

EATING AWAY INFLAMMATION

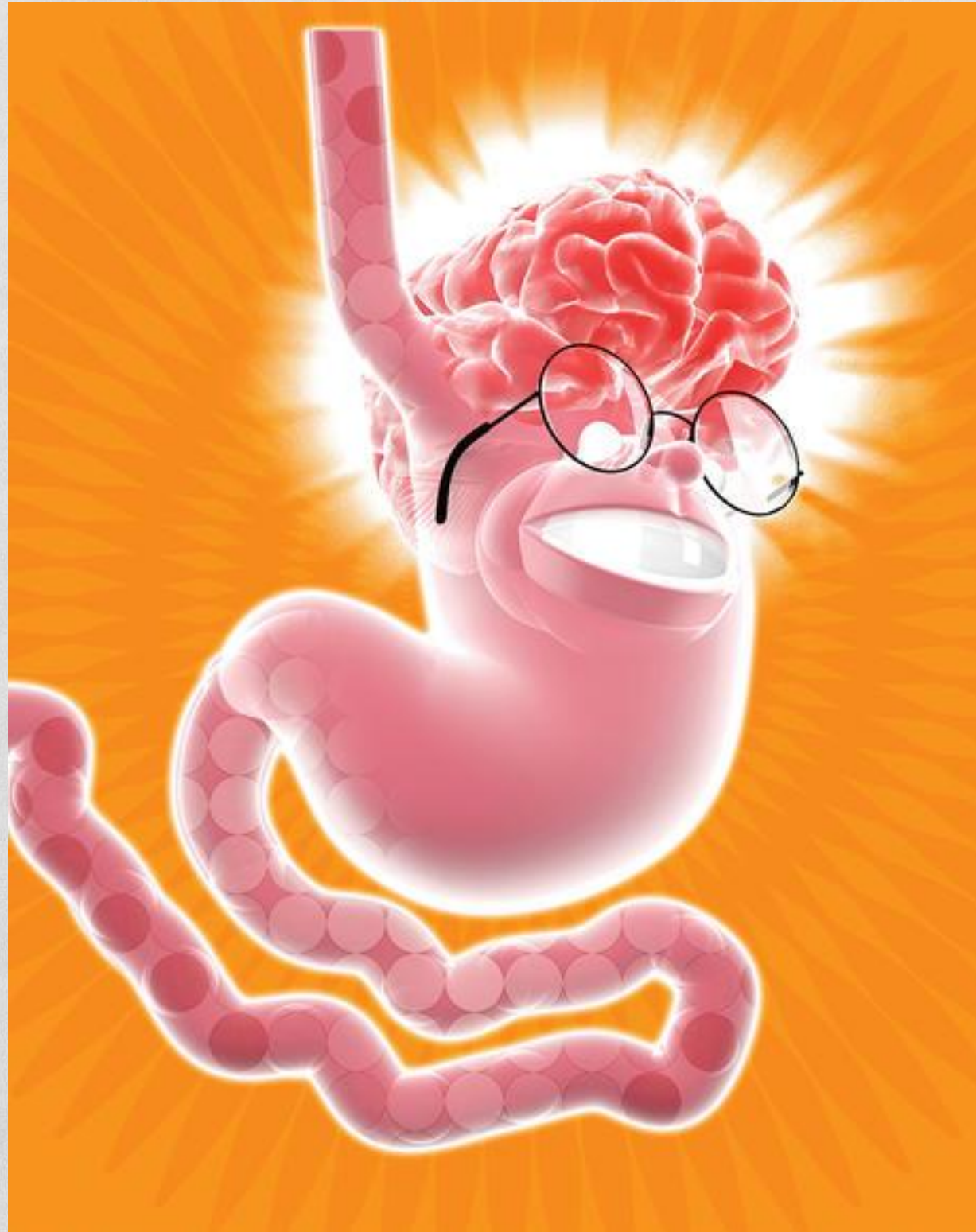
Delicious Food as Medicine

www.nourish-ed.com

The word **inflammation** comes from
the Latin: "*inflammo*",

meaning

"I set alight, I ignite".



Inflammation is part of the body's immune response. Initially, it is beneficial when, for eg:

- You sustain an injury
- You have a wound
- You get an infection

In these situations, your tissues need care and protection.

Inflammation delivers this care.

THE 5 CARDINAL SIGNS OF INFLAMMATION

- Redness
- Warmth
- Pain
- Swelling
- Loss of function

**Chronic inflammation
can be
asymptomatic**



...CHRONIC INFLAM.

