

AYURVEDA AND INTEGRATIVE MEDICINE FOR IMMUNITY | PART 2



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April 9, 2020



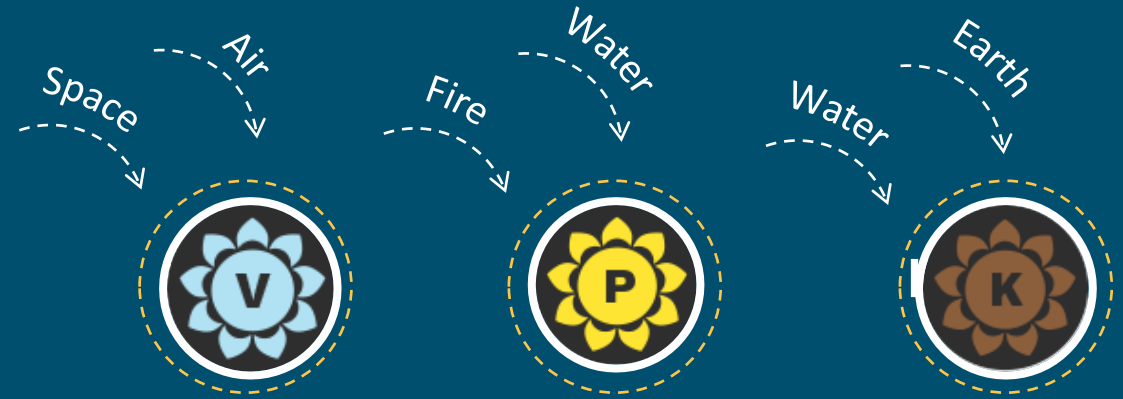
DISCLAIMER

- no human trials for natural therapies in COVID-19
- informational only, not recommendation for treatment
- follow guidance of your licensed practitioner
- not a substitute for proven, conventional measures



THE THREE DOSHAS

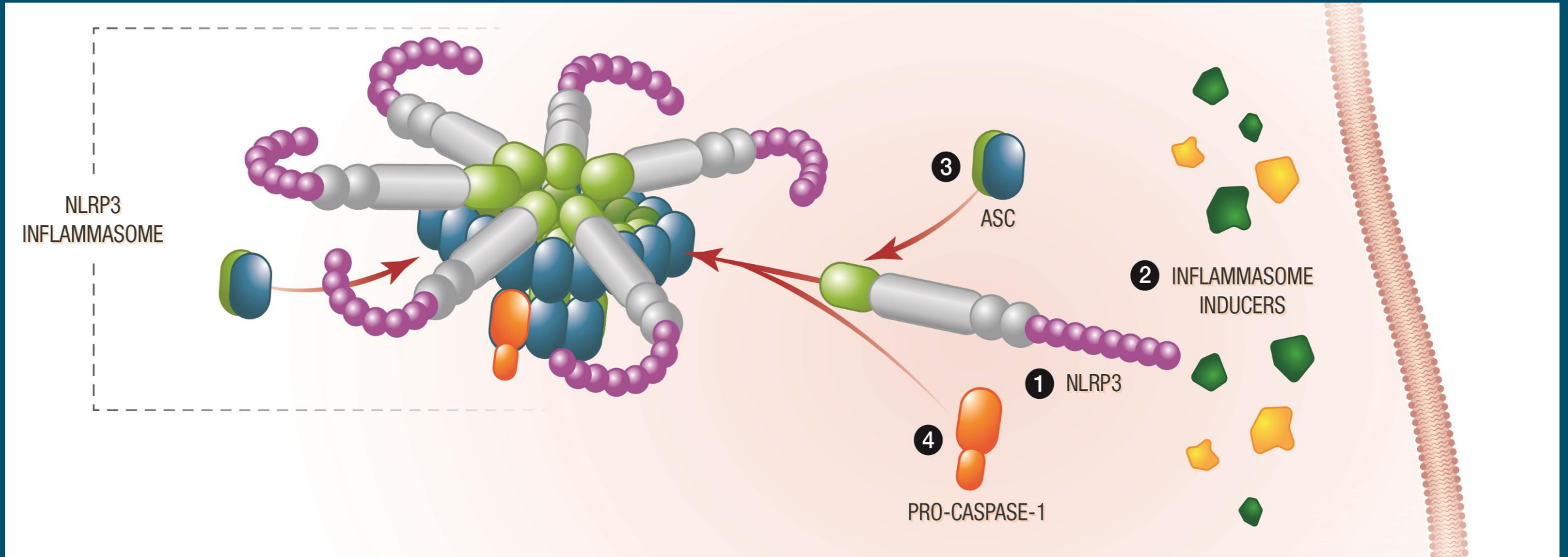
- **Balance** between *doshas*, and body, mind, and spirit, **results in health**
- **Prakruti** – “body type”, the original state of doshas
- **Vikruti** – current state of doshas



All functions of the body



EXCESSIVE INFLAMMATION → ARDS



Yuen, K et al. SARS-CoV-2 and COVID-19: The most important research questions. Cell Biosci 10,40 (2020)

