



WHO WANTS TO LIVE FOREVER? HEALTHY AGING & ANTI-AGING IN 2020

* *Relevance of the GUT-BRAIN AXIS to skin aging*

Patrizia A d'Alessio MD PhD



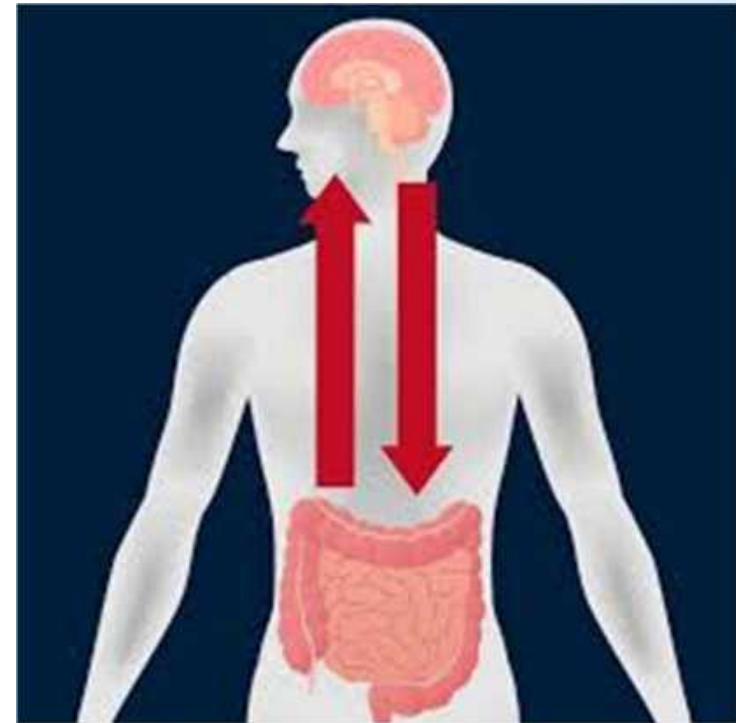
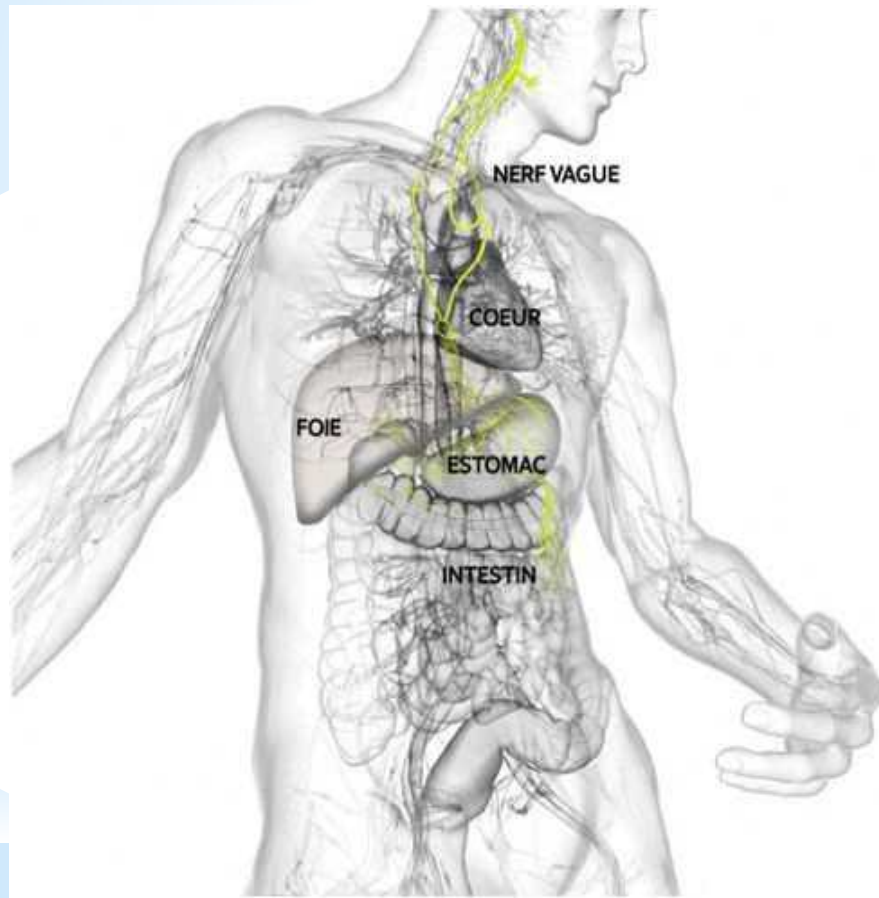
* *No conflict of interest*

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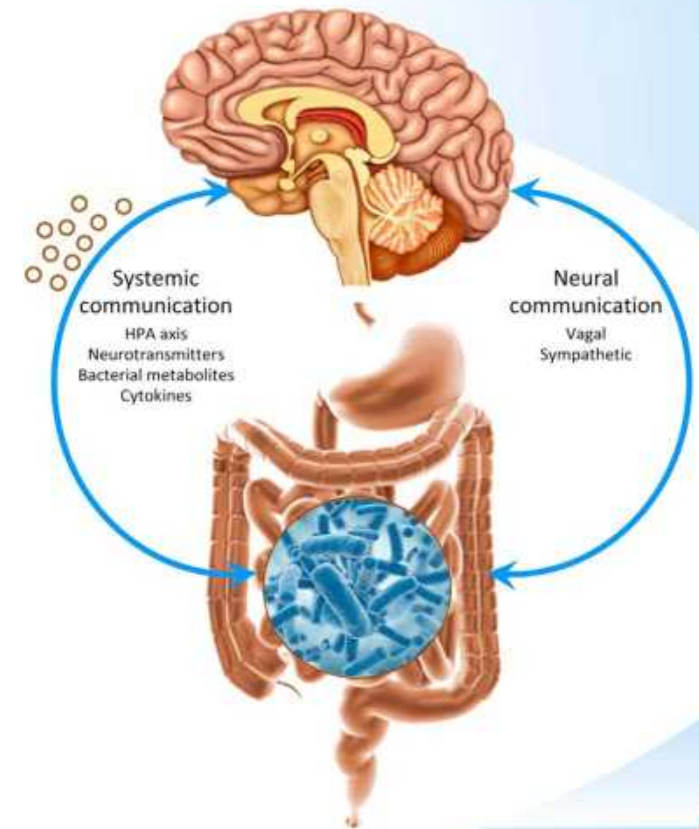