Outcomes

- *destruction of tissue,*
- *thickening and scarring of connective tissue (fibrosis),*
- *death of cells or tissues,*
- *altered cell function,*
- *hormone dysregulation,*
- *neurotransmitter dysregulation*

*Inflammation can become self-perpetuating.
More inflammation can be created in response to the
existing inflammation.*

Mediated by immune cells.

*More immune cells in your brain
than brain cells.*

When this immune response is never "shut off," the constant production of immune cells can do permanent damage, leading to:

cancer, heart disease, arthritis, mood disorders, neurological conditions, Alzheimer's, gut disorders, allergies, autoimmune diseases, increased tendency to injury and poor injury recovery among other health concerns.



NEURO-INFLAMMATION

Inflammation in MIND disorders:

Inflammation ANYWHERE in the body produces immune messengers called cytokines.

These cytokines cross the BBB & cause inflammation in the brain, which *alters brain functions and damages brain tissue.*

NEURO-INFLAMMATION

Conversely, inflammation in the brain can trigger systemic inflammation, resulting in more:

- Joint pain
- Gut problems
- Skin problems
 - and more....

VISCERAL INFLAMMATION

Functional and biomechanical relationships exist between internal organs and the locomotor system

Irritation from internal organs has consequences in the whole motor system.

Viscero-somatic relationships and its influence on spinal stabilization

Petr Bitnar (Rehabilitation and Sport Medicine Clinic, 2nd Medical Faculty and University Hospital Motol, Prague, Czech Republic)

www.nourish-ed.com

CAUSES OF CHRONIC INFLAMMATION

- Overweight (& **insulin resistance**)
- high or prolonged **stress**
- **Pollutant exposure** - air / water / food / household
- lack of or too much exercise
- lack of or poor quality sleep

CAUSES OF CHRONIC INFLAMMATION

- chair sitting
- Nutrient / quality poor **diet**
- **Allergies, sensitivities, gut and immune disorders, dysbiosis**
- **Chronic infections** e.g. root canal, gut dysbiosis, candidiasis

INSULIN MANAGEMENT

Prolonged systemic, low-grade inflammation and impaired insulin sensitivity act as a risk factor for a failed healing response

Insulin management is essential in quelling chronic inflammation

- Obesity, overweight, diabetes, insulin resistance, metabolic syndrome etc.

INFLAMMATORY FOODS

- Sugar
- gluten (for min. 60% of pop)
- Refined grains
- Cooking oils (w6:w3)
- Trans fats
- Grain fed meat
- Alcohol
- Allergies, sensitivities
- Juices (shop bought)



GLUTEN & INFLAMMATION

Gluten can be looked on as a “biological door to inflammation”. It is known to increase an enzyme called **zonulin**, which controls *intestinal permeability* and *BBB permeability*

Can then result in **cross reactivity** with other food proteins resulting in multiple food sensitivities.



Fasano 2011, doi: 10.1152/physrev.00003.2008.

GLUTEN

**“Gluten sensitivity
can be at times
exclusively a
neurological
disease”**

(Journal Neurology (Vol 56/No. 3
Feb 13, 2005)



GLUTEN-IMMUNE-BRAIN LINK

gliadin has the capacity to activate cytokine production in monocytes and macrophages.

Gliadin produces potent induction of pro-inflammatory genes, indicating that gliadin and its active peptides are capable of increasing expression of a repertoire of inflammatory genes



ANTIINFLAMMATORY FOODS AND NUTRIENTS:

TOP ANTI-INFLAMMATORY FOODS

- **Turmeric, cinnamon, ginger,** rosemary, clove, pepper, cumin, + more spices.
- **Organic Blueberries,** cherries, raspberries, acai berry
- Coconut Oil
- Green tea (adults)

TOP ANTI-INFLAMMATORY FOODS

- Vitamin D – **grass fed** fats & eggs, CLO, caviar
- Enzymes & probiotics: fermented foods, raw fruit + veg, pawpaw, pineapple
- Omega 3's: Chia seeds, flax seeds, oily fish
- Cruciferous veggies



HERBS & SPICES

HERBS & SPICES

Galangal, anise, red chili, black cardamom, turmeric, licorice, fenugreek, clove, kokum, ginger, black cumin, rosemary, hop, and pinecone ginger have always been used to improve taste and colour and as a preservative...

they are **now also used for prevention and treatment of a wide variety of chronic inflammatory diseases.**

Sung B, Prasad S, Yadav VR, Aggarwal BB. [Cancer cell signaling pathways targeted by spice-derived nutraceuticals](#). Nutr Cancer. 2012;64(2):173-97. doi: 10.1080/01635581.2012.630551. Epub 2011 Dec 9. Review.