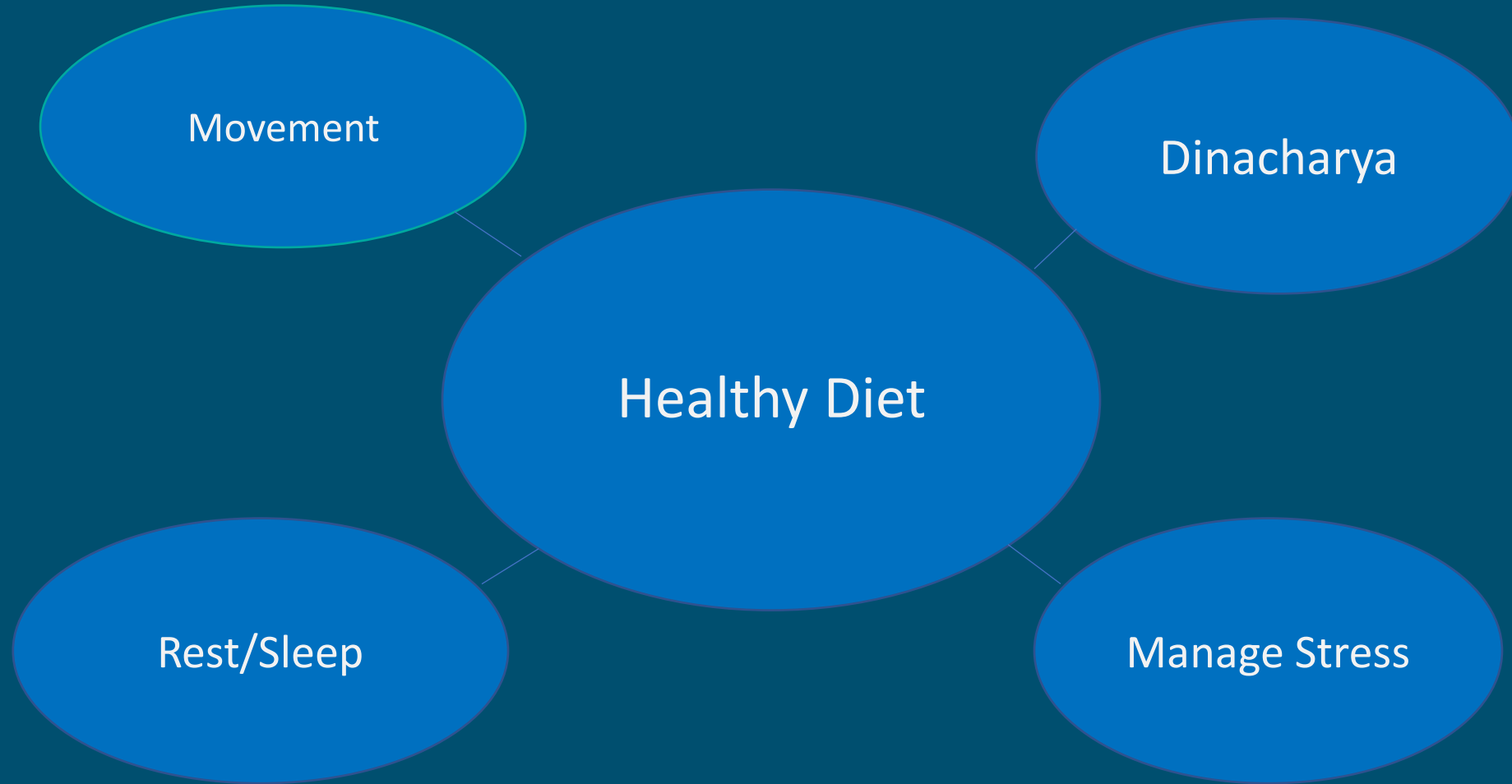


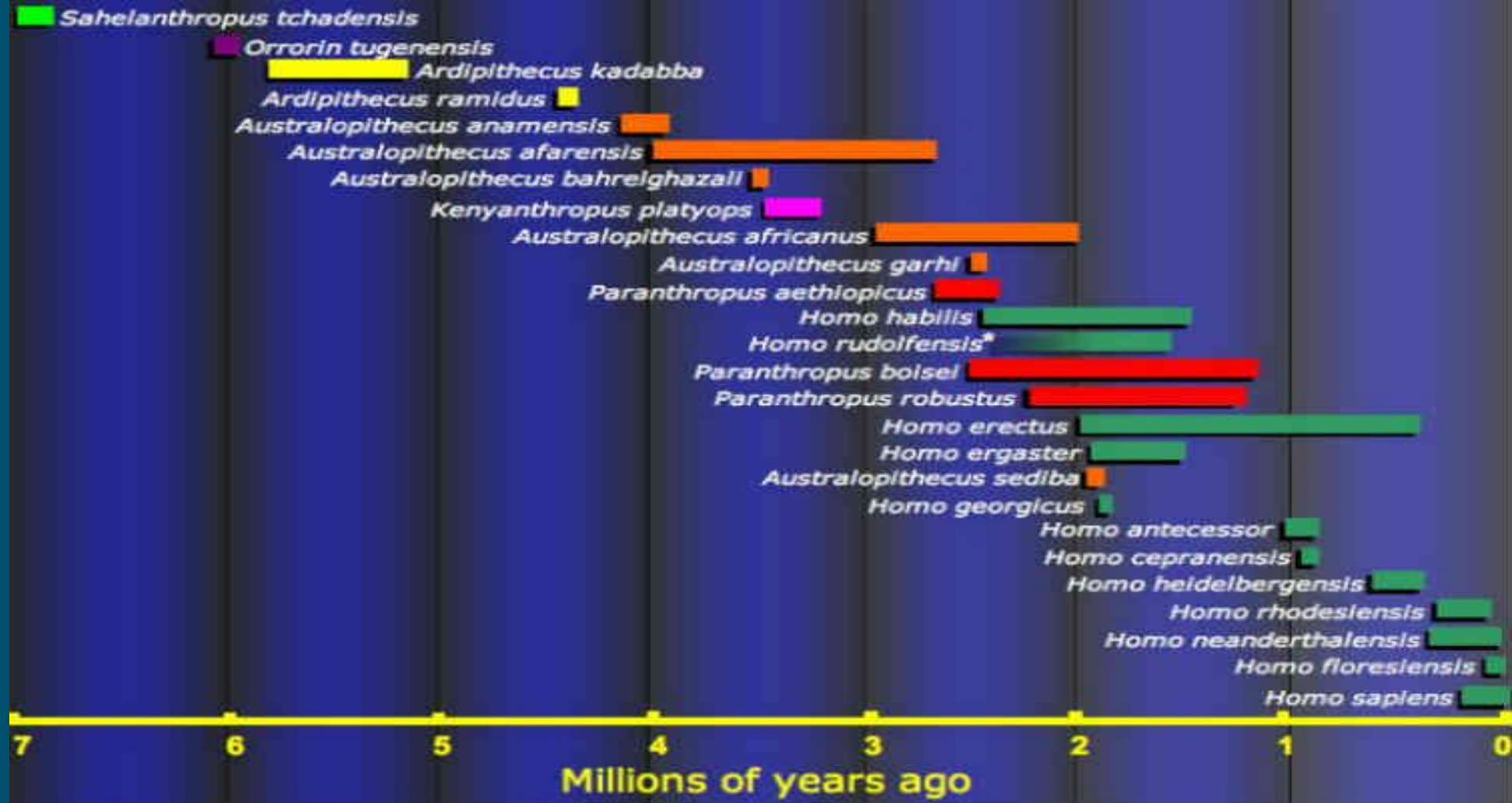
INTEGRATIVE MEDICINE STRATEGIES FOR OPTIMAL IMMUNE FUNCTION

- Healthy diet and vitamins
- Spices
- Agni / gut health
- Herbs and supplements
- Sunlight and nature exposure
- Stress and beliefs – placebos
- Dinacharya – exercise
- Sauna
- Nasya, Neti and oil-pulling
- Sleep/rest
- Positive Attitude
- Gratitude



LIVE THE WAY YOU EVOLVED TO LIVE





>3 million years as hunter-gatherers

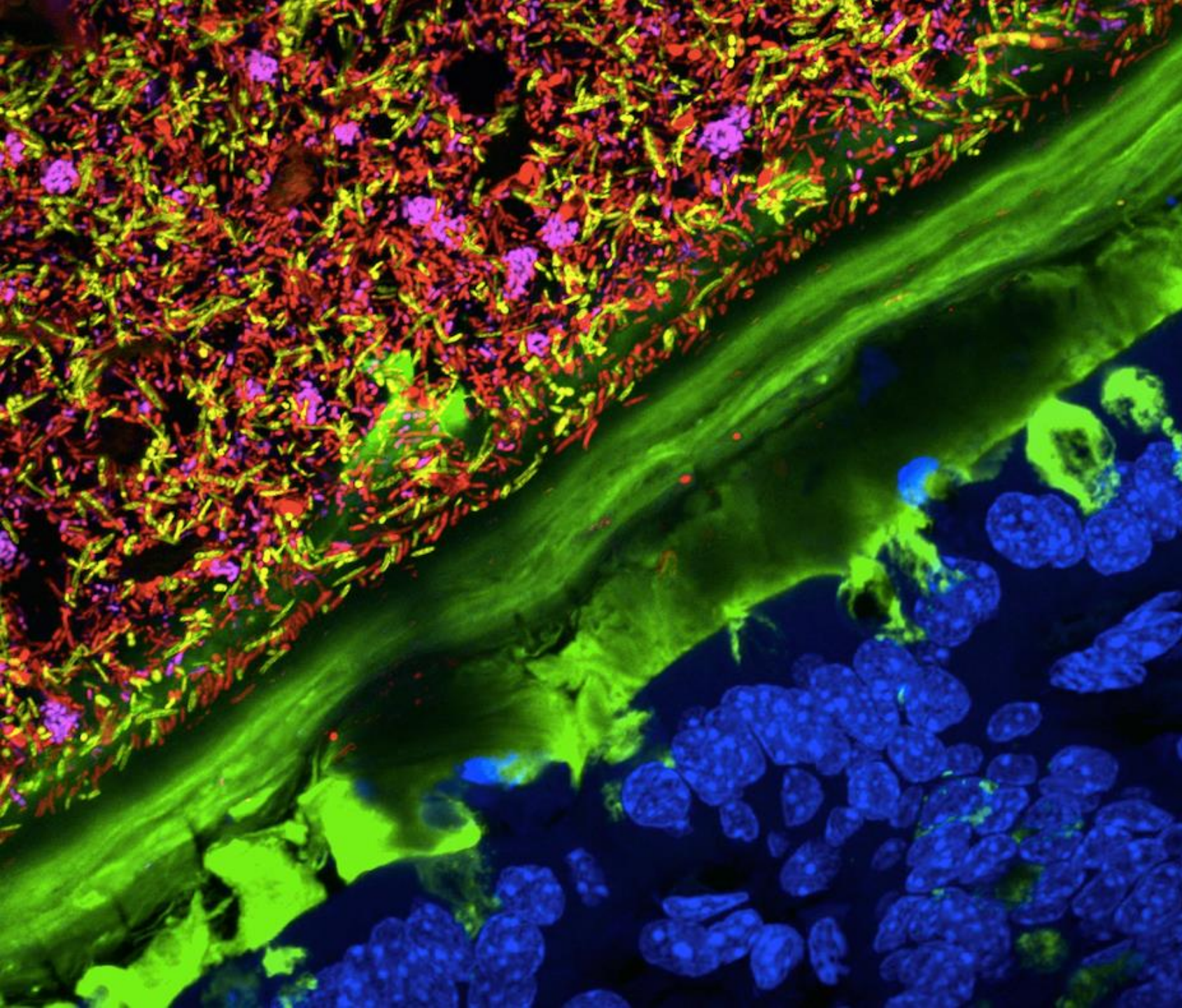
10,000 years ago – agriculture begins



THE ORIGINAL PALEO DIET

- Our ancestors ate primarily wild plant foods such as leaves, tubers, roots, fruits, nuts, beans and legumes
- Hunted meat and fish *if available*
- # of different plants consumed was 100-120 per year, and >20 different species of vegetables and fruits *every single day*

