



Functional Movement Disorders

Merging Mind & Body

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A 4-Part Series

Part 1 – Peripheral Nervous System

Part 2 - Central Nervous System

Part 3 – Connective Tissue Disorders

Part 4 – Psychogenic Movement Disorders



The Importance of Functional Movement



Movement Dysfunction vs. Movement Disorder

Movement impairment syndrome (MIS) was developed by Sahrmann et al.

The combination of micro-instability, relative stiffness, the neuromuscular activation pattern and motor learning contribute to the development and persistence of the impairment.

Vs

Group of nervous system (neurological) conditions that cause abnormal increased movements, which may be voluntary or involuntary. Movement disorders can also cause reduced or slow movements.





The Mind Body Connection

Somatic Symptom Disorder

Psychosomatic Syndrome

Psychogenic Movement Disorders



The Complexity

It's time to look
beyond the
physical!



A Biopsychosocial Approach to Movement & Movement Disorders



WHAT IS THE BIOPSYCHOSOCIAL MODEL?





Limitations of the Biomedical Approach

Biopsychosocial Approach to Movement Dysfunction & Pain





Medically Unexplained Chronic Pain

Functional somatic syndromes or patterns of persistent physical complaints that do not match physical examination and does not reveal specific pathology

Body distress vs. "In their head"

Patients often feel like "medical orphans"

Can include IBS, fibromyalgia, chronic fatigue, non-cardiac chest pain, headaches, idiopathic neuropathy, back pain, foot pain



Medically Unexplained Movement Disorders

3% of movement disorders

Difficult to diagnose

Tremors make up 50% of these presentations

Dystonia, myoclonus, parkinsonism

Characteristics

Sudden onset

50% have psychiatric diagnosis



STRESS!!

