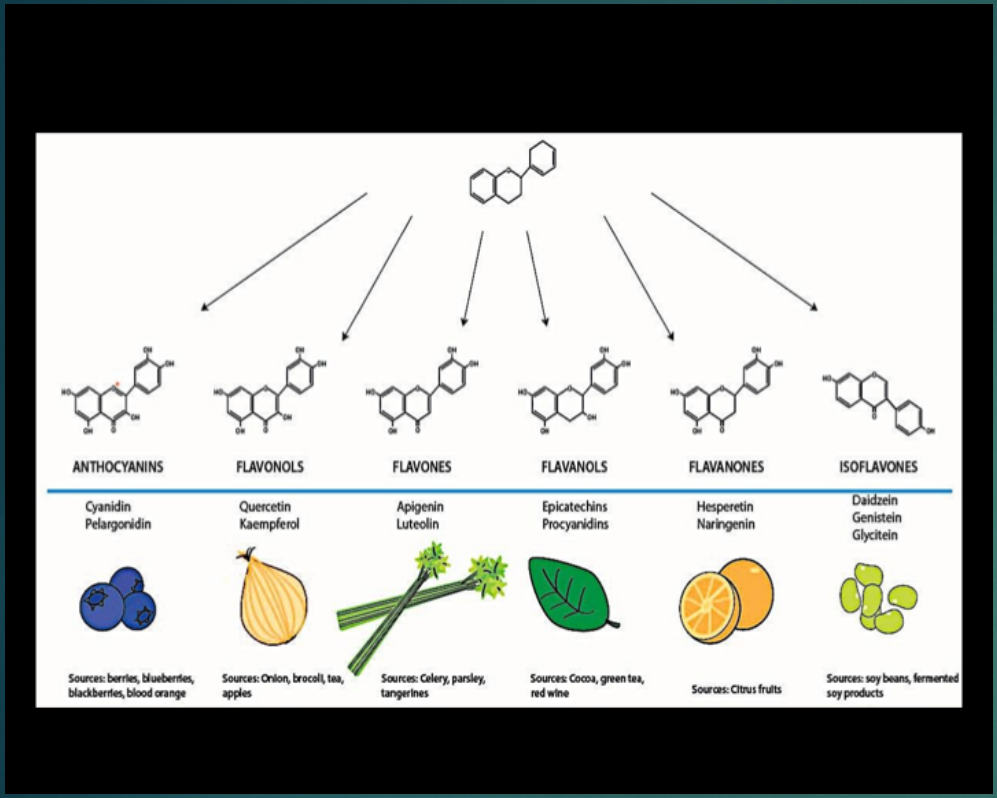
# Med diet increases BDNF

- "Adherence to a MeDiet was associated to an improvement in plasma BDNF concentrations in individuals with depression."

Sánchez-Villegas A et al. The effect of the Mediterranean diet on plasma brain-derived ne factor (BDNF) levels: the PREDIMED-NAVARRA randomized trial. Nutr Neurosci 2011