* Anatomical gut-brain link : the vagus nerve



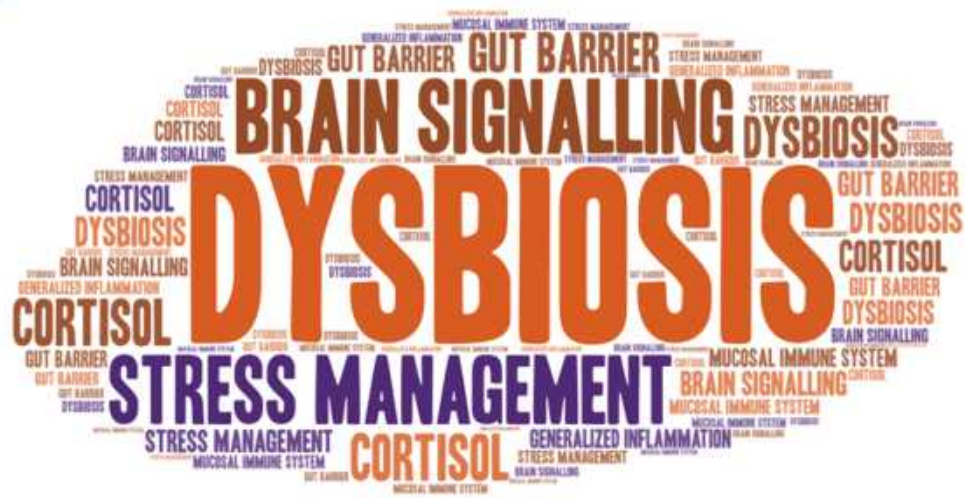
* Functional gut - brain link : the microbiota

- ◆ Bidirectional communication between the gut microbiota, the gut, and the brain
 - ◆ Systemic (HPA system)
 - ◆ Neural (Vagus)
- ◆ Endocrine-, neurocrine- and inflammation-related signals are generated by the gut microbiota and specialized cells within the gut – that affect the brain.
- ◆ In turn, **the brain can influence the microbial composition** and function *via* endocrine and neural mechanisms.



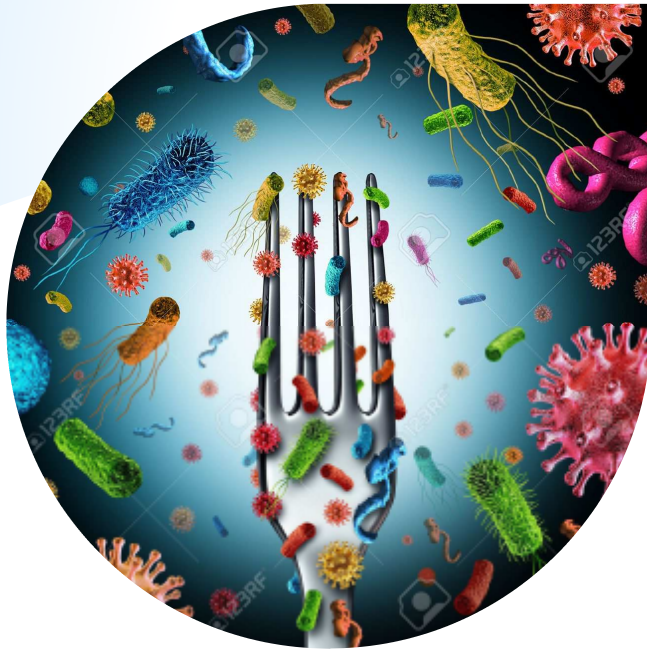
* THE gut-brain connexion is challenged by the route of stress management