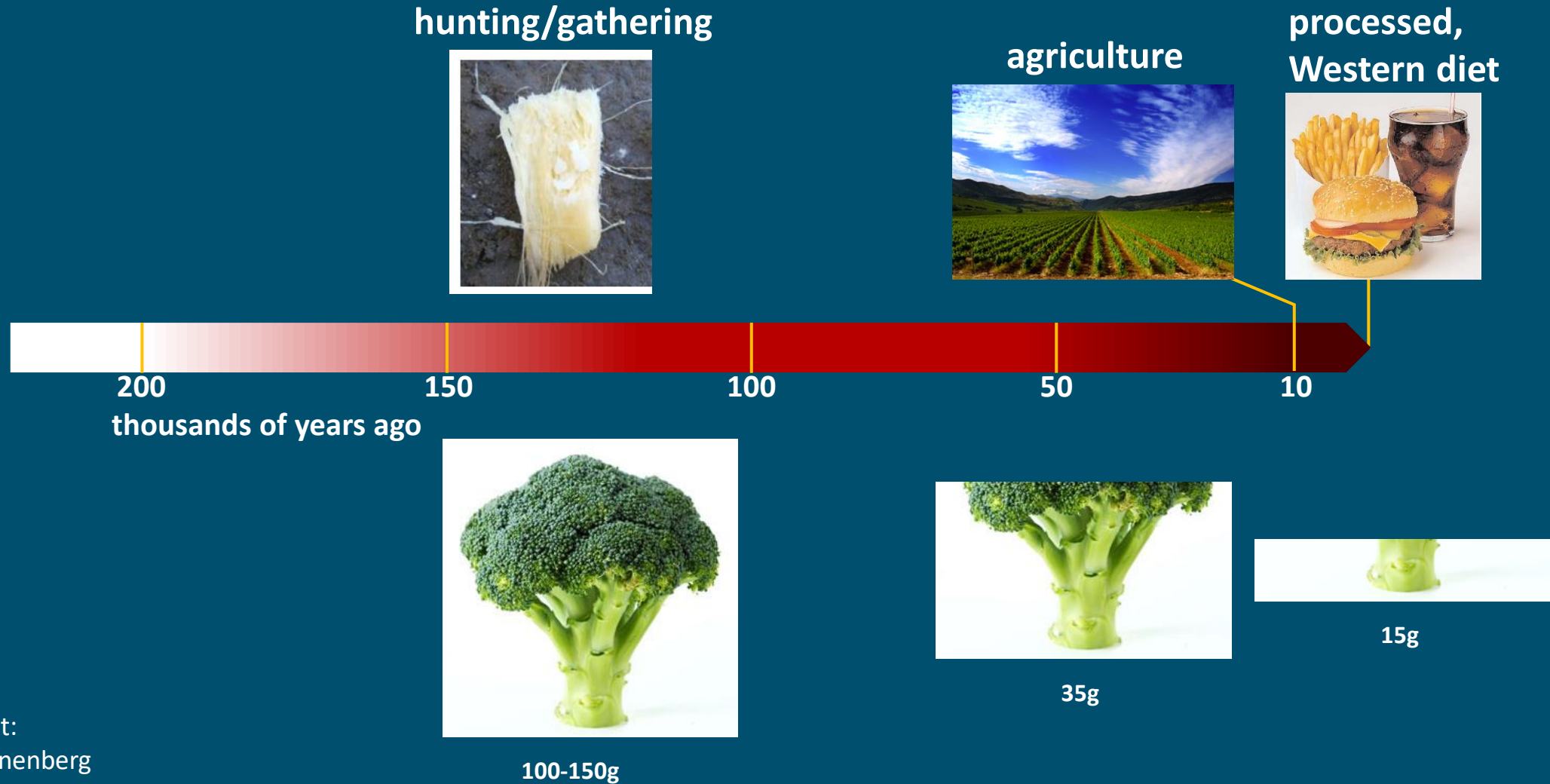




Tropini et al. Cell Host Microbe.
2017;21(4):433–442.



