

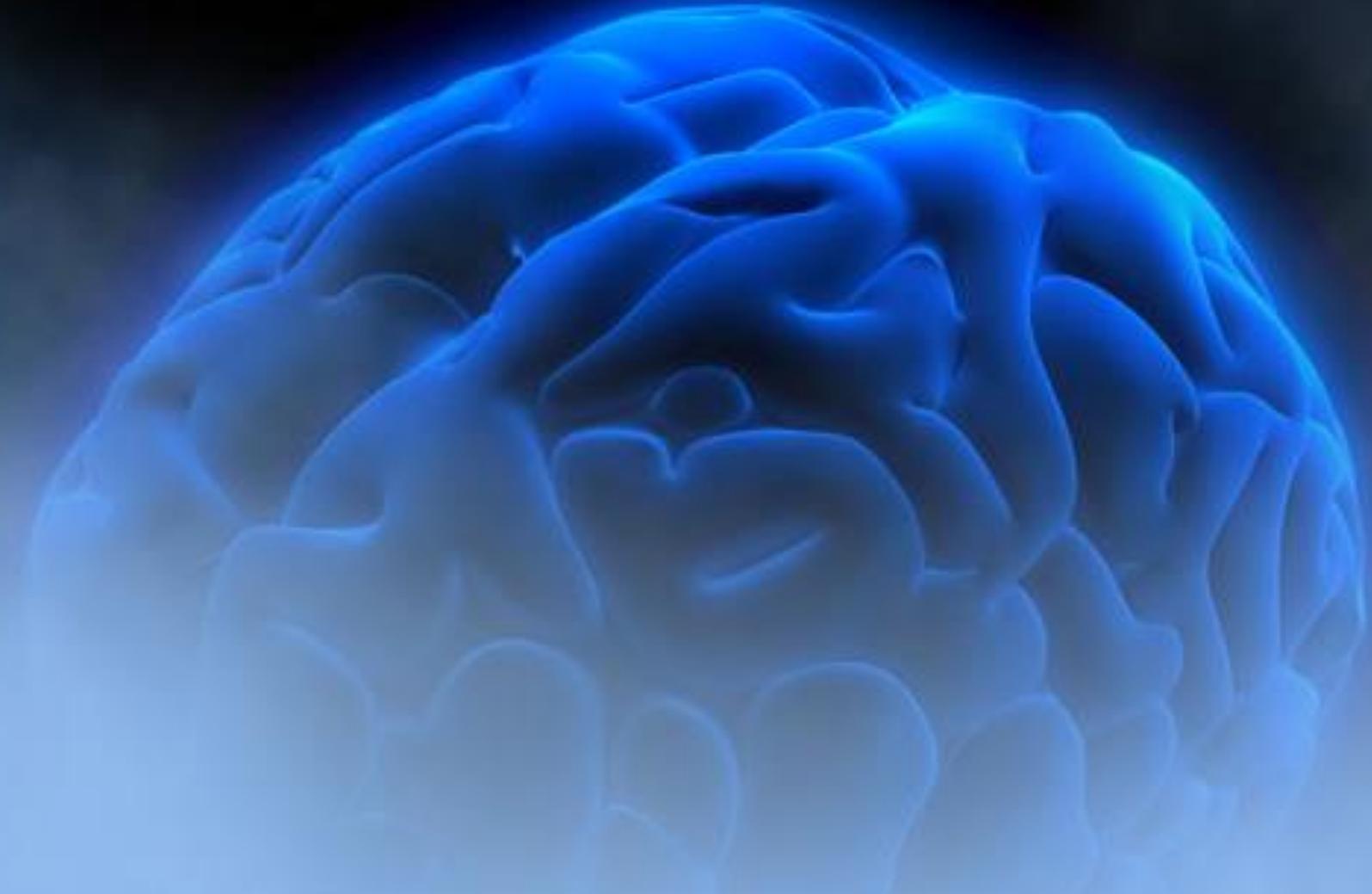
Managing Visual Snow

@MatthewRenze

#VisualSnowInitiative

Is it possible to be in mental,
physical, or emotional pain but
to not be suffering?

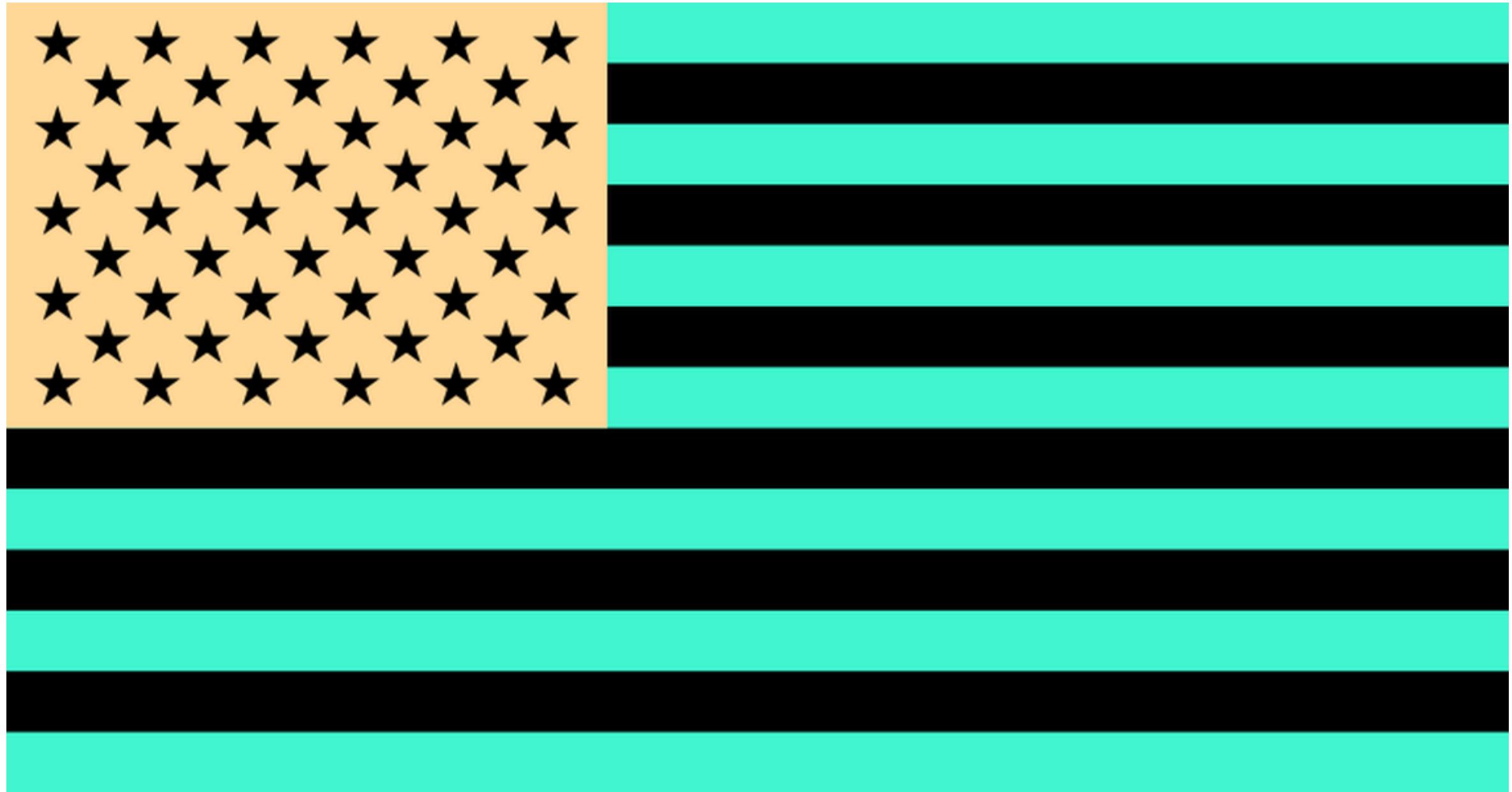
February 7, 2014











Other Symptoms

Visual

Vibration in text
Trailing images

Bright-light issues
Night-vision issues
Halos at night

Auditory

Loud-noise issues
Conversation issues
Environmental-noise issues
Ear pop/click noise

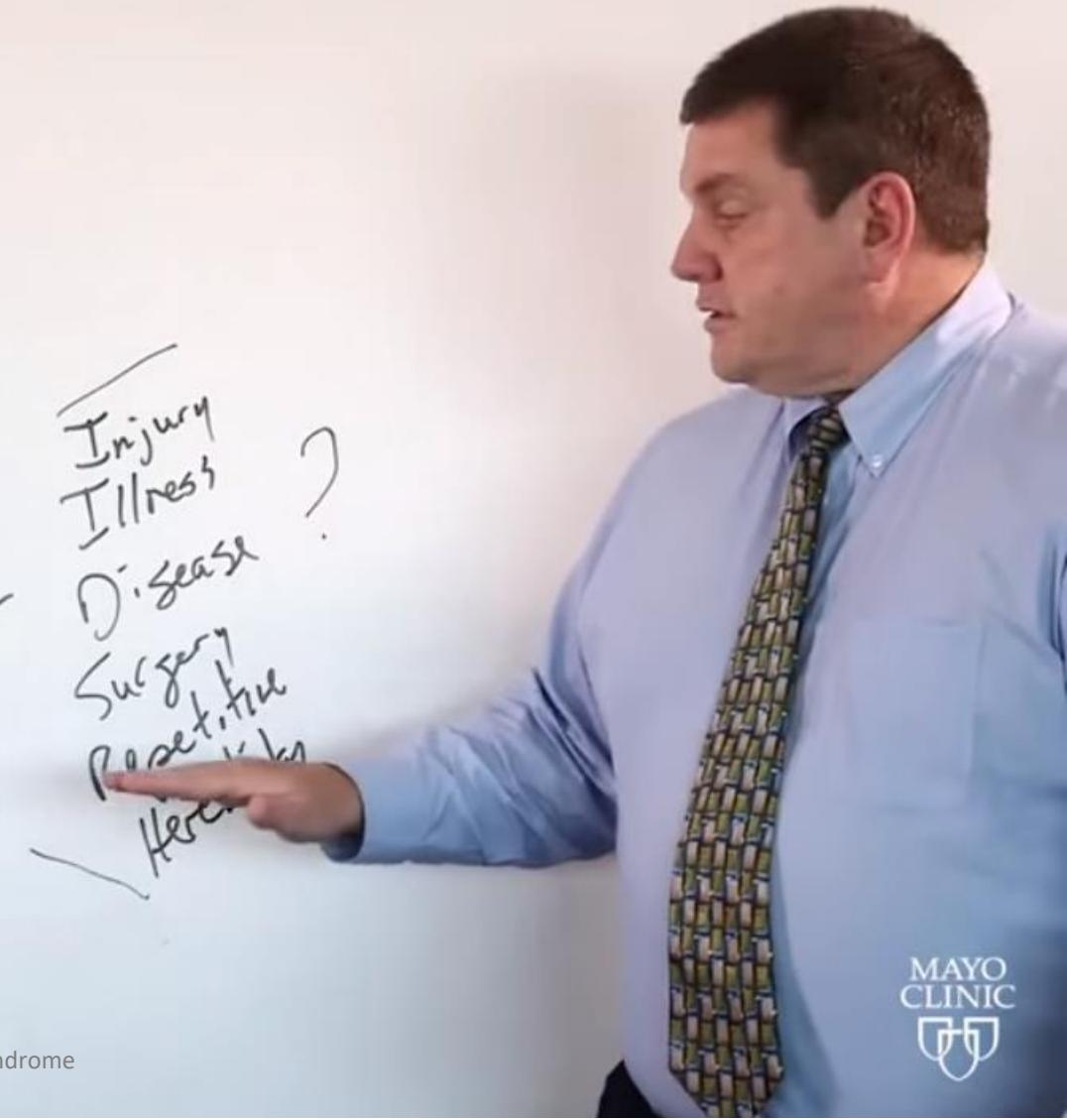
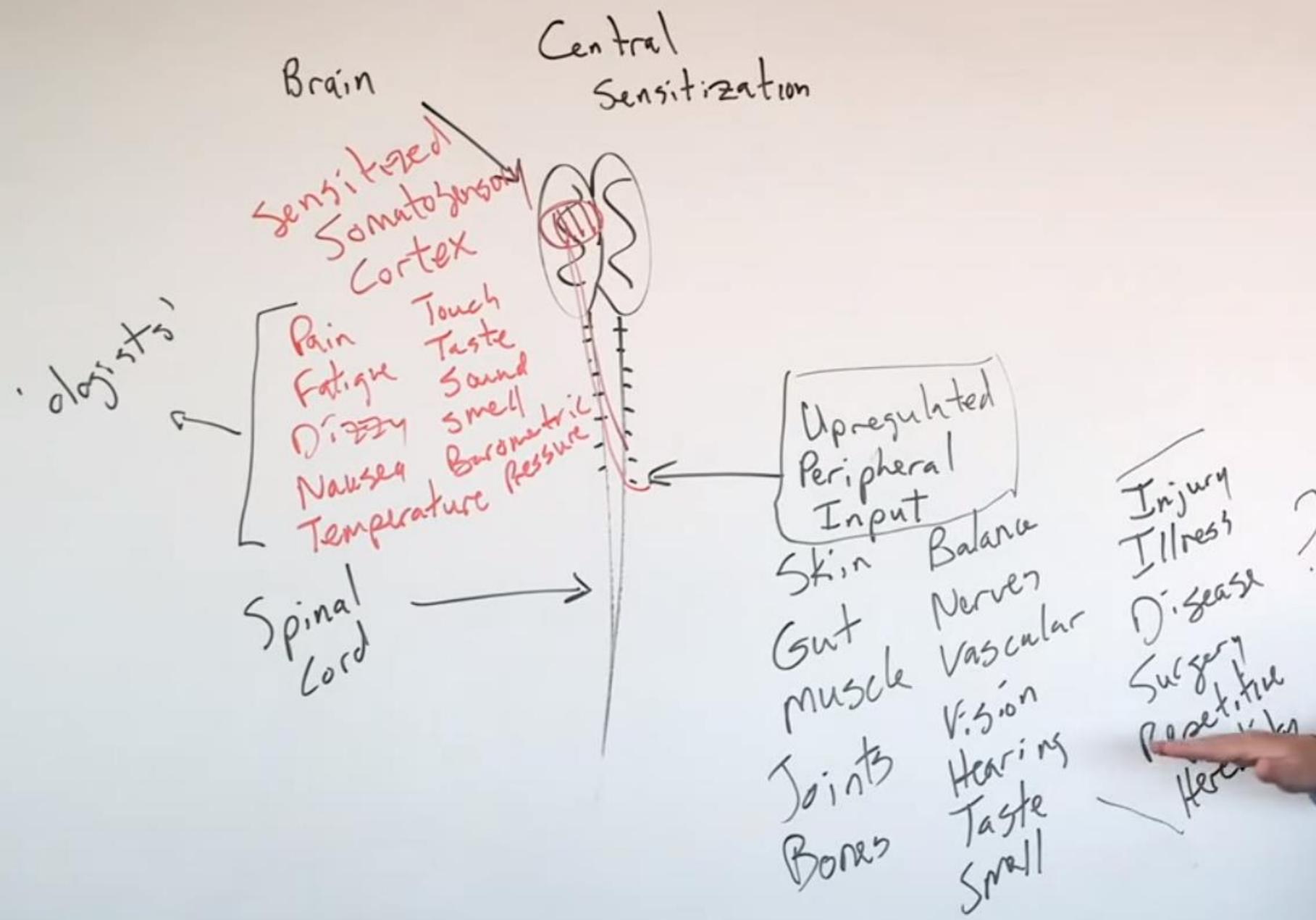
Tactile