PubMed PMID: 22149093; PubMed Central PMCID: PMC3645308
www.nourish-ed.com

TURMERIC

3000+ studies showing the positive effect of turmeric on a range of inflammatory disorders. 1500 on cancer alone.



TURMERIC

Anti-inflammatory

Neuro-protective

Liver supportive

Antioxidant



CINNAMON & GINGER

- Six weeks of 3 g dietary ginger and cinnamon, on consecutive days, reduced the plasma levels of IL-6 caused by eccentric exercise in female martial athletes, and 3 g of ginger also effectively reduced muscle soreness.

Mashhadi NS, Ghasvandi R, Askari G, Feizi A, Hariri M, Darvishi L, Barani A, Taghiyar M, Shiranian A, Hajishafiee M.

[Influence of ginger and cinnamon intake on inflammation and muscle soreness induced by exercise in Iranian female athletes.](#) Int J Prev Med. 2013 Apr;4(Suppl 1):S11-5. PubMed PMID: 23717759; PubMed Central PMCID:

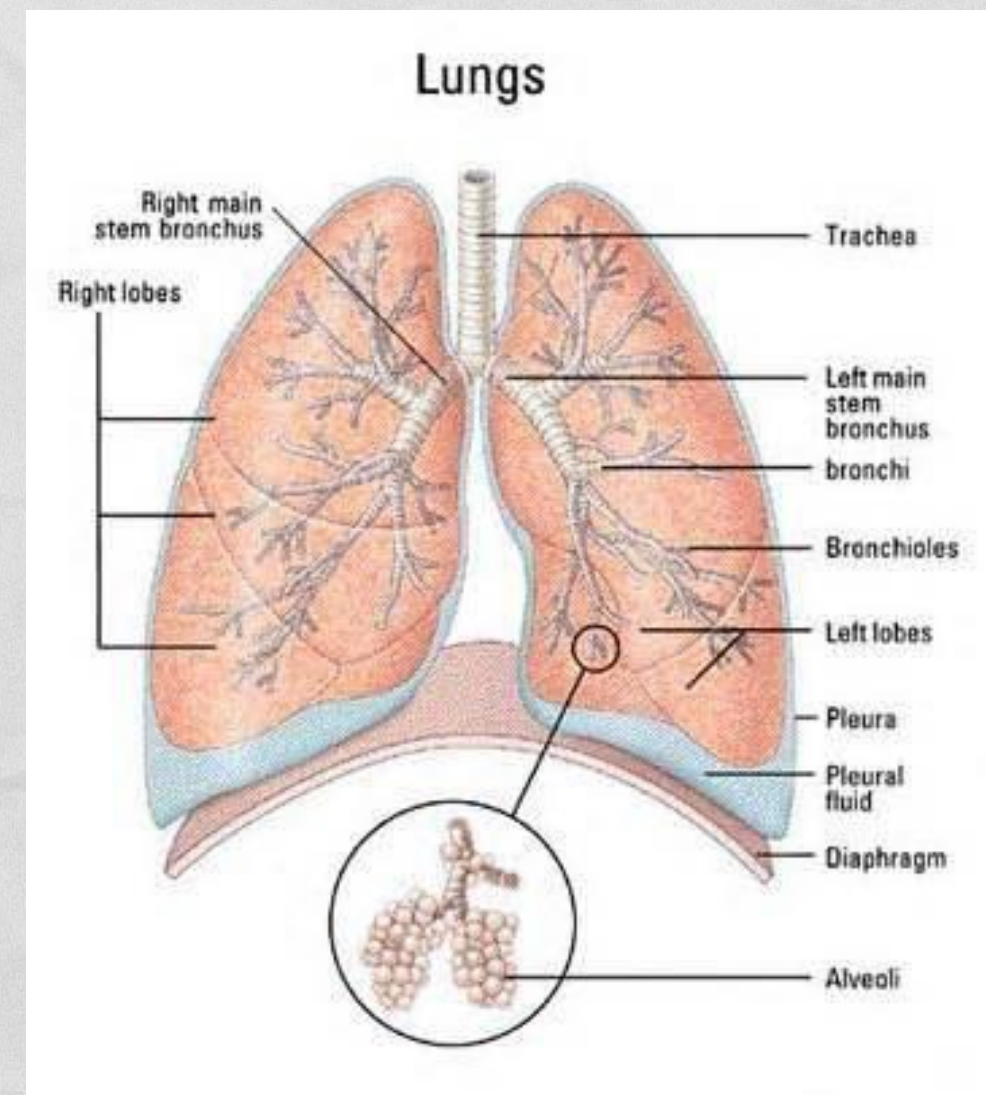
PMC3665015.

