PRISON YOGA PROJECT

Trauma, Panic & Anxiety Management through Yoga

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Who am I?

- European Director of Programs Prison Yoga Project
- Founder of Trauma-Adapted Yoga Scandinavia (TAY)
- Over 20 years working internationally in trauma-informed yoga
- Research-based implementation in psychiatry, prisons, and social services
- Author, trainer, and speaker

Yogas impact on incarcerated individuals' behaviour and mental health

- Increased level of **impulse control** (Kerekes et al., 2017)
- **Decreased** level of **antisocial behaviours** (Kerekes et al., 2017), and **paranoid ideations** (Sfendla et al., 2018)

- **Increase in positive and decrease negative emotional states** (Bilderbeck et al., 2013; Kerekes et al., 2017)
- **Sustained attention** (Kerekes et al., 2017)
- **Decreased depression, anxiety and obsession** (Michalsen et al., 2012; Sfendla et al., 2018)
- Increased **character maturity** (Kerekes et al., 2019)

TAY's positive effects on forensic psychiatry patients' behaviour and mental health 2024 and 2025

- Increased **control of emotions and behaviours** (impulses)
- Decreased level of **hostility** and **paranoid ideations**

- Decrease **negative emotional states**
- Decreased **anxiety, phobic anxiety** and **interpersonal sensitivity**
- Decreased **pain intensity** and **frequency**
- Increased **character maturity**

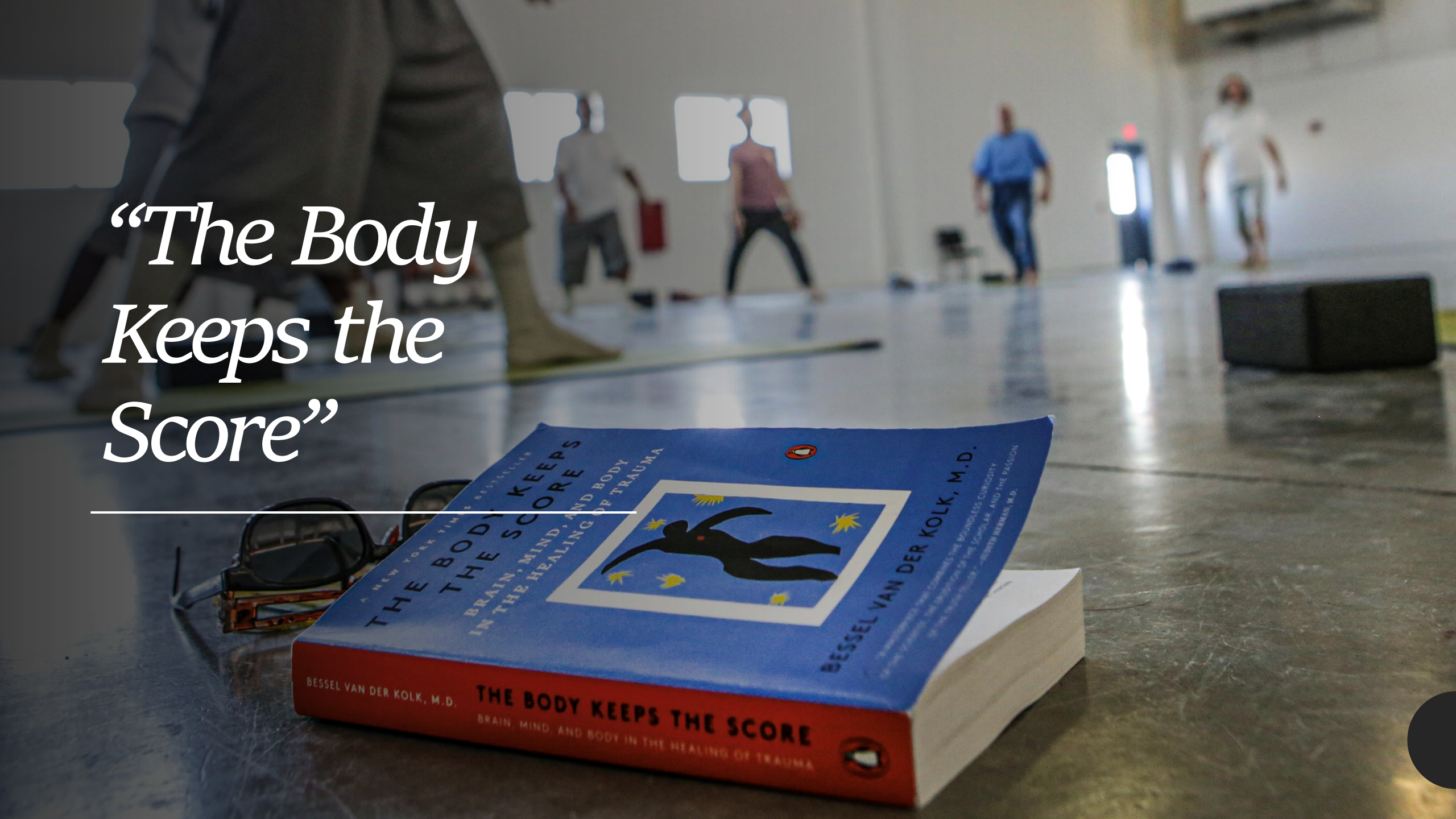
Why yoga for trauma?