Pulsating buzzing
Fine tremors



A photograph of a modern hospital building, identified as Mayo Clinic. The upper portion of the building features a curved glass facade with a grid pattern. Below this, a horizontal band of silver-colored metal siding displays the words "MAYO CLINIC" in large, bold, sans-serif letters. The "M" and "C" are slightly taller than the other letters. A large, curved overhang with recessed lighting extends from the building's edge. A single, textured column is visible on the right side.

MAYO CLINIC





Source: Rochester Convention
and Visitors Bureau

'Visual snow' – a disorder distinct from persistent migraine aura

Christoph J. Schankin,^{1,2,*} Farooq H. Maniyar,^{1,2} Kathleen B. Digre³ and Peter J. Goadsby^{1,2}

1 Headache Group, Department of Neurology, University of California, San Francisco, San Francisco, CA, USA

2 NIHR-Wellcome Trust Clinical Research Facility, King's College London, London, UK

3 Departments of Neurology, Ophthalmology, Moran Eye Centre, University of Utah, Salt Lake City, UT, USA

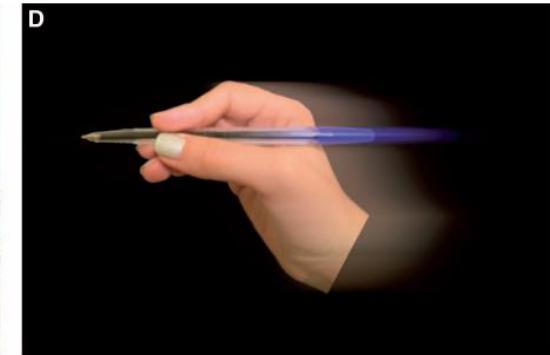
*Present address: Department of Neurology, University of Munich Hospital - Großhadern, Munich, Germany

Visual Snow

“continuous tiny dots in the entire visual field similar to noise of an analog television”

