

SESSION 9: BACK TO THE FUTURE: HOLISTIC APPROACH

Back to future: mind, soul and body: the thin line of connection

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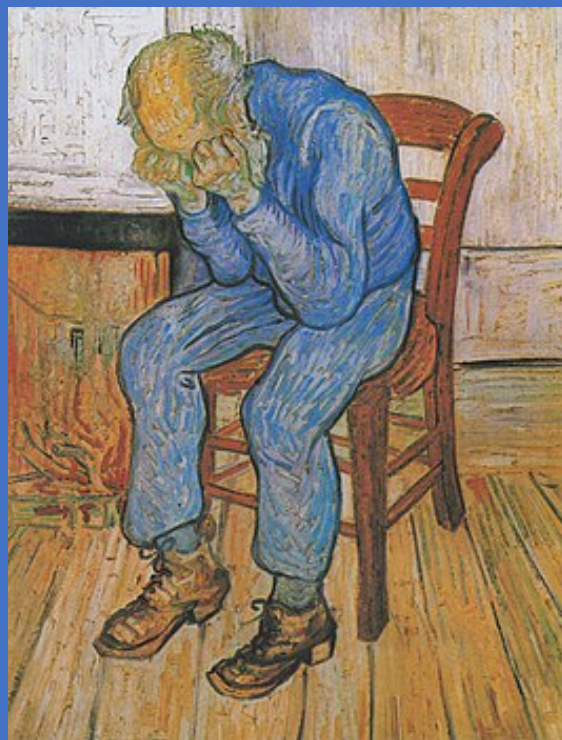
ART
Advanced Radiation Therapy

**Modern Radiation Oncology.
Innovation in personalised
oncology: back to the future**

33° RESIDENTIAL COURSE

9 | 10 | 11 October 2023





Vecchio che soffre, V. Van Gogh 1890

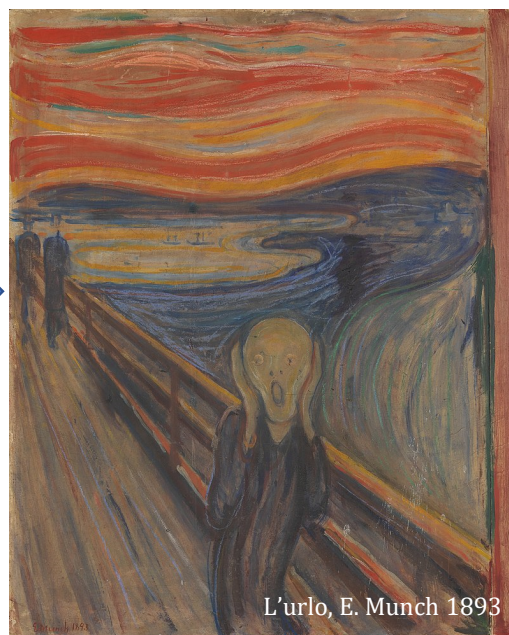


Il doppio segreto, R. Magritte 1927

Cancer and Trauma

- Cancer diagnosis and treatment are unique, long-term traumatic stressors
- The concept of cancer as an enduring risk is important given the potential for oncological treatments, disease relapse, progression and death

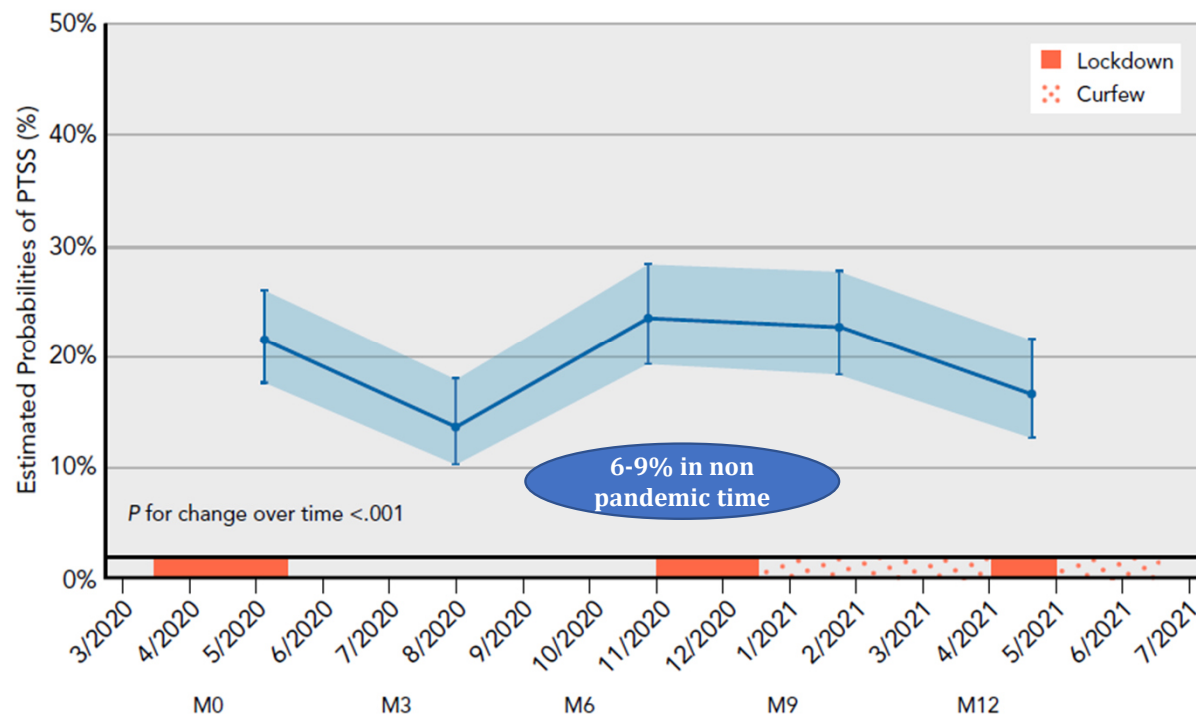
REACTION
?



PTSD

one-third of patients
(34.1%) who were
initially diagnosed
have persistent or
worsening PTSD 4
years later