- Regulating the **autonomic nervous system**, decreasing sympathetic tone
- Subsequent effect on the **limbic system** and **hypothalamic-pituitary axis** leading to a **reduction** in blood **cortisol** levels
- Neuroanatomical changes, brain functional connectivity, and activity - improving **sleep**, improving cortical controls, and social functioning
- Plasma levels of **oxytocin** are higher in people after practice of yoga-improved mood
- Influence of gamma-aminobutyric acid **(GABA),** increased **serotonin**, decreased **catecholamines** - improved emotional and impulse control, mood

Anxiety-

"A stress response designed for movement"

“The Body Keeps the Score”



Anxiety Attack, Panic Attack, vs Trauma Trigger What's the Difference?

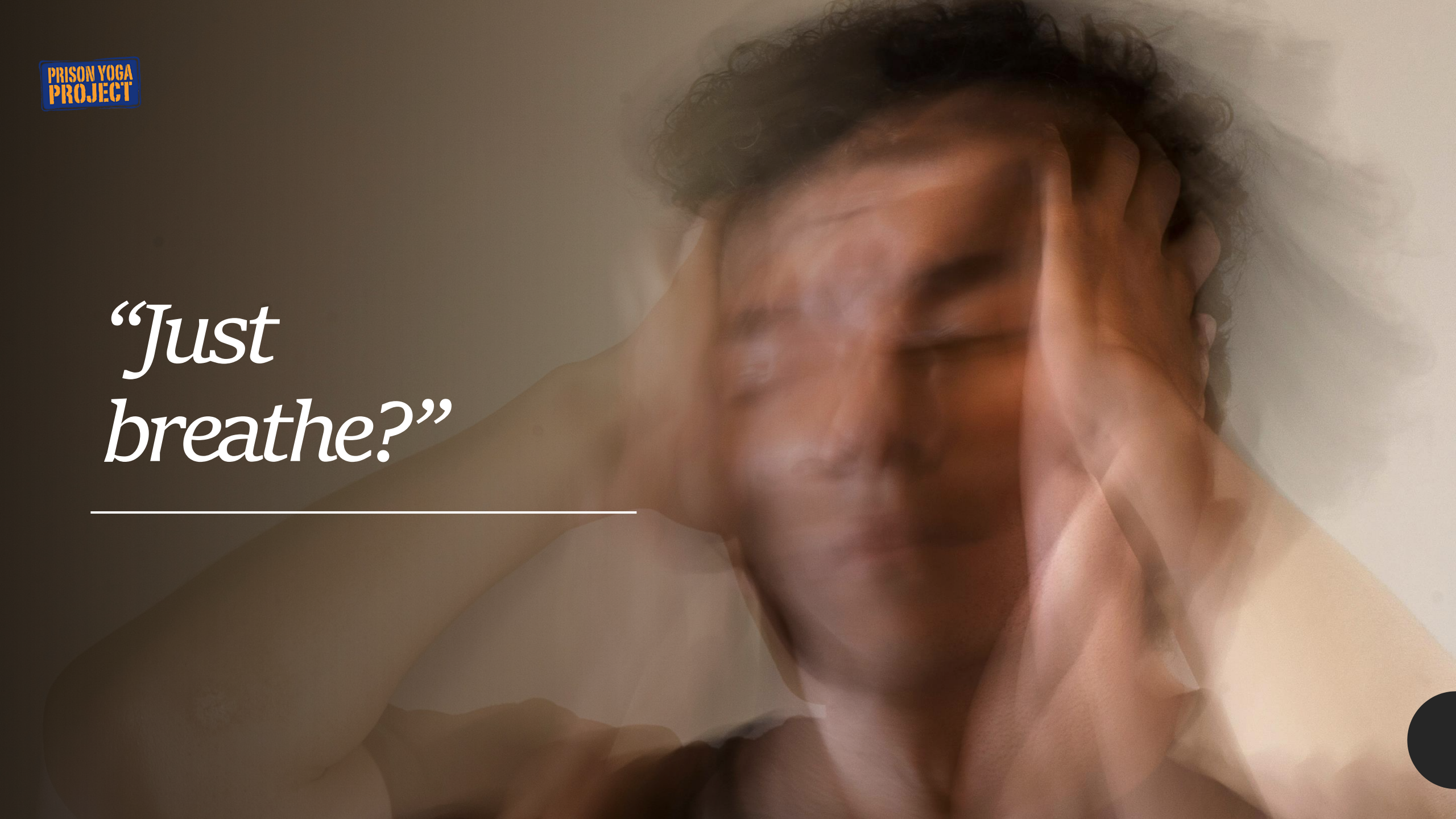
Comparison – Triggers