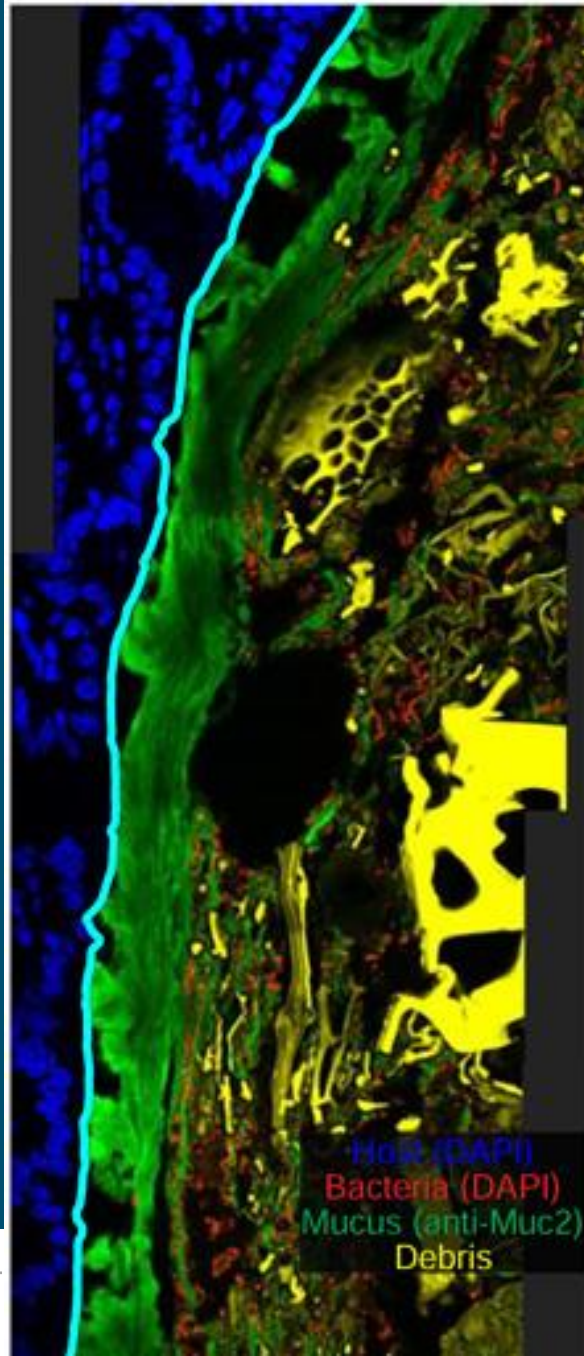
EVOLUTION OF FIBER INTAKE OVER THE YEARS



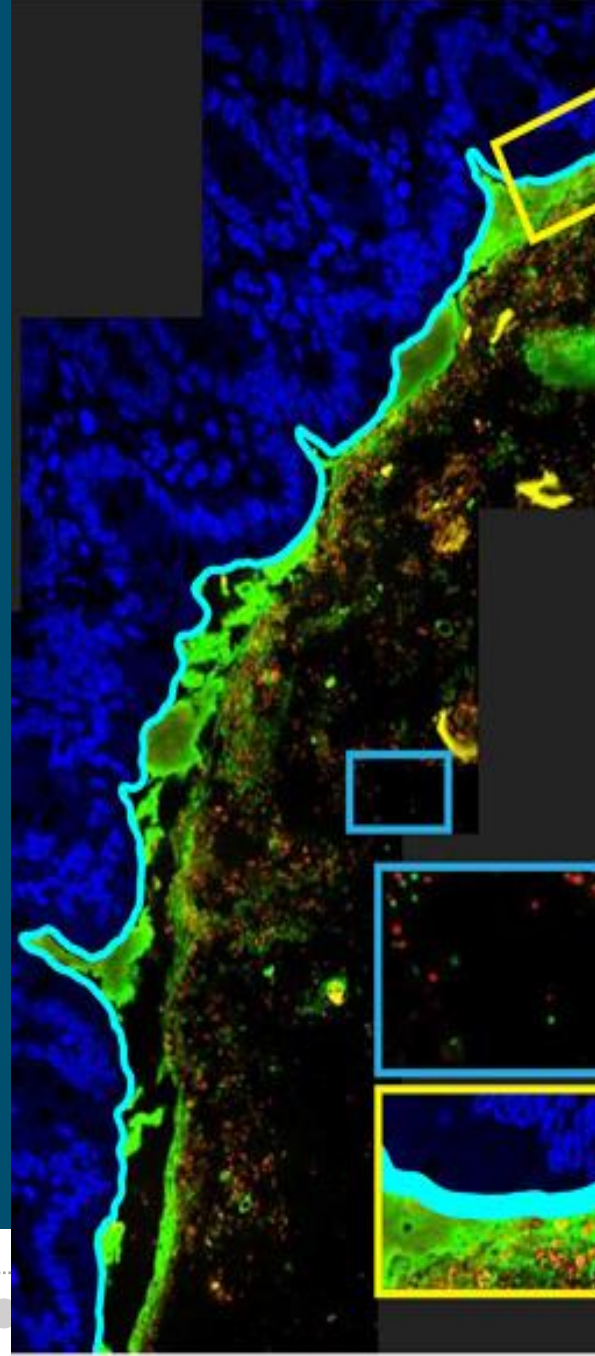
Slide credit:
Justin Sonnenberg



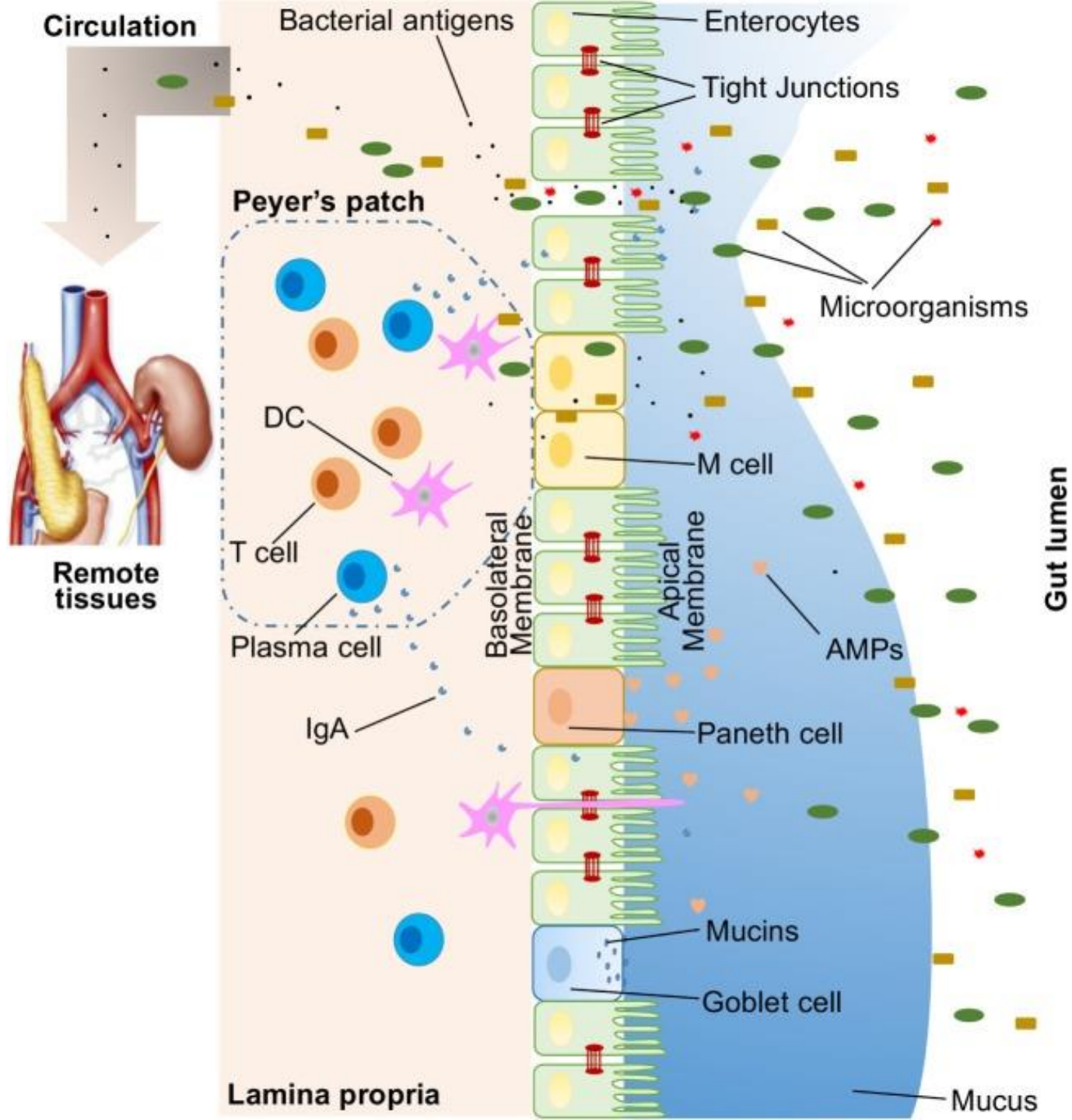
Standard diet



MAC-deficient diet



Earle KA et al. *Cell
Host Microbe*.
2015;18(4):478–488



Mu, Qinghui et al. "Leaky Gut As a Danger Signal for Autoimmune Diseases." *Frontiers in immunology* vol. 8 598. 23 May 2017

STRENGTHENING OJAS

Ojas

- vital substance that is the refined end product of digestion
- made from all 7 *dhatu*s or tissues
- linked to kapha
- responsible for strong immunity and vitality





FOODS THAT BUILD OJAS

- Organic milk, ghee, butter, cream **OR** coconut or nut milks, coconut butter, coconut cream
- Raw nuts, honey, dates, raisins
- Freshly squeezed juice with nuts (ground)
- Fruits and vegetables
- Ayurvedic herbs and rasayanas—tonics like Chyavanprash





Sunlight directly activates immune cells by increasing their movement



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PUBLIC RELEASE: 20-DEC-2016

Sunlight offers surprise benefit -- it energizes infection fighting T cells

GEORGETOWN UNIVERSITY MEDICAL CENTER



SUNLIGHT

Sunlight exposure has been shown to improve vitamin D levels and also directly stimulate immune cells, independent of vitamin D levels.

“We all know sunlight provides vitamin D, which is suggested to have an impact on immunity, among other things. But what we found is a completely separate role of sunlight on immunity.” – Gerard Ahern, PhD