Cancer and Trauma during pandemic



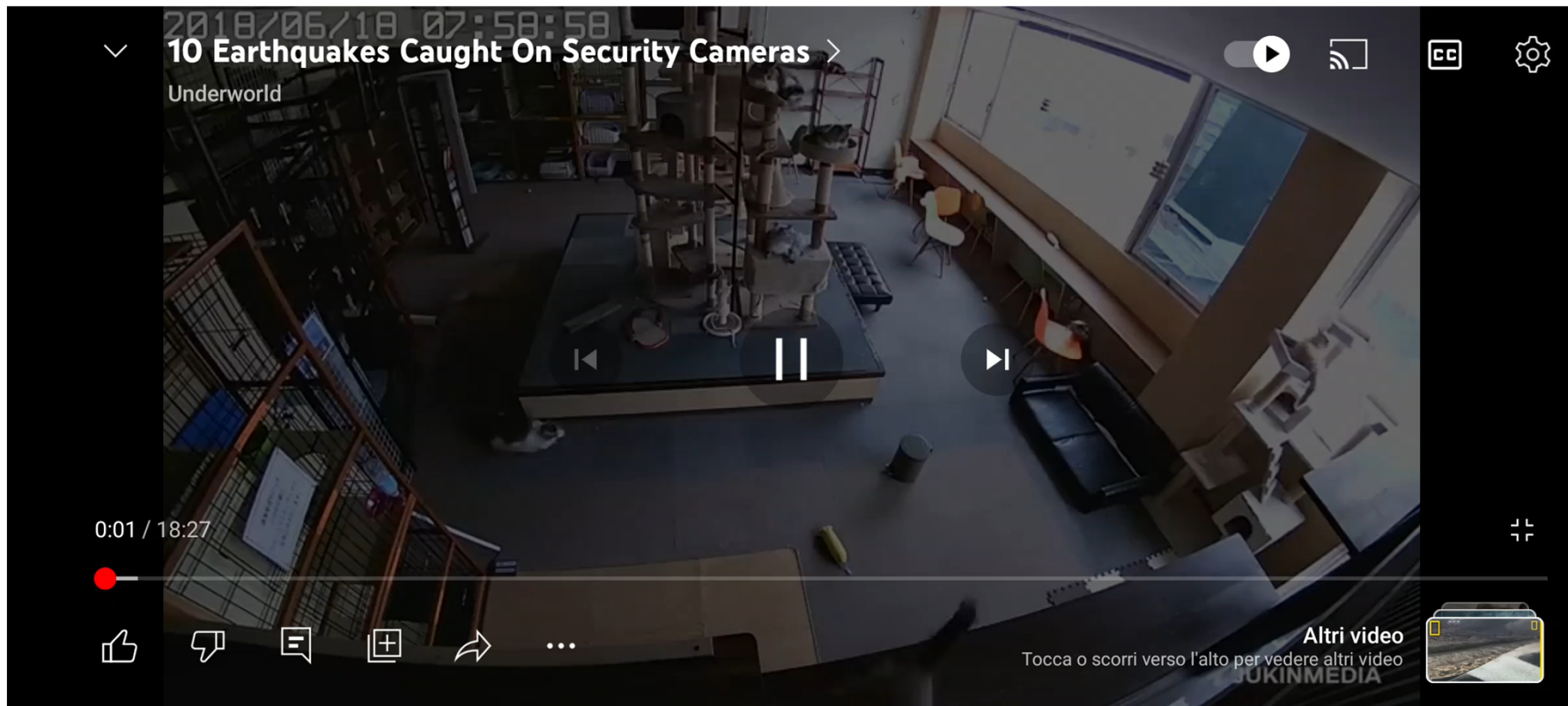
Bastien E, et al. J Natl Compr Canc Netw. 2023;21:265-272.e7. doi: 10.6004/jnccn.2023.7085.
 Cordova MJ, Riba MB, Spiegel D. Lancet Psychiatry. 2017;4:330-338. doi: 10.1016/S2215-0366(17)30014-7.

What is Post-traumatic Stress Disorder (PTSD)?

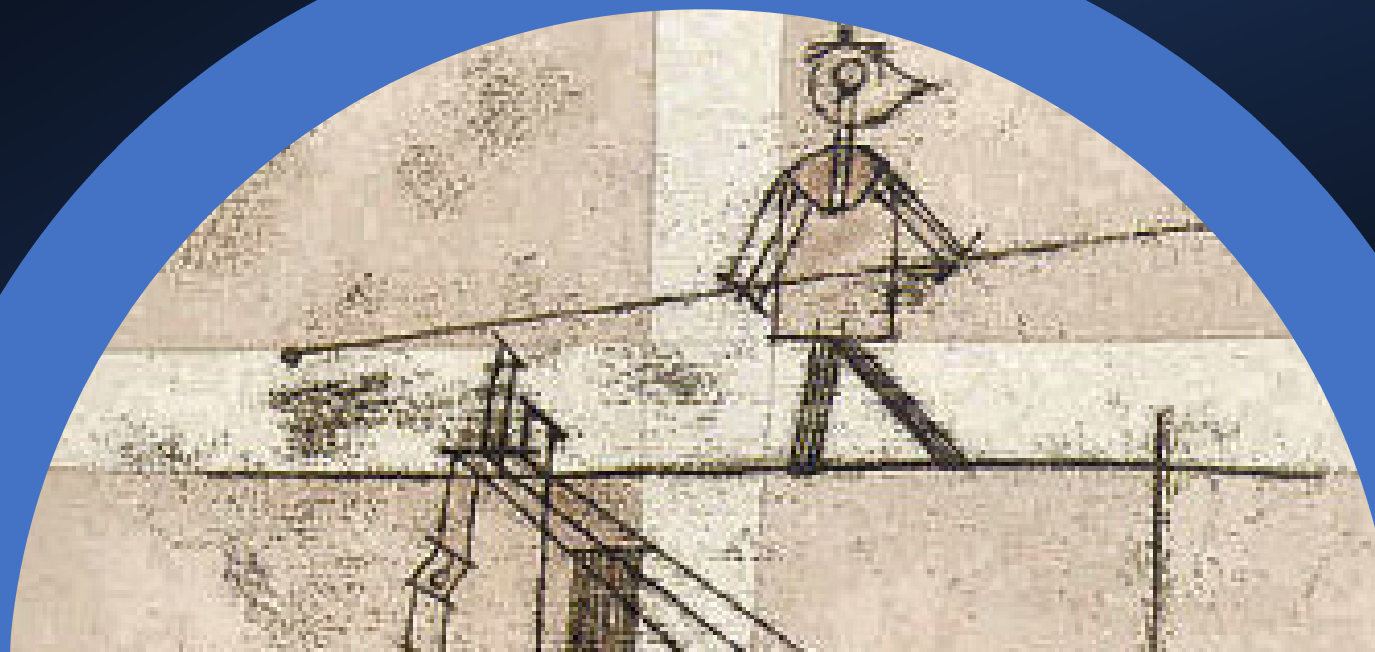
PTSD is a mental health condition that may be diagnosed by a professional when someone has experienced a **traumatic event or threatened death, serious injury, or sexual violence** and is having particular types of problems as a result.

- **Re-experiencing symptoms**
 - **Flashbacks** or intrusive thoughts about the traumatic event
 - Intense **physical or emotional reactions** to reminders of the event
 - **Nightmares**
- **Avoidance symptoms**
 - **Avoiding thinking** or talking about the trauma
 - **Avoiding people, places, activities or sensations** that remind you of the trauma
- **Negative changes in your thinking and emotions**
 - Feeling **more down, depressed, angry or anxious**
 - Finding it hard or **impossible to feel happy**
 - Feeling **shameful** or **guilty**
 - Feeling **distant** from other people
 - **Losing interest** in things you used to enjoy
 - Being unable to remember important parts of the trauma
 - **Having more negative thoughts** about yourself, other people and the world
- **Hyperarousal or emotional/physical reactivity**
 - Being **always on guard** and/or easily startled
 - Having **trouble concentrating**
 - Being quick to **anger** and **aggression**
 - Doing things that are risky (e.g., impulsive sex, binge drinking)
 - Having **trouble sleeping**

Cancer as an earthquake



Which could be the «thin line»?



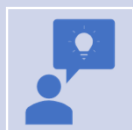
Il funambolo, P. Klee 1923



Polyvagal Theory



Polyvagal Theory helps us **understand how our body and brain work together to respond to stressors** that are a part of everyday life as well as experiences that are more significant, **such as trauma**.

