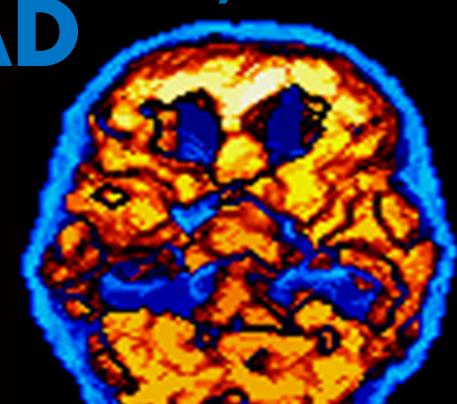




how STRESS affects your BRAIN



It's not all in your HEAD



Environmental stressors
(work, home, neighborhood)

Major life events

Trauma, abuse

Individual differences
(genes, development, experience)

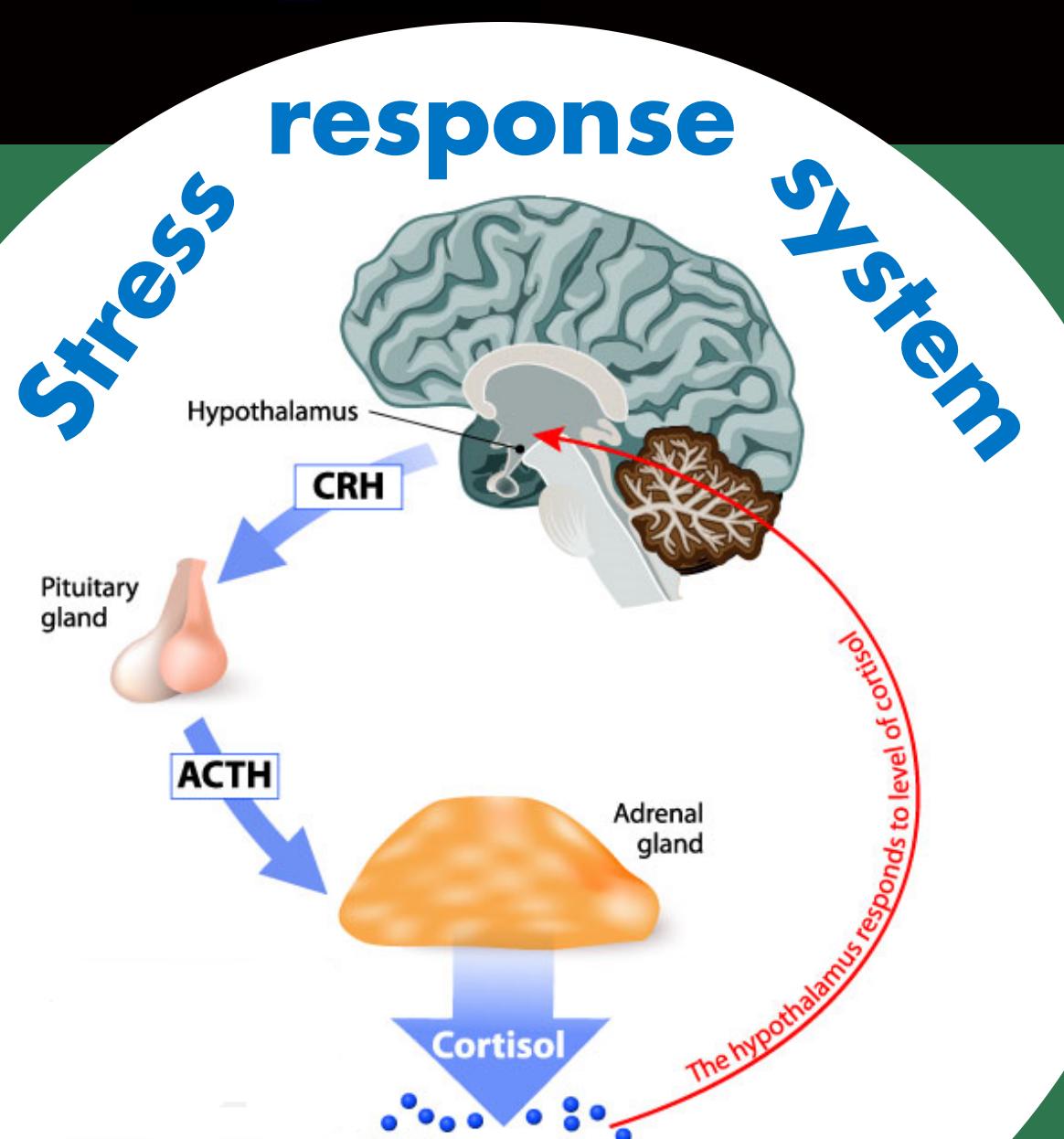
Perceived stress
(threat, helplessness, vigilance)