BENEFITS OF SUNLIGHT

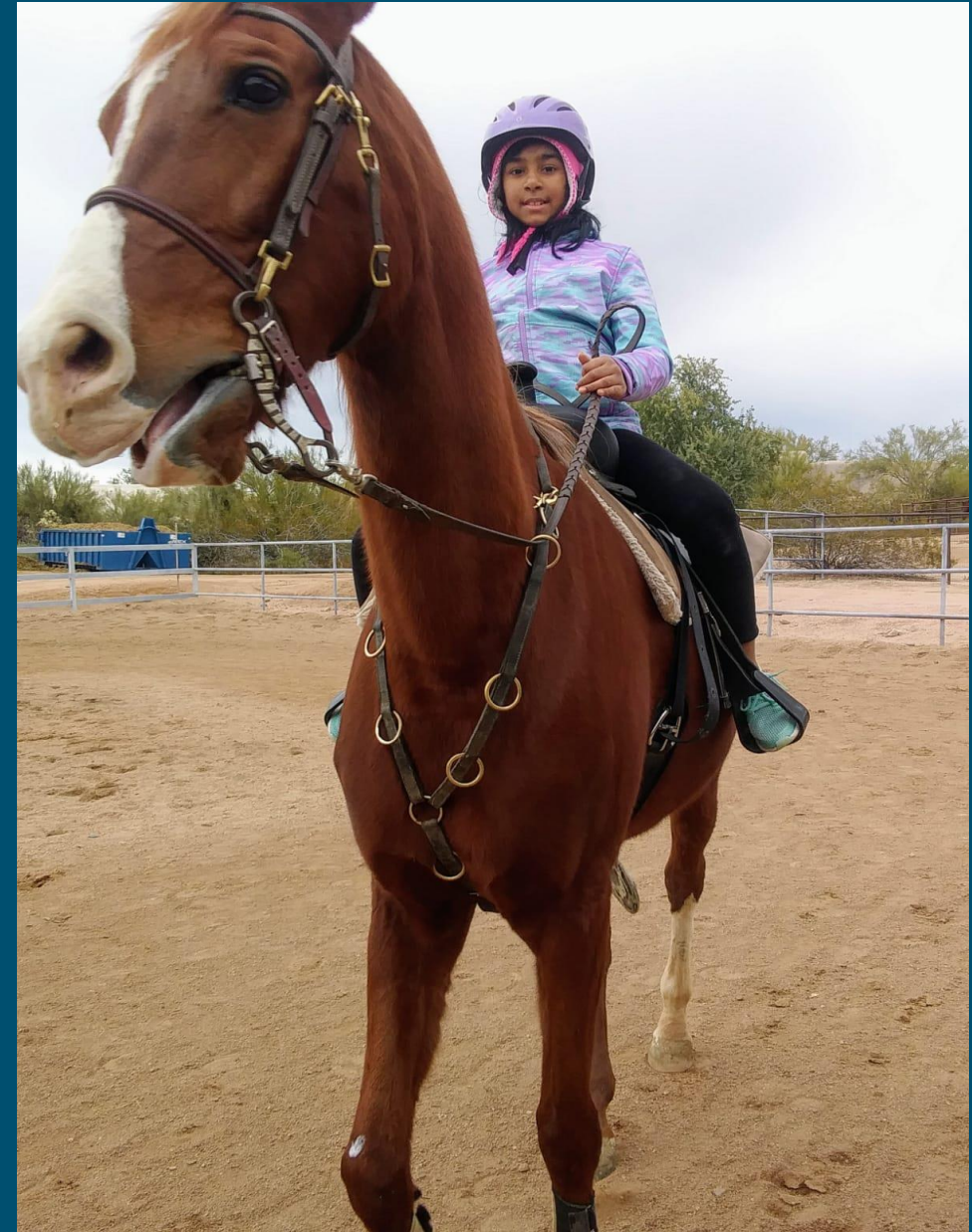
- Helps the body make Vitamin D, which is crucial for bone health, immune function, cancer prevention, and brain health
- Stimulates T cell movement
- Regulates our circadian rhythm, which affects sleep patterns, hormone regulation and cognitive function
- Exposure to sunlight during the daytime (even through a window) can help sleep quality at night



CONNECTING TO NATURE

- Studies have shown increased numbers of NK cells in people who spent time in a forest vs. those who stayed in an urban environment
- 20 minutes in an “urban nature” locale can lower cortisol
- Houseplants, or pictures of nature scenes, have a similar calming effect – healing environment

Mary Hunter et al. Urban Nature Experiences Reduce Stress in the Context of Daily Life Based on Salivary Biomarkers. *Frontiers in Psychology*, 2019



EXERCISE

- 20 minutes of walking daily is beneficial
- Yoga practice is very powerful
- For those who are more ambitious –
Move like our ancestors did through HIIT



HIGH INTENSITY INTERVAL TRAINING (HIIT)

Do exercise for 30 seconds, then rest for 30 seconds.

Do 8-10 cycles, target major groups – legs, chest, back and core

Squat / Lunge / Pushup / Situp / Tricep dips / Run in place / Plank / Bridge

- Warm up for 3 minutes by jogging in place
- Cool down for 3 minutes by walking around the house, and finish with stretching
- Do twice a week, with couple of days apart. If you get pain anywhere, modify exercise or choose a different one



SAUNA THERAPY

- Sauna – sweating is part of purvakarma, panchakarma
- Sauna bathing has been shown to reduce the risk of respiratory diseases in long-term studies
- Regular visits to the sauna also significantly reduce the frequency and severity of colds in both children and adults



Eur J Epidemiol. 2017 Dec;32(12):1107-1111.



SAUNA

- Regular visits to the sauna significantly reduce the frequency and severity of influenza infections in children and adults
- Frequent sauna baths (3-4 x/week) may be associated with a reduced risk of acute and chronic respiratory conditions
- Home-based alternatives



Ernst E et al, Regular sauna bathing and the incidence of common colds, Ann Med. 1990;22(4):225-7.



NASYA

- Ayurveda considers nasya, or nasal application of oil, to be a panchakarma therapy
- It is often recommended for conditions such as allergies, chronic rhinitis, sinusitis, dizziness, brain fog, anxiety, and depression
- Lubricates and nourishes respiratory tract

David Frawley, *Yoga and Ayurveda* (Silver Lake, WI: Lotus Press, 1999), 203–204.



NASYA

- Administer nasya on an empty stomach an hour before or after a shower or exercise
- Lie down with the head tilted back and put 5 drops of nasya in each nostril
- Inhale deeply, then remain lying for a minute to allow the nasya to penetrate



NETI POT



OIL PULLING

- Ancient Ayurvedic therapy which involves holding oil in the mouth for about 10 minutes and then discarding it
- Used to strengthen the teeth, gums, and jaws and to prevent tooth decay, gum disease, and bad breath
- Removes toxins from the body and stimulates Agni, or digestive fire



OIL PULLING

- Done on empty stomach with either sesame or coconut oil
- Take a teaspoon of oil into the mouth and swish and “pull” the oil around through teeth
- After about 5-10 minutes the oil is believed to have drawn up toxins and waste metabolites
- Do not swallow the oil – dispose in trash



EFFECTS OF STRESS

- Psychological stress disrupts immune regulation and is specifically associated with increased pro-inflammatory cytokines such as IL-65
- Acute stress in animal studies increases IL-1B via NLRP3 inflammasome activation
- Increased severity and frequency of viral infections



THE FIGHT OR FLIGHT REACTION

What is it? The primal response of our nervous system that evolved to keep us alive

How does it work? It is activated by the **sympathetic nervous system**, which is your body's equivalent of a gas pedal

The sympathetic nervous system is associated with fight, flight, fear, and sex

Fight or Flight response:



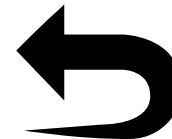
Increases your blood pressure



Speeds up your heart

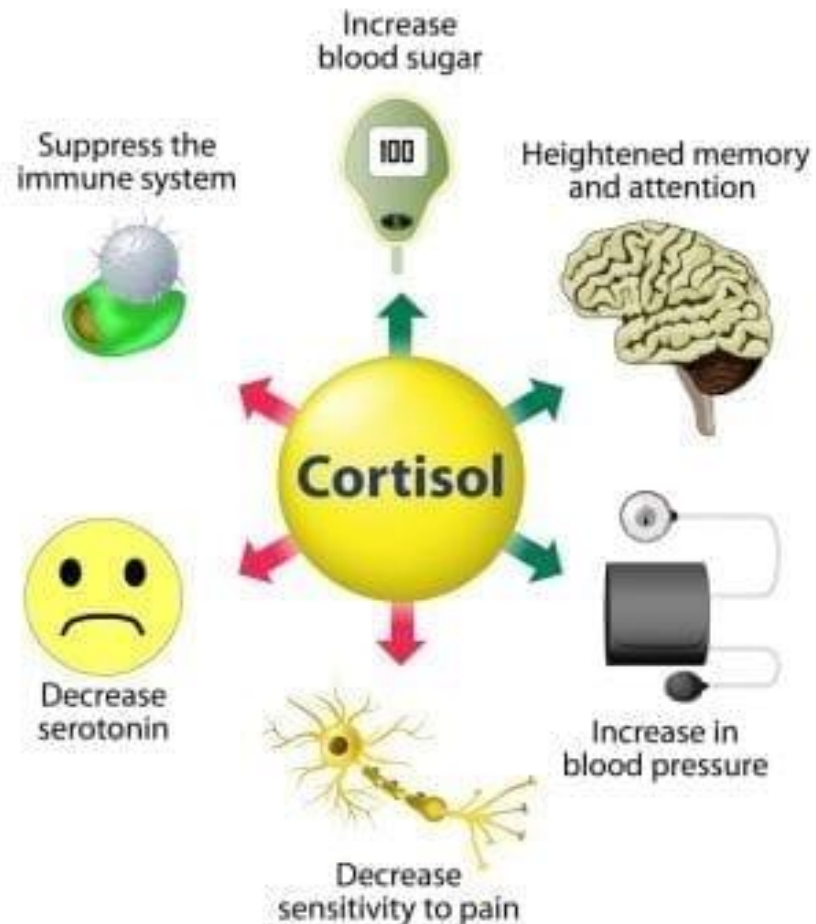


Raises blood sugar



Redirects blood away from your "non-essential" organs, so you and your muscles can take action