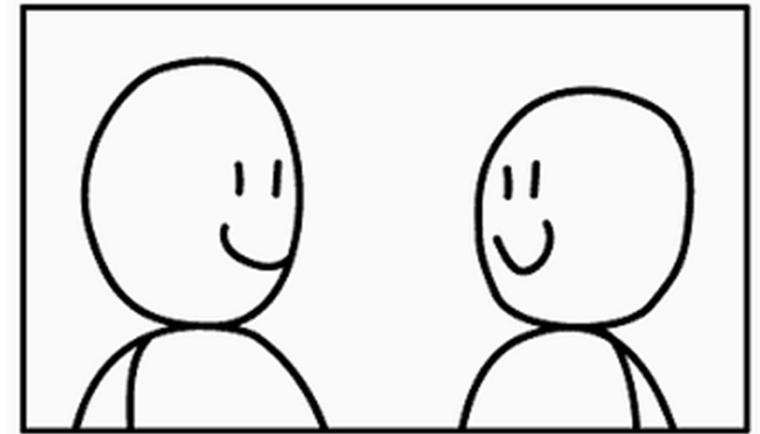


Developed by **Dr. Stephen Porges**, a **neuroscientist** and **psychologist**, in 1994.



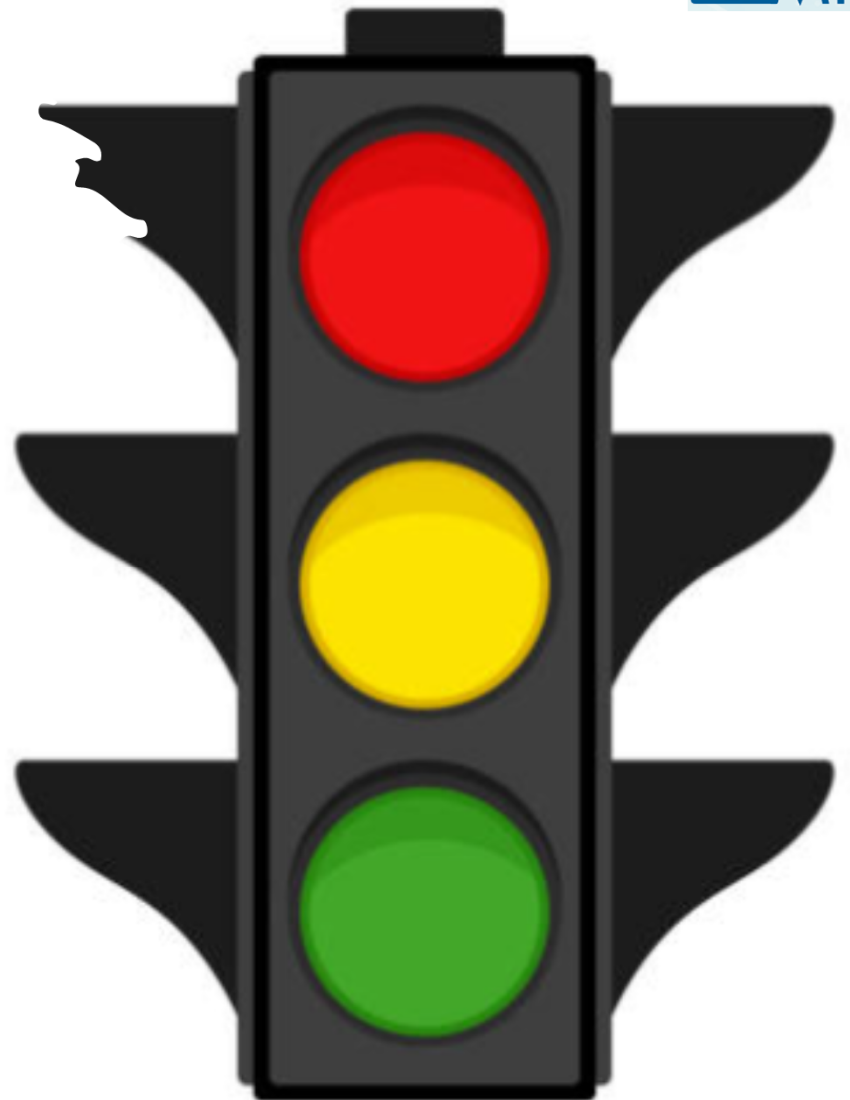
Explains the **autonomic nervous system role** in reactions to **trauma** with a **hierarchical phylogenetical model**

Understanding the **thin line between mind body and soul** will enable us to learn and experience **appropriate reactions** to the patient, congruent also with our nervous system and reactions



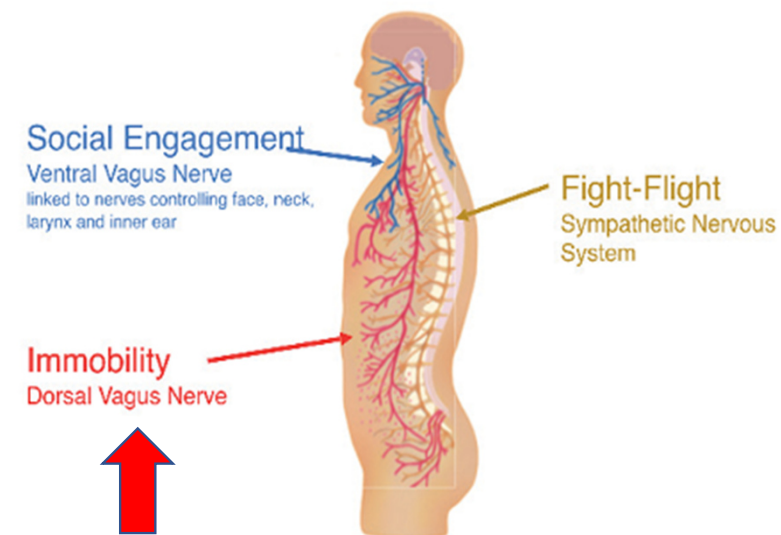
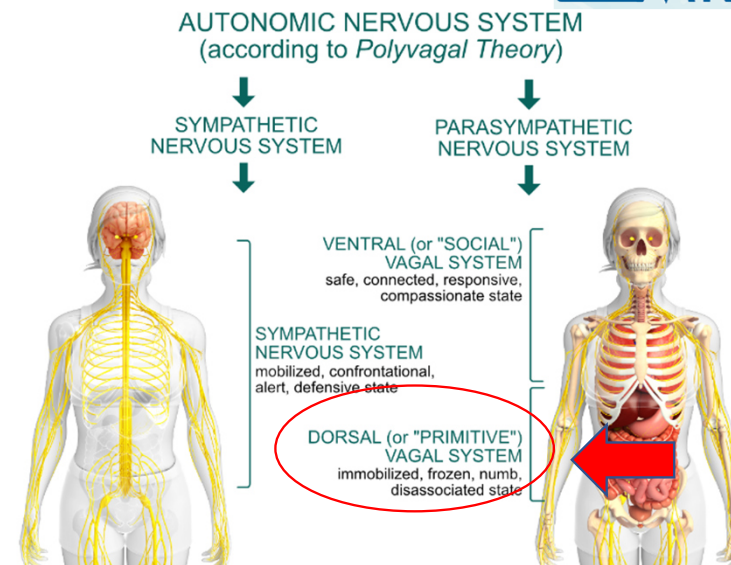
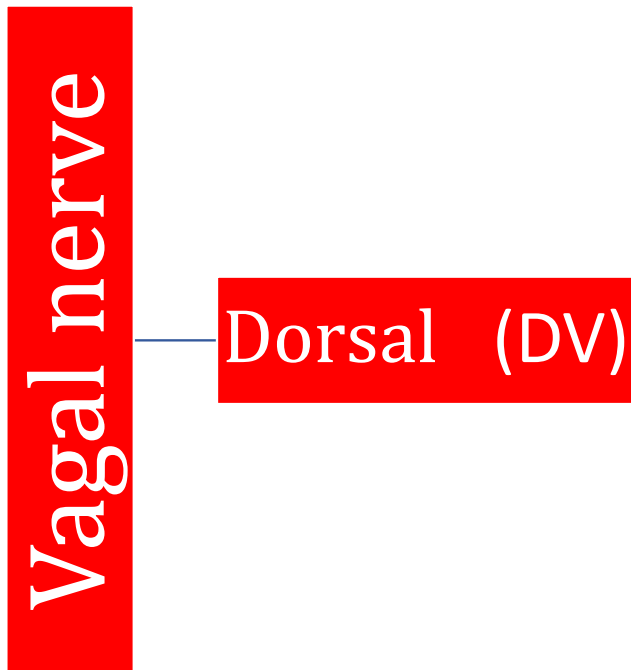
The hierarchy of ANS per PVT

