



« The impact of Covid-19 on body awareness »

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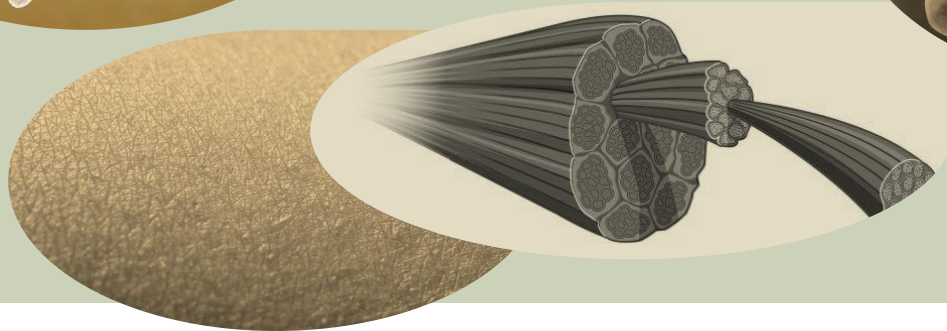
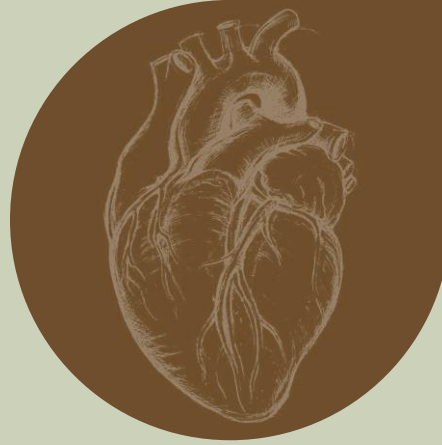
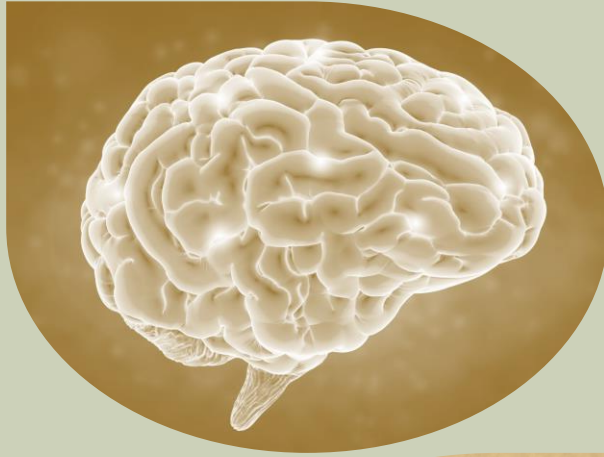
I . BODY AWARENESS: INTEROCEPTION

The sense of the internal state of the body, encompassing the brain's process of integrating signals relayed from numerous external and internal sensors allowing for a **representation** of the physiological state of the body (*Craig, 2002; Khalsa, 2016*).

This capacity is important to maintain **homeostasis** and self-awareness based on one own's perception and **prediction** of internal bodily states (*Craig, 2009*).