➔ Food intake and micronutrient signalling



➔ Relevance to skin health and beauty



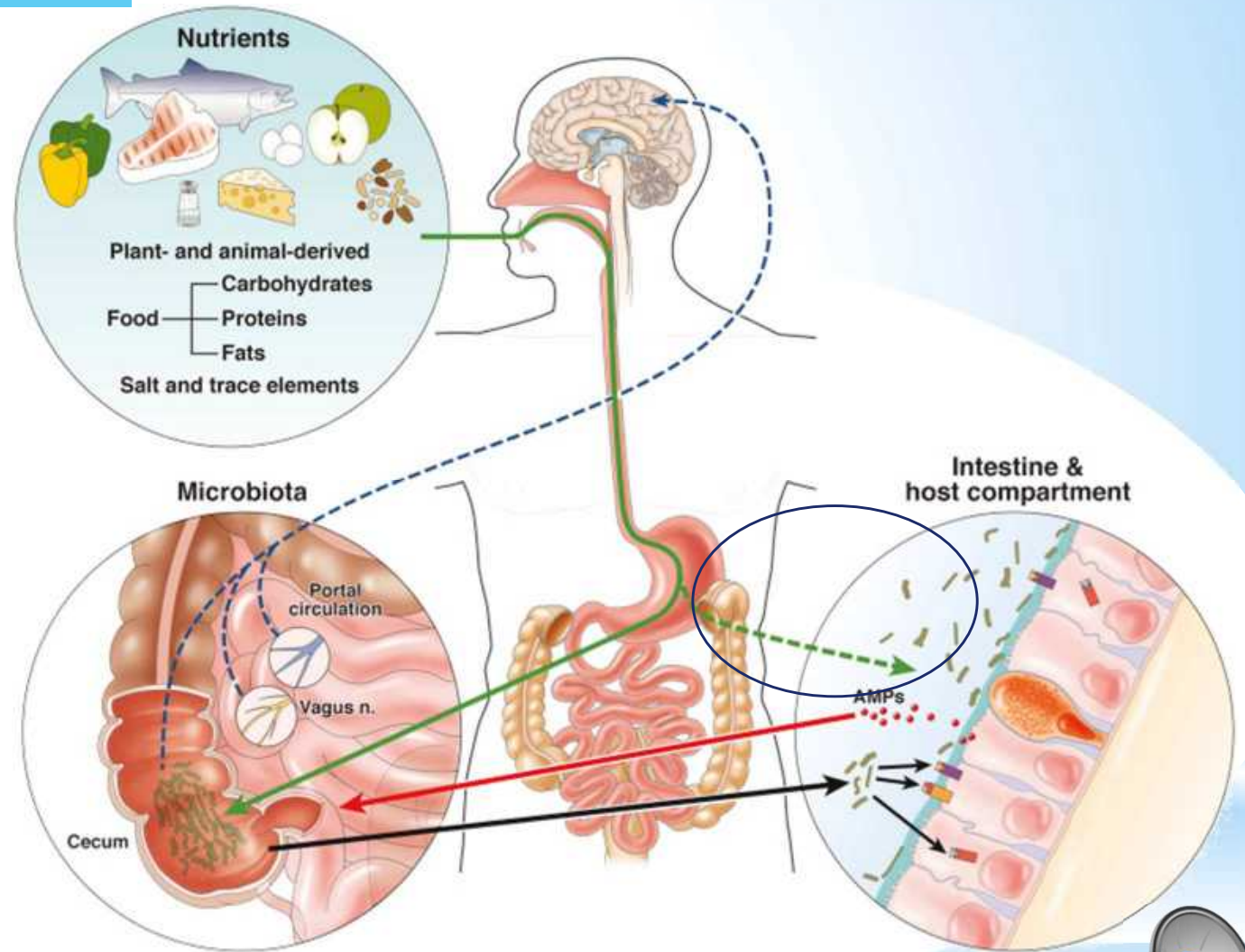


* 1. Food intake

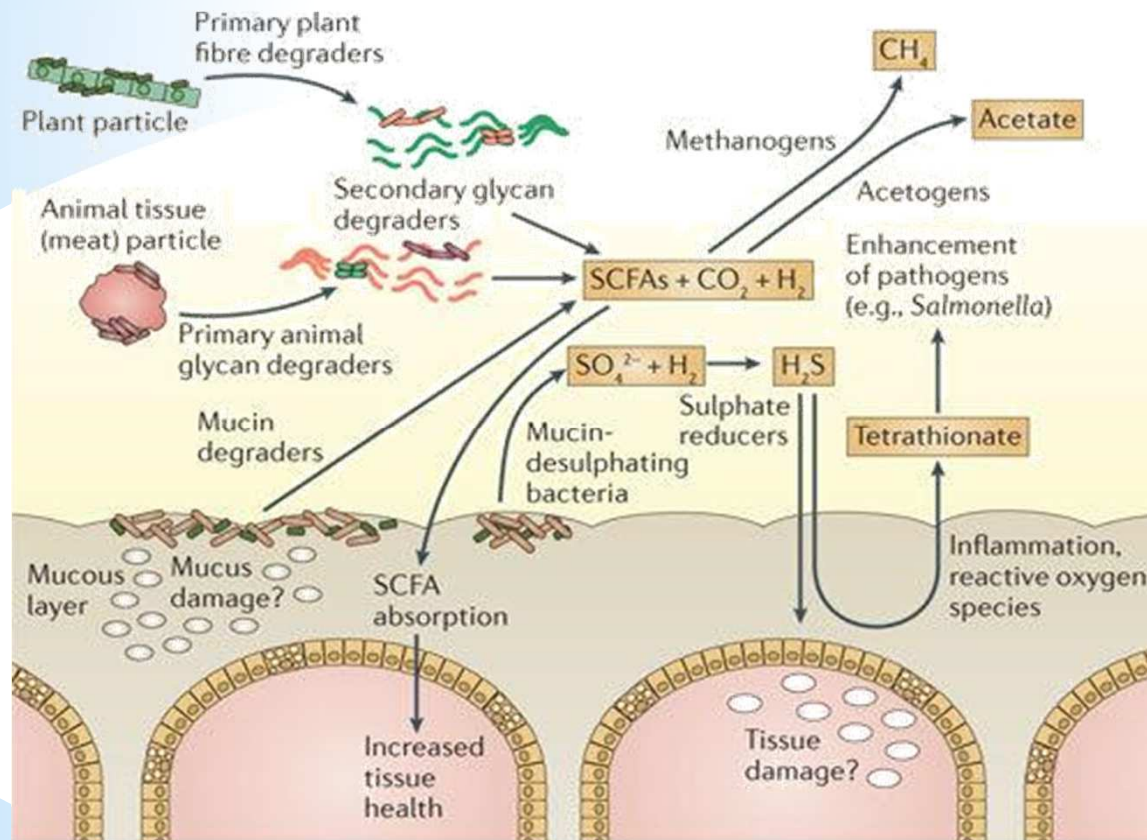
MICRONUTRIENT SIGNALLING



The vagus nerve forwards the gut - brain signalling initiated by food intake



* Microbiota metabolites are essential for health



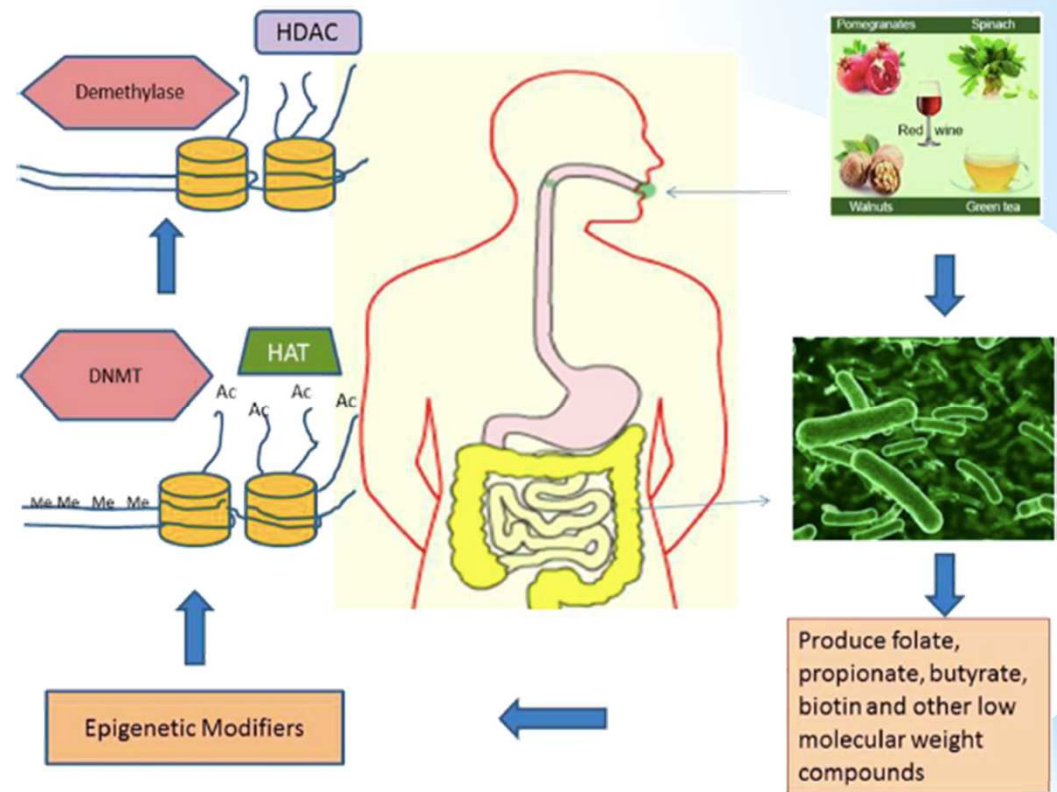
**Butyrate, Folate,
Propionate** produced by:

Bifidobacteria
Clostridii
Enterobacterium
Enterococcus
Ruminococcus
Roseburia



Bacterial metabolism of dietary fibers impacts epigenetics

Acetate, **butyrate**, propionate (SCFA) and folates, produced following dietary intake of phytochemicals, are epigenetic modifiers, protecting from cancer and aging.



* Ancient times



**Dr George Cheyne
(1671-1743)**

Since the 17th century and during the 18th century, vegetarianism became a treatment for obesity and gout for rich people consuming a lot of meat.

But vegetarianism was also beginning to be considered as a solution to avoid wrinkles and lack of radiance in the skin.



* 2. Stress management



How do brain homeostatic strategies challenge the gut-brain connexion?