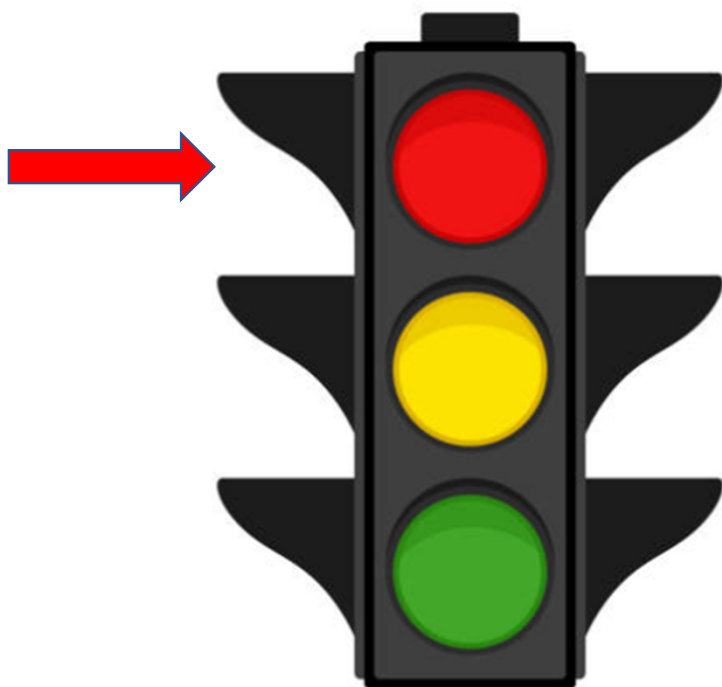
- The ANS responds to internal and external stimuli through three pathways
- Phylogenetic order:
- Dorso-vagal pathway – immobilization
- Sympathetic pathway - mobilization
- Vento-vagal pathway – social engagement



ANS

- The parasympathetic nervous system originates in the cranial nerves. The **vagus nerve (cranial nerve X)**, the longest cranial nerve, is the main component of the parasympathetic nervous system.
- Through the actions of the vagus nerve, the parasympathetic nervous system takes on both the role of an **immobilizing system** and a connecting system.
- In fact, the vagus is not a single nerve, but rather a **bundle of nerve fibers** interwoven together within a sheath.
- The vagus travels downward through the body, from the brainstem to the heart and stomach, and upward to the face, through its connections with other cranial nerves.





Overwhelming stimuli

Death threat= **cancer**

ANS enacts a very old response, activating the
vagus-dorsal nerve pathway
(dorso-vagal response)

Collapse of the response systems both in terms of
mobilization (flight/fight) and in a pro-social sense

feigned death: the person faints (dorso-vagal syncope)
or **dissociates**

faint

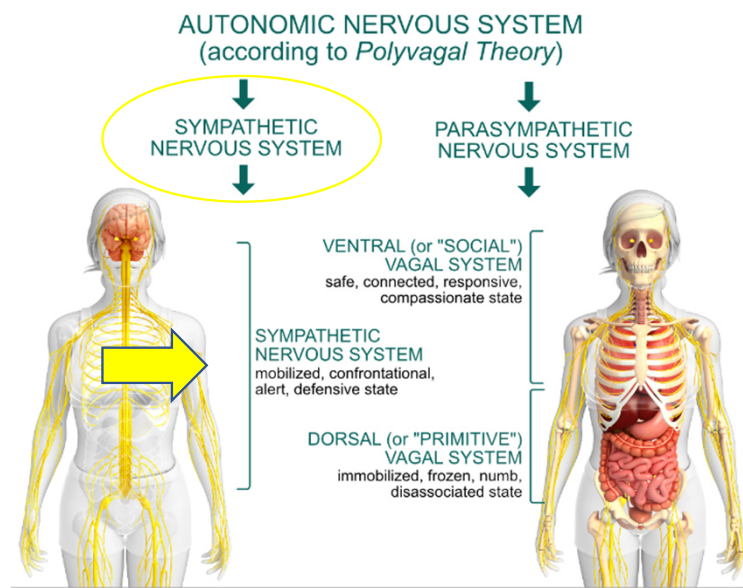




Lo svenimento in forma, E. van der Neer

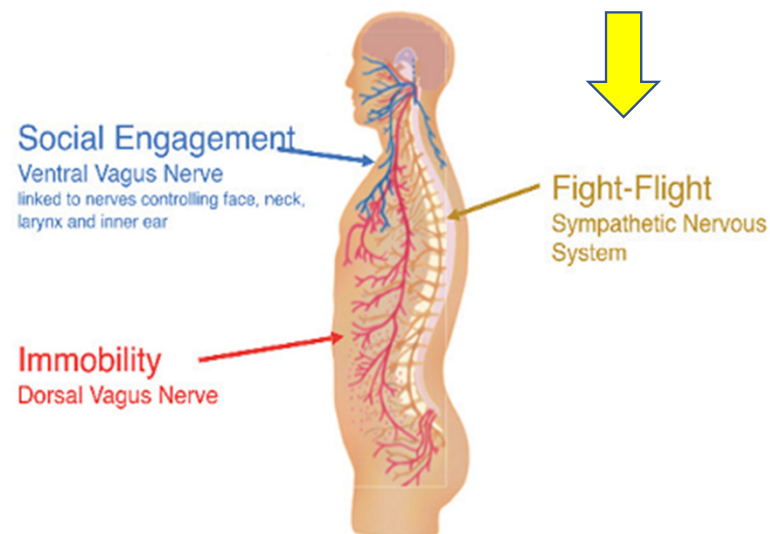
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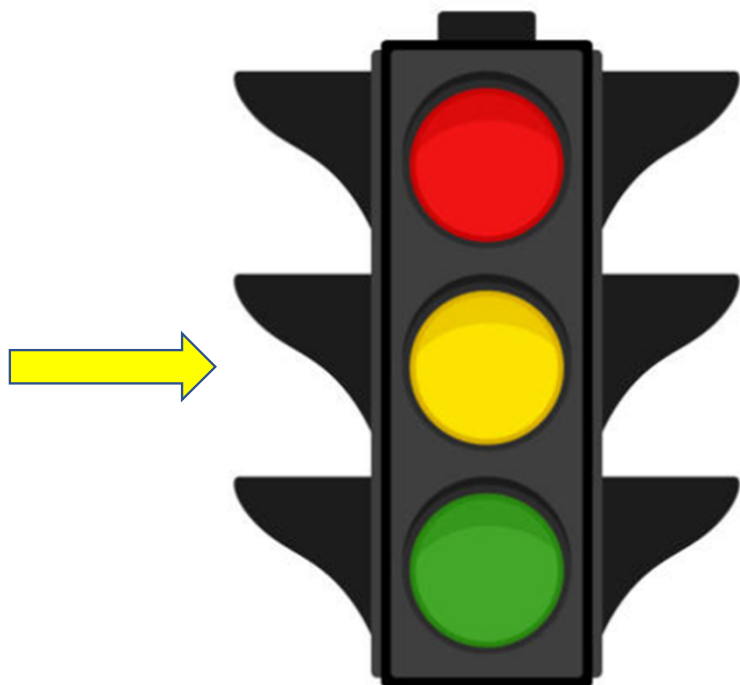
ANS



The **sympathetic nervous system** originates in the **thoracic** and **lumbar** regions of the spine and is our **mobilising system**.