Partners are : Brain Skin Heart
Muscles and Gut



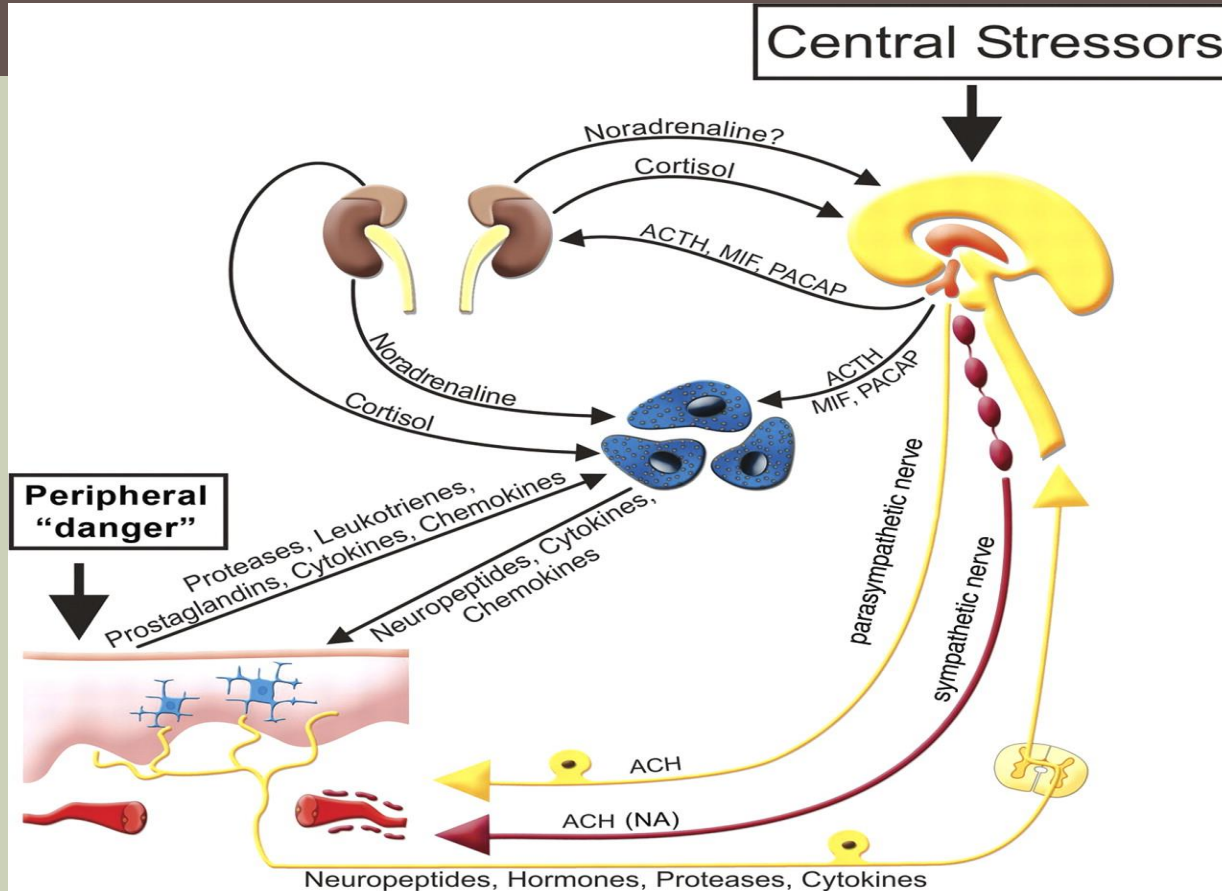
It all starts with spatial balance

Body awareness develops from the reflexive movements of the newborn.

The most important issue in body awareness is the development of one's relationship towards **gravity**, making *balance* a major feature.