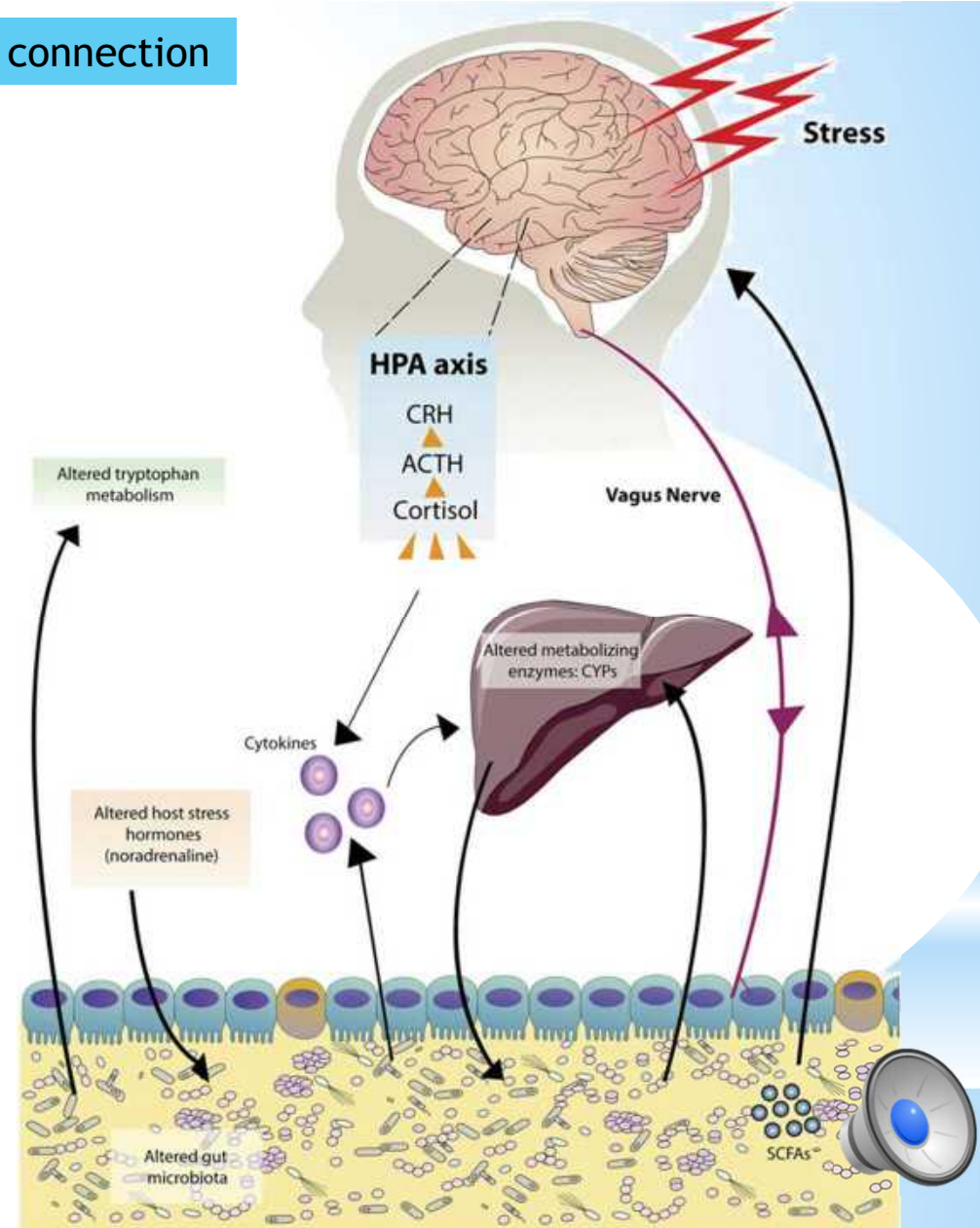


Thanks to **cortisol**, normally you don't realize you are under **stress**



Stress management is introducing imbalance in the gut-brain connection

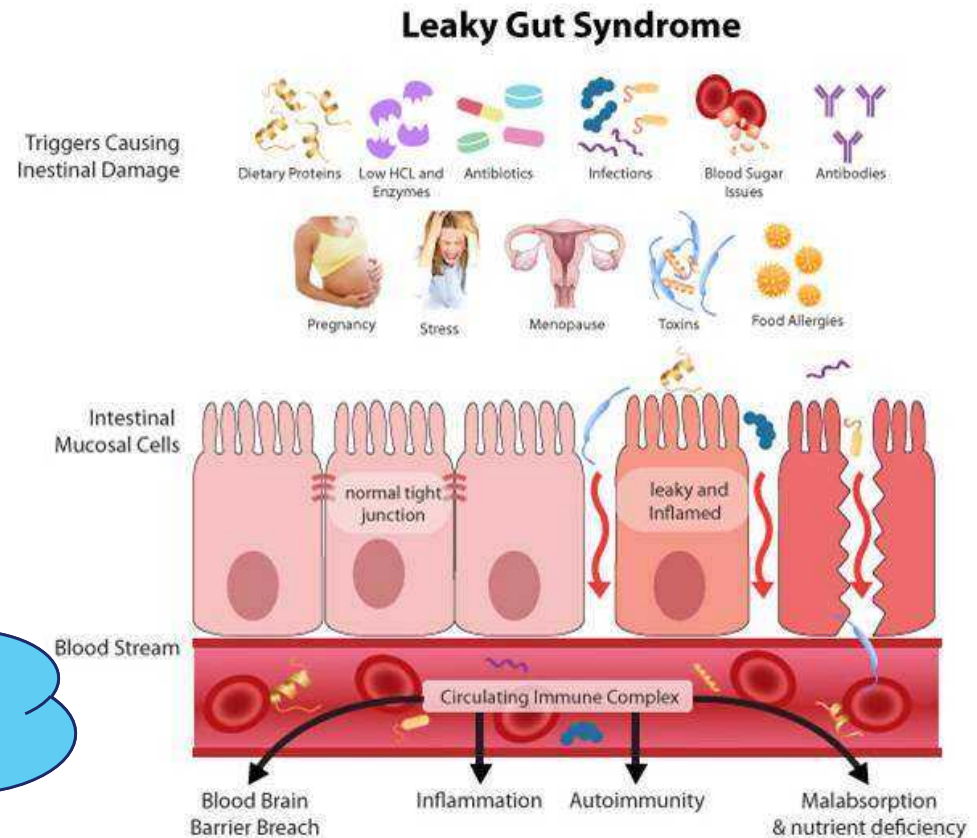
STRESS COPING
MECHANISMS (CORTISOL)
GENERATE
GENERALIZED
INFLAMMATION



* Barrier dysfunction = “leaky gut” syndrome
= dysbiosis

Cortisol

Mood



* Mood is depending on balanced gut-brain axis

* GUT BARRIER DYSFUNCTION AND « SICKNESS DISEASE »

loss of memory,
anxiety,
refusal to meet social events,
obsessional thoughts,
difficulty to concentrate,
depression,
chronic fatigue syndrome,
sleeplessness,
loss of interest,
obsessional neurosis