Through the sympathetic adrenal medullary system (SAM) and the hypothalamic-pituitary-adrenal axis (HPA), the sympathetic nervous system prepares our body for action.





Pre-cognitively we interpret the stimulus as very dangerous.

The sympathetic autonomic nervous system intervenes, leading us to activate in two ways: **1. flight**; then, when this is not possible, we produce an attack on the stimulus/"predator." This response is primitive and is called **2. fight**.

Activation of the sympathetic nervous system occurs because the Social Engagement System have failed; since the SES is bypassed, the flight/fight response disregards the other: it is a **non-social** (anti-social) response.

This response ideally leads to **mobilization**.

flight





Battaglia di Aboukir, Antoine-Jean Gros



fight

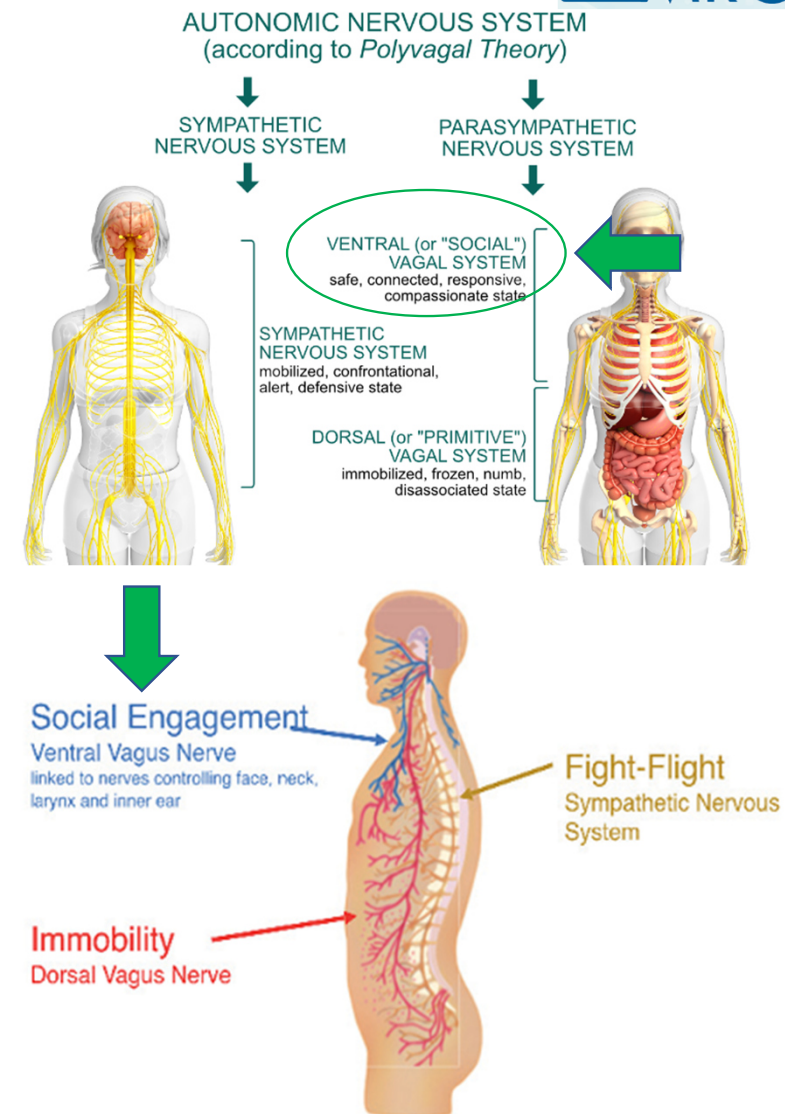
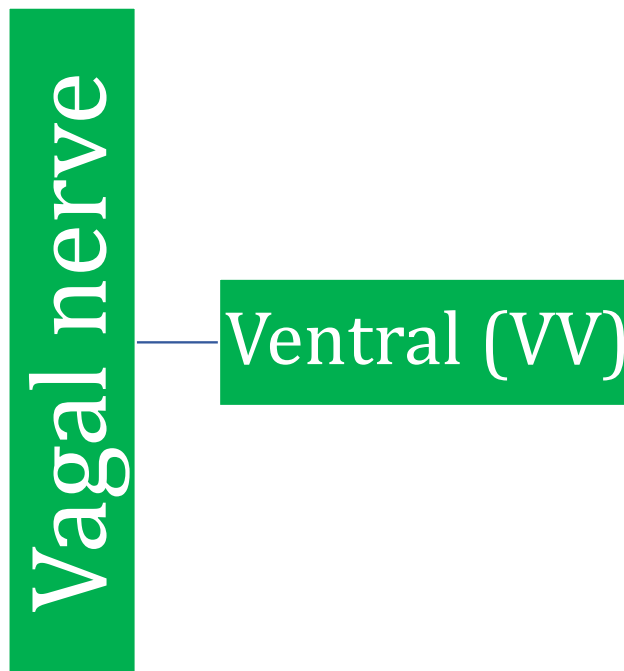


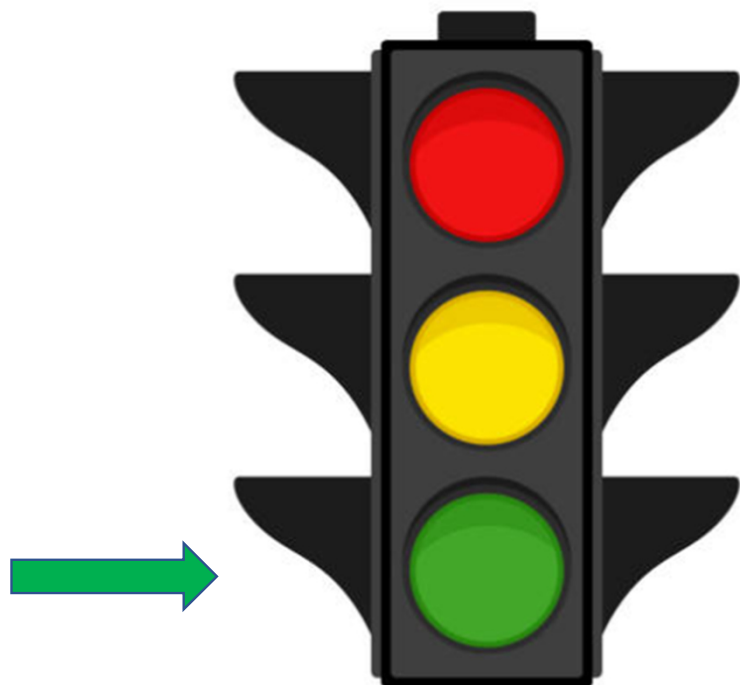


Duello rusticano, F. Goya 1823

ANS

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- In fact, the vagus is not a single nerve, but rather a **bundle of nerve fibers** interwoven together within a sheath.
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Nonthreatening or moderately activating stimulus: the **ventral vagus nerve** is involved, which innervates the muscles of the more expressive upper part of the face and the supra-diaphragmatic organs.