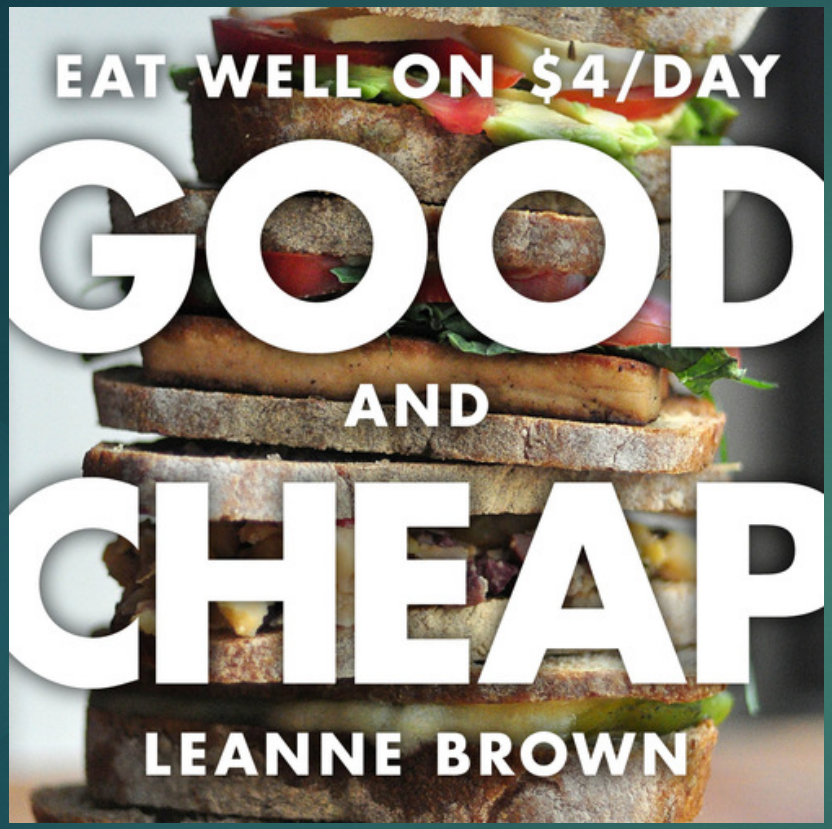


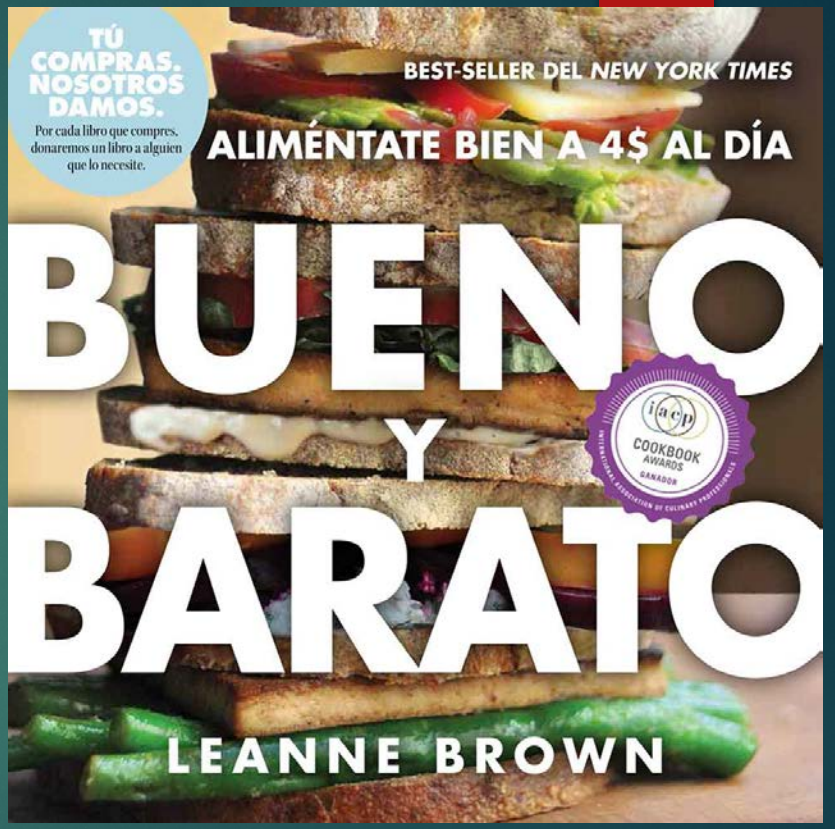

Spencer. Beyond antioxidants: the cellular and molecular interactions of flavonoids and how these underpin their actions on the brain. Proc Nutr Soc. 2010 May.




- Flavinoids improve cognitive function in children and adults.
- Increase BDNF (brain derived neurotrophic factor)
- Studies examine fruits and vegetables such as wild blueberries, oranges, strawberries, onions; cocoa; green tea.