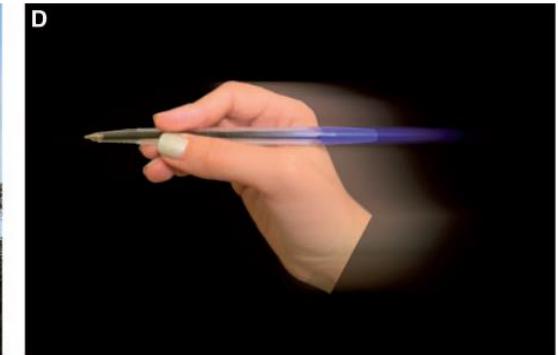


Visual Snow Syndrome



Visual Snow Syndrome

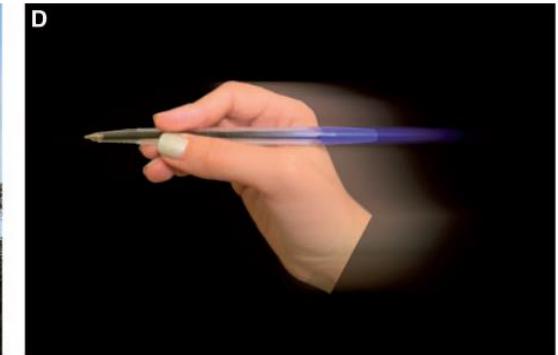
Palinopsia



Visual Snow Syndrome

Palinopsia

Entoptic phenomena

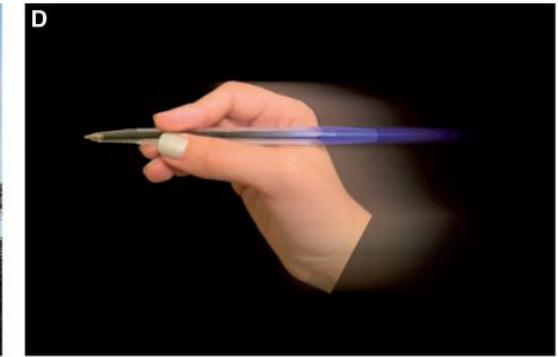


Visual Snow Syndrome

Palinopsia

Entoptic phenomena

Photophobia



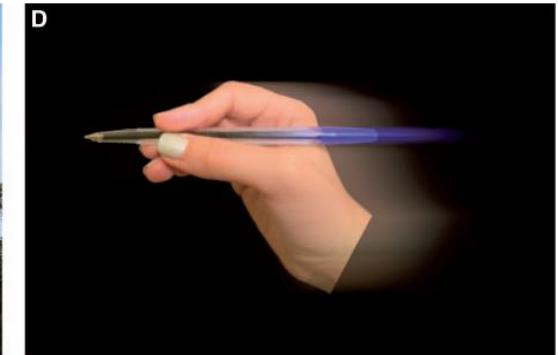
Visual Snow Syndrome

Palinopsia

Entoptic phenomena

Photophobia

Nyctalopia



Visual Snow Syndrome

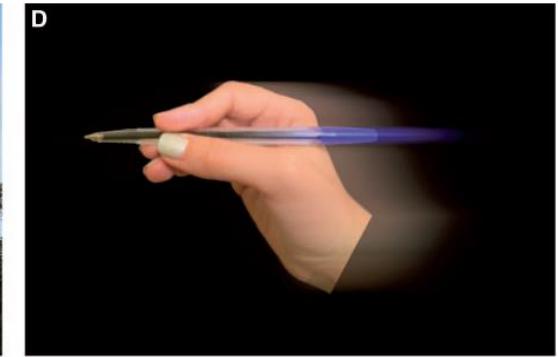
Palinopsia

Entoptic phenomena

Photophobia

Nyctalopia

Tinnitus

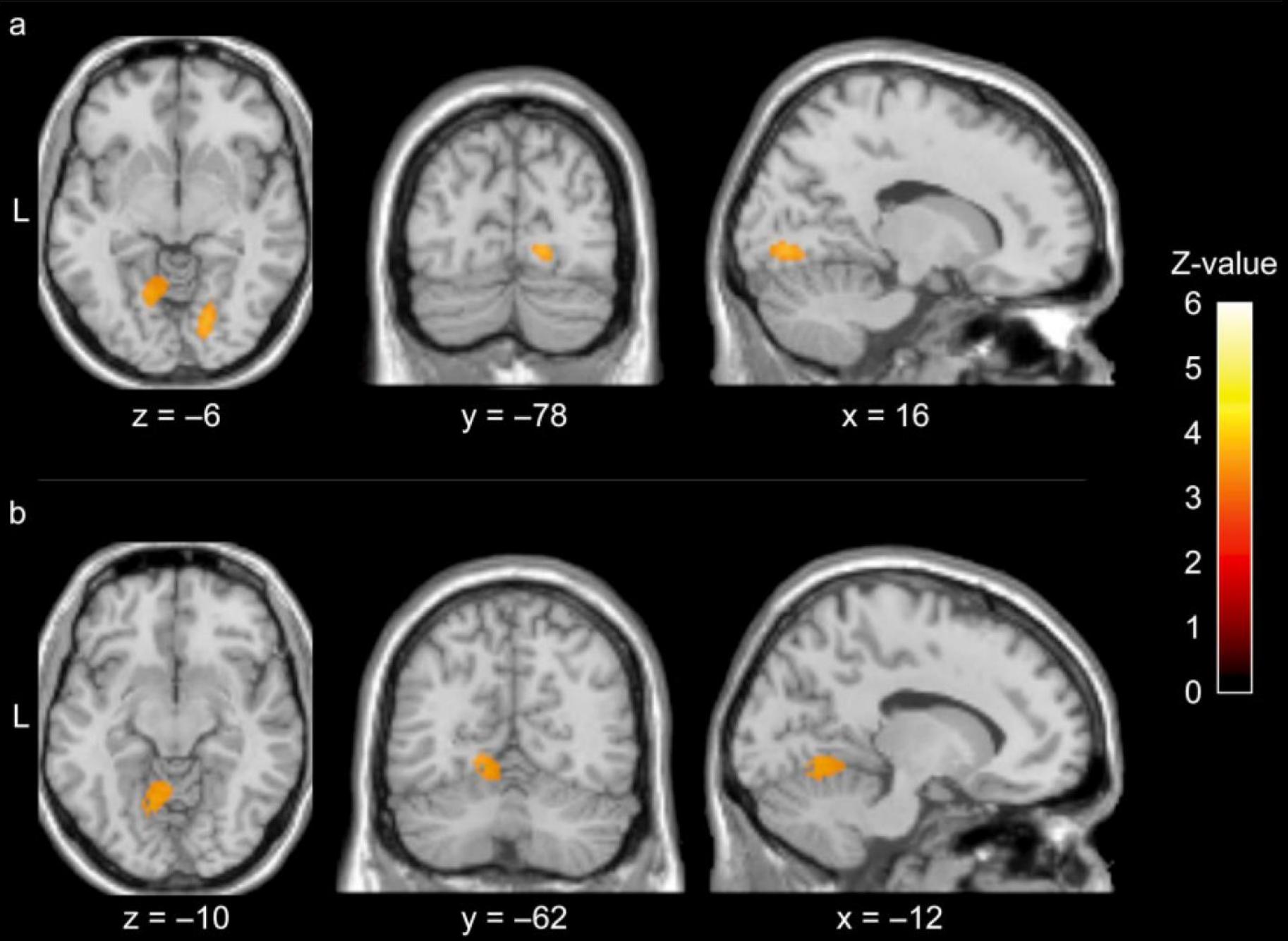


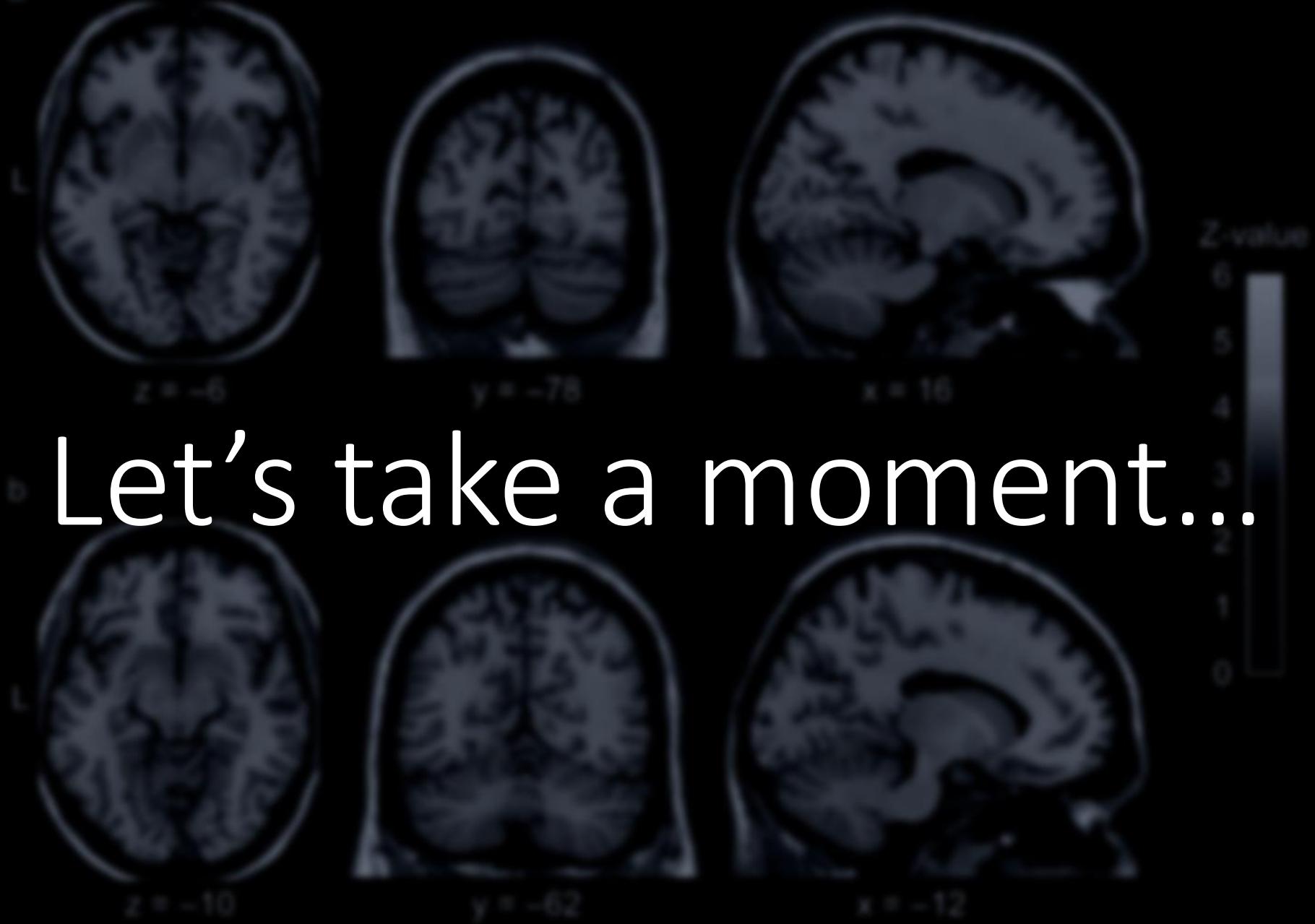
2014 Wolff Award Paper

The Relation Between Migraine, Typical Migraine Aura and “Visual Snow”

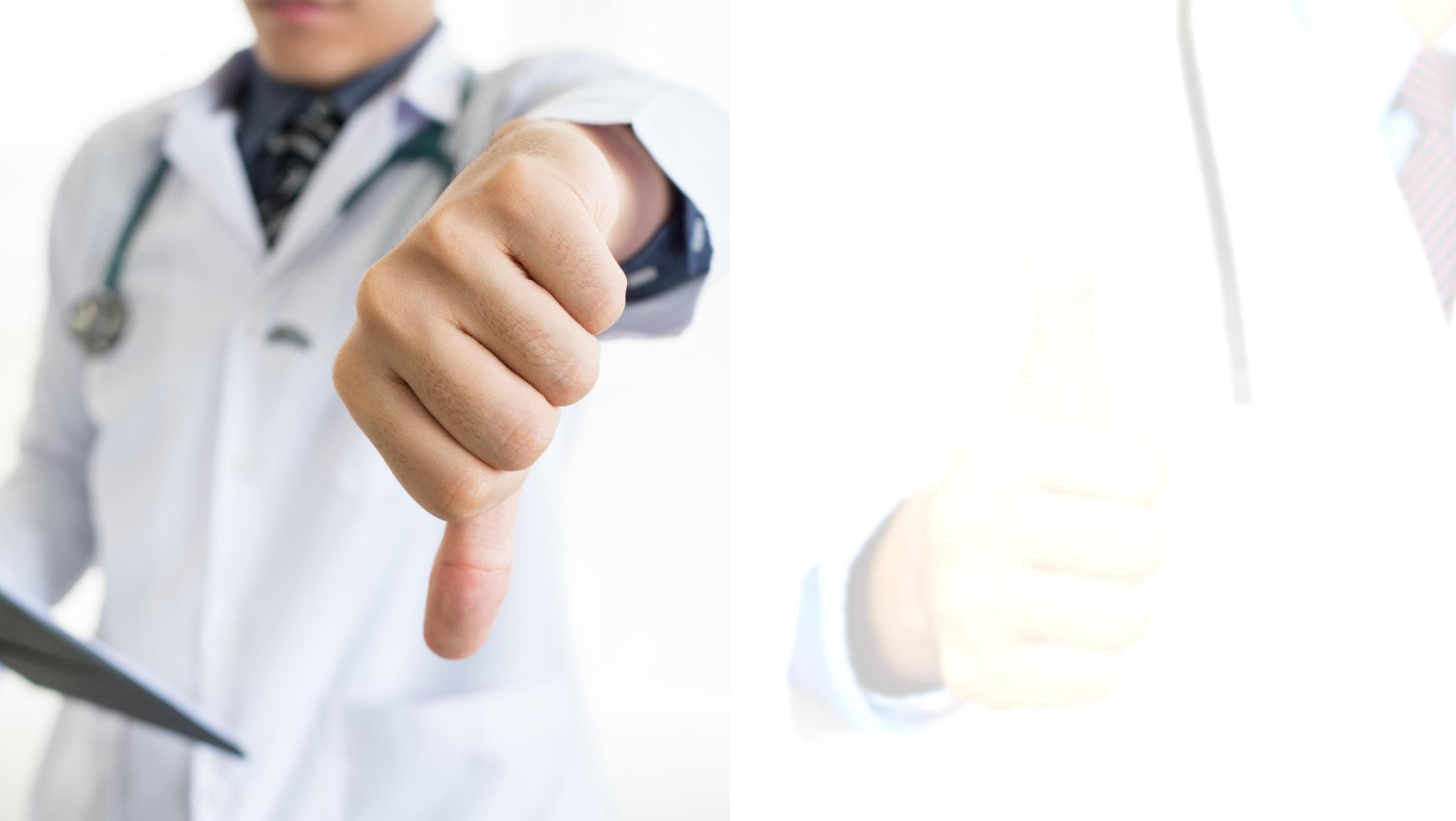
Christoph J. Schankin, MD; Farooq H. Maniyar, MD; Till Sprenger, MD; Denise E. Chou, MD;
Michael Eller, MD; Peter J. Goadsby, MD, PhD

Objective.—To assess the relationship between the phenotype of the “visual snow” syndrome, comorbid migraine, and typical migraine aura on a clinical basis and using functional brain imaging.





Let's take a moment...





'Visual snow' – a disorder distinct from persistent migraine aura

Christoph J. Schankin,^{1,2,*} Farooq H. Maniyar,^{1,2} Kathleen B. Digre³ and Peter J. Goadsby^{1,2}

1 Headache Group, Department of Neurology, University of California, San Francisco, San Francisco, CA, USA

2 NIHR-Wellcome Trust Clinical Research Facility, King's College London, London, UK

3 Departments of Neurology, Ophthalmology, Moran Eye Centre, University of Utah, Salt Lake City, UT, USA

*Present address: Department of Neurology, University of Munich Hospital - Großhadern, Munich, Germany

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NIHR-Wellcome Trust Clinical Research Facility,
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2014 Wolff Award Paper

The Relation Between Migraine, Typical Migraine Aura and "Visual Snow"

Christoph J. Schankin, MD; Farooq H. Maniyar, MD; Till Sprenger, MD; Denise E. Chou, MD;
Michael Eller, MD; Peter J. Goadsby, MD, PhD

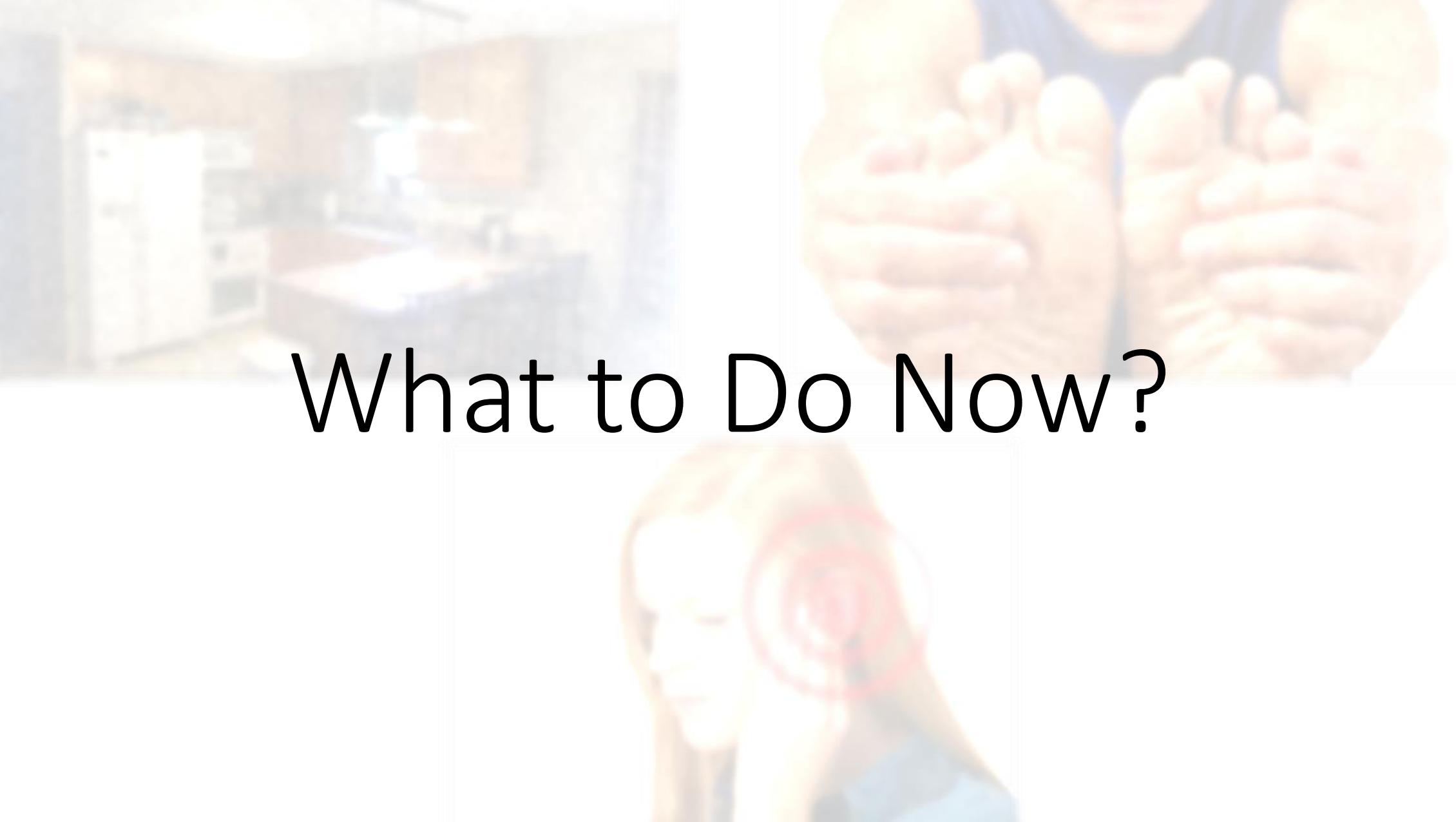
Objective.—To assess the relationship between the phenotype of the "visual snow" syndrome, comorbid migraine, and typical migraine aura on a clinical basis and using functional brain imaging.

Background.—Patients with "visual snow" suffer from continuous TV-static-like tiny flickering dots in the entire visual field. Most patients describe a syndrome with additional visual symptoms of the following categories: palinopsia ("afterimages" and "trailing"), entopic phenomena arising from the optic apparatus itself (floaters, blue field entoptic phenomenon, photopsia, self-light of the eye), photophobia, nyctalopia (impaired night vision), as well as the non-visual symptom tinnitus. The high prevalence of migraine and typical migraine aura in this population has led to the assumption that "visual snow" is caused by persistent migraine aura. Due to the lack of objective measures, alternative diagnoses are malingering or a psychogenic disorder.

Methods.—(1) The prevalence of additional visual symptoms, tinnitus, and comorbid migraine as well as typical migraine aura was assessed in a prospective semi-structured telephone interview of patients with "visual snow." Correlations were calculated using standard statistics with $P < .05$ being considered statistically significant. (2) Areas with increased brain metabolism in a group of "visual snow" patients in comparison to healthy controls were identified using [¹⁸F]-2-fluoro-2-deoxy-D-glucose positron emission tomography and statistical parametric mapping (SPM8 with whole brain analysis; statistical significance was defined by $P < .001$ uncorrected for multiple comparisons).