This circuit is called the **Social Engagement System (SES)**, and it represents the social response of the autonomic nervous system. Through the SES, we seek eye and somatic contact with the other, which allows us to modulate our neurophysiological state from contact with the stimulus itself (be it a man, a woman, an animal, etc.).

Stillness without fear, that is, a state of tranquility in the presence of the other.

Socially appropriate response in the presence of any stimulus in the course of our daily lives.

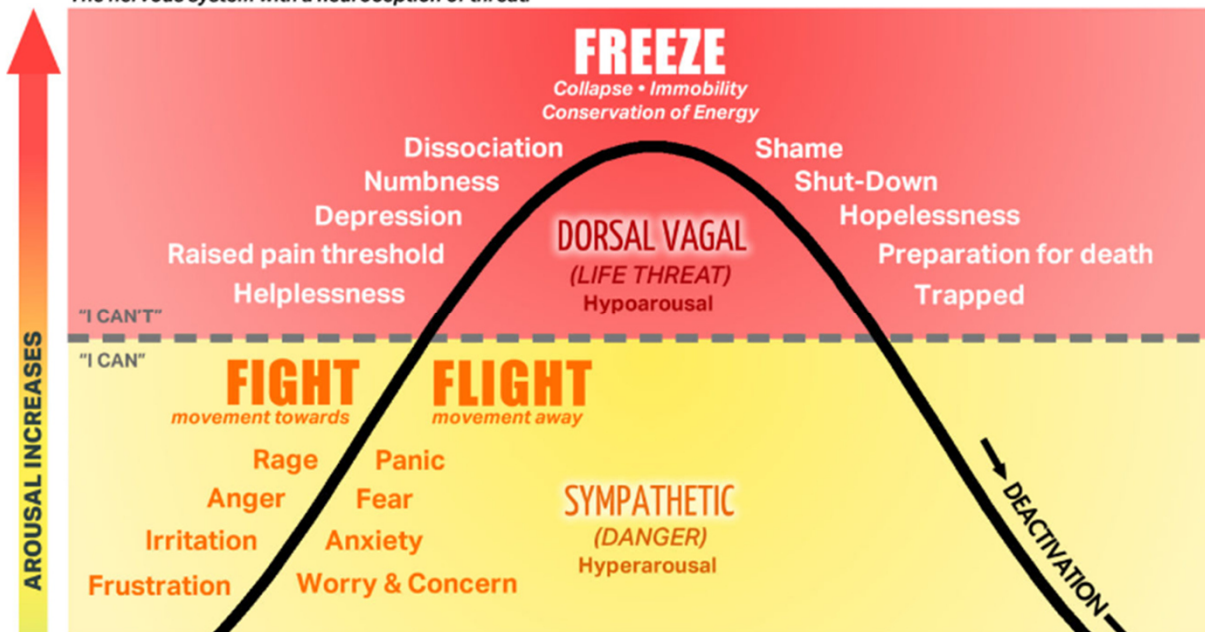




La colazione dei canottieri, P.A. Renoir 1881

POLYVAGAL CHART

The nervous system with a neuroception of threat:



PARASYMPATHETIC NERVOUS SYSTEM

DORSAL VAGAL COMPLEX

Increases

Fuel storage & insulin activity • Immobilization behavior (with fear)
Endorphins that help numb and raise the pain threshold
Conservation of metabolic resources

Decreases

Heart Rate • Blood Pressure • Temperature • Muscle Tone
Facial Expressions & Eye Contact • Depth of Breath • Social Behavior
Attunement to Human Voice • Sexual Responses • Immune Response

SYMPATHETIC NERVOUS SYSTEM

Increases

Blood Pressure • Heart Rate • Fuel Availability • Adrenaline
Oxygen Circulation to Vital Organs • Blood Clotting • Pupil Size
Dilation of Bronchi • Defensive Responses

Decreases

Fuel Storage • Insulin Activity • Digestion • Salivation
Relational Ability • Immune Response

The nervous system with a neuroception of safety:



VVC is the beginning and end of stress response.
When VVC is dominant, SNS and DVC are in transient blends which promote healthy physiological functioning.

PARASYMPATHETIC NERVOUS SYSTEM

VENTRAL VAGAL COMPLEX

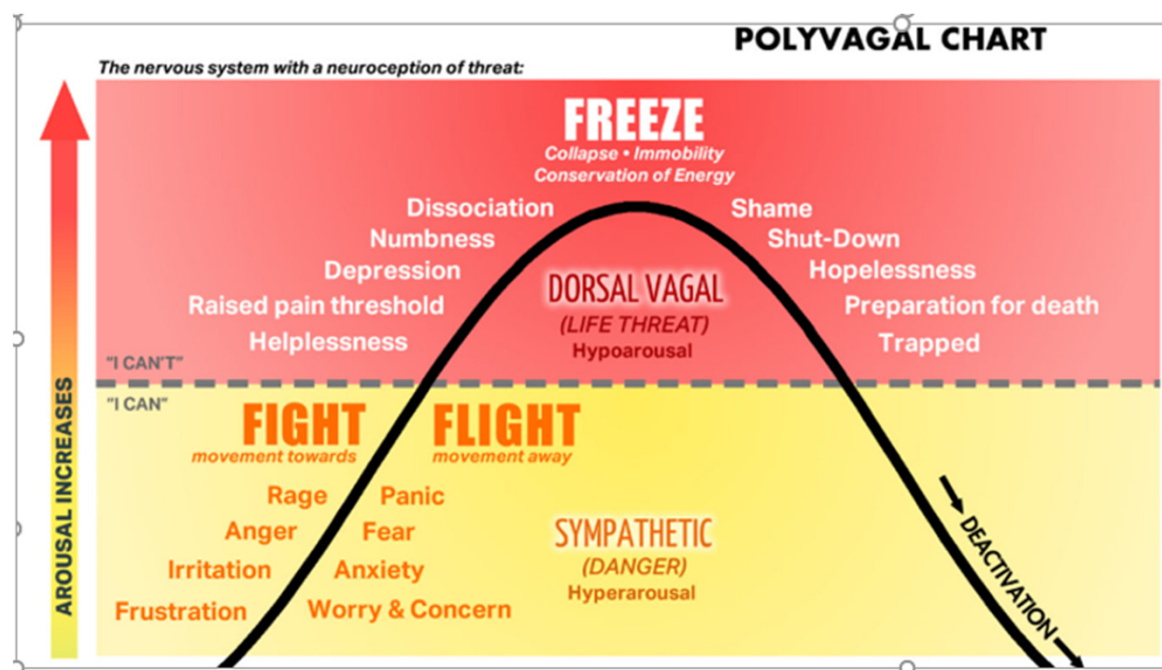
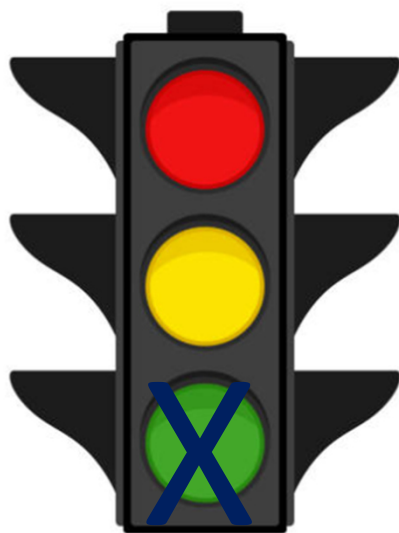
Increases

Digestion • Intestinal Motility • Resistance to Infection
Immune Response • Rest and Recuperation • Health & Vitality
Circulation to non-vital organs (skin, extremities)
Oxytocin (neuromodulator involved in social bonds that allows immobility without fear) • Ability to Relate and Connect
Movement in eyes and head turning • Prosody in voice • Breath

Decreases

Defensive Responses

What happens in cancer patients?