Behavioral responses
(fight or flight; personal behavior - diet, smoking, drinking, exercise)

Allostasis

Physiologic responses

Adaptation



effects of **cortisol** on the body:

arthritis **hunger** **hostility** **acid reflux** **disease** **tunnel vision**
migraines **sleep deprivation** **chronic fatigue** **hypertension**
depression **decreased metabolism** **decreased immune system**

Your body's response to stress

Initial Adaptive Stress Response

Adrenalin (Epinephrine), Cortisol
Glucose
Energy Mobilization and Use
Thinking & Performance
Cardiovascular Tone (Heart)
Cardiopulmonary Tone
Digestion
Sexuality

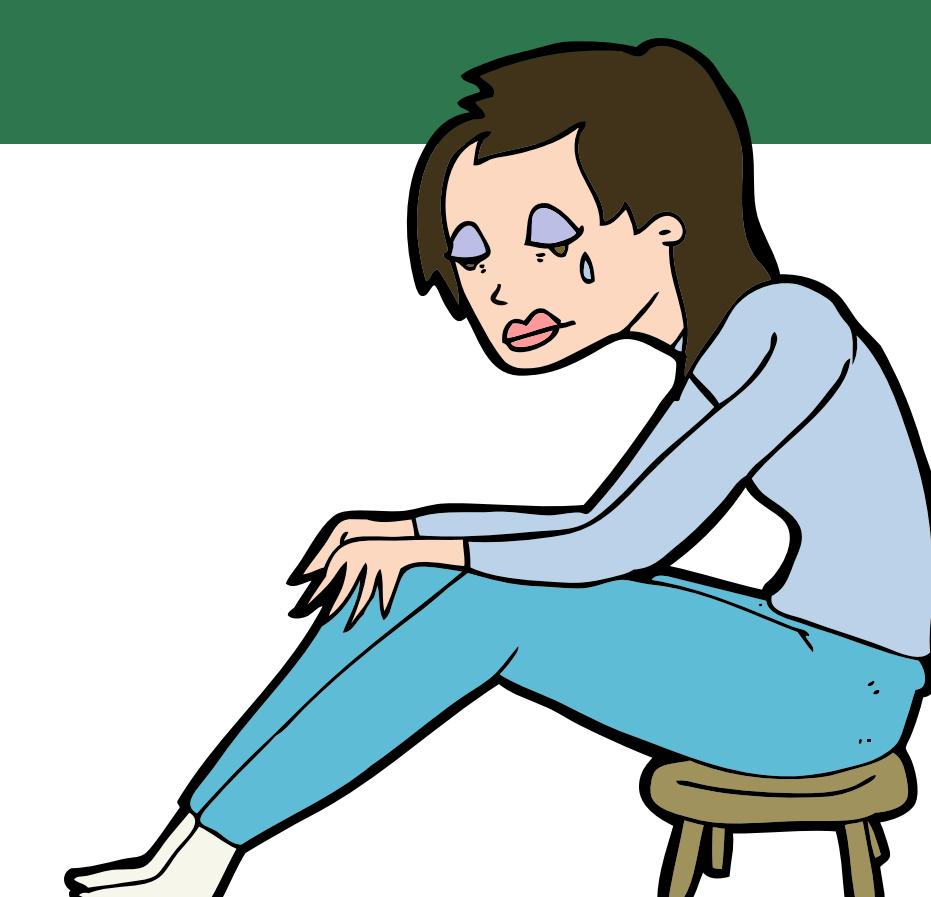
Stress Analgesia/Pain Tolerance
Immune System
Blood Clotting Factor
Blood Pressure
Skin Conductance (Sweat Glands)
Muscle Tone
Brain Activity (Beta)*
Extremity Temperature

Reproductive Hormones
Growth/Healing

Prolonged (Maladaptive) Stress Response

Immune Response
Memory and Learning
Sexuality: Impotence and Anovulation
Insulin Resistance and Weight
Fatigue
Stress Hypertension
Respiratory Problems
Opportunistic Infections

Pain Tolerance
Skin Conductance (Dry Skin)
Depression
Bone Decalcification
Addictions
Somatic Syndromes
Autoimmune disorders



Mental health and associated addiction problems often begin **early in life**
- many during childhood and adolescence.