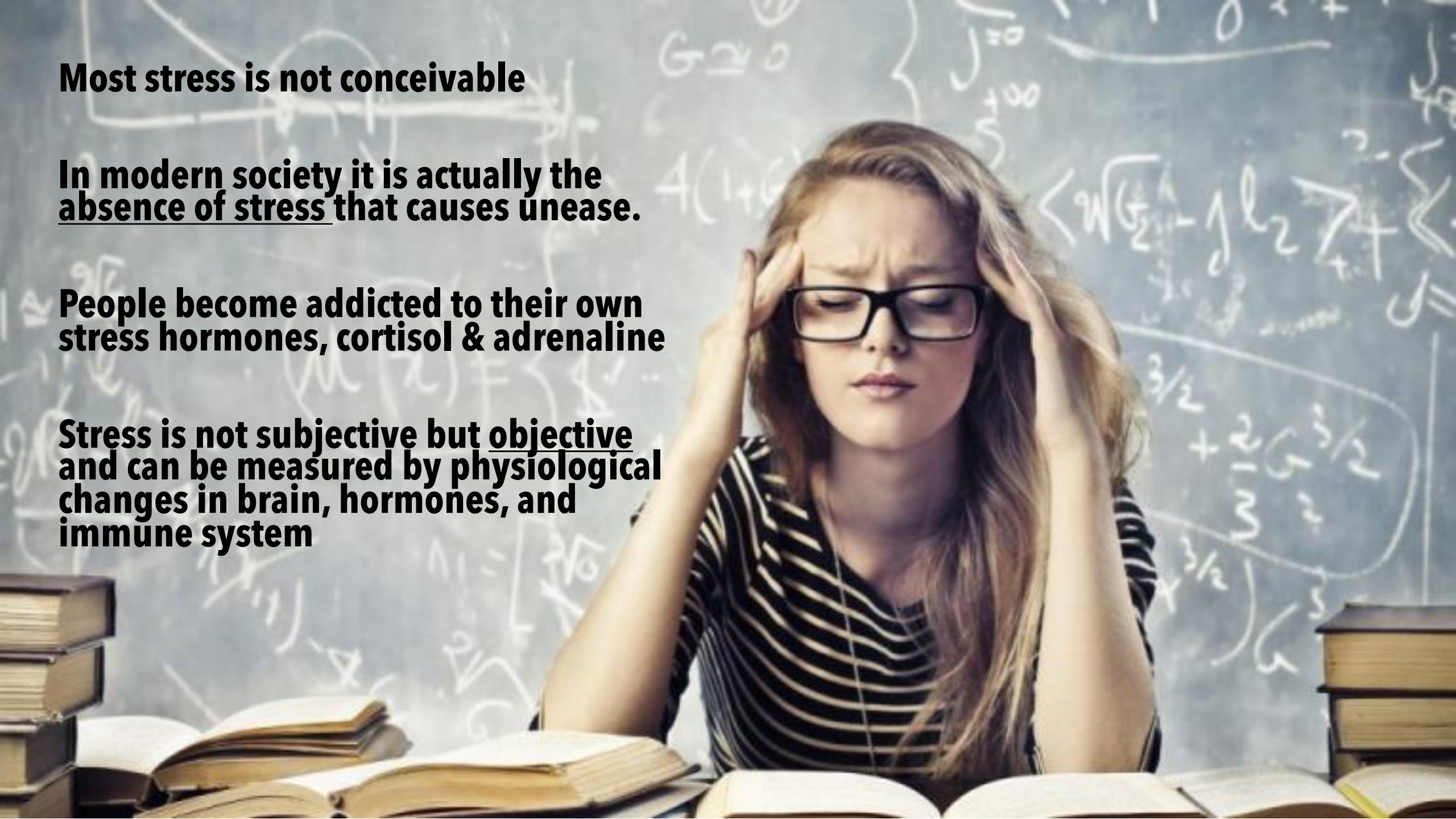


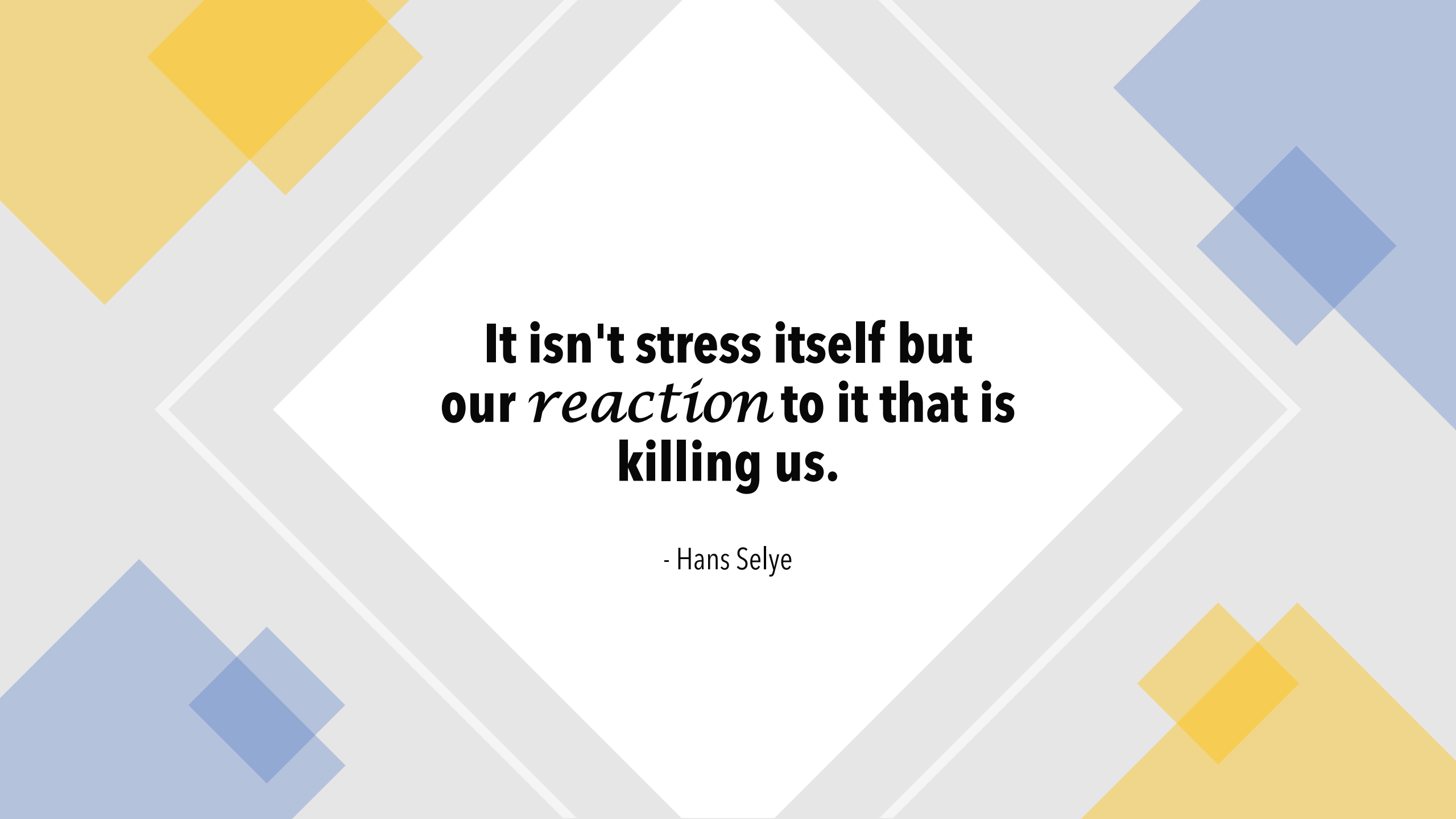
Most stress is not conceivable

In modern society it is actually the absence of stress that causes unease.