Food Funct., 2017,8, 4129-4138
Alharbi et al. European Journal of Nutrition. 2016
Neshatdoust et al. Nutrition and Healthy Aging. 2016.
Nehlig. British Journal of Clinical Pharmacology. 2013
Kumar. Pharmacognosy Reviews. 2012
Desideri. The Cocoa, Cognition, and Aging (CoCoA) Study. Hypertension, 2012. Panickar. Nutr. Neurosci. 2009 Jun.




http://www.leannebrown.com

$5.20 TOTAL
$2.60 / SERVING



# Taco Salad

FOR TWO

This salad is a great use for leftover beans (or pulled pork)—crunchy, fresh, yet satisfying enough to be a whole meal. I like to make taco salad in a week where I've made a large batch of beans and I'm craving something fresh.

4 cups lettuce, chopped
1 cup beans, pulled pork, or ground beef
2 small tomatoes, chopped
½ cup corn, canned or fresh
2-3 scallions, finely chopped
1 cup tortilla chips, roughly crushed
sharp cheddar or queso fresco, for sprinkling

**DRESSING**
¼ cup sour cream or yogurt
juice of one lime
salt and pepper

**ADDITIONS**
cucumber
jalapeño
bell peppers
grated carrots
salsa (p. 163)

Mix up the dressing and taste it. Adjust the salt, pepper, and lime to your liking.

Mix the other ingredients in a large bowl. Pour the dressing over just before serving and toss to coat the salad evenly. Eat immediately, maybe with a few extra tortilla chips on the side.

# Beet and Chickpea Salad

FOR TWO

This dish is spicy, crunchy, and almost certainly the pinkest salad you'll ever eat! Don't be scared.

2 to 3 beets, peeled and grated
1 cup chickpeas, cooked or canned
3 tbsp peanuts

**DRESSING**
1 tbsp lime juice
1 tsp chili sauce
1 tbsp olive oil
salt and pepper

Peel the raw beets, removing the stems if necessary, then shred the beets with a box grater. Place the beets in a bowl along with the chickpeas and nuts.

Mix up the dressing ingredients in another small bowl and stir to combine. Taste and adjust the salt and pepper to your liking.

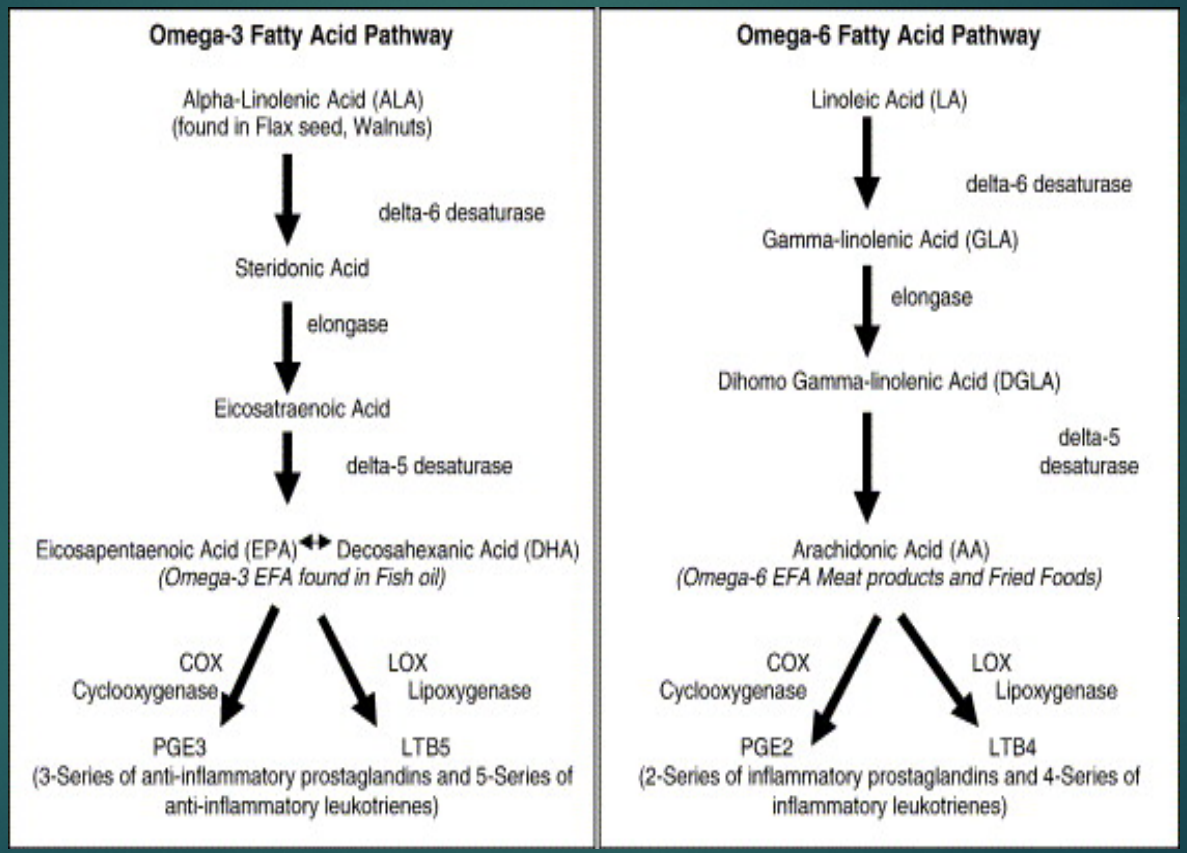
Add the dressing to the other bowl and mix up all the ingredients. Let it sit for about 5 minutes so that the flavors can soak into the vegetables and the beet juices can mingle with the dressing.