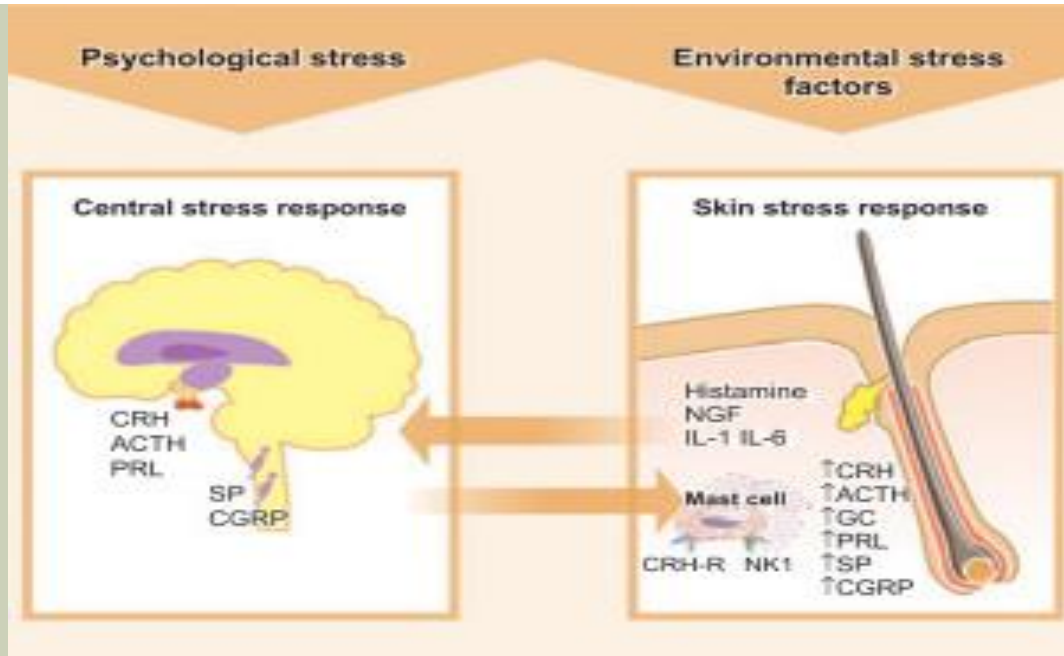


Somato Sensory Paths of the Skin



SKIN IS
SENSING
STRESS

Skin Neuro-endocrine Properties



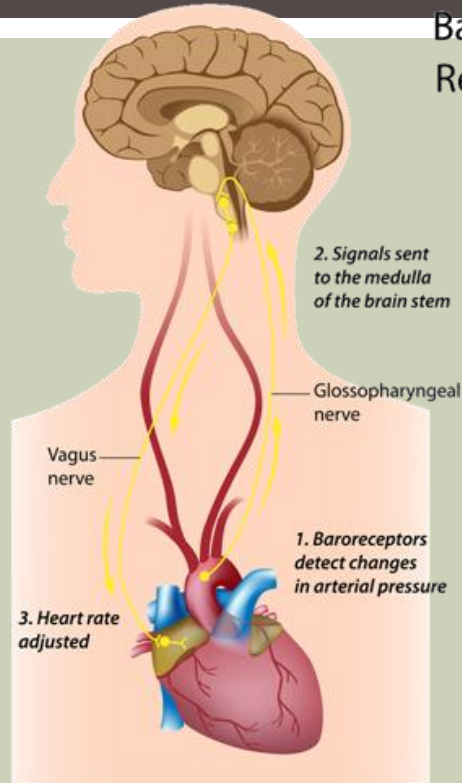
A FUNCTIONAL
PERIPHERAL
HPA SYSTEM

Neuroimmunology of Stress: Skin Takes Center Stage

Petra C. Arck¹, Andrzej Slominski², Theoharis C. Theoharides³, Eva M. J. Peters¹ and Ralf Paus⁴

Journal of Investigative Dermatology (2006) **126**, 1697–1704. doi:10.1038/sj.jid.5700104