Results.—(1) Of 120 patients with "visual snow," 70 patients also had migraine and 37 had typical migraine aura. Having comorbid migraine was associated with an increased likelihood of having palinopsia (odds ratio [OR] 2.8; $P = .04$ for "after-

- [20101022 - Disorders of visual perception - Journal of Neurology, Neurosurgery & Psychiatry](#)
- [20120430 - 'Visual Snow' Called Real, Not Drug Related - Medpage Today](#)
- [20120523 - Melting the Myths of Visual Snow - Psychology Today](#)
- [20120815 - 'Visual Snow' May Be a Distinct Clinical Entity - Clinical Neurology News](#)
- [20130128 - The woman who sees snowflakes even when it's sunny - Daily Mail Online](#)
- [20130200 - Visual Snow - It's perception and it's cause](#)
- [20140318 - 'Visual snow' - a disorder distinct from persistent migraine aura. - PubMed – NCBI](#)
- [20140509 - The relation between migraine, typical migraine aura and visual snow - PubMed – NCBI](#)
- [20140806 - Should 'visual snow' and persistence of after-images be recognised as a new syndrome – JNNP](#)
- [20141100 - Le phénomène de neige visuelle \(The Visual Snow Phenomenon\)](#)
- [20150600 - Visual snow - persistent positive visual phenomenon distinct from migraine aura - PubMed NCBI](#)
- [20150900 - Das Visual-Snow-Syndrom - Symptome und ophthalmologische Befunde](#)
- [20150900 - Visual Snow - Report of three cases](#)
- [20160600 - Visual Snow - A thalamocortical dysrhythmia of the visual pathway – JCN](#)
- [20160808 - The mysterious eye condition of 'visual snow'- The Guardian](#)
- [20160810 - Visual Snow Syndrome - Symptoms and Ophthalmological Findings - PubMed – NCBI](#)
- [20160926 - When 'seeing snow' means your eyes are in danger - Daily Mail Online](#)
- [20161127 - Visual Snow - A Newly Recognized Neurological Disorder](#)
- [20170127 - Visual Snow-Syndrom - Verrausches Bild vor Augen - ARD Mediathek](#)
- [20170205 - Rare Disease Visual Snow – Jetzt](#)
- [20170319 - Visual Snow Guide - Axon Optics](#)



What to Do Now?





A photograph of a modern hospital building, identified as Mayo Clinic. The upper portion of the building features a curved glass facade with a grid pattern. Below this, a horizontal band of the building's exterior is covered in a series of thin, parallel horizontal lines, possibly a metal or stone cladding. The word "MAYO" is written in large, bold, sans-serif letters across these lines. To the right of "MAYO", the word "CLINIC" is also written in large, bold, sans-serif letters, partially obscured by the building's overhang. A large, textured column is visible on the right side.

MAYO CLINIC

Disclaimer

Symptom Aggravators

Stress

Lack of sleep

Cold/flu

Screen time

Alcohol

Caffeine

Sodium

Sugar



SAMUEL
ADAMS





Deep Learning: The Big Picture



Matthew Renze
DATA SCIENCE CONSULTANT
@matthewrenze www.matthewrenze.com





Benefits

Concentration

Non-judgement

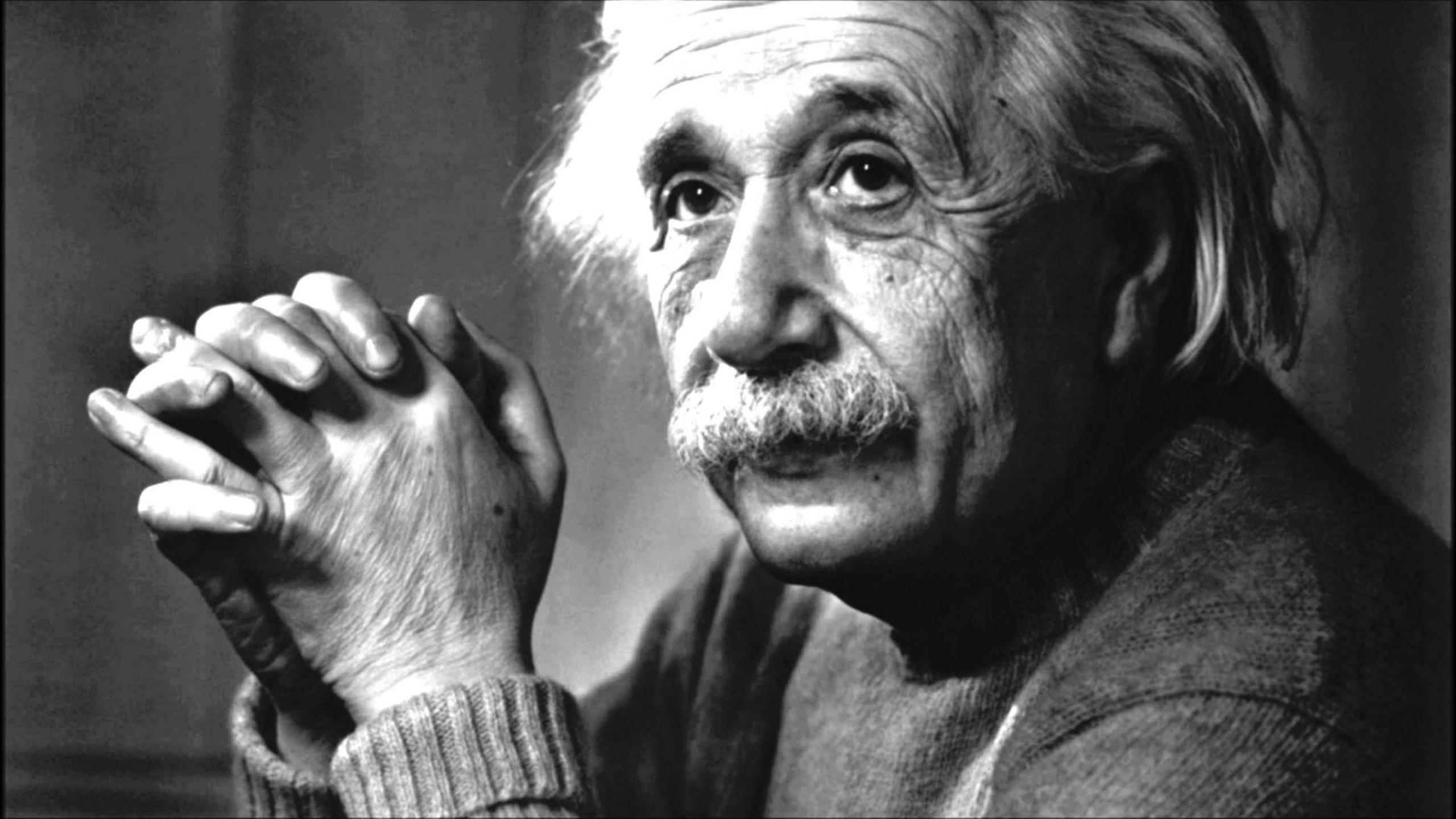
Equanimity

Egolessness

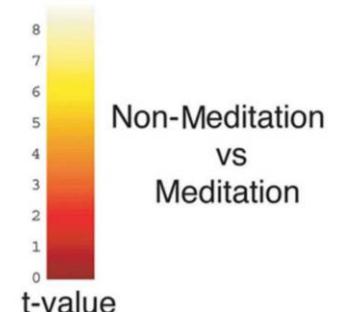
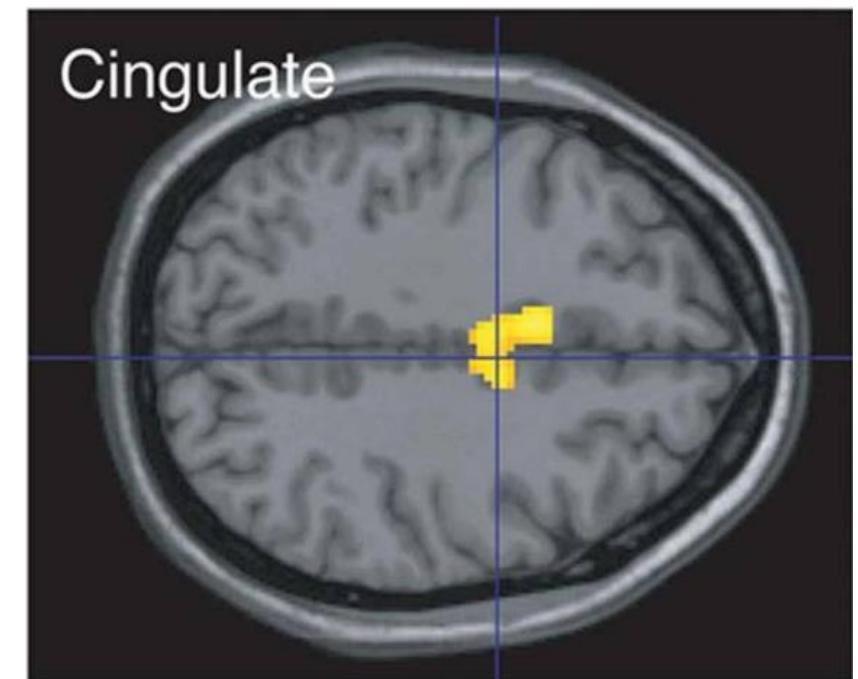
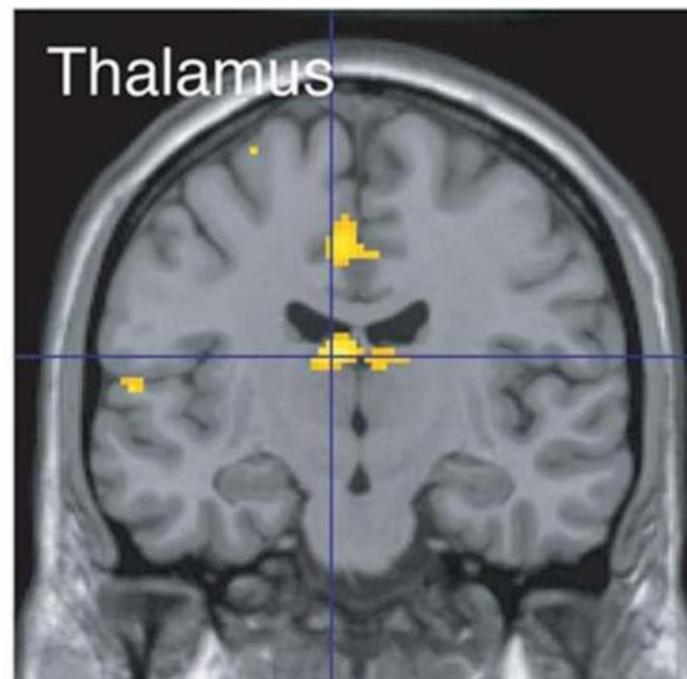
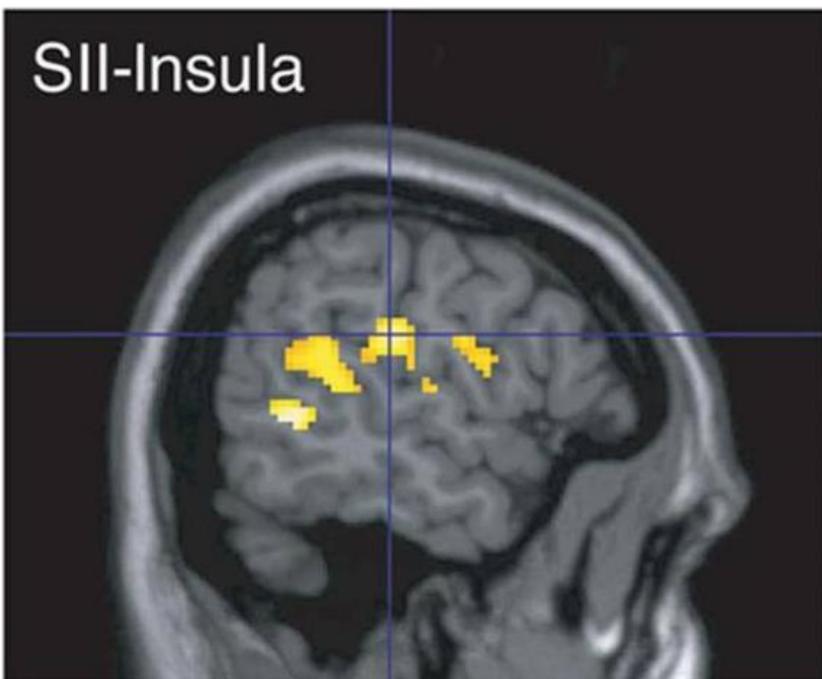
Compassion

Sustainability





Meditation reduces pain-related neural activity in the anterior cingulate cortex, insula, secondary somatosensory cortex, and thalamus