GINGER

possess anti-hyperactivity and anti-inflammation on airways.

Mangprayool T, Kupittayanant S, Chudapongse N. [Participation of citral in the bronchodilatory effect of ginger oil and possible mechanism of action.](#) *Fitoterapia*. 2013 May 17;89C:68-73. doi: 10.1016/j.fitote.2013.05.012. [Epub ahead of print] PubMed PMID: 23685048.

[Related citations](#)



HERBS & SPICES

- Ginger, rosemary, and turmeric *showed protective capacity by both oxidative protection and inflammation measures.*
- paprika, rosemary, ginger, heat-treated turmeric, sage, and cumin *protected against DNA strand breaks*
- Clove, ginger, rosemary, and turmeric *were able to significantly reduce TNF- α*

Percival SS, Vanden Heuvel JP, Nieves CJ, Montero C, Migliaccio AJ, Meadors J. [Bioavailability of herbs and spices in humans as determined by ex vivo inflammatory suppression and DNA strand breaks.](#) J Am Coll Nutr. 2012

Aug;31(4):288-94. PubMed PMID: 23378457.

VITAMIN D

vitamin D deficiency can have a profound effect on immunity, inflammation and muscle function.

Adequate vitamin D status may reduce stress fractures, **total body inflammation**, common infectious illnesses, and recovery from injury.

Larson-Meyer E. [Vitamin d supplementation in athletes](#). Nestle Nutr Inst Workshop Ser. 2013;75:109-21. doi:

10.1159/000345827. Epub 2013 Apr 16. PubMed PMID: 23765355.

www.nourish-ed.com

VITAMIN D

Who needs more and why?

1. **Older people**, particularly those who are housebound with limited exposure to sunlight.
2. Those with a **darker skin colour**, e.g. Maori and Pacific Islanders, or people who are veiled.
3. Those living in the **further away from equator** during the winter.
4. Those **working indoors**

SOURCES OF VITAMIN D

- Grass fed butter
- cod liver oil
- Organic pastured eggs
- Sunshine on skin without sun cream
- Fish, esp. raw
- Caviar



CHIA SEEDS

- Rich source of anti-inflammatory w3 fatty acids
- improves insulin sensitivity and glucose tolerance
- reduces visceral adipose tissue (in rats)
- reduces cardiac and hepatic (liver) inflammation and fibrosis

Poudyal H, Panchal SK, Waanders J, Ward L, Brown L. [Lipid redistribution by \$\alpha\$ -linolenic acid-rich chia seed inhibits stearoyl-CoA desaturase-1 and induces cardiac and hepatic protection in diet-induced obese rats.](#) J Nutr Biochem. 2012 Feb;23(2):153-62. doi: 10.1016/j.jnutbio.2010.11.011. Epub 2011 Mar 22. PubMed PMID: 21429727.

CHIA SEEDS

- potent anti-inflammatory effects on several inflammation-based models including experimental encephalomyelitis, colitis, peritonitis, oedema, and arthritis through suppression of the inflammatory mediators prostaglandins and leukotriens

Salem ML. [Immunomodulatory and therapeutic properties of the Nigella sativa L. seed.](#) Int Immunopharmacol. 2005 Dec;5(13-14):1749-70. Epub 2005 Jul 1. Review. PubMed PMID: 16275613.

PROBIOTICS

Probiotic bacteria, especially the Lactobacillus species, play a significant role in the anti-inflammatory, antiviral and antimicrobial activity of a host's immune system.

Could give a whole presentation on probiotics and inflammation alone due to effects on host gut and immune function.

ENZYMES

- E.g. Papain (pawpaw) Bromelain (pineapple)-proteolytic enzymes with anti-inflammatory function
- Found in fresh raw fruits and vegetables
- Very high in fermented foods - eg sauerkraut

VIRGIN COCONUT OIL

Anti-inflammatory

Analgesic

Antipyretic





CATECHINS

CATECHINS

- Green tea
- Cacao
- Garlic
- red grape skins
- blackberries, raspberries, cherries

Related compounds: quercetin,
resveratrol

POLYPHENOLS

Rich in vegetables, fruits, bark, roots, tea, cacao, and wine.

- Most have antioxidant, **anti-inflammatory**, properties
- protective effects on mitochondrial functioning, glutamate uptake, and regulating intracellular calcium levels in ischaemic injury

Panickar KS, Jang S. [Dietary and plant polyphenols exert neuroprotective effects and improve cognitive function in cerebral ischemia](#). Recent Pat Food Nutr Agric. 2013 Aug 1;5(2):128-43. PubMed PMID: 23621667.

www.nourish-ed.com

BLUEBERRIES

- Consumption of blueberries may be one strategy to slow or reverse age-related neuronal deficits, as well as their subsequent behavioural manifestations.