$3.50 TO
$1.75 / S

# OMEGA 3 FATTY ACIDS

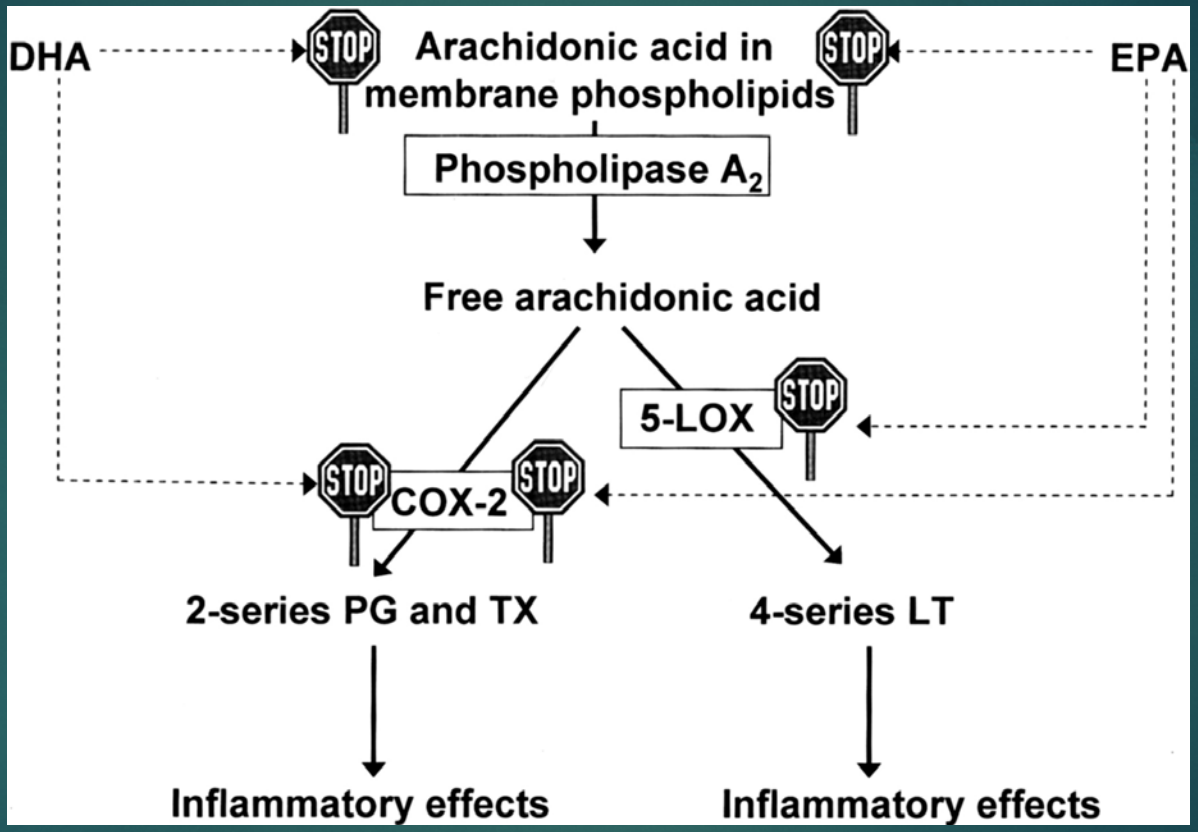
Remember we need a better balance

# Let's review biochemistry




*Maroon, Bost.. ω Fatty acids (fish oil) as an anti-inflammatory: an alternative to nonsteroidal anti-inflammatory drugs for discogenic pain. Surgical Neurology, Volume 65, Issue 4, 2006, 326 - 331*

**Classic mechanism of the antiinflammatory action of long-chain n−3 fatty acids.**




**Calder P C Am J Clin Nutr 2006;83:S1505-1519S**

Maes et al. Biol Psychiatry 2000

Pischon et al. Habitual dietary intake of n-3 and n-6 fatty acids in relation to inflammatory markers among US men and women. Circulation 2003

Kiecolt-Glaser et al. Depressive symptoms, omega-6:omega-3 fatty acids, and inflammation in older adults. Psychosom Med 2007.

# Fish and depression

Freeman et al. Omega-3 fatty acids: evidence basis for treatment and future research in psychiatry. J Clin Psychiatry 2006

# DHA and Perinatal Depression

Women 6 X more likely to suffer if DHA levels are low

Rees et al. Omega-3 deficiency associated with perinatal depression. Psychiatry Research,2009.

# Maybe you don't love fish?

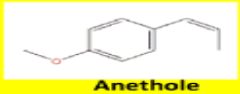
- Contain important brain micronutrients
  - Zinc
  - Iron
  - B12
  - Selenium
  - Omega-3

# And don't ever forget about your herb and spice pharmacy!

- POWERFUL modulators of inflammation
- Your kitchen cabinet is an arsenal of power for your brain!
- **Ginger** (inhibits COX 1 and 2 and 5-LOX; also inhibits inducible genes that encode for inflammatory cytokines and chemokines)
- **Curcumin in Turmeric** (inhibits both COX/LOX pathways)
- **Chili Peppers:** Capsaicin binds to the vanilloid receptor subtype 1 (VR1) expressed in primary sensory neurons and vagal nerves, at which it stimulates the release of substance P; inhibits COX-2 and iNOS.
- **Black pepper:** suppresses pro-inflammatory cytokines
- **Bay leaf, oregano, marjoram, rosemary, thyme**