•Anxiety Attack: Response to a clear stressor

•Panic Attack: Can occur without any obvious cause

•Trauma Trigger: Reminder of a previous traumatic experience

•**Intensity:** Can vary from mild to extreme, depending on the person's state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“Just
breathe?”

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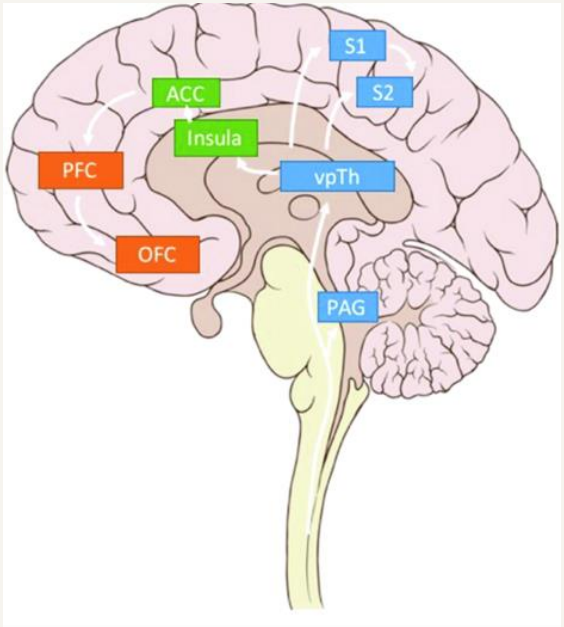
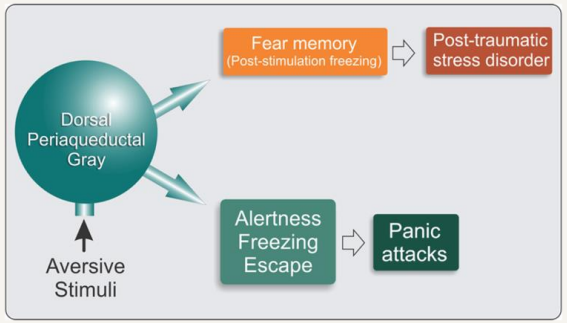
Periaqueductal grey (PAG)





Kearney BE, Corrigan FM, Frewen PA, Nevill S, Harricharan S, Andrews K, Jetly R, McKinnon MC, Lanius RA (2023). ***A randomized controlled trial of Deep Brain Reorienting: A neuroscientifically guided treatment for post-traumatic stress disorder.*** *European Journal of Psychotraumatology. June 2023 14(2):2240691 DOI:10.1080/20008066.2023.2240691*