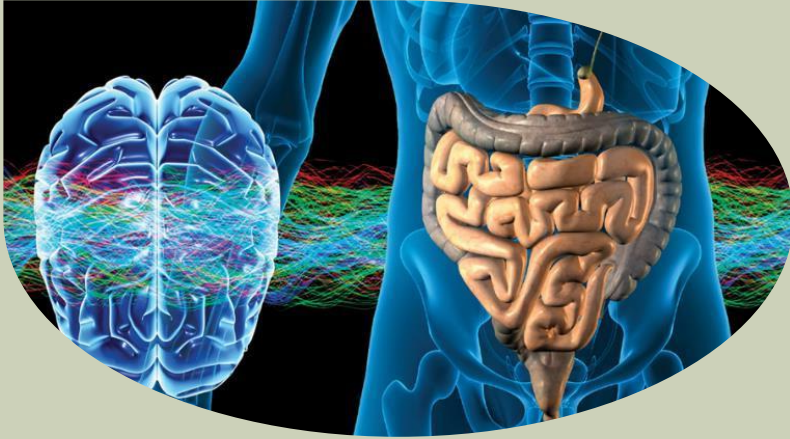
Cardio-vascular Interoception



Baroreceptor
Reflex

- ◆ Cardiovascular interoception is measured by directing attention
- ◆ towards the sensation of the heartbeat during various tasks :
- ◆ for example **breathing**

Body awareness includes muscles and gut

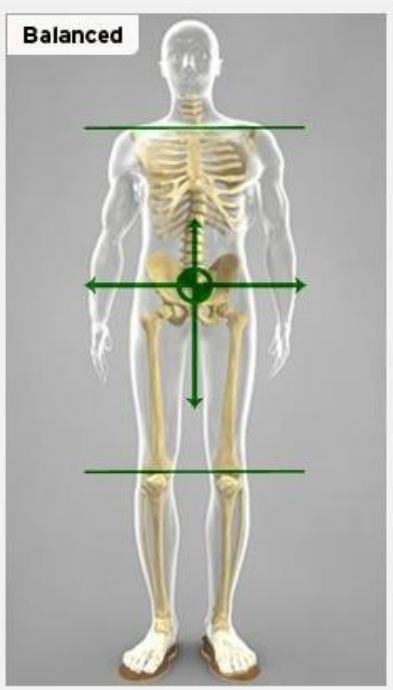


Signs from the “silent” gut, referring to the *tensional status* of other tissues to the brain about the **current state** of the body.

II. WHAT HAPPENS WHEN IT GOES WRONG



Stress alters 1. the spatial balance



« Any trauma leads us to deviate from the original shape, that which we inherited in order for us to manage gravity »

James Oschman,
"Energy Medicine, the Scientific Basis".



Flexors shortening

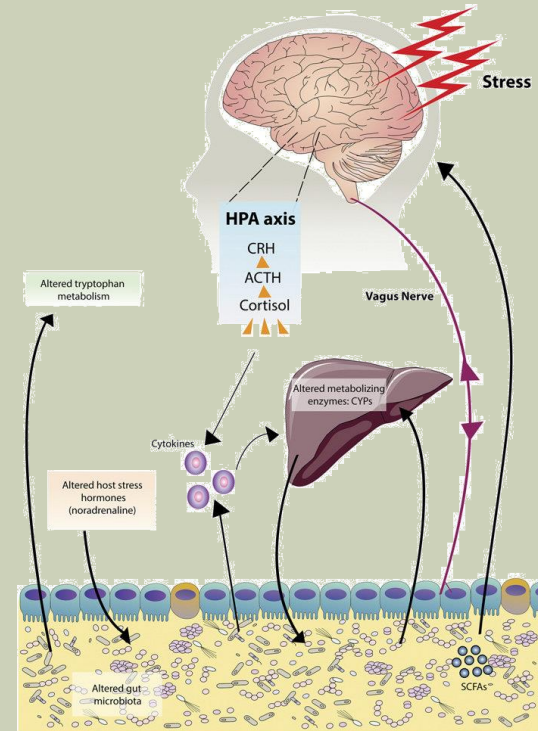
- ◆ Muscle fibers atrophy
- ◆ Hypertonicity
- ◆ Hyperstimulation
- ◆ Inflammation
- ◆ Spaces filled in with adipocytes
- ◆ Inactivity leading to floppiness and functional impairment

Stress changes 2. immune reactions

Cortisol induced gut barrier leakage and consequent dysbiosis

- ◆ Malabsorption and auto-immune disease
- ◆ Generalized inflammation and Neuro-inflammation with « sickness disease »