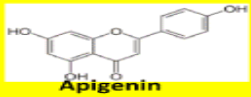
F1

Anise
*(Pimpinella anisum)*



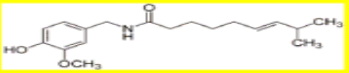
Anethole

Parsley
*(Petroselinum crispum)*



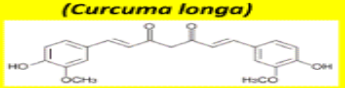
Apigenin

Chilli
*(Capsicum annum)*



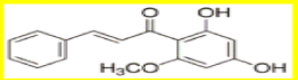
Capsaicin

Turmeric
*(Curcuma longa)*



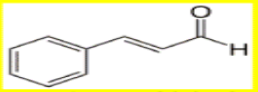
Curcumin

Cardamom
*(Elletaria cardamomum)*



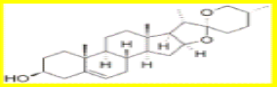
Cardamonin

Cinnamon
*(Cinnamomum zeylanicum)*



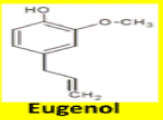
Cinnamaldehyde

Fenugreek
*(Trigonella foenum-graecum)*



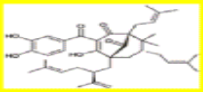
Diosgenin

Clove
*(Syzygium aromaticum)*



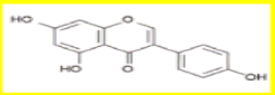
Eugenol

Kokum
*(Garcinia indica)*



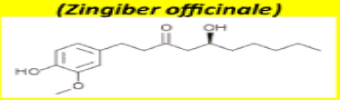
Garcinol

Soy
*(Glycine max)*



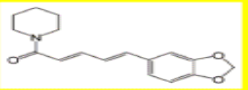
Genistein

Ginger