People become addicted to their own stress hormones, cortisol & adrenaline

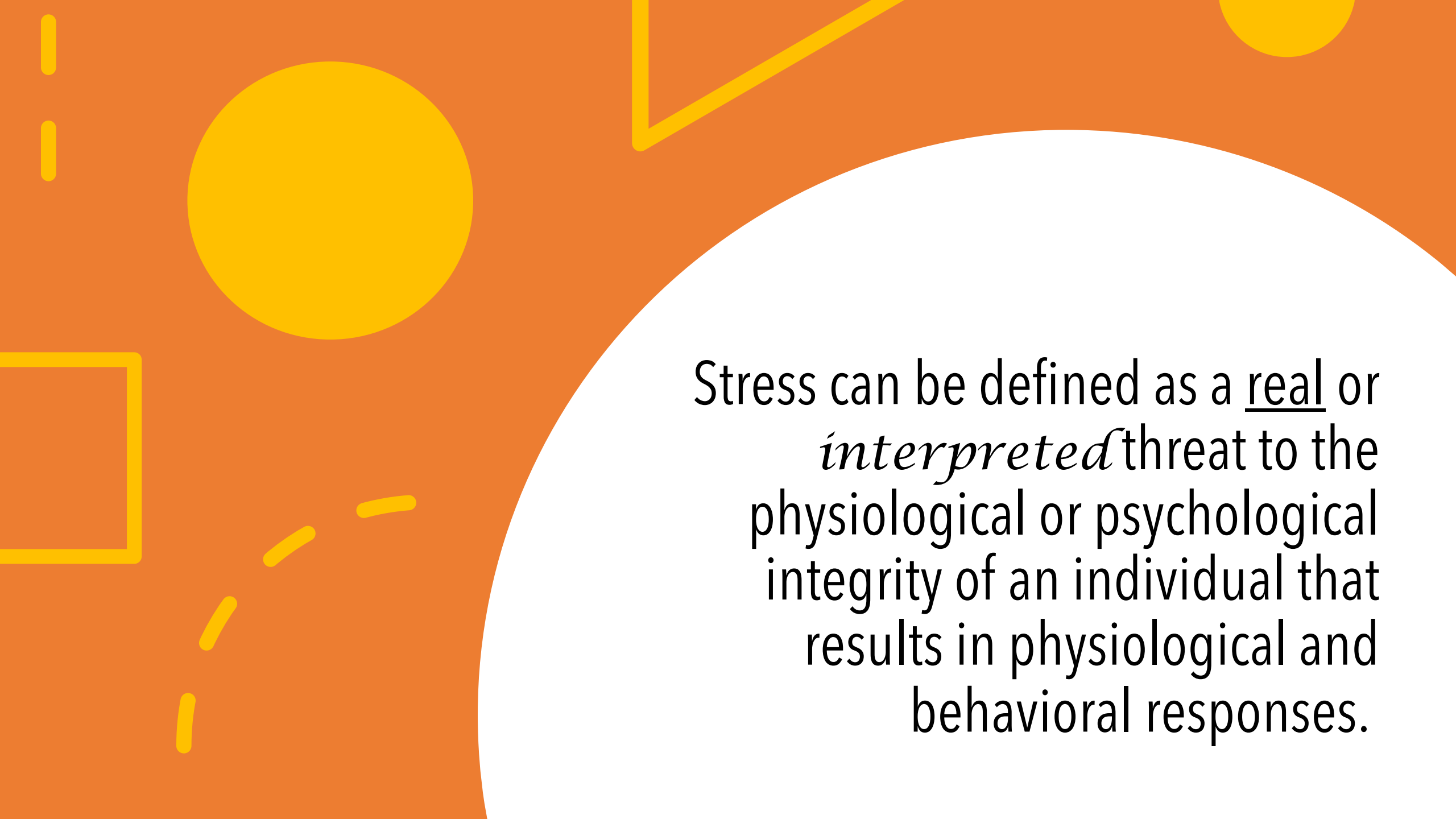
Stress is not subjective but objective and can be measured by physiological changes in brain, hormones, and immune system