Other Structural and Functional Changes

Amygdala

Default-mode network

Cortical thickness

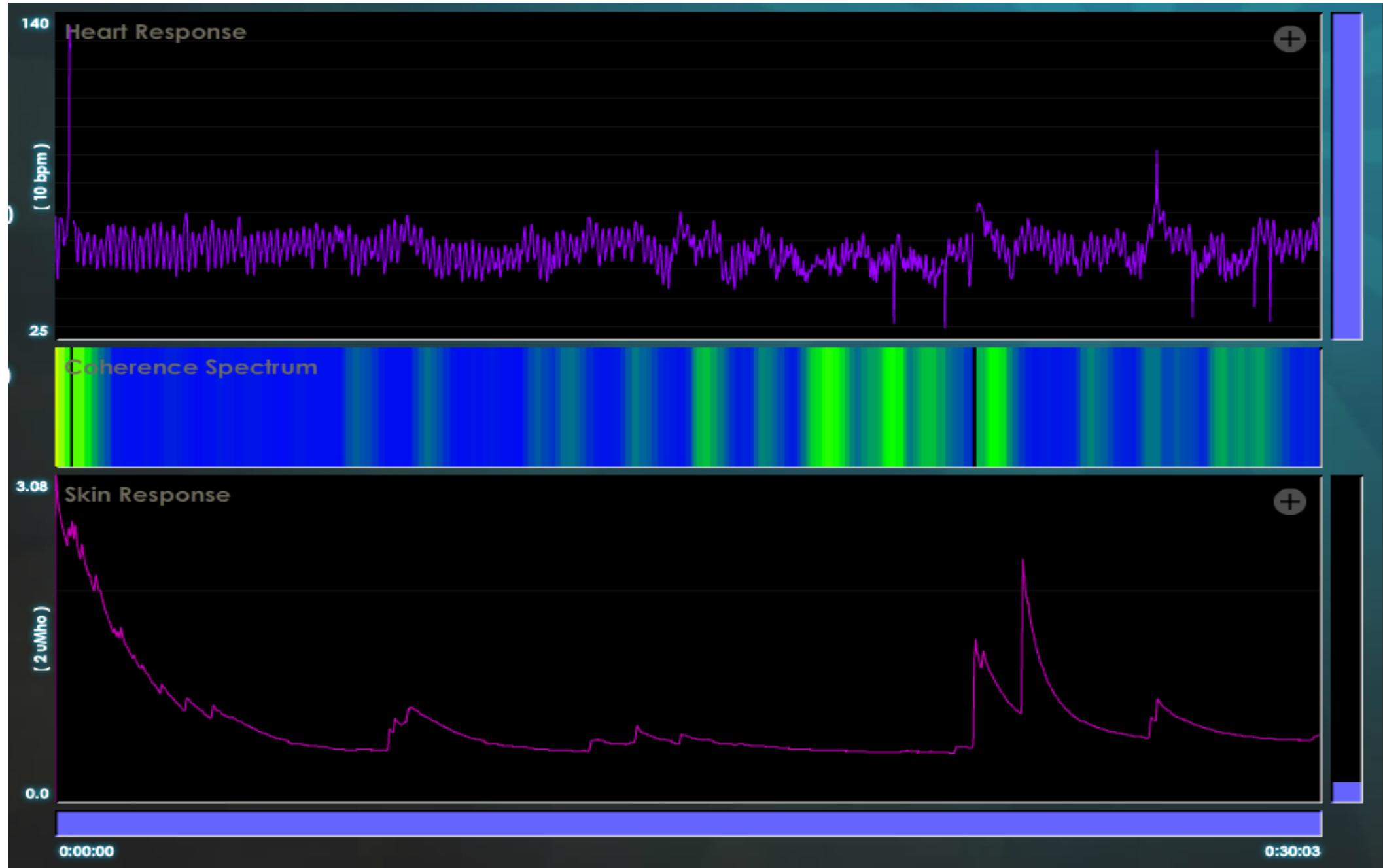
Anterior cingulate cortex

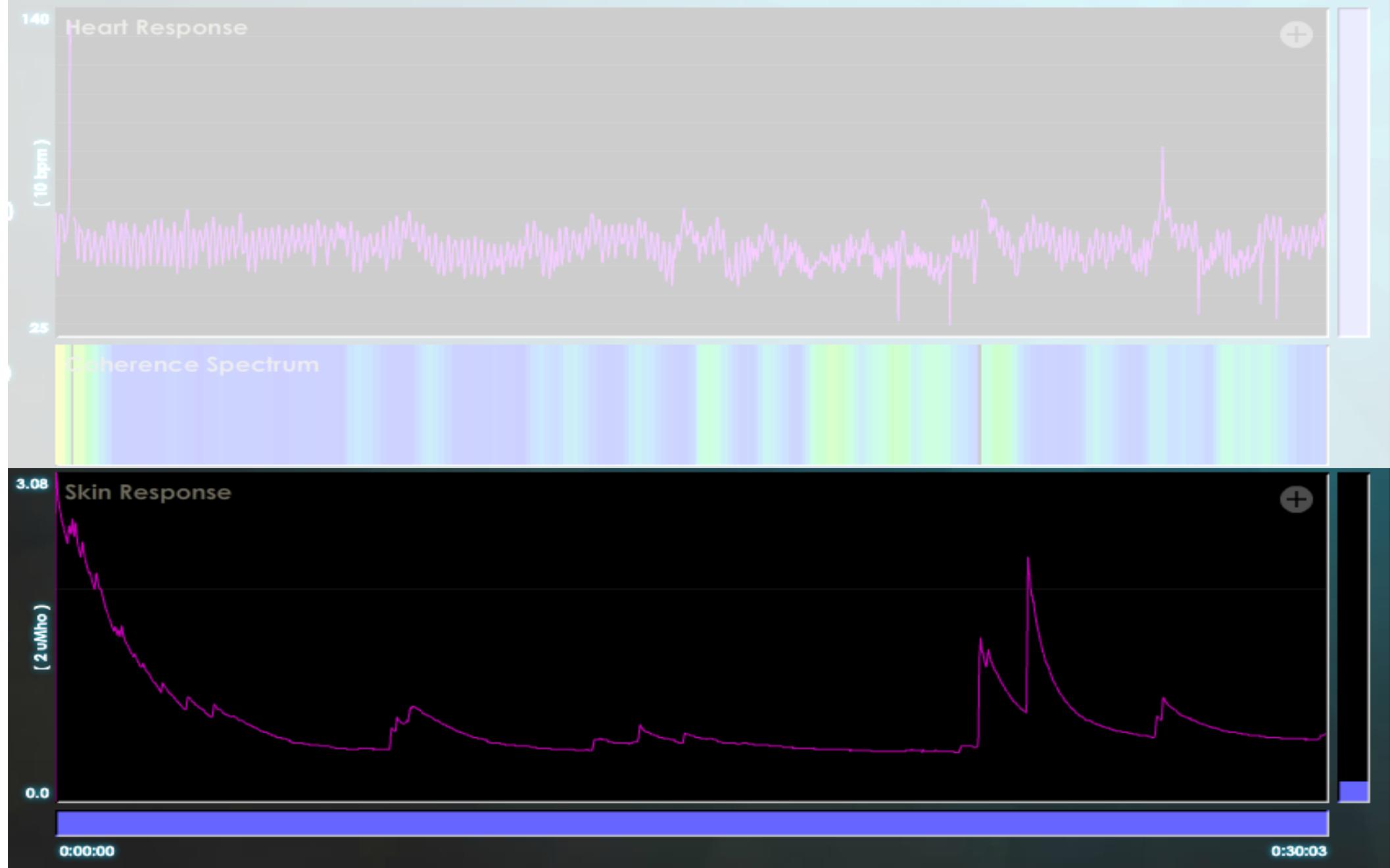
Prefrontal cortex

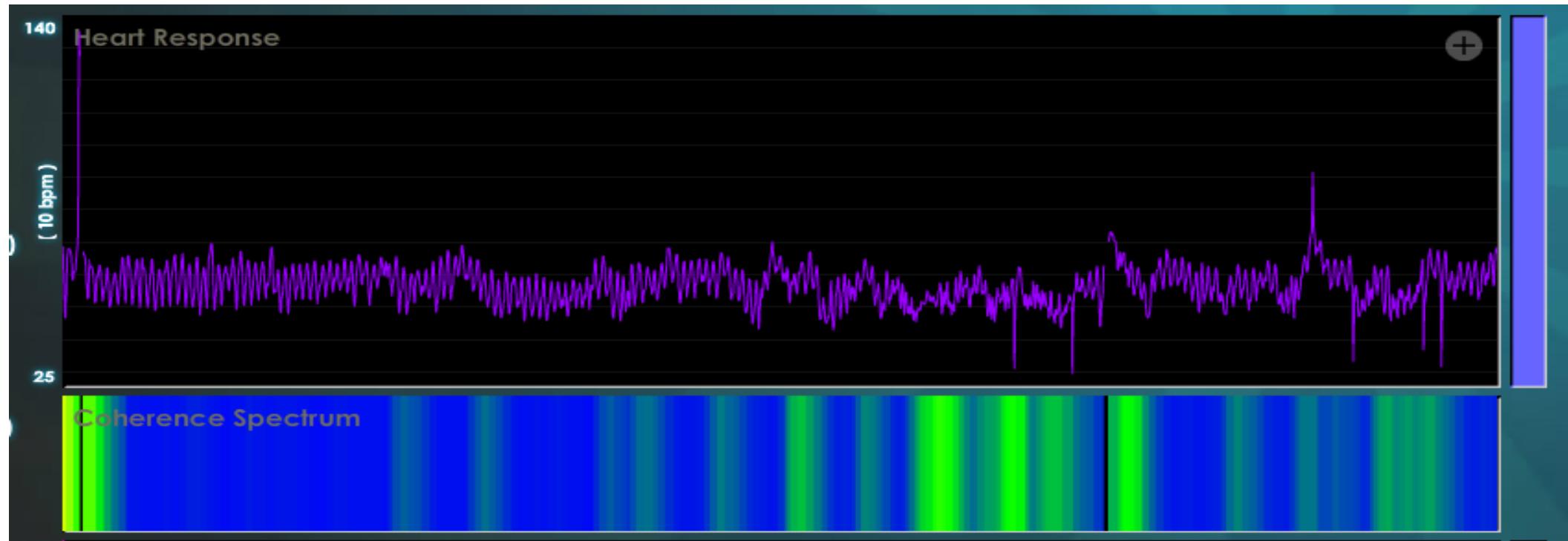
Hippocampus

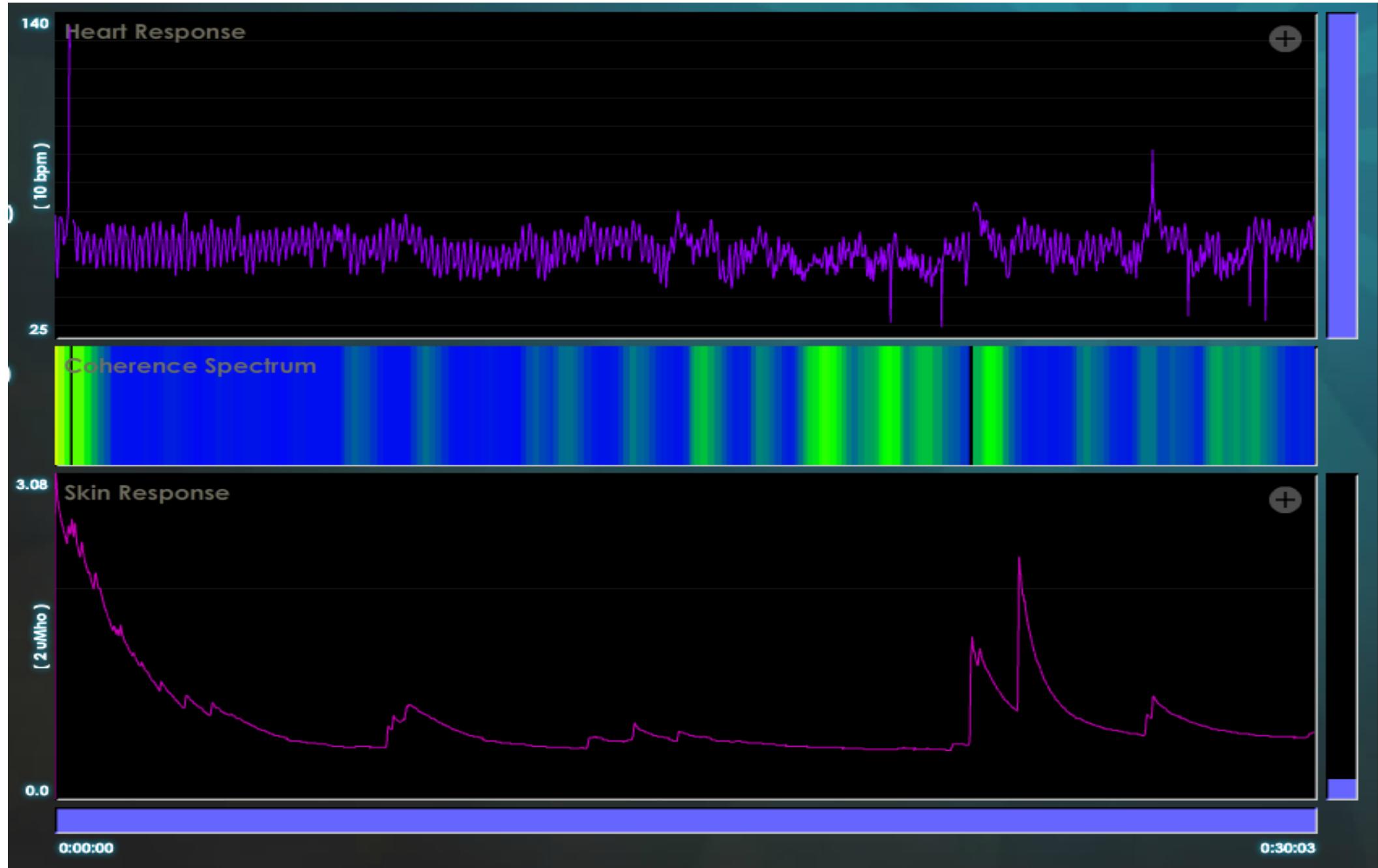
Insula