CHRONIC STRESS



The stress of modern life leads to people being in this state most of the time

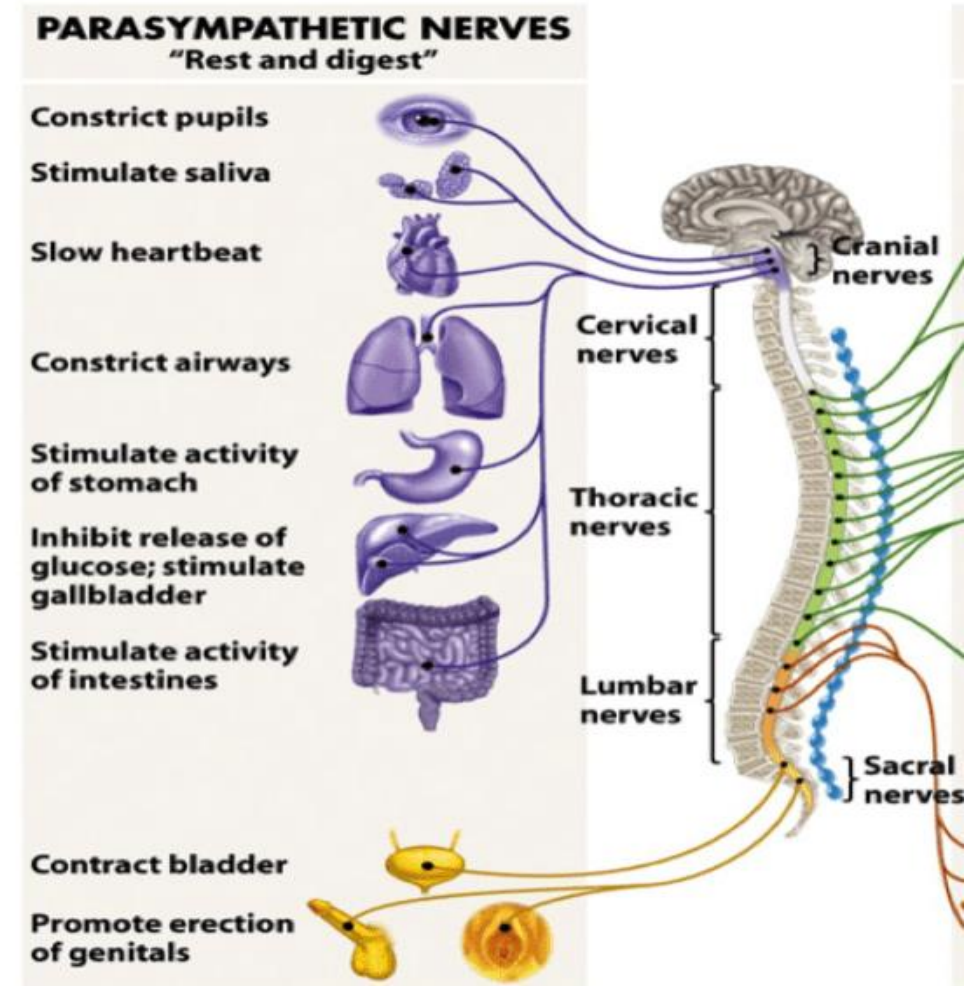
Our brains can't distinguish between the stress of a lion chasing us and an argument with a loved one, a tough work experience or a news report about violence

ACTIVATE THE PARASYMPATHETIC

Your body in its wisdom can counteract this stress with the **Parasympathetic Nervous System**

PNS helps lower blood pressure, slow heart rate, boost immune function, and restore digestion

All mind-body techniques have capacity to activate your PNS, which leads to many benefits



MIND-BODY CONNECTION: PLACEBOS

- An inert substance that supposedly has no effect
- Difference in terms of *degree* of effect
- Study told patients with Parkinson's disease that they would receive either an expensive or cheap new "medication" (actually saline injection)
- Patients receiving the expensive treatment had > improvement in tremor and muscle stiffness than patients receiving the "cheap" medicine
- Placebo responses exist in the immune system as well

Alberto J. Espay, et al., "Placebo Effect of Medication Cost in Parkinson Disease: A Randomized Double-Blind Study," *Neurology* 84(8) (2015): 794–802.



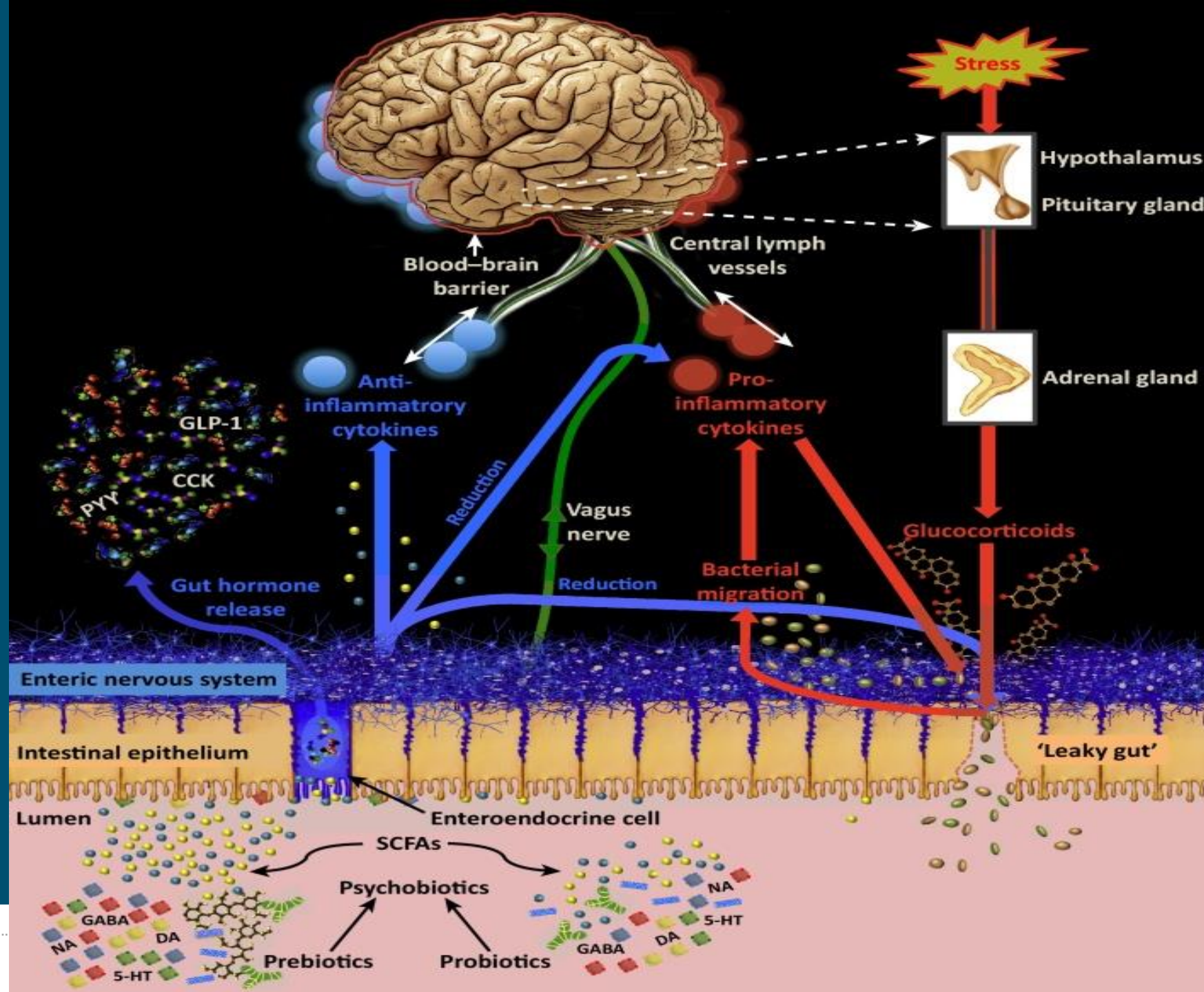
PLACEBO SURGERY

- “Placebo surgery” = regular surgery in pts with knee OA
- Patients received traditional knee arthroscopy with debridement or a sham surgery
- At the end of 1 & 2 years, pain reduction and improvement in physical function were identical in patients who had actual knee surgery and patients who had sham surgery



J.B. Moseley et al., “A Controlled Trial of Arthroscopic Surgery for Osteoarthritis of the Knee,” *New Engl Journal of Medicine* 347(2) (2002): 81–88.