*(Zingiber officinale)*



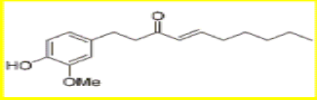
[6]-gingerol

Black pepper
*(Piper nigrum)*



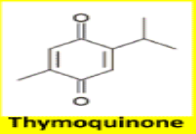
Piperine

Ginger
*(Zingiber officinale)*



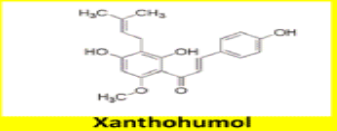
[6]-shagol

Black cumin
*(Nigella sativa)*



Thymoquinone

Hops
*(Humulus lupulus)*



Xanthohumol

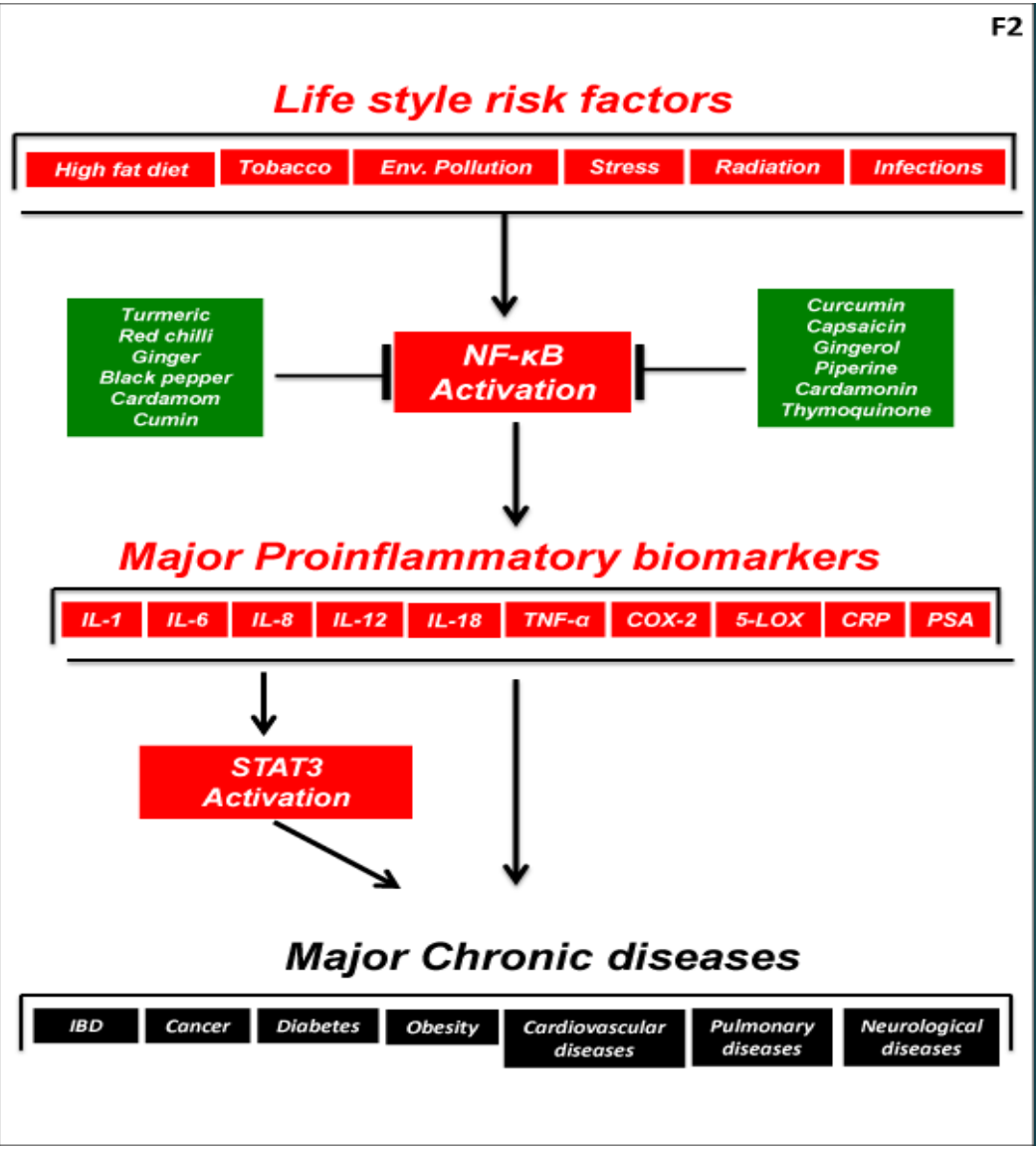
Asian ginger
*(Zingiber zerumbet)*

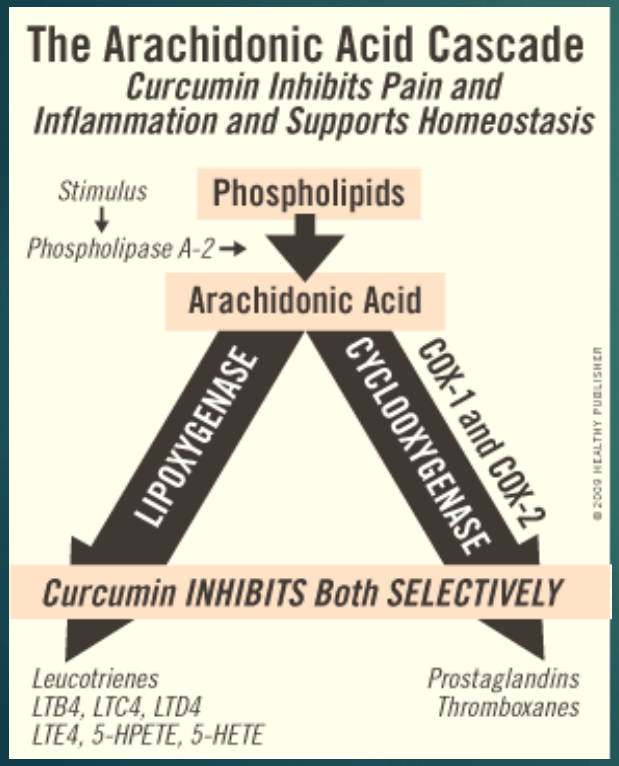
Zerumbone

# Thank goodness for chocolate

*Scholey et al.* Consumption of cocoa flavanols results in acute improvements in mood and cognitive performance during sustained mental effort. *J Psychopharmacol. 2010 Oct;*
Gu et al. Procyanidin and catechin contents and antioxidant capacity of cocoa and chocolate products. *J Agric Food Chem. 2006 May.*
Katz et al. Cocoa and Chocolate in Human Health and Disease. *Antioxidants & Redox Signaling*. 2011.