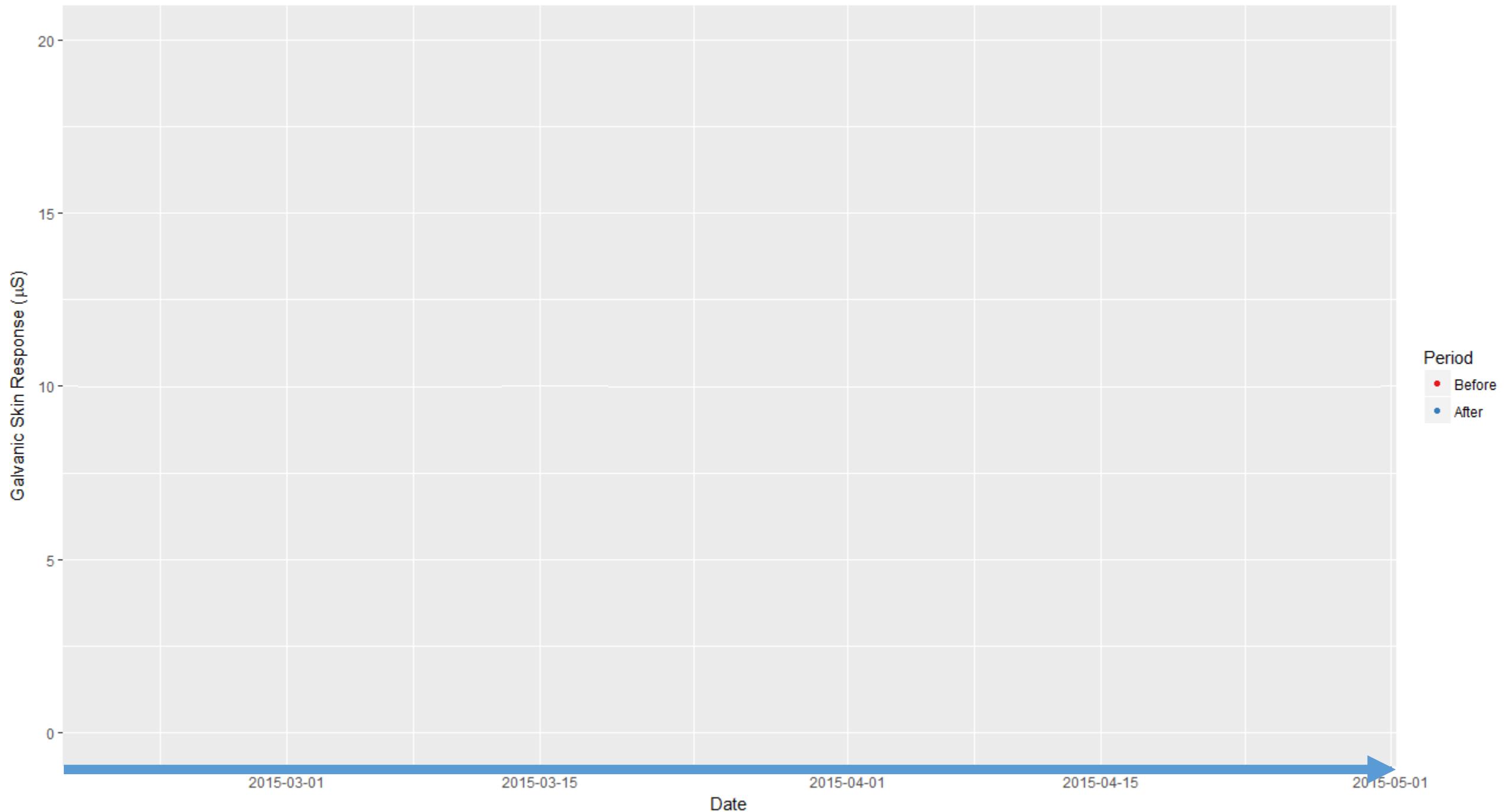




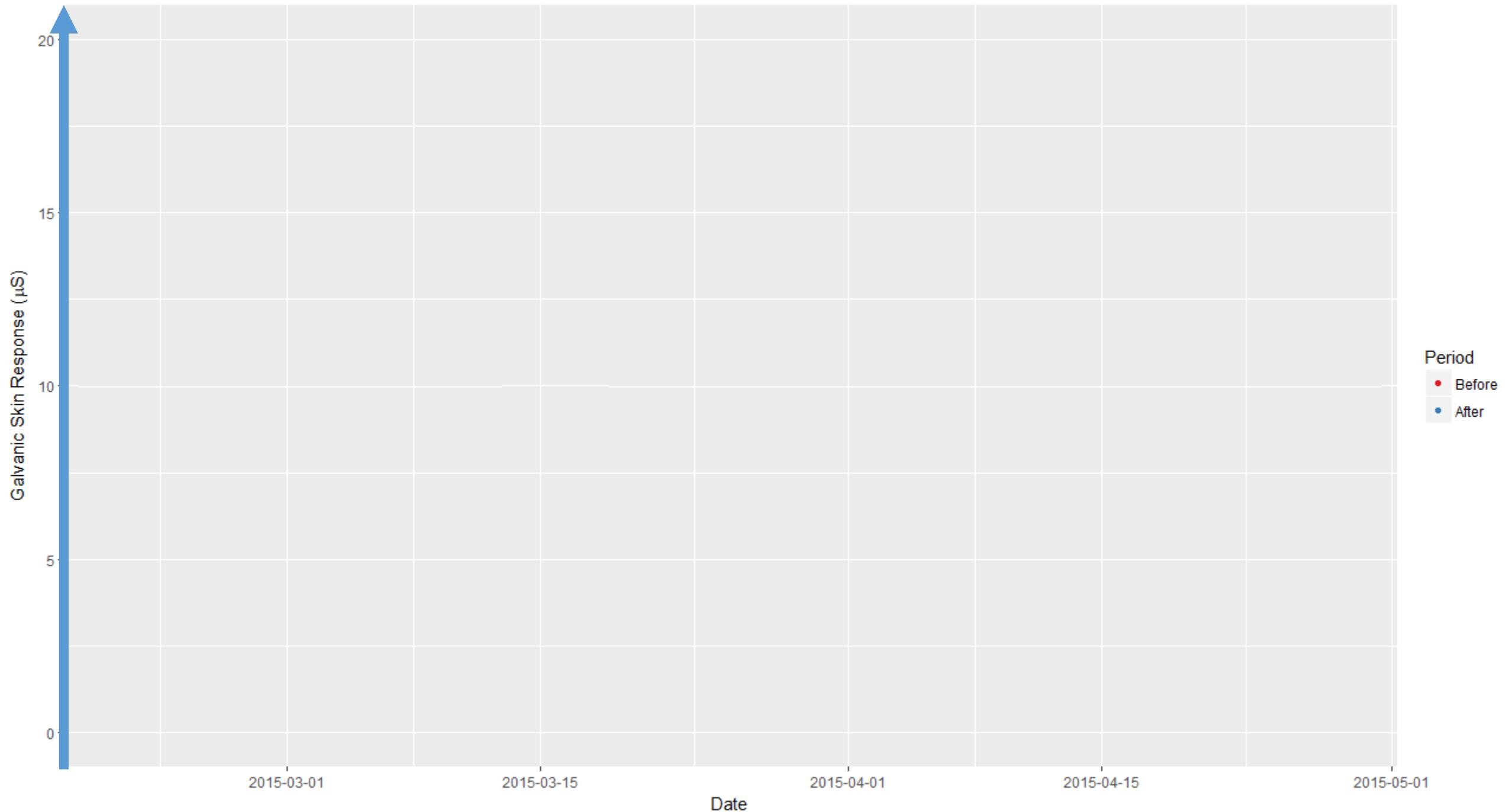




Average GSR Before and After Meditation Retreat

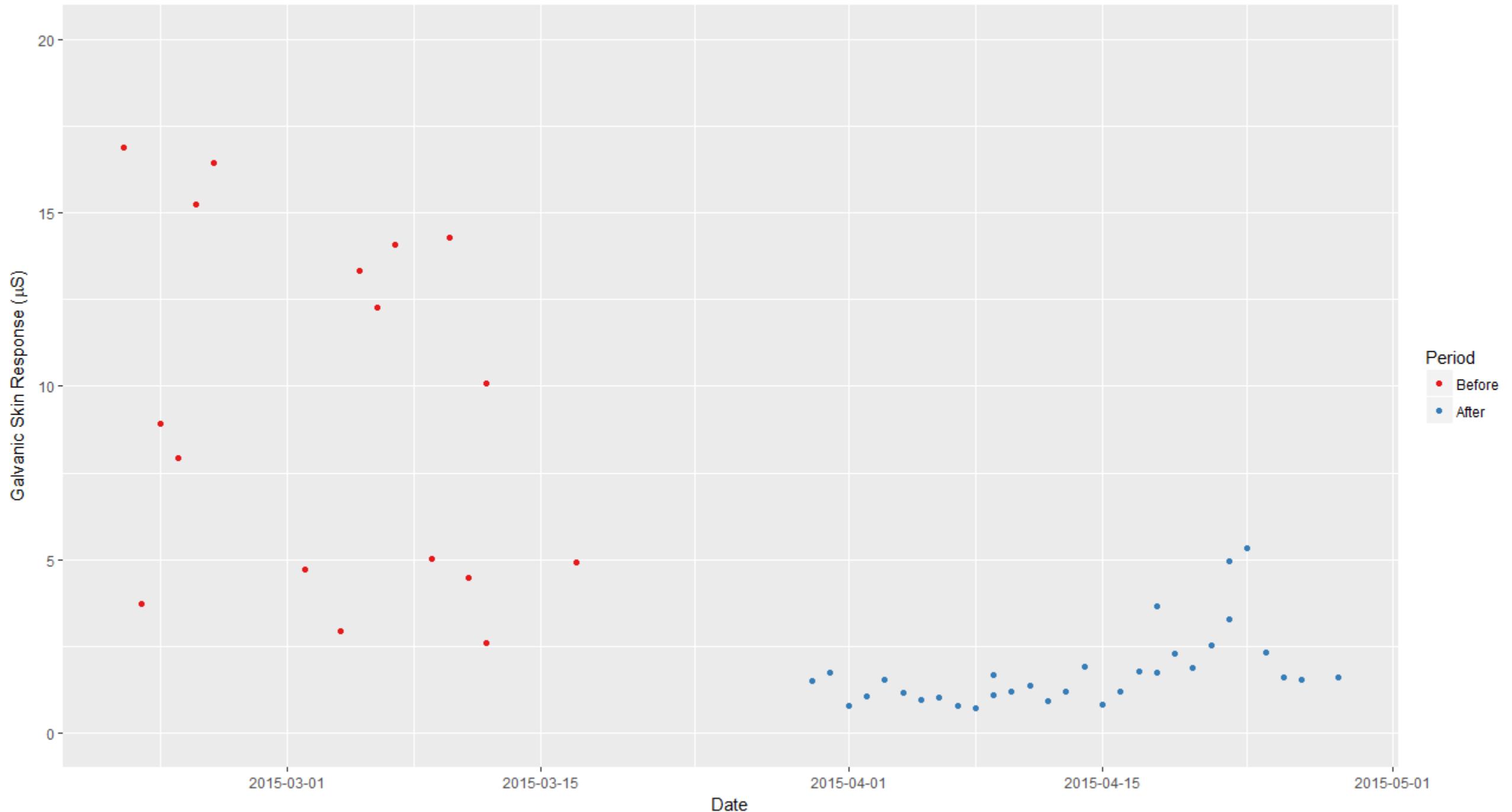


Average GSR Before and After Meditation Retreat

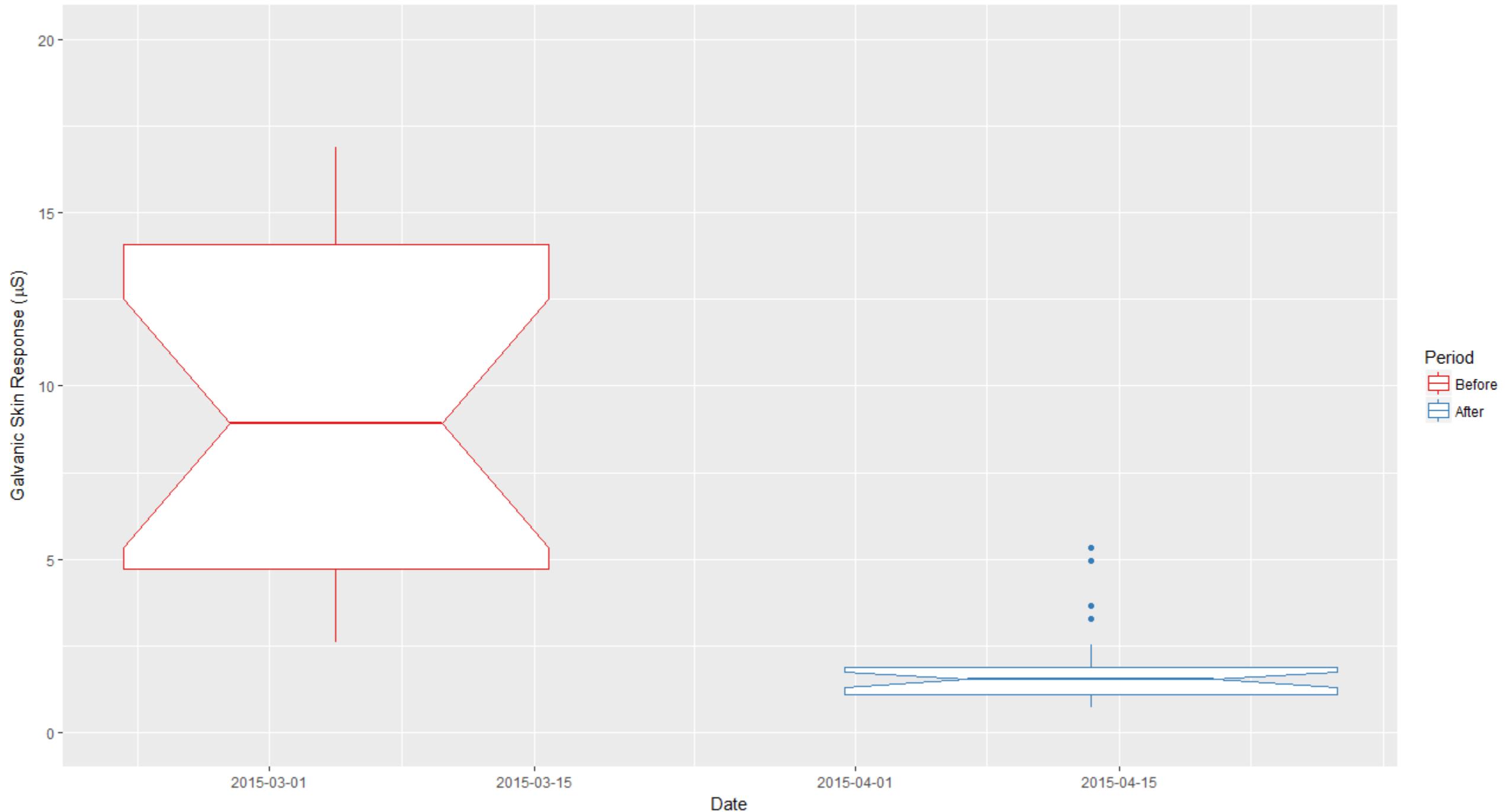


Average GSR Before and After Meditation Retreat