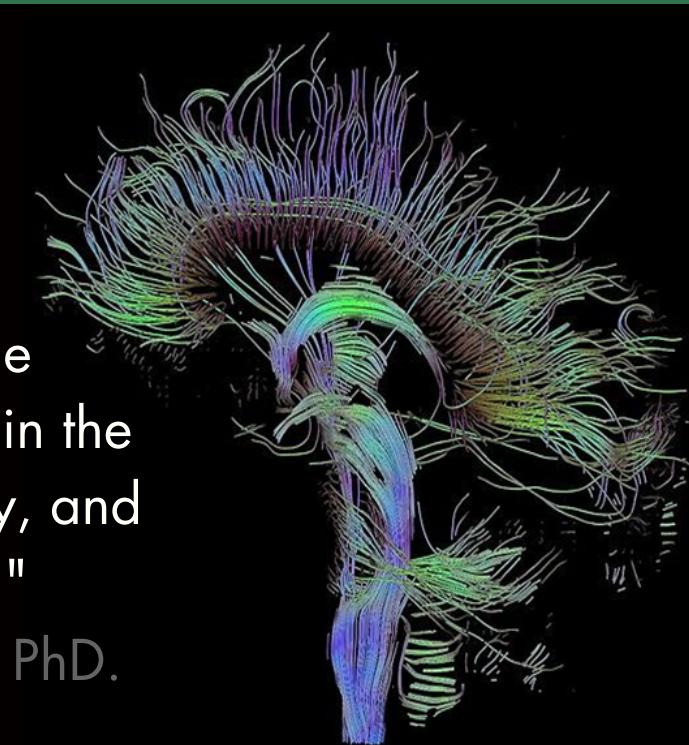
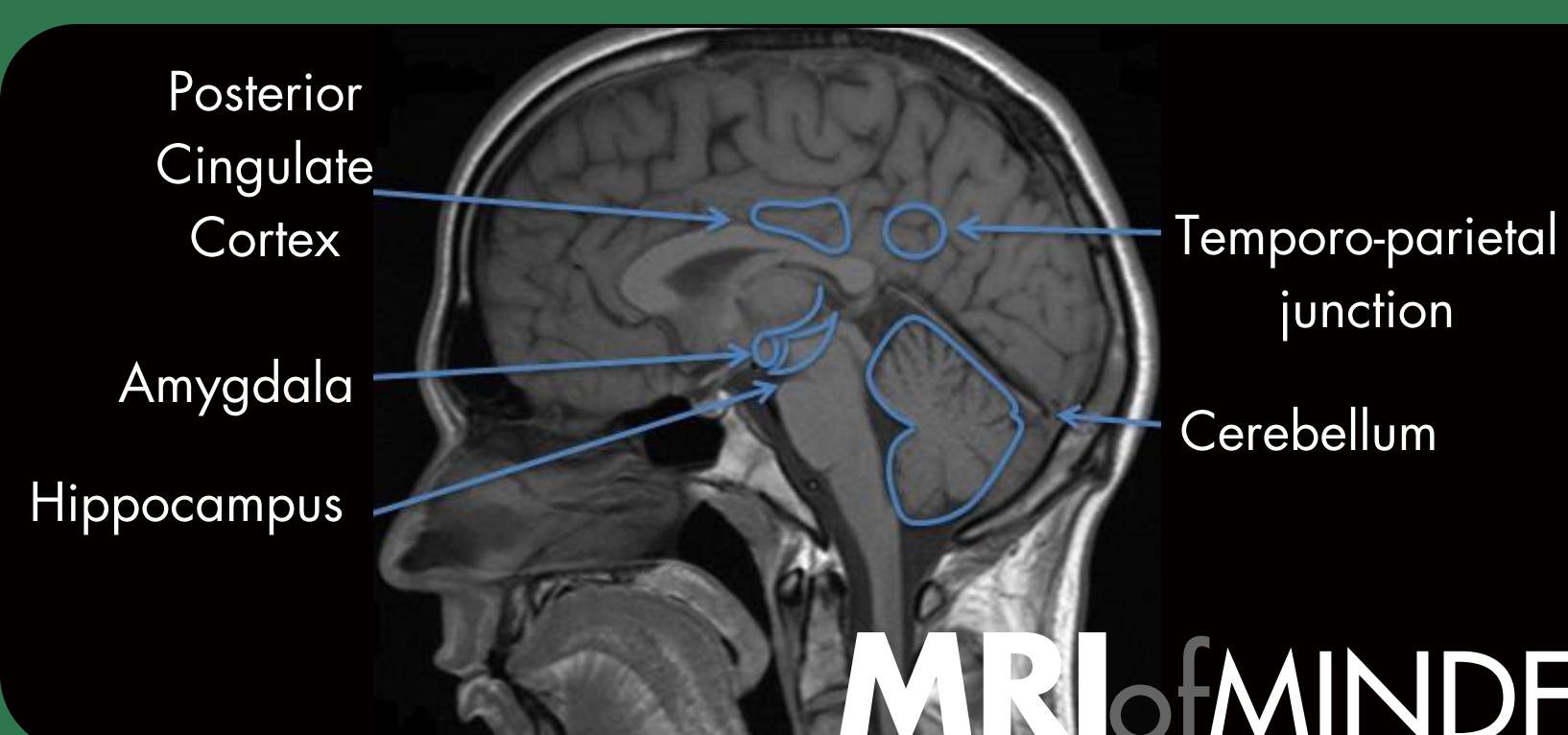
What to do?