The impact of cancer trauma on patients

- Trauma **sidetracks** the development of autonomic regulation
- Trauma **interrupts** opportunities to exercise the neural circuitry of connection
- Trauma replaces **patterns of connection** with **pattern of protection**
- **Adaptive survival responses replace social engagement**
- Self-regulation is ineffective/inadequate
- Co-regulation is unavailable/dangerous



Sala dei Giganti, Palazzo Te Mantova



Trauma: excessive demand on the shoulders of the human physiological system (R. Macy)

- Trauma and ANS are inextricably linked.
- In the absence of continuous opportunities to be anchored to the safety systems and appropriate exercise of neural activation/inhibition circuits, the ability of the ANS to make contact, to keep distance and keep-in-touch is compromised.

What
healthcare
professionals
can do?



G. Bellini, Pietà 1470

Ventro vagal/Safe/Social

✓ Sympathetic/Mobilized/Flight-fight

• Dorso vagal/Collapsed/Immobilized

...personalize...for ourselves



At work

- 1. Recognize your physiological response to stress/to patients' behavior.**
- 2. Identify triggers:** by identifying your triggers, you can better understand what situations or stimuli might activate your stress response and work to avoid or manage them.



Everyday life

- 1. Practice self-regulation:** self-regulation is the ability to manage emotional state and physiological responses to stressors.
Slow, diaphragmatic breathing, gentle touch, and engaging in activities that promote relaxation, such as yoga or meditation.
- 2. Build social connections:** building positive social connections can help us feel safe and secure, which can reduce stress and soothe our nervous system.

...personalize...for patients

Create a *safe* environment



1

A space who welcomes
ANS: sound, temperature,
nature

2

Instill confidence

3

Give signals to patients by
means of VV

Showing safety signals promotes resilience
(S. Porges)

Semi di Gratitude

7 Aprile 2020



Un tempo difficile questo, soprattutto per i compleanni. Uno dei nostri piccoli pazienti ci ha raccontato che era triste perché non poteva fare una festa. Tirare fuori energie e tempo in più, può realizzare piccoli miracoli. «ma davvero mi cantate tanti auguri?» «Sì!» E l'ha ascoltata anche durante la sua terapia, e poi è arrivato il suo «GRAZIE!!», anche con gli occhi.

Vi ringrazio e abbraccio con tutto il mio cuore, per la vostra presenza e tutti quelli che deducete con la vostra presenza, sempre desiderando essere qui e dire se è la foto, lo scatto.



È stato per me importante, in questi "avvicinati radioterapia" sentire anche con affetto, gentilezza e tanto amore. Un abbraccio dello Squadra.

Semi di Gratitude



Semi di Gratitude ...

15 Luglio 2020

...DAL PERSONALE

Durante la fase lockdown COVID-19 si è ritenuto utile monitorare la temperatura corporea di pazienti e personale sanitario ogni giorno. Dove? al *banchetto*.

Memorie di un *banchettista* in Radioterapia

"Solo stasera facendo ho capito che presidiare quella postazione era qualcosa di enormemente prezioso, un'esperienza per **accogliere** tutti i pazienti, non solo i tuoi. Ho scoperto quanto è facile instaurare un rapporto con le persone, attraverso piccoli gesti anche quelli più banali e superflui".

Ho dato del tu a tutti, non so se professionalmente sia corretto, ma ho chiesto il permesso con i più riservati... posso dirvi che tutti hanno apprezzato quel registro più "confidenziale". Una barriera la mascherina, niente sorrisi, con le difficoltà d'udito una vera missione... Sicuramente stimolante, ha esaltato l'importanza del **linguaggio degli occhi**, più loquace di tante parole.



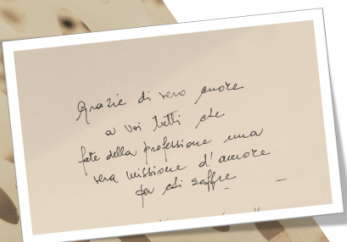
Con le persone più spaventate e ostili... difficili! Diventi una specie di "ammortizzatore", ma dopo qualche giorno anche loro si presentavano al banchetto sorridendo. Nonostante ci mettano alla prova i pazienti mal disposti nei confronti degli ospedali e dei sanitari, è possibile riempire quello spazio del nostro impegno ad ascoltare e "ammortizzare" il loro e il nostro disagio con la nostra **gentilezza**.

Quel periodo, per me, stare al banchetto è stato un vero piacere!

Semi di Gratitude

22 Luglio 2020

Poche parole, semplici e dirette che guardano all'essenza della nostra professione ... e al *per chi* ogni giorno operiamo



Grazie di vero cuore a Voi tutti, per l'arte della professione e una vera missione d'amore per chi soffre.

Semi di Gratitude

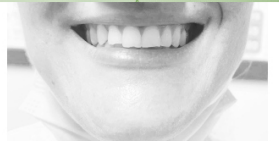
5 Agosto 2020



Staff San Antonio

Roma, 31 Luglio 2020

Grazie mille per avermi accompagnata in questo viaggio sempre con un sorriso!



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Semi di Gratitude

Gemelli ART
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2020

Psychologists: instill self-confidence

- To utilize the resources of the VV in order to recruit circuits that support prosocial behaviors and social engagement.
- The social engagement system is the **connection between the face and the heart**, created by the VV (heart), striated facial and head muscles that control how we look, listen, and speak.
- **Smile, eye contact, soft touch, reassurance**

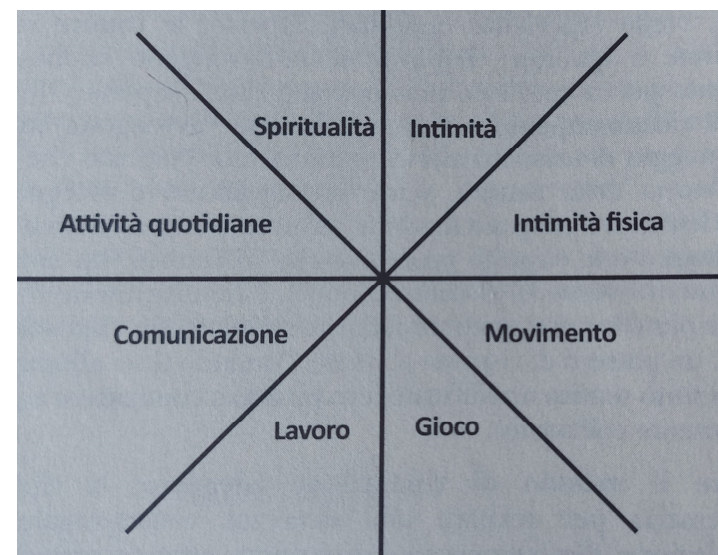


Psychologists role

A polyvagal approach to psychotherapy follows the rule of the **4 Rs**:

- **R**ecognize the autonomic state.
- **R**espect adaptive survival responses.
- **R**egulate or co-regulate toward a VV state.
- **R**einterpret the narrative.