Trends Neurosci 2016
Nov; 39(11): 763–781

PLACEBOS FOR IBS

- Patients with IBS improved significantly on placebos *even when they were told they were taking a placebo*
- Patients were told they were being given placebo pills, AND that placebos could potentially improve IBS symptoms “through mind-body self-healing processes”
- 60 percent of placebo recipients improved, compared to only 35 percent of patients in the “no treatment” group

T.J. Kaptchuk et al., “Placebos Without Deception: A Randomized Controlled Trial in Irritable Bowel Syndrome,” PLoS One 5(12) (2010): e15591



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DOI: 10.1111/apt.14400

WILEY AP&T Alimentary Pharmacology & Therapeutics

Randomised clinical trial: yoga vs a low-FODMAP diet in patients with irritable bowel syndrome

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Funding information

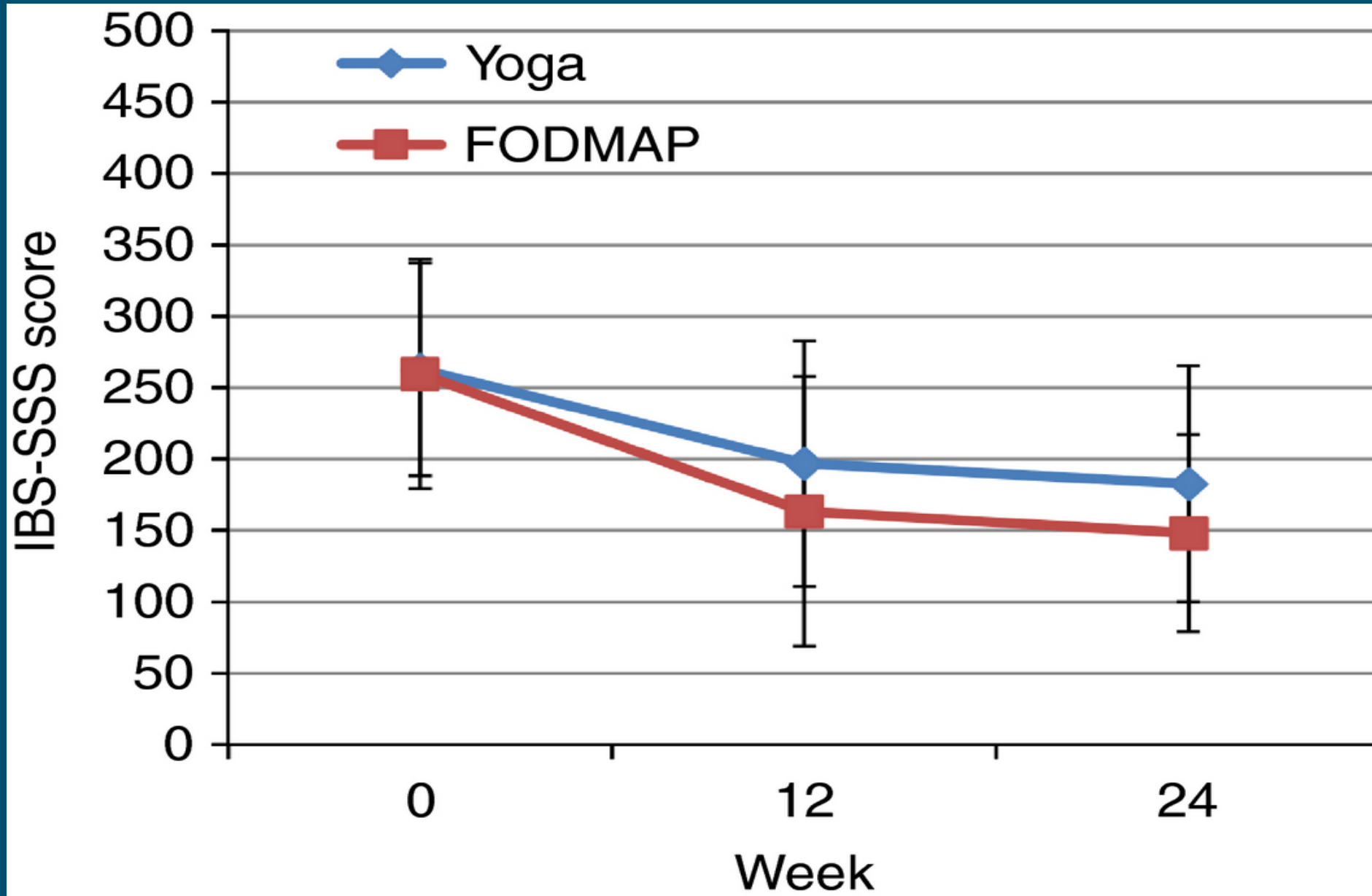
None.

Summary

Background: Irritable bowel syndrome is the most frequent gastrointestinal disorder. It is assumed that lifestyle interventions might be a rational treatment approach.

Aim: To examine the effect of a yoga-based intervention vs a low-FODMAP diet on patients with irritable bowel syndrome.

Methods: Fifty-nine patients with irritable bowel syndrome undertook a single-blind, randomised controlled trial involving yoga or a low-FODMAP diet for 12 weeks. Patients in the yoga group received two sessions weekly, while patients in the low-FODMAP group received a total of three sessions of nutritional counselling. The primary outcome was a change in gastrointestinal symptoms (IBS-SSS). Secondary outcomes explored changes in quality of life (IBS-QOL), health (SF-36), perceived stress (CPSS, PSQ), body awareness (BAQ), body responsiveness (BRS) and safety of the interventions. Outcomes were examined in weeks 12 and 24 by



SPONTANEOUS HEALING

- Your body has an incredible ability to heal itself, especially when it believes that it should be getting better, such as after knee surgery
- Power of belief, expectation, and hope to shift physiology is profound
- Nocebo – story of the ghost

Alberto J. Espay, et al., “Placebo Effect of Medication Cost in Parkinson Disease: A Randomized Double-Blind Study,” *Neurology* 84(8) (2015): 794–802.



MINDFULNESS



Nonjudgmental moment-to-moment awareness

“Mindfulness can be defined as intentionally paying attention, here and now with kindness and curiosity, so that you can choose your behavior.”
– Dr. Amy Saltzman