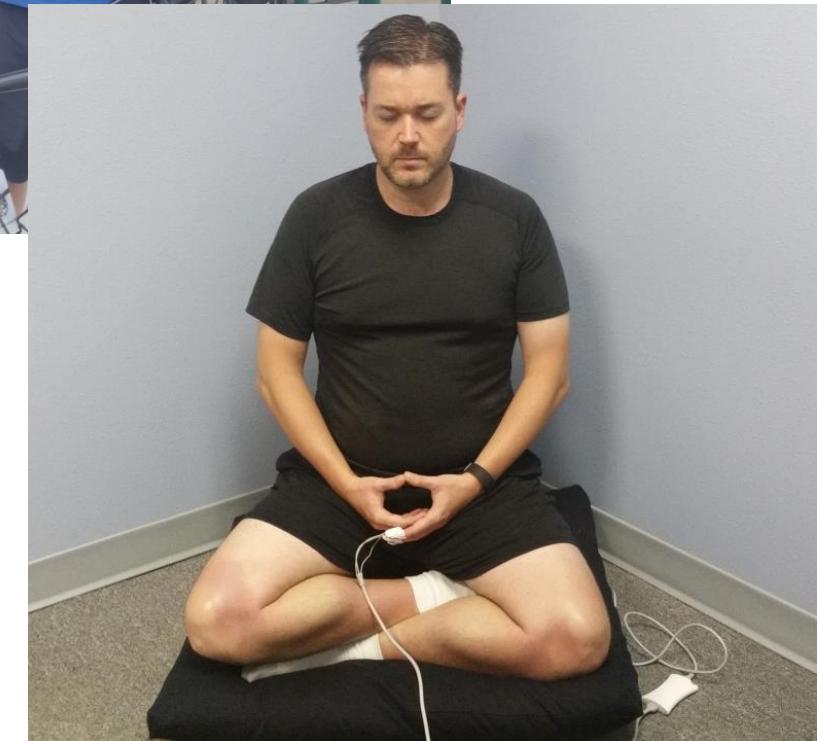
Average GSR Before and After Meditation Retreat

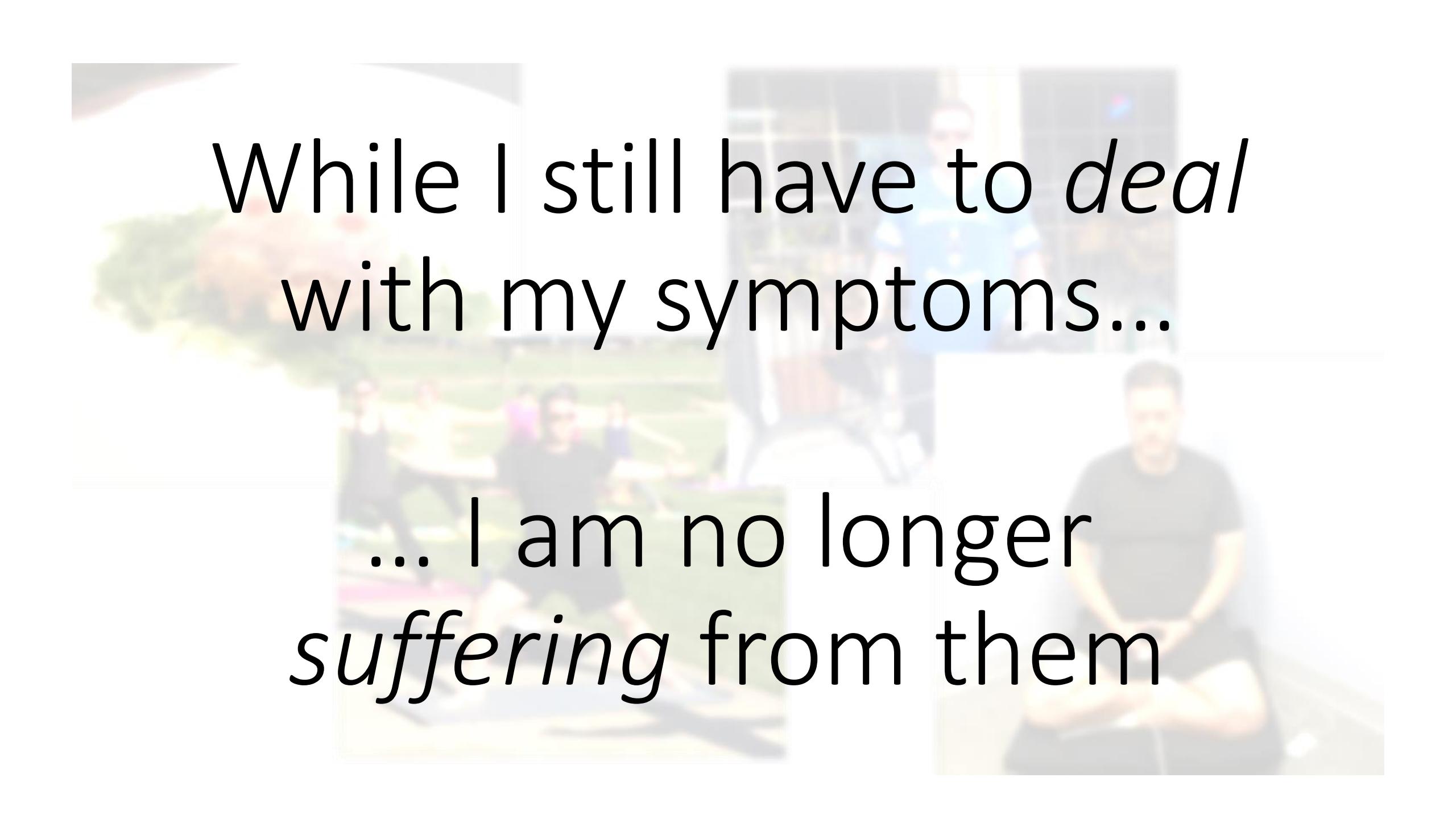


Average GSR Before and After Meditation Retreat



Disclaimer



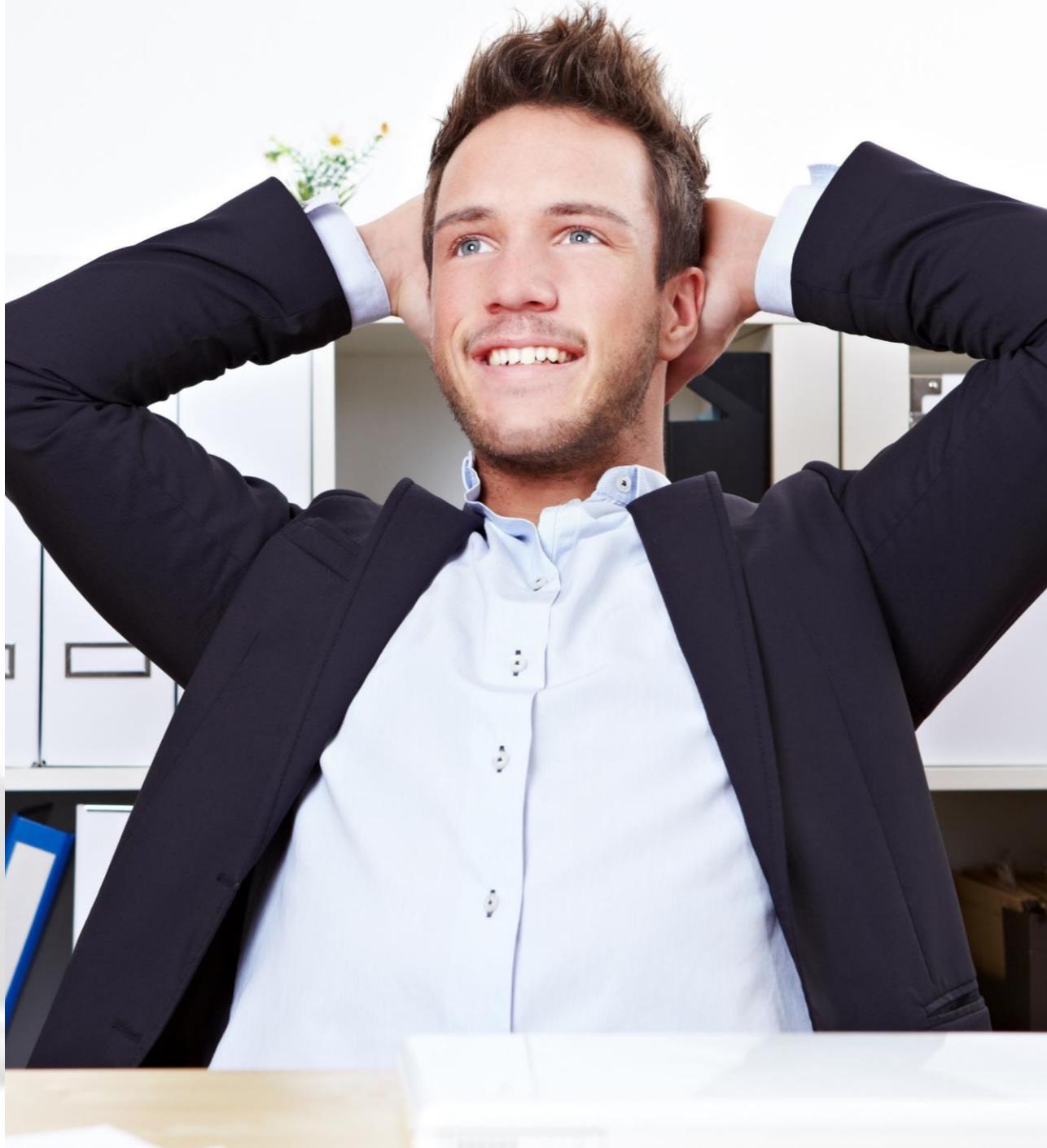


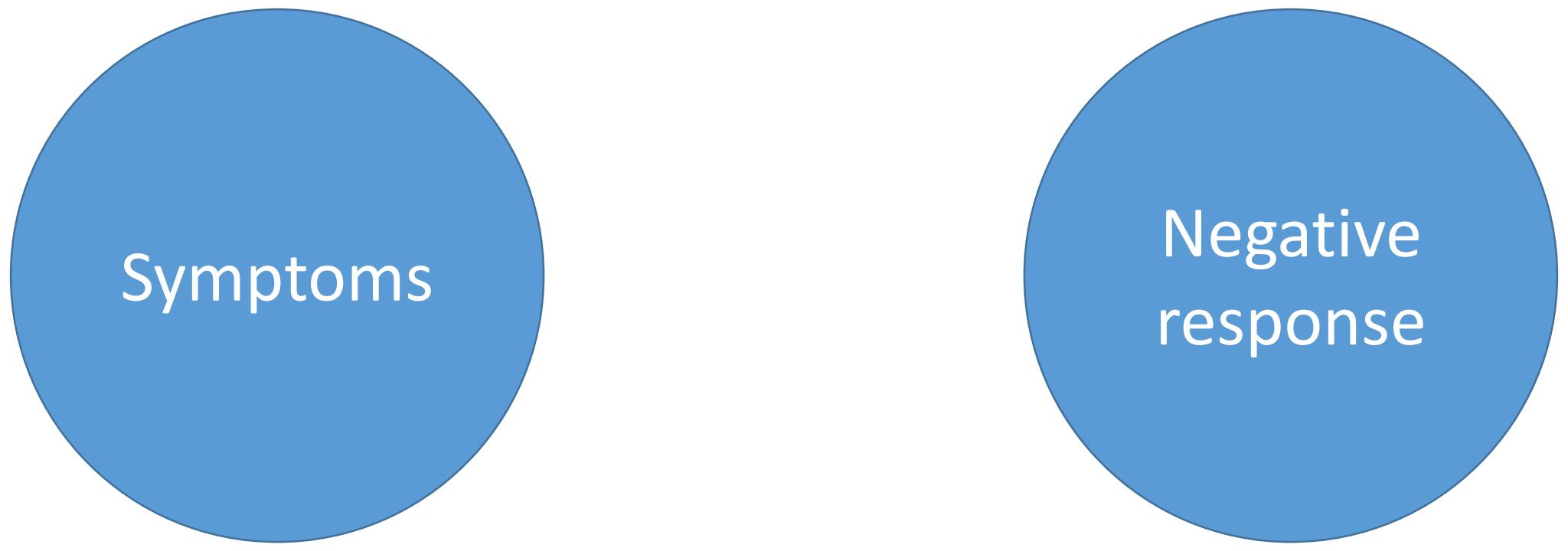
While I still have to *deal*
with my symptoms...