Pattern of Connection



From "Polyvagal Theory in Therapy" by Deb Dana©

Trauma versus
post-traumatic growth
 and **resilience**
 the other side of the same coin

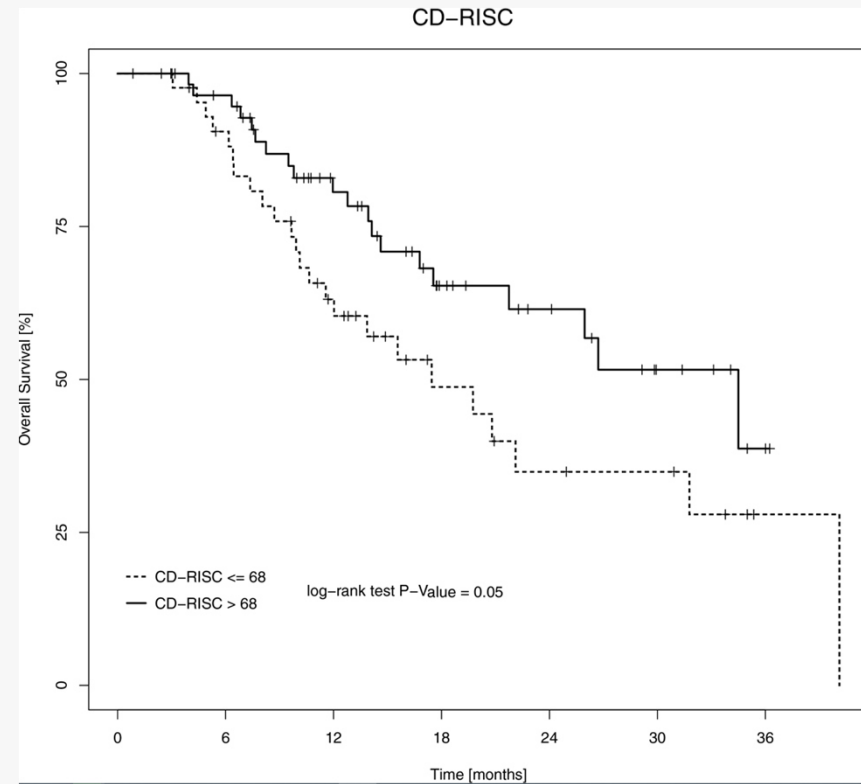


Dinapoli L. et al. RESILIENCE, SPIRITUAL WELL-BEING, PSYCHOLOGICAL
 PROFILES AND SURVIVAL OUTCOMES IN A SAMPLE OF ITALIAN
 GLIOBLASTOMA PATIENTS UNDERGOING RADIOTHERAPY - Under minor
 revisions *J Relig Health*

HEALTH PSYCHOLOGY REPORT · 2023
 ORIGINAL ARTICLE

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1 · A,B,E	1,2 · A,D,E

*Post-traumatic growth in oncological patients
 during the COVID-19 pandemic*



**Cues of danger outweigh
the cues of safety**

Survival
response/defensive
patterns

Stuck in a story

No change

Discomfort, mental
suffering



**Cues of safety outweigh
the cues of danger**

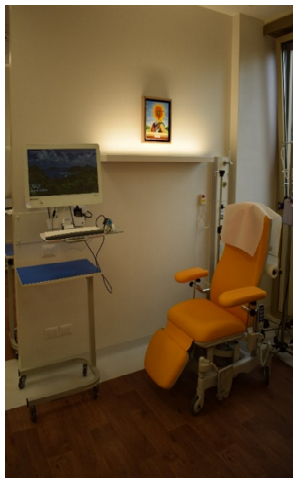
Connection is
possible

New stories emerge

Change happens

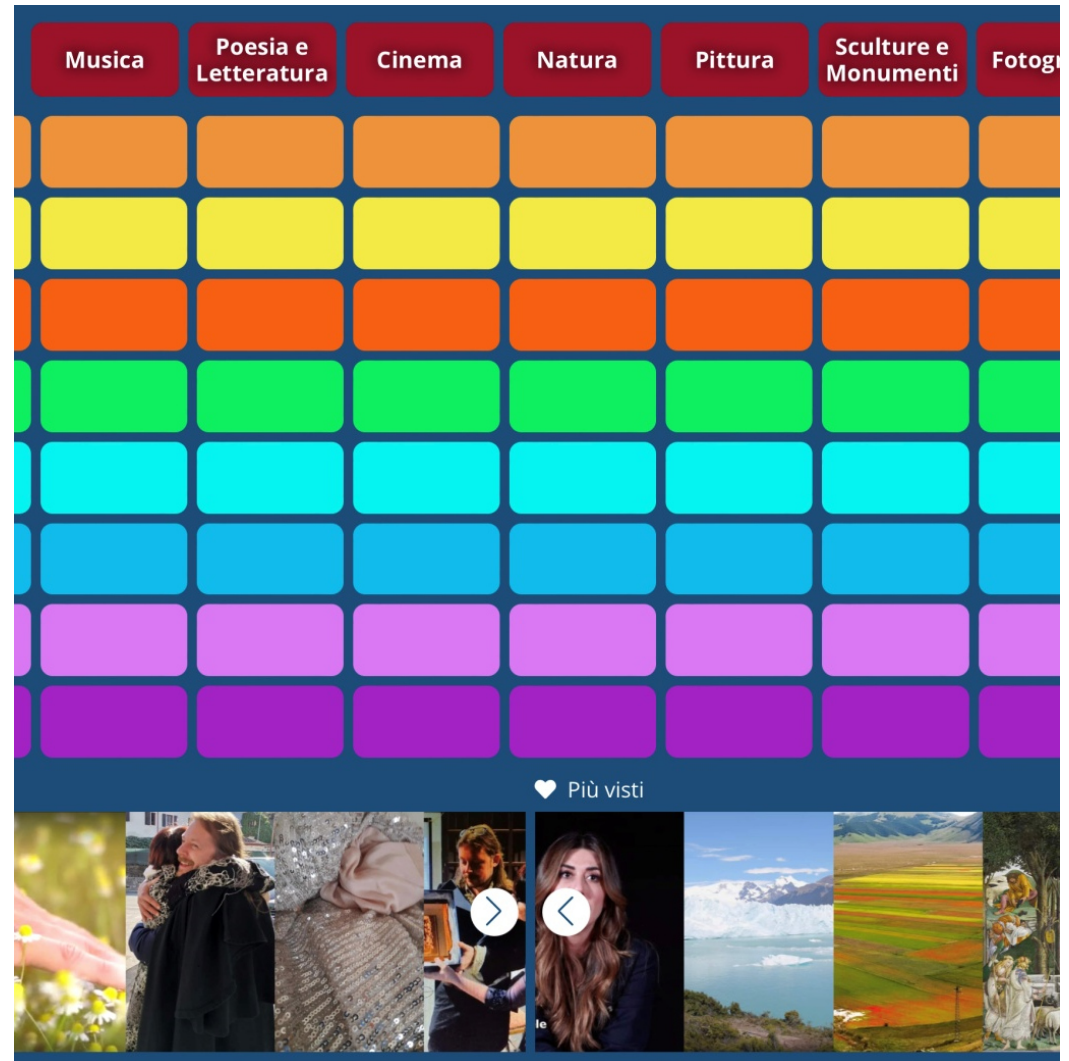
Possible wellbeing

MRO . ART





Musica Amica Mia



Piattaforma Art4ART

A 3D rendered woman with long, dark hair, wearing a white, form-fitting top, holds a glowing blue globe of the Earth in her hands. The background is a complex collage of various images, including abstract patterns, scientific diagrams, and colorful textures. The overall aesthetic is futuristic and digital.

Thank you for your attention!