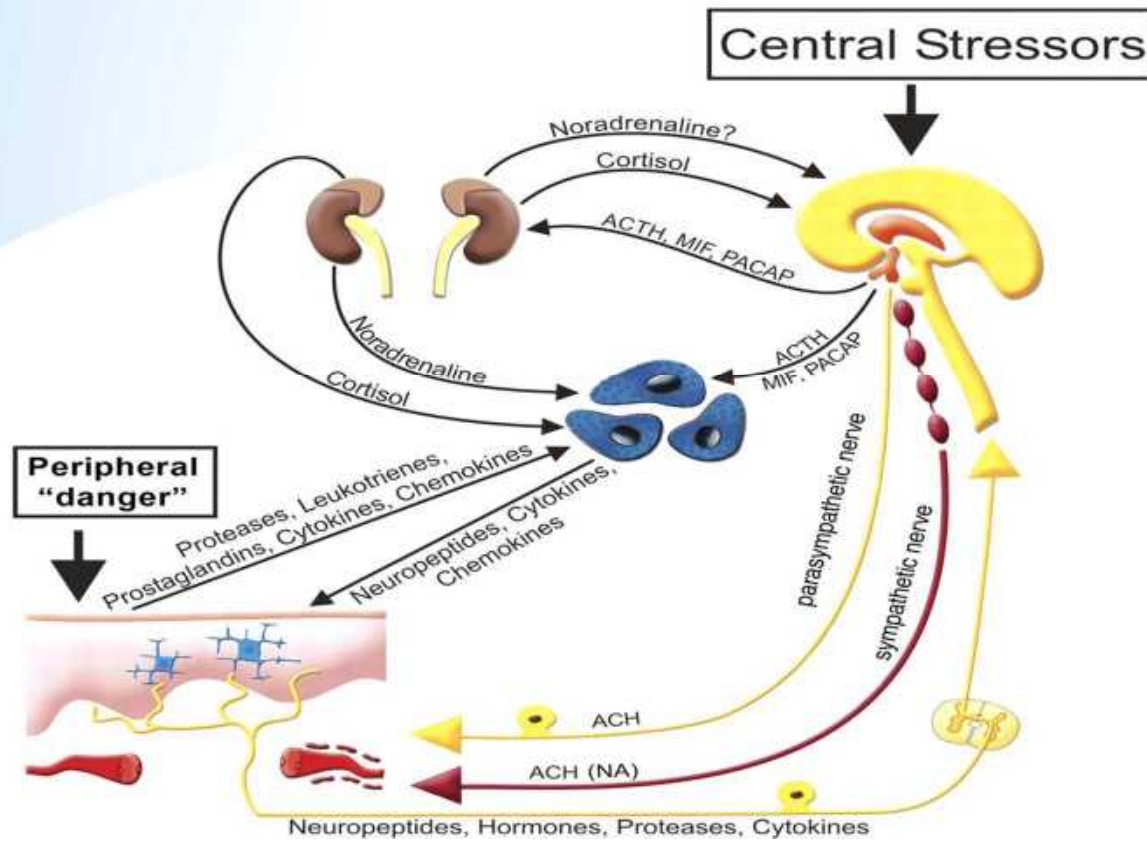




How does dysbiosis undermine skin health and beauty ?
Because the brain talks to the skin as well...



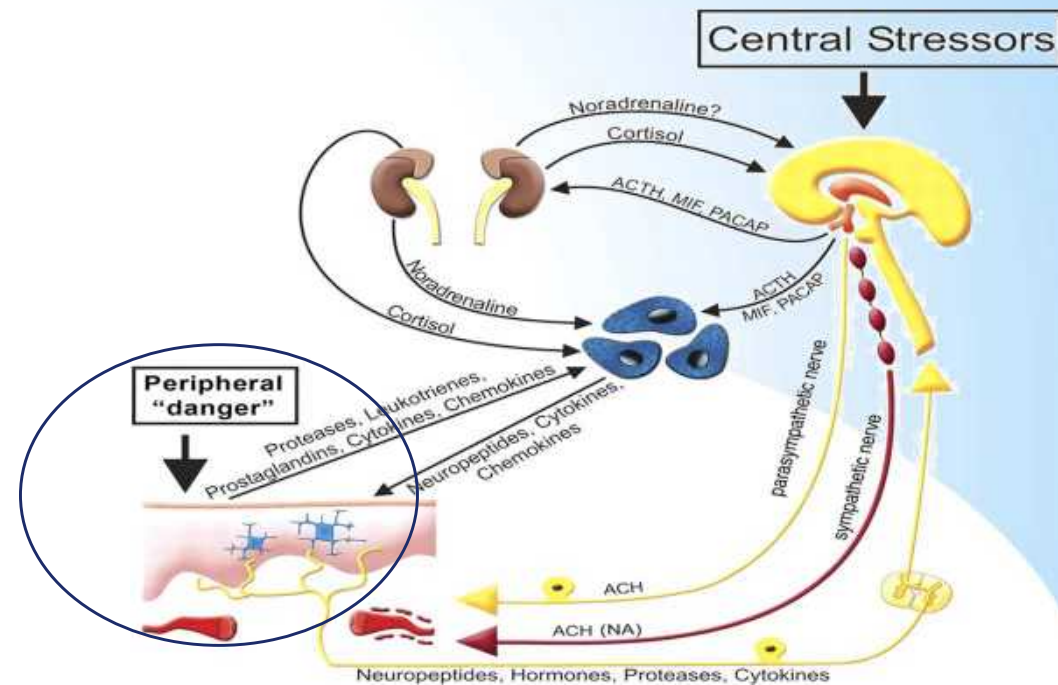
* What about the brain-skin connection ?