... I am no longer
suffering from them









Symptoms

Negative
response

```
graph LR; A((Symptoms)) --> B((Negative response))
```

A blue circle containing the word "Symptoms". A large blue arrow points from this circle to another blue circle containing the text "Negative response".

Symptoms

Negative
response

```
graph TD; A((Symptoms)) --> B((Negative response)); B --> A
```

A blue circle containing the text "Symptoms". A curved blue arrow points from this circle to another blue circle on the right.

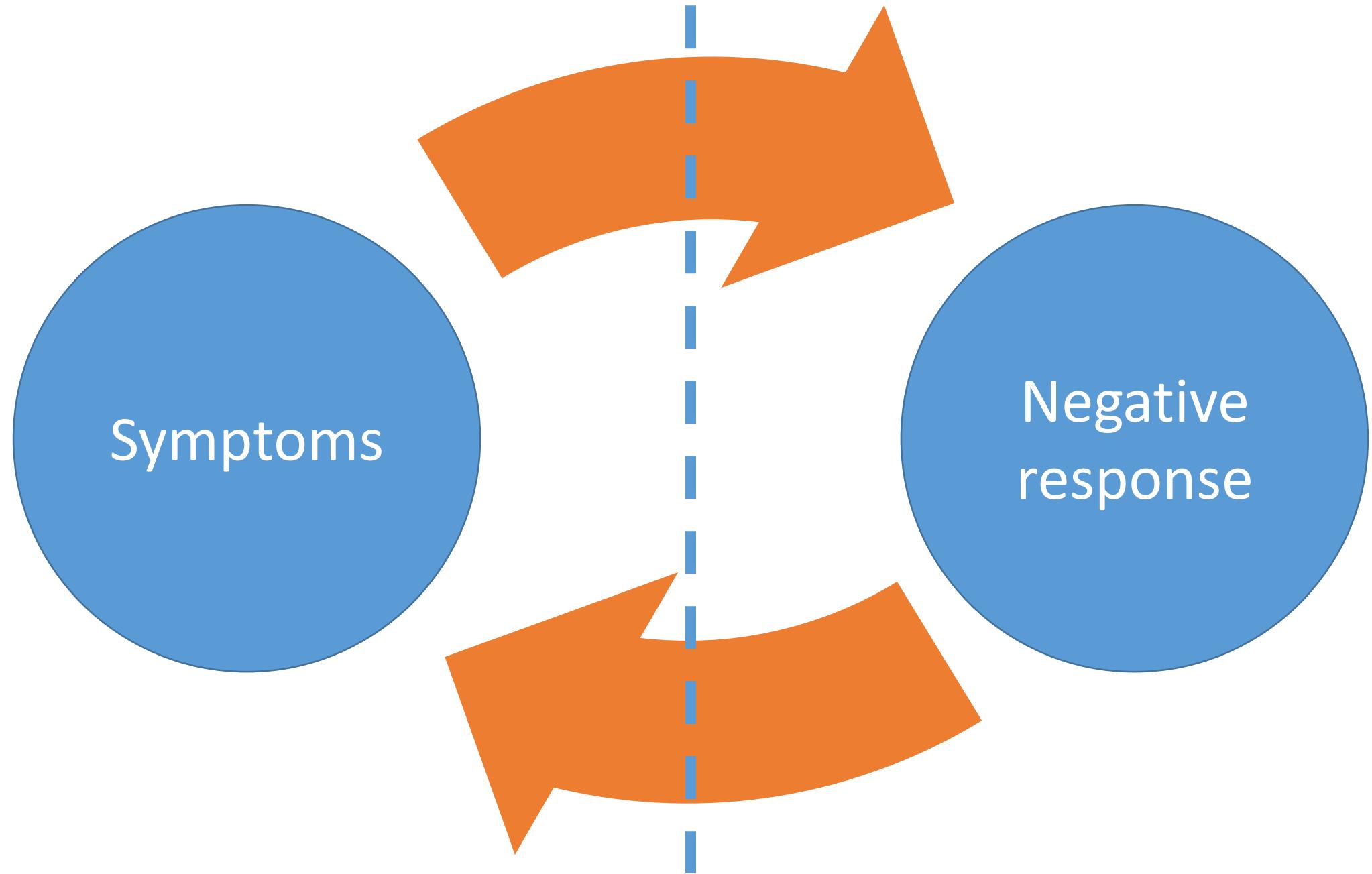
Symptoms

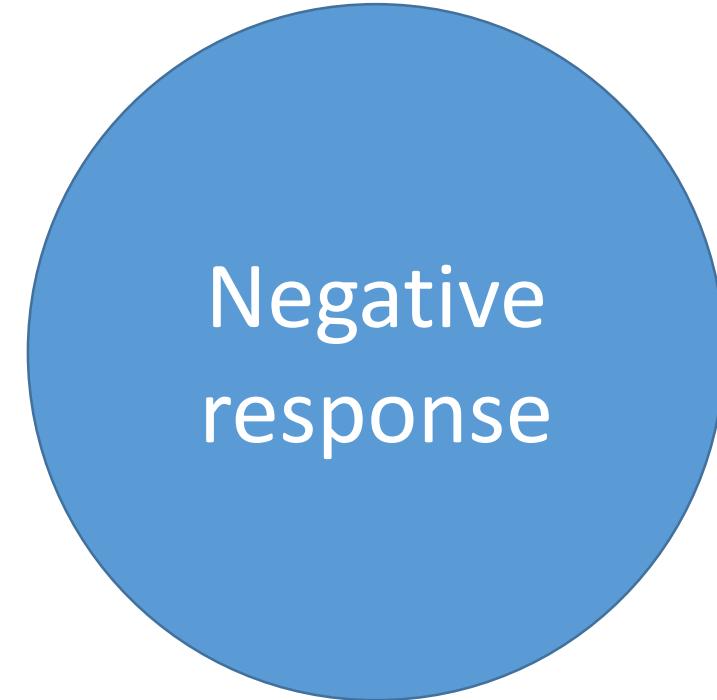
Negative
response

A diagram illustrating a feedback loop. It consists of two blue circles, one on the left labeled "Symptoms" and one on the right labeled "Negative response". Two orange arrows connect the circles: a curved arrow pointing from "Symptoms" to "Negative response", and another curved arrow pointing from "Negative response" back to "Symptoms".

Symptoms

Negative
response







Easier said than done.









To those of you
who still struggle:

1. There is hope.

1. There is hope.
2. Don't give up.

1. There is hope.
2. Don't give up.
3. Try to reframe.

Enjoy life

Be empathetic

Be mindful

Where to Go Next?



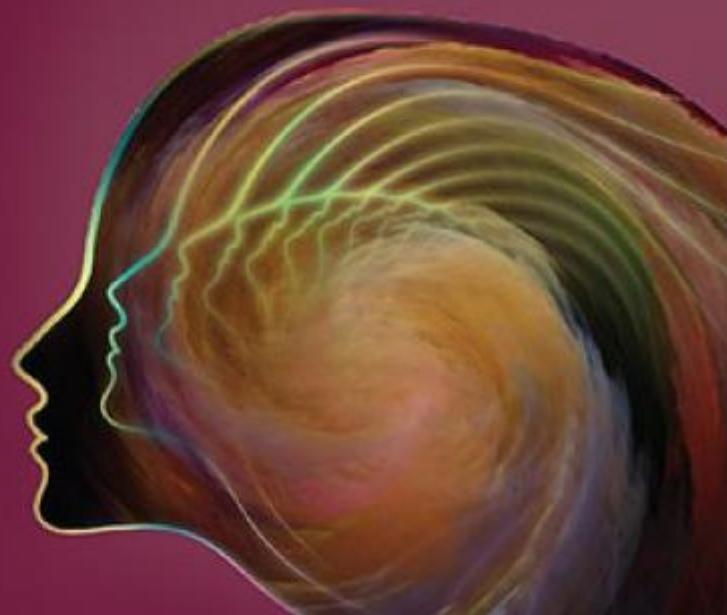
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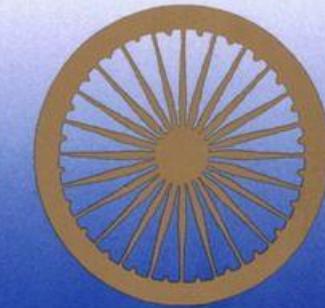


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THE ART OF LIVING

VIPASSANA MEDITATION

AS TAUGHT BY
S. N. GOENKA

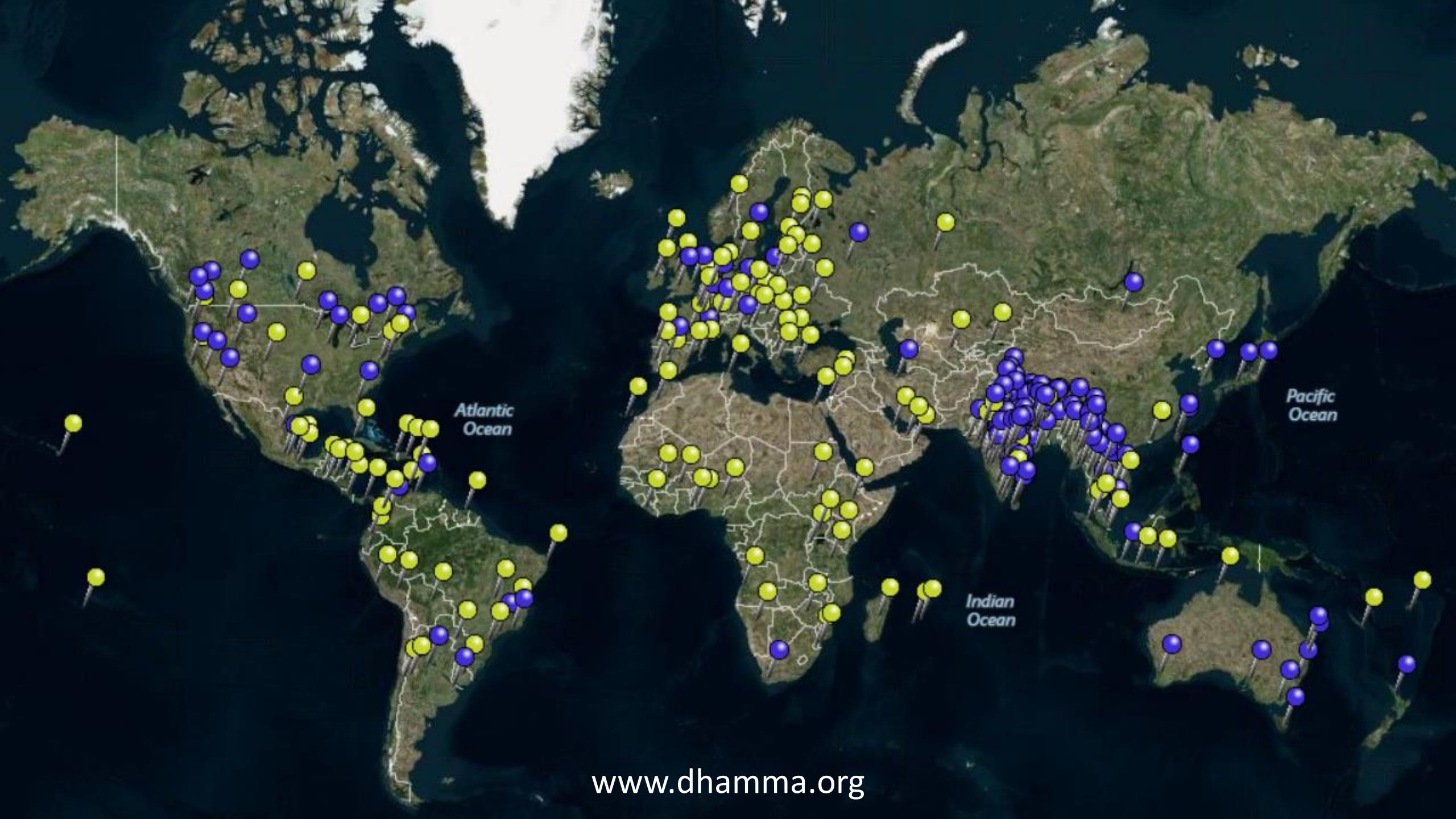


William Hart

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It is possible to be in mental,
physical, or emotional pain but
to not be suffering.

Suffering is how we
respond to pain.

Thank You!

Matthew Renze

Data Science Consultant

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