- ◆ Chronic fatigue syndrome
- ◆ Depression
- ◆ Insomnia
- ◆ Obsessional thoughts
- ◆ Lack of motivation
- ◆ Lack of concentration
- ◆ Loss of appetite for social interaction



Lack of body awareness can change shape and mood

Covid-19 has challenged body awareness

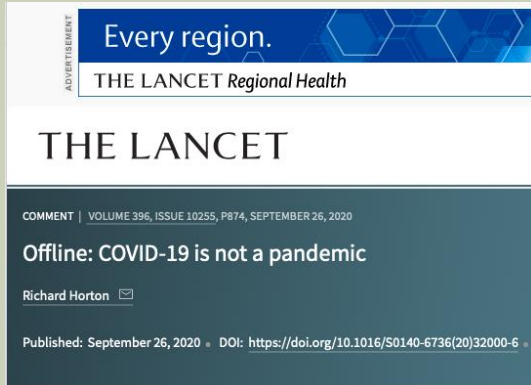
Suicide attempts of kids 8-10 years old, in Western countries, and in the country of longevity, centenarians and blue zones : in October 2020 - after six months restrictions and lock-downs,

- **70% increase in female suicides compared to October 2019 were identified in Japan.**
- ◆ Do **social restriction policies** overimpose stress on an already stressed population ?



« Cytokine storm »

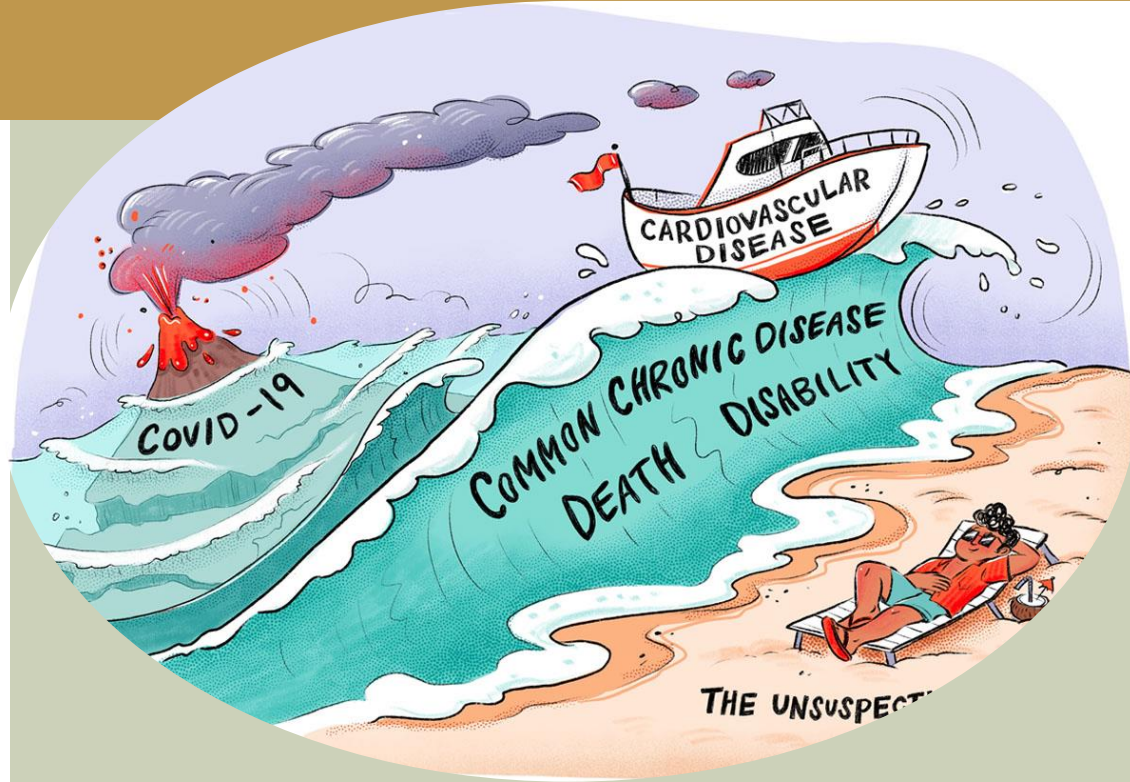
*“The fact that the real morbidity and mortality of this disease is probably driven by **this out-of-proportion inflammatory response to the virus...**”*