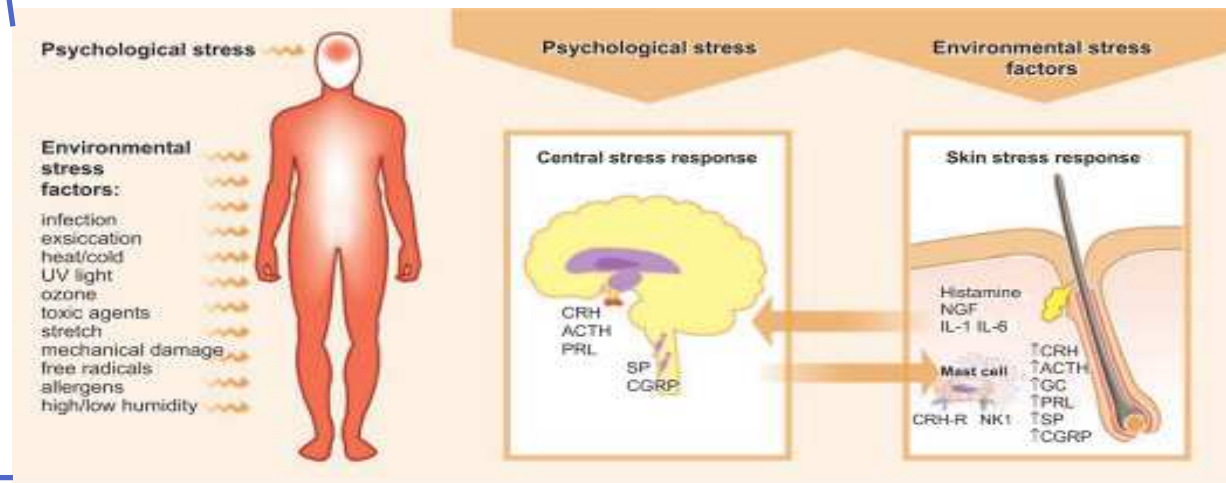
* Skin is sensing stress

The skin displays a fully functional peripheral HPA* system

*Hypothalamo-pituitary-adrenal axis



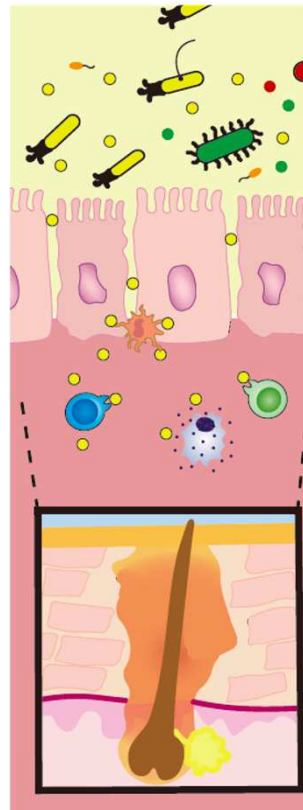
- Infection
- Exsiccation
- Heat/cold
- UV light
- Ozone
- Toxic agents
- Stretch
- Mechanical damage
- Free radicals
- Allergens
- High/low humidity



* Gut Barrier restoration = skin restoration

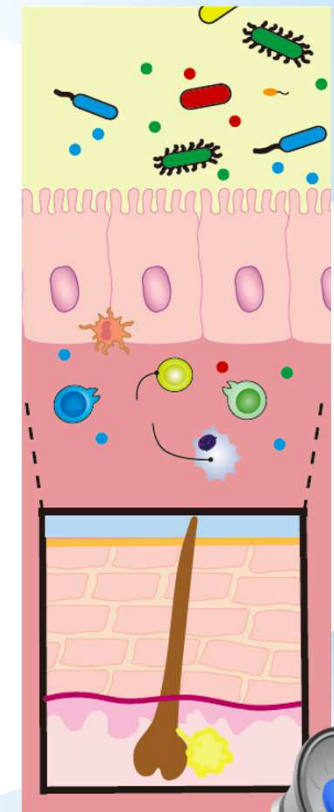
Gut dysbiosis

Compromises the barrier function of the **skin**



Psychobiotics preserve gut barrier function

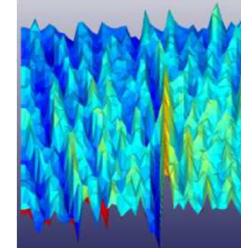
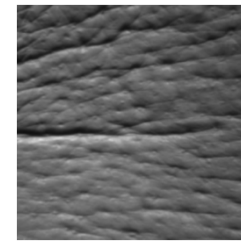
and are essential for the **skin** compliance



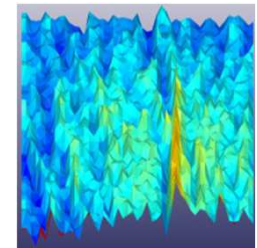
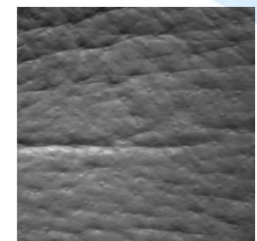
* Psychobiotics can restore dysbiosis causing chronic inflammation: skin is the winning partner !