Rhythmic Movement

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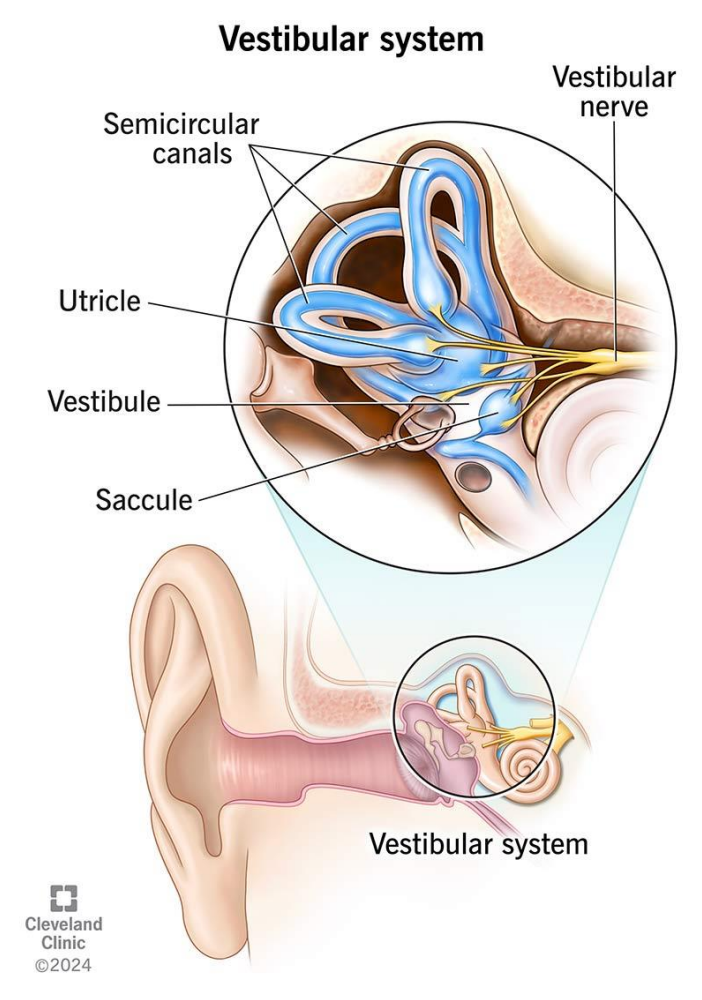
Large muscle groups and anxiety



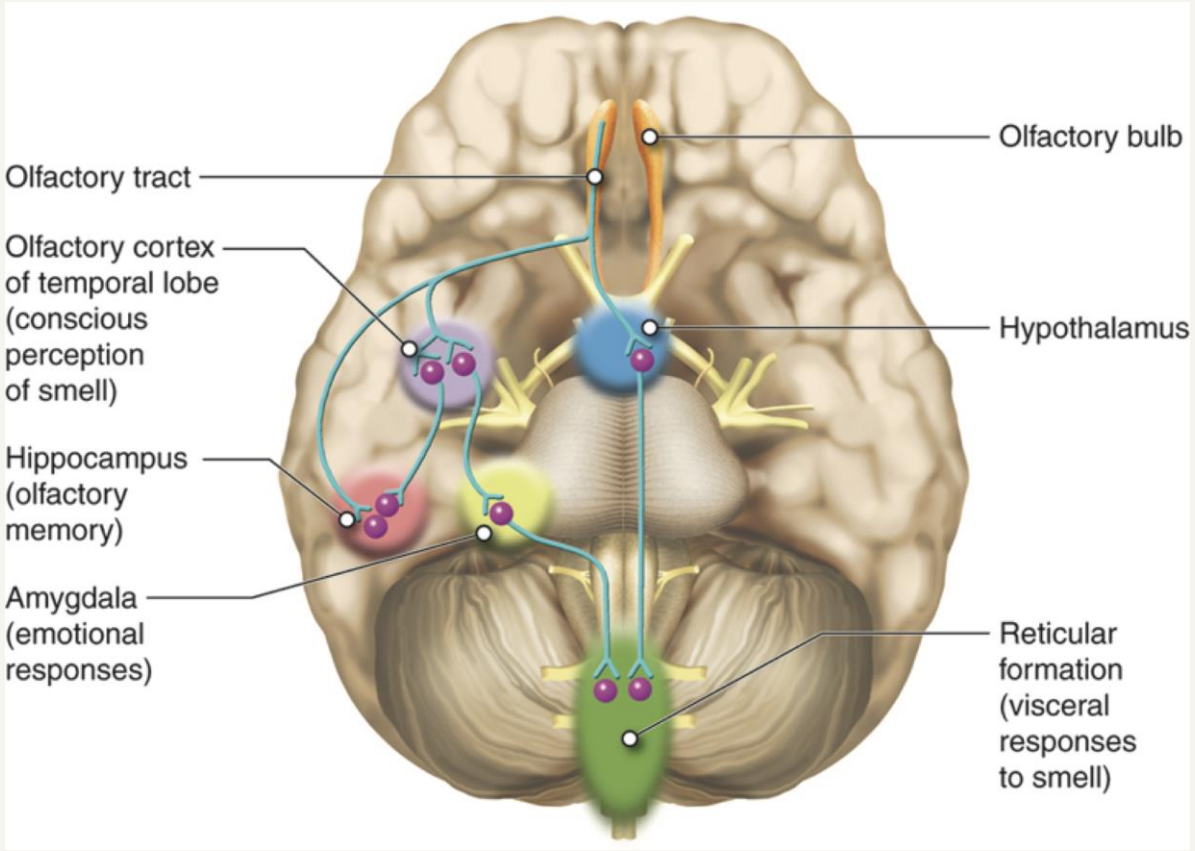
The vestibular system is a sensory system located in the inner ear, essential for balance, posture, spatial orientation, and eye movements.