- Identify mental health needs as early as possible
- Provide coordinated and high-quality programs and services in school and social environments

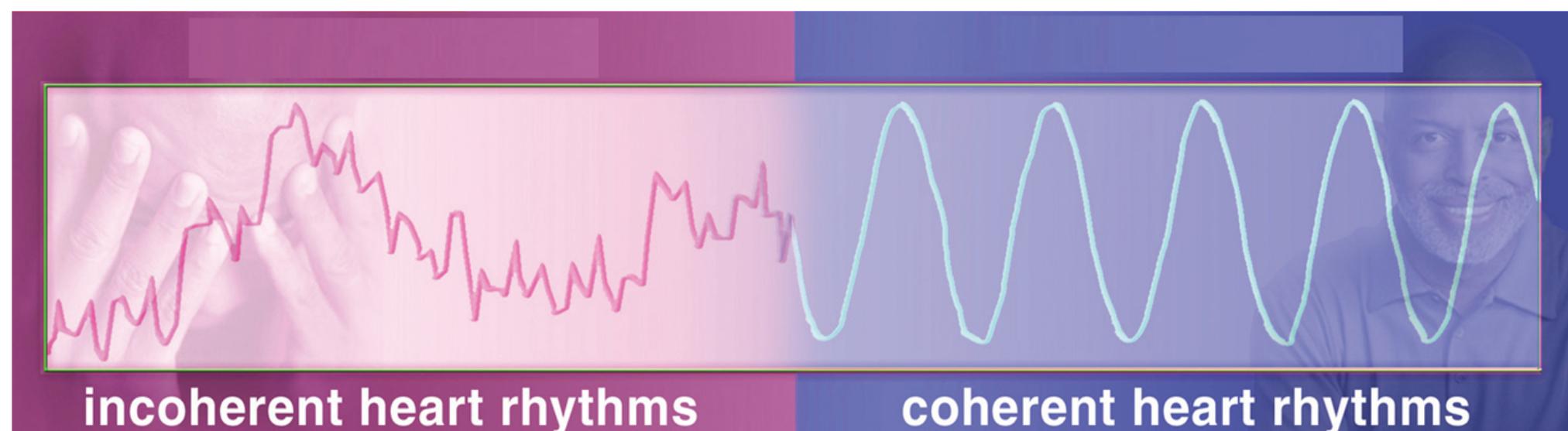
Mindfulness

"...after eight weeks of a mindfulness-based stress reduction class, participants exhibited increased gray matter in four regions of the brain: the left hippocampus, the posterior cingulate cortex, the left temporoparietal junction, and the cerebellum. So, in the hippocampus and cerebellum, more gray matter contributes to coordination, memory, and emotional regulation, while in the amygdala more gray matter contributes to stress..."

Sara Lazar, PhD. & David Vago, PhD.



MRI of MINDFULNESS



strive for coherence

Coherence is marked by smooth, balanced heart rhythms and the harmonious function of the body's mental, emotional and physical systems.

As coherence levels increase, so do **energy levels**, **mental clarity** and the **ability to perform** under routine or unusual conditions. The Navy's Coherence Advantage training emphasizes a take-charge attitude. Trainees learn to shift into coherence on command, increasing confidence for successful missions.