**It isn't stress itself but
our *reaction* to it that is
killing us.**

- Hans Selye



Stress can be defined as a real or *interpreted* threat to the physiological or psychological integrity of an individual that results in physiological and behavioral responses.

Honor your
experiences and stress
response as it is
there to help you
survive!



A lioness is shown from behind, running through a dry, grassy savanna. In the background, a large herd of zebras is visible, slightly out of focus. A semi-transparent circular graphic is overlaid on the right side of the image, containing the title text.

The evolution of the stress response



Autonomic Nervous System | Sympathetic

Fight or flight response

Heart rate accelerator and blood pressure increase, liver glycogen is converted into glucose and peristalsis of the gastrointestinal tract is temporarily inhibited.

Sympathetic response with hypothalamic-pituitary-adrenal (HPA) axis, maintaining internal **homeostasis** (cortisol)

The "gas pedal" to heart rate





Autonomic Nervous System | Parasympathetic

Rest and digest response

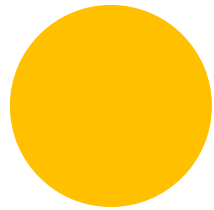
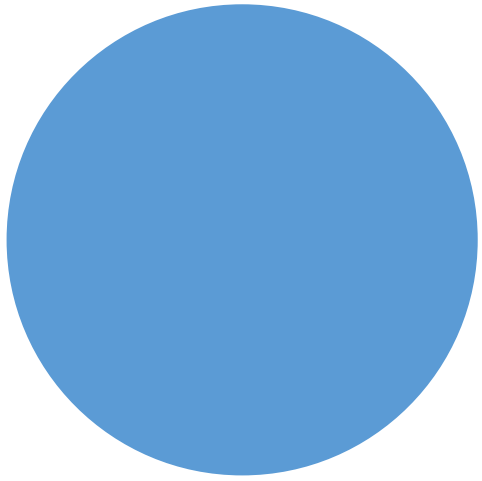
Returns the body functions back to normal. Blood pressure lowers, heart rate slows down, gastrointestinal peristalsis is turned on again and the liver starts producing new glycogen

80% of Parasympathetic System is **Vagus Nerve**

70% of Vagal branches are sensory / linked to emotion
Vagus Nerve = Interoception