It begins developing early in the fetal stage and forms a foundational basis for **sensorimotor learning**, **affect regulation**, and **safe exploration of the environment**.

The vestibular system interacts with vision, proprioception, the cerebellum, brainstem, insula, and prefrontal cortex – and plays a crucial role in **arousal regulation** and **attention**.

Rabellino, D., Densmore, M., Théberge, J., McKinnon, M. C., & Lanius, R. A. (2022). The brain-body disconnect: A somatic sensory basis for trauma-related disorders. *Frontiers in Neuroscience*, 16, 1015749. https://doi.org/10.3389/fnins.2022.1015749

Fear memory stored via our senses



Silvas-Baltazar, M., López-Oropeza, G., Durán, P., & Martínez-Canabal, A. (2023). Olfactory neurogenesis and its role in fear memory modulation. *Frontiers in Behavioral Neuroscience, 17*, Article 1278324. https://doi.org/10.3389/fnbeh.2023.1278324

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Brain predictions

Olfactory enrichment

All types of sensory stimulation can support cognitive health, but olfactory stimulation offers a unique advantage:

The olfactory system is the only sensory system directly connected to the limbic system – the part of the brain responsible for memory, emotion, and behavioural regulation.

Cognitive function

Scents may enhance olfactory function, increase grey matter volume in brain regions such as the hippocampus, and improve cognition in older adults.
A recent study tested whether exposure to scents during sleep at home could boost cognitive performance in healthy older adults aged 60–85.
Participants were exposed to a different essential oil each week for two hours every night over a six-month period.

Results: The scent-enriched group showed a remarkable 226% improvement in verbal learning and memory compared to the control group.
Note: While the study had a small sample size, the results are promising and suggest a simple, low-cost method to support brain health in ageing.

Woo CC, Miranda B, Sathishkumar M, Dehkordi-Vakil F, Yassa MA, Leon M. Overnight olfactory enrichment using an odorant diffuser improves memory and modifies the uncinate fasciculus in older adults. Front Neurosci. 2023 Jul 24;17:1200448. doi: 10.3389/fnins.2023.1200448. PMID: 37554295; PMCID: PMC10405466.

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Thank you!

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References

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Kerekes., N. (2021) Yoga as Complementary Care for Young People Placed in Juvenile Institutions—A Study Plan. *Front. Psychiatry* 12:575147. doi: 10.3389/fpsyt.2021.575147Kerekes, N. (2024). Exploring the impact of trauma-adapted yoga in forensic psychiatry. **Psychiatry Research, 335**, 115879. https://doi.org/10.1016/j.psychres.2024.115879

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