Stress and Well-Being

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