The "brake" to heart rate





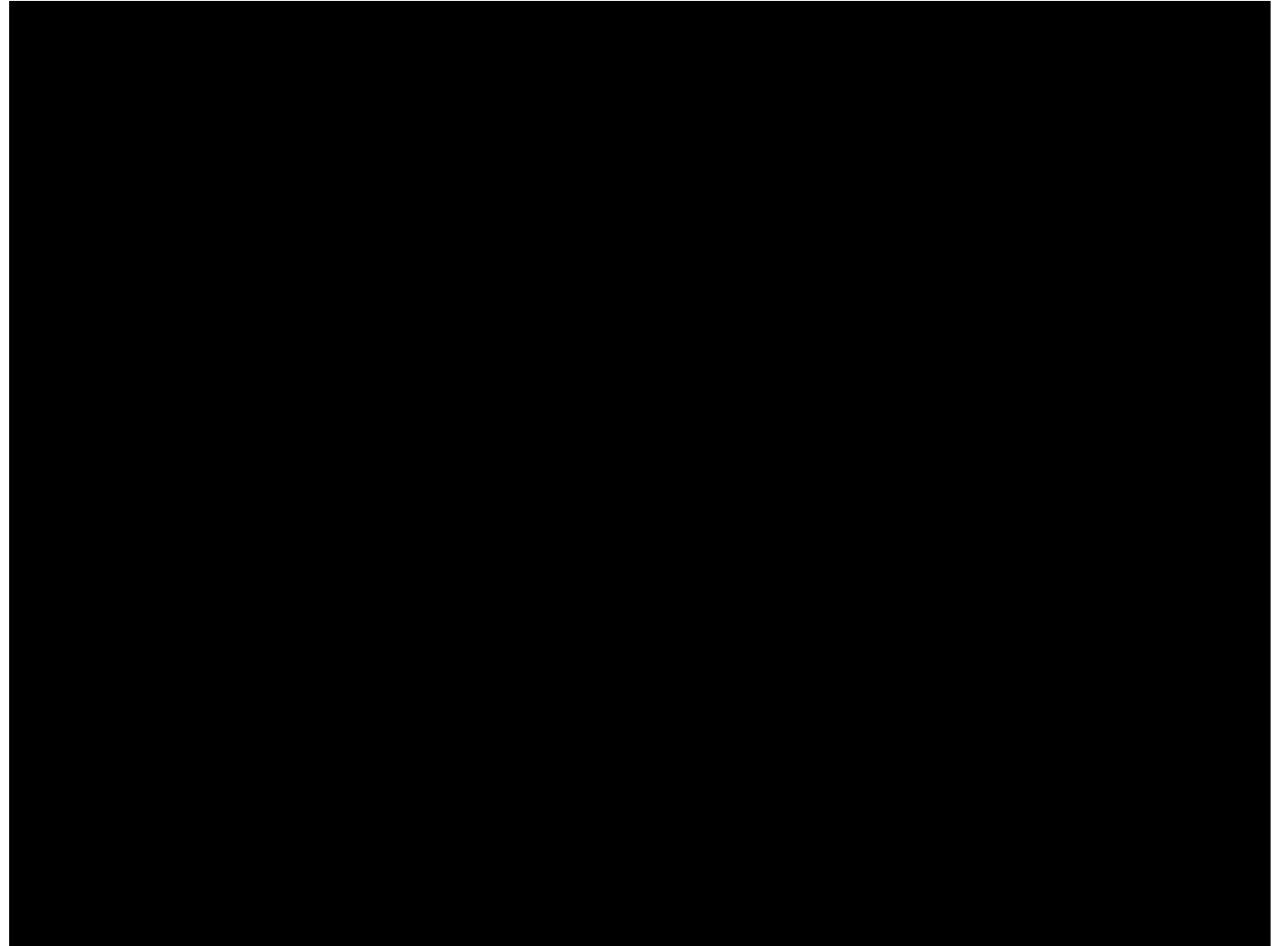
Functional Movement Disorders

Psychological stressor or physical event leads to unconsciously produced physical symptoms

Injury & infection are the most common

Functional (Psychogenic) Tremor

Prominent distractibility, changes
in rhythm, direction, and
amplitude





Functional (Psychogenic) Dystonia

Dystonia is a neurological disorder that causes intense, involuntary muscle contractions

Functional dystonia can cause movement symptoms in the face, neck, shoulder, torso, and/or limbs



Psychogenic Parkinsonism (PP)

At first look as though they have a parkinsonian gait, with short, shuffling steps; poor balance; initiation failure; and hesitations on turns

Differentiating features are a more upright stance, lack of tremor, frontal lobe signs, and apparent involvement of only the lower part of the body

Lower body parkinsonism



Children & Psychogenic Disorders

Modeling (mirroring) is expected to occur more frequently in children than adults
Children represented 5.7% of all patients with PMDs
Tremor was the most common presentation followed by dystonia

Treatment of Psychogenic Movement Disorders

Physical Therapy (See Part 2)

Medications (anti-depressants)