Before



After



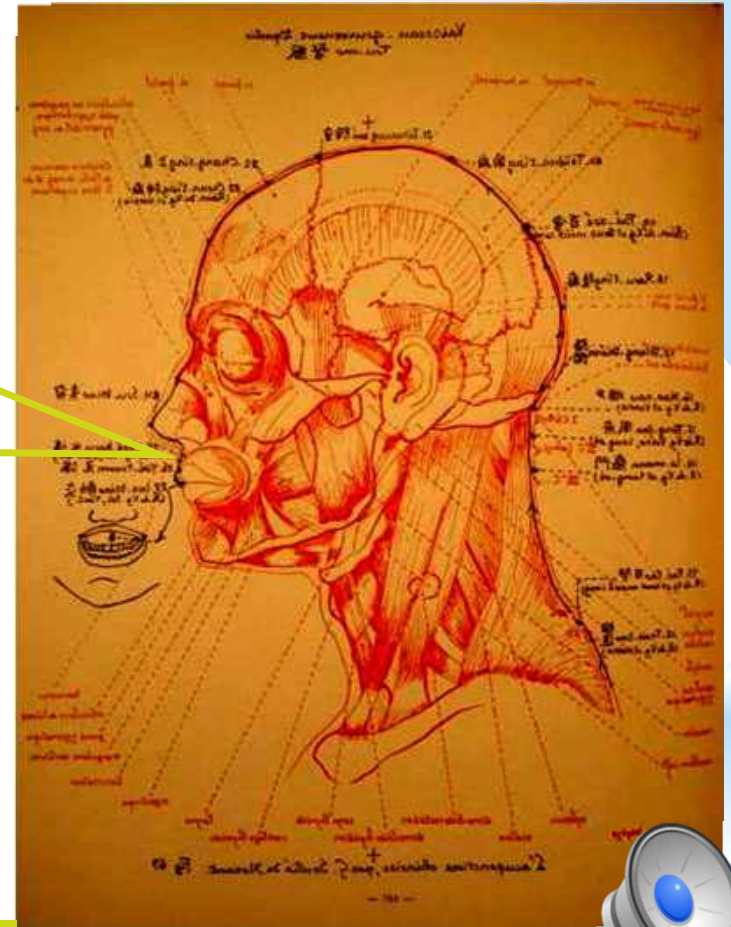
PRIME 11:2015; 19-25



* Anti-inflammation by vagus stimulation



* A taste you like...
potently induces vagal activation



STIMULATE the vagus nerve by touch

* Affectionate touch



◆ Social grooming



◆ Emma Thompson & Greg Wise

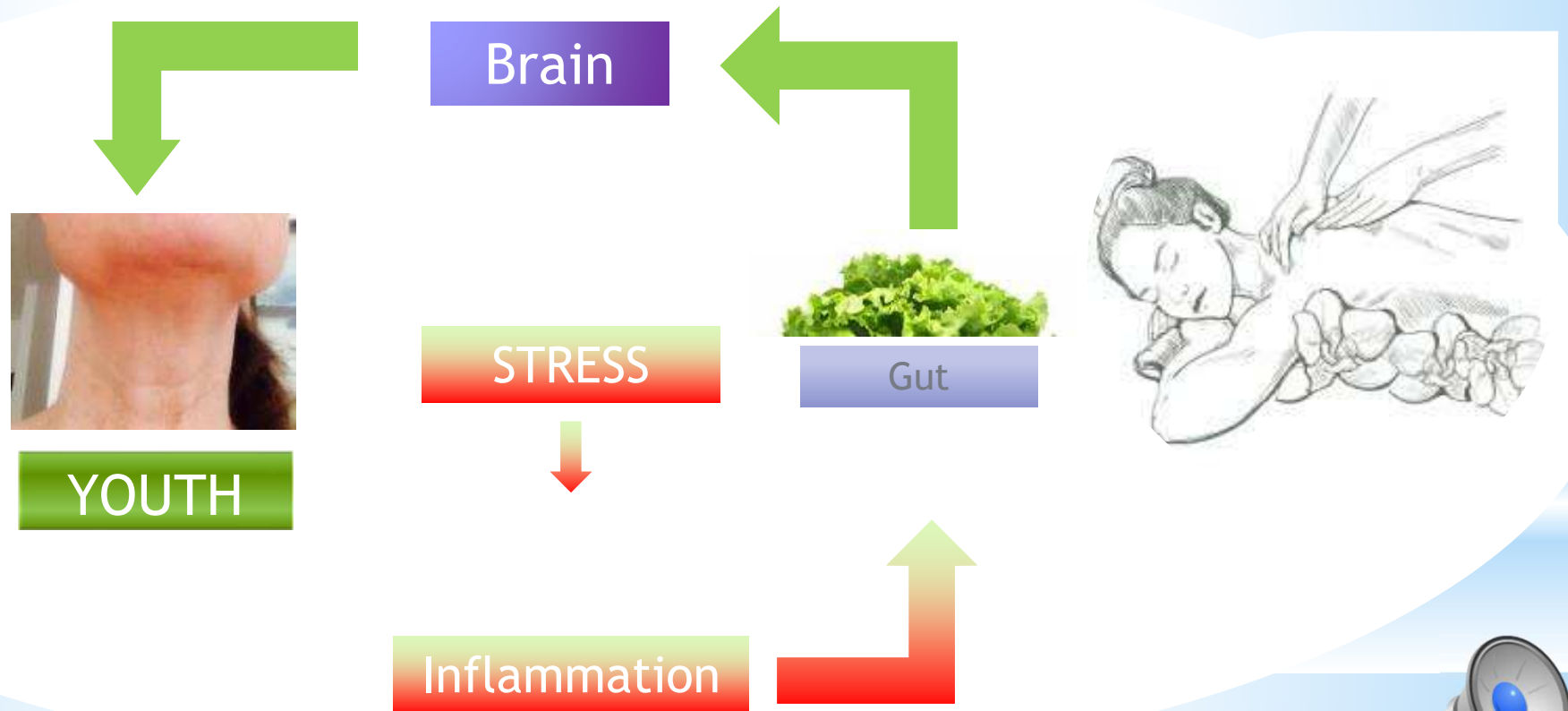


* THE gut-brain connexion is challenged by the route of stress management

- ◆ **Stress** management can destabilize the **gut barrier function**, thus generalizing the inflammatory reaction.
- ◆ **Chronic inflammation** fuels aging, visible in skin.
 - ☞ **Nutrition** may become a potent inductor of **epigenetic modifications**,
 - ☞ preventing **cancer and aging**.
- ☞ **Vagal activation** contributes to stop **generalized inflammation**.



* The gut-brain connection INFLUENCES skin QUALITY...



Thank you for your attention



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