Polyphenolics lower oxidative stress and inflammation directly by altering the signaling involved in neuronal communication.

BERRIES

- Blueberry and cranberry exhibited the greatest antioxidant activity in studies of neuroprotective and antioxidant effects of polyphenols in foods.

. (tested a range of berries, and spinach)

Heim KC, Angers P, Léonhart S, Ritz BW. [Anti-inflammatory and neuroactive properties of selected fruit extracts](#). J Med Food. 2012 Sep;15(9):851-4. doi: 10.1089/jmf.2011.0265. Epub 2012 Aug 7. PubMed PMID: 22871089.

www.nourish-ed.com

TART CHERRIES

Tart cherries appear to possess similar effectiveness to NSAIDS in treating the inflammatory reaction seen in both acute and chronic pain syndromes.

Kuehl KS. [Cherry juice targets antioxidant potential and pain relief](#). Med Sport Sci. 2012;59:86-93. doi: 10.1159/000341965. Epub 2012 Oct 15. Review. PubMed PMID: 23075558.

www.nourish-ed.com

GHEE

- Great source of butyric acid - fuel for colonocytes.
- an important role in maintaining the integrity of the intestinal mucosa, while it also has been shown to exert potent anti-inflammatory effects both in vitro and in vivo.

Mishiro T, Kusunoki R, Otani A, Ansary MM, Tongu M, Harashima N, Yamada T, Sato S, Amano Y, Itoh K, Ishihara S, Kinoshita Y. [Butyric acid attenuates intestinal inflammation in murine DSS-induced colitis model via milk fat globule-EGF factor 8](#). Lab Invest. 2013 Jul;93(7):834-43. doi: 10.1038/labinvest.2013.70. Epub 2013 Jun 10. PubMed PMID: 23752130.

CAMU CAMU

Powerful anti-oxidative and anti-inflammatory properties, compared to vitamin C tablets containing equivalent vitamin C content. These effects may be due to the existence of unknown anti-oxidant substances besides vitamin C or unknown substances modulating in vivo vitamin C kinetics in camu-camu.

Inoue T, Komoda H, Uchida T, Node K. [Tropical fruit camu-camu \(*Myrciaria dubia*\) has anti-oxidative and anti-inflammatory properties.](#) J Cardiol. 2008 Oct;52(2):127-32. doi:

10.1016/j.jjcc.2008.06.004. Epub 2008 Jul 29. PubMed PMID: 18922386.

www.nourish-ed.com



CACAO

- Contains more phenolic antioxidants than most foods. Flavonoids, including catechin, epicatechin, and procyanidins predominate in antioxidant activity.
- Beneficial modulation of metabolic-syndrome related inflammation by cocoa and cocoa-derived compounds.
- Vasodilatory, antioxidant, and anti-inflammatory effects.
- Can protect nerves from injury and inflammation,

SLEEP!

sleep deprivation or poor sleep quality raise inflammation, which in turn increase the risk of many disorders.



Sleep Quality and Duration are Associated with Higher Levels of Inflammatory Biomarkers: the META-Health Study."

Alanna Morris, Dorothy Coverson, Lucy Fike, Yusuf Ahmed, Neli Stoyanova, W. Craig Hooper, Gary Gibbons, Donald Bliwise, Viola Vaccarino, Rebecca Din-Dzietham, and Arshed Quyyumi. [Circulation](#), 23 November 2010; 122: Abstract: A17806.

SUMMARY: EAT THESE

Fresh live foods

Antioxidant rich foods

Cacao (not for kids)

camu camu

Herbs and spices - cinnamon, turmeric, ginger

blueberries, cherries, raspberries

SUMMARY: EAT THESE

Virgin Coconut oil, ghee, chia seeds, fish, flax seed

Fermented foods, probiotics, gut flora

Vitamin C & D (&A&E)

Green Tea, polyphenols

SUMMARY: DO THESE

Improve Insulin sensitivity, lose weight

Sit less, play / move more

Address organ function

Breath deeply, meditate

Sleep!

THANK YOU!

Doctor Earth, Bondi Junction

Herbies Spices, Rozelle

GPA Wholefoods.com.au

Inside Out Nutritious Goods

Alkamax Water

THANK YOU!

www.nourish-ed.com

(new site launching on Tuesday)

Sign up for email recipes, updates, newsletter.

www.facebook.com/nourish-ed

info@nourish-ed.com