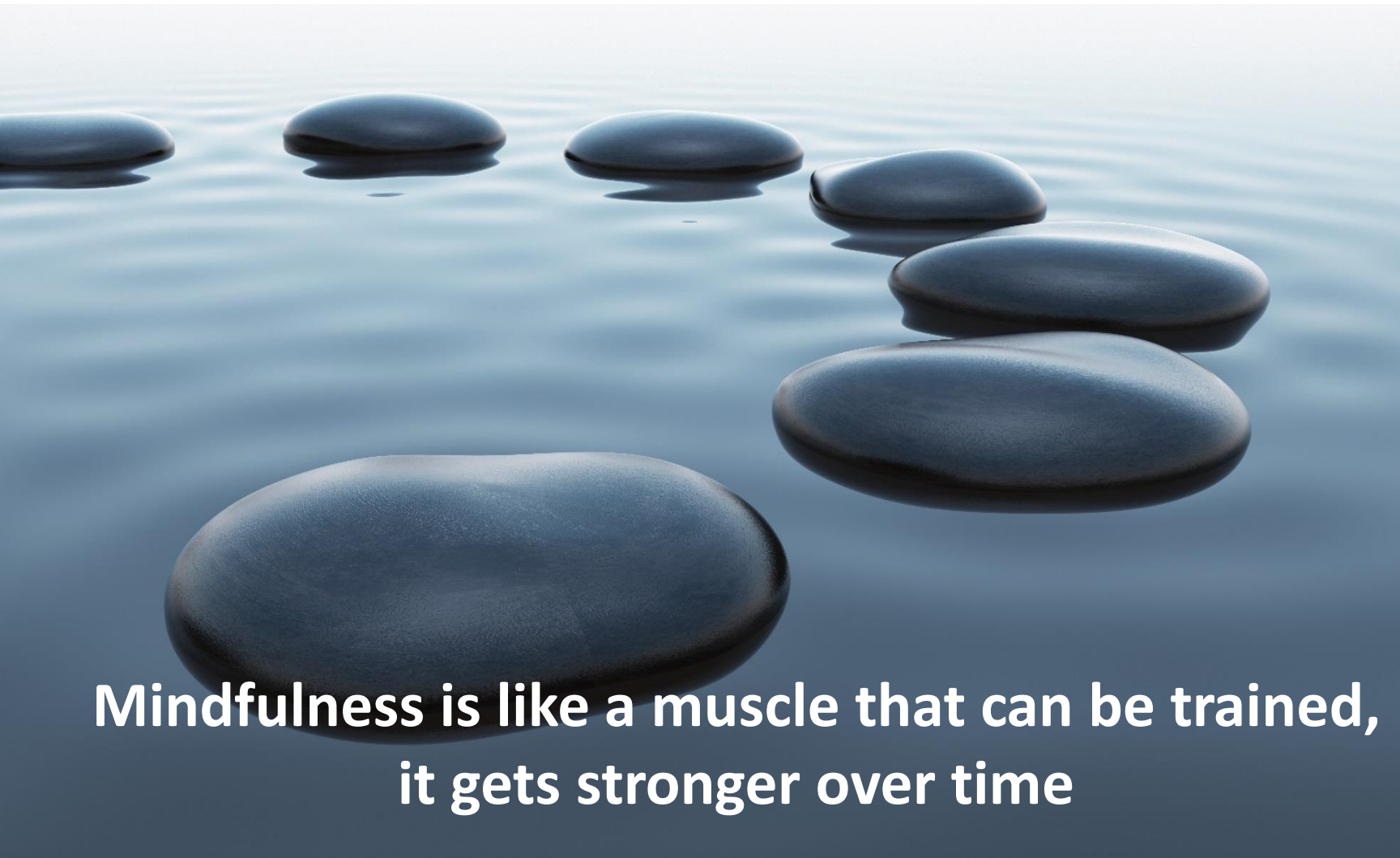
Various forms of mindfulness practices in all major world religious traditions and spiritual traditions have been preserved for millennia

“I don't envision a single thing that when undeveloped leads to such great harm as the mind. I don't envision a single thing that when developed leads to such great benefits as the mind.”

– Dr. Paul Gilbert



BENEFITS



**Mindfulness is like a muscle that can be trained,
it gets stronger over time**

- **Stress reduction**
- **Enhanced focus**
- **Better memory**
- **Higher cognitive flexibility**
- **Increased emotional regulation**
- **Decreased anxiety**
- **Increased empathy**

MINDFULNESS AND BRAIN STRUCTURE

Who: Harvard researchers

What:

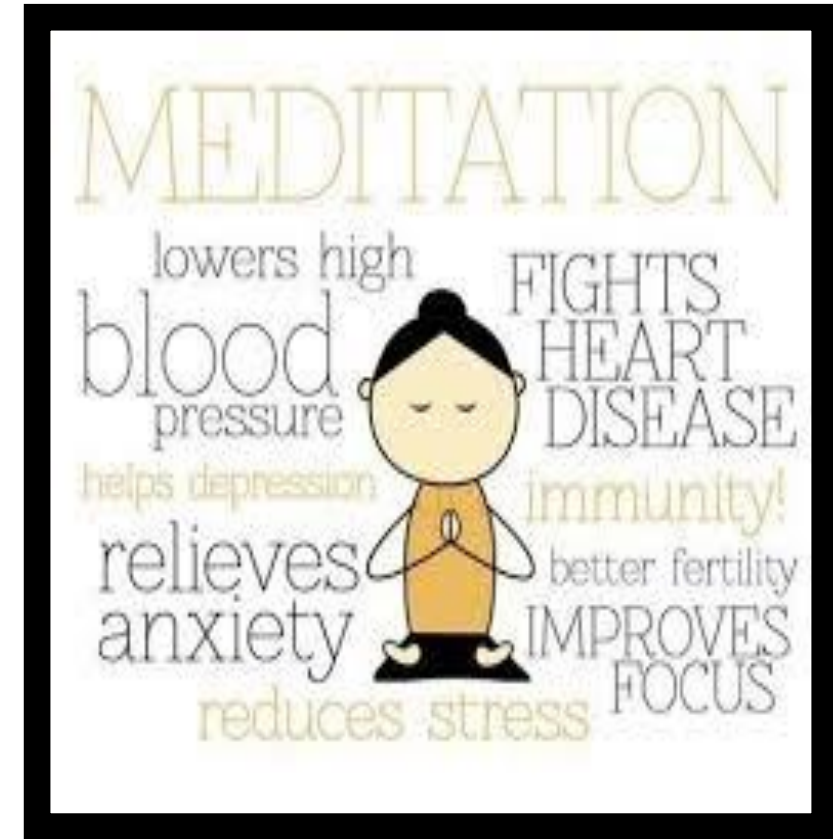
- Observed two groups
- One group received 8 weeks of mindfulness training, 20 to 30 minutes a day. The other group did not
- Researchers did brain scans before and after of both groups

Results: After 8 weeks of mindfulness training, brain scans showed physical changes in the areas of the brain associated with:

- Decreased stress and anxiety
- Increased intelligence and memory
- Increased compassion and kindness towards yourself and towards other people and an increased ability to focus your attention. This is what scientists call cognitive control

BENEFITS OF MEDITATION

- Regular practice can boost your immune system, reduce anxiety, and lower blood pressure
- MRI studies revealed a larger hippocampus after just 8 weeks of meditation
- This controls stress management, memory, learning, and mood, and other positive changes in gray matter density
- Meditation may improve your focus, attention span, ability to work under stress, and inflammation levels



SLEEP

- Shorter sleep duration increases the risk of infectious illness
- One study found that less than 5 hours of sleep over 1 week increased the risk of developing a cold by 350% when compared to individuals who slept at least 7 hours per night
- Important to COVID-19, sleep deprivation increases CXCL9, a compound implicated in NLRP3 inflammasome activation



SLEEP & MELATONIN

- Melatonin has been shown to inhibit NFkB activation and NLRP3 inflammasome activation
- Melatonin also reduces oxidative lung injury and inflammatory cell recruitment during viral infections



EFFECTS OF POSITIVE ATTITUDE ON IMMUNE FUNCTION

- A surprisingly large effect on health
- 83 studies show that optimists enjoy better health in areas such as longevity, cancer survival, physical symptoms, and immune function
- A positive attitude appears to improve T-cell counts, natural killer cell levels, interleukins, and other markers of immune function

H.N. Rasmussen et al., “Optimism and Physical Health: A Meta-analytic Review,” *Annals of Behavioral Medicine* 37(3) (2009): 239–256



A POSITIVE ATTITUDE

“Avoid a negative approach to life. Why gaze down the sewers when there is loveliness all around us? Life has a bright side and a dark side . . . Look only for the good in everything.”

— Paramahansa Yogananda



GRATITUDE

- A growing body of research shows health benefits including better sleep, more well-being, less depression, and improved relationships
- Simple technique is to write a short email expressing your gratitude to someone in your life once a week, being specific about things you appreciate about them

L. Croke, "Cultivating gratitude can lead to mental, physical, and work-related benefits" AORN J. 2019 Nov;110(5):P5



PRACTICING GRATITUDE

- Keeping a gratitude journal, or just thinking about a couple of things you are grateful for at the end of your day, are also helpful practices
- The key with these methods is that you have to be as specific and detailed as possible





“The mind is its own place and in itself can make a heaven of hell and a hell of heaven.” — John Milton, *Paradise Lost*



Mind-Body Summary

Stress and your beliefs have a major impact

Mindfulness, meditation or yoga can address this

Key points to remember:

Be cautious but not afraid, practice a daily mind-body techniques, maintain a positive attitude, practice gratitude, reframe negatives into positives, and remember the power of smiling and laughter

INTEGRATIVE MEDICINE STRATEGIES FOR OPTIMAL IMMUNE FUNCTION

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