F2


Life style risk factors
High fat diet
Tobacco
Env. Pollution
Stress
Radiation
Infections
Turmeric
Red chilli
Ginger
Black pepper
Cardamom
Cumin
NF-κB Activation
Curcumin
Capsaicin
Gingerol
Piperine
Cardamonin
Thymoquinone
Major Proinflammatory biomarkers
IL-1
IL-6
IL-8
IL-12
IL-18
TNF-α
COX-2
5-LOX
CRP
PSA
STAT3 Activation
Major Chronic diseases
IBD
Cancer
Diabetes
Obesity
Cardiovascular diseases
Pulmonary diseases
Neurological diseases




# CURCUMIN

- Robust evidence on its anti-inflammatory prowess
  - Suppresses the production of cytokines (such as interferon-γ (IFN-γ), interleukins and tumor necrosis factor (TNF)
  - Inhibits inducible nitric oxide synthase (iNOS)
  - Suppresses the activation of NF-κB
- Studied extensively in colitis, cancer, sepsis, obesity, Alzheimer's Disease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- Sinha R, Anderson DE, McDonald SS, Greenwald P. Cancer risk and diet in India. J Postgrad Med 2003;49:222–8.
- Zhang M, Deng C, Zheng J, Xia J, Sheng D. Curcumin inhibits trinitrobenzene sulphonic acid-induced colitis in rats by activation of peroxisome proliferator-activated receptor gamma. Int Immunopharmacol 2006;6:1233–42.
- Siddiqui AM, Cui X, Wu R, et al. The anti-inflammatory effect of curcumin in an experimental model of sepsis is mediated by up-regulation of peroxisome proliferator-activated receptor-l3. Crit Care Med 2006;34:1874–82.
- Alappat L, Awad AB. Curcumin and obesity: evidence and mechanisms. Nutr Rev 2010;68:729–38.
- Shehzad A, Ha T, Subhan F, Lee YS. New mechanisms and the antiinflammatory role of curcumin in obesity and obesity-related metabolic diseases. Eur J Nutr 2011;50:151–61.
- Midura-Kiela et al."Curcumin inhibits interferon-γ signaling in colonic epithelial cells." *American journal of physiology. Gastrointestinal and liver physiology 302(1):G85-96 Jan, 2012*
- Blaylock RL, Maroon J. "Natural plant products and extracts that reduce immunoexcitotoxicity-associated neurodegeneration and promote repair within the central nervous system."Surgical Neurology Intl. 2012.


FOOD IS INFORMATION

- Food is energy.
  - Basic nourishment to sustain our bodies
  - Soulful vibration to uplift the spirit.


- Take out the stuff that isn't helping: the sugar, refined carbs, processed foods and for some of us, the gluten
- Put in the foods that serve us!
- The whole foods, ones that don't need a label
- But especially the dark, richly pigmented fruits and vegetables
- Eat the rainbow!
- The mood and cognition enhancing omega 3 fats from fish
- Be free with your olive oil
- Plentiful nuts, seeds, legumes
- Clams, mussels, oysters if those rock your boat
- Lots and lots of herbs and spices, not as garnish, as FOOD!


- Green tea
- Have some dark chocolate to treat yourself
- And don't forget that none of this works if we don't SLOW DOWN!
- Digestion needs attention, mindful attention.
- Read a poem, say your gratefuls, sit down with people you love
- Make your meals the sacred event they are, these times of the day can be honored and made into rituals for self care.


WITH GRATITUDE….
Where to find me:
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Twitter: @sethimd

Bonus Webinar

# Fighting Fire with Fire

## Transforming how we understand and treat burnout

presented by
James S. Gordon, MD
Founder & Executive Director
Center for Mind-Body Medicine

The Center for Mind-Body Medicine

January 31, 2018
7:30 PM Eastern

CMBM
Webinar Series

This webinar has been recorded. The presentation and the slides will be available within 24 hours at CMBM.org/webinar.

Also available online:

Nourish & Nurture
Presented by
Deb Phillips

Leaky Gut
Presented by
Dr Sheila Dean

Overfed and Malnourished
Presented by
Mark Pettus, MD


# Mind, Mood & Food

## Optimal Nutrition for Body & Brain

April 15-20, 2018
Esalen Institute
Big Sur, CA

James S. Gordon, MD

Kathie Madonna Swift, MS, RDN, LDN

Amy Shinal, MSW, LCSW

Mark Hyman, MD

Catherine McConkie, Executive Chef

Cindy Geyer, MD

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