Jamie Garfield,
Temple University Hospital

« Addressing Covid means addressing chronic diseases, ...clustering within social groups according to **patterns of socio-economic inequality**, deeply embedded in our societies. »

When **stress** crosses the route of immune responses



- ◆ Is SARS-CoV-2 infection taking advantage of underlying **stress** ?
- ◆ In case of chronic stress, when symptoms of Covid-19 start to appear,
- ◆ we probably are **already** experiencing an enhanced « pro-inflammatory cytokine status » characteristic of **common chronic disease**...

Avoiding the Coming Tsunami of Common, Chronic Disease

What the Lessons of the COVID-19 Pandemic Can Teach Us

Robert M. Califf

Originally published 6 Apr 2021 |
<https://doi.org/10.1161/CIRCULATIONAHA.121.053461> |
Circulation. 2021;143:1831-1834

III . WHAT CAN WE DO?

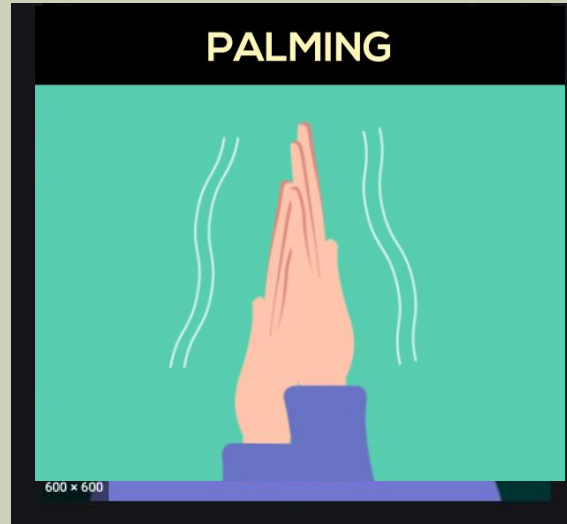


POSITIVE EFFECTS OF *VAGUS* ACTIVATION, LIFESTYLE TO MANAGE INFLAMMATION



BODY AWARENESS, A MATTER OF QUALITY OF LIFE

Mindfulness induces
vagal activation
allowing to **escape**
from the immune
« cytokine storm »



Eye yoga exercises will
reconnect you with the
whole body and lower the
tension in the neck. Gentle
breathing, footing, rooting



Self-esteem strategies by
concentration provide
shielding against different
sources of stress

Vagus activation : our main anti-inflammatory tool

...driving interoceptive signals, *via* the somatosensory pathways from the skin...

Where touch sensory signals are integrated in the interoceptive processing.

A taste or a smell you like,
as well as a view :
entertainment !



Last but not least, an affectionate touch...



TWO TYPES OF CONSEQUENCES OF THE UNANTICIPATED SOCIETAL CHANGES OF THE PANDEMIC / “SYNDEMIC” :

- ◆ AN INCREASE IN LONELINESS AND DEPRESSIVE STATES , BUT ALSO :
- ◆ POSITIVE THINKING ABOUT GETTING ON WITH LIFE IN A PEACEFUL WAY.

This could allow us some **unforeseen free time** for thinking, reading, reflecting, that we often so cruelly have missed.

Stay in closer contact with our more fundamental **values** that we might have **forgotten** about,

Caught by the rush of a non-stop flow of information, events, challenges...

MANAGING THE BALANCE OF



- Stress
Inflammation
- Cell
senescence
- Gut barrier
- Vagus
stimulation



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THANK YOU FOR
YOUR **ATTENTION**