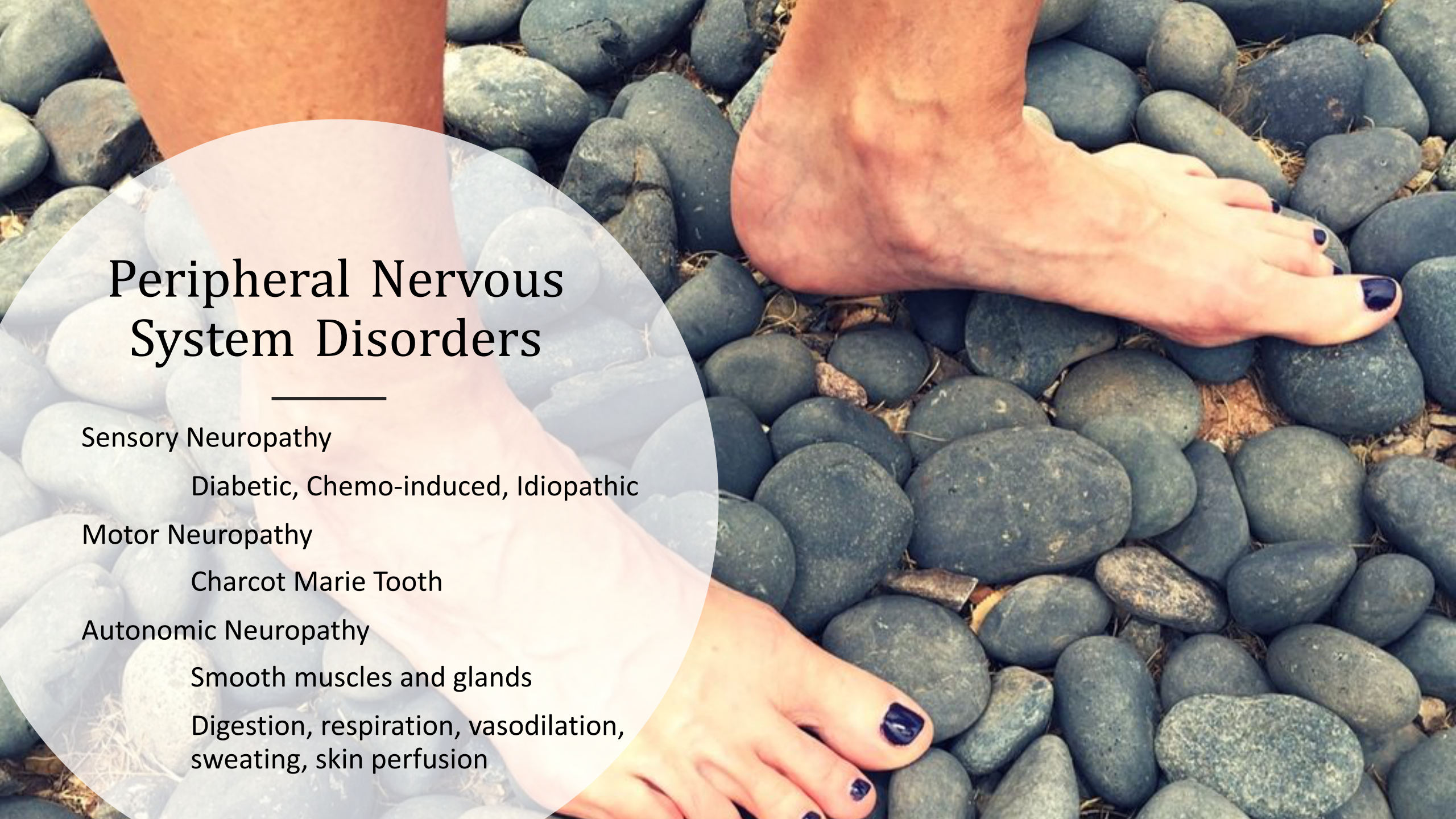
Addressing mind body influences

- Somatics

- Somatic Experiencing

- Cognitive behavior therapy





Peripheral Nervous System Disorders

Sensory Neuropathy

Diabetic, Chemo-induced, Idiopathic

Motor Neuropathy

Charcot Marie Tooth

Autonomic Neuropathy

Smooth muscles and glands

Digestion, respiration, vasodilation,
sweating, skin perfusion

Central Nervous System Disorders

Parkinson's Disease

Cerebellar Ataxia

Stroke (Ischemic event)

Dystonia





Generalized Hypermobility vs. Clinical Hypermobility (EDS)

Rheumatoid
Arthritis vs.
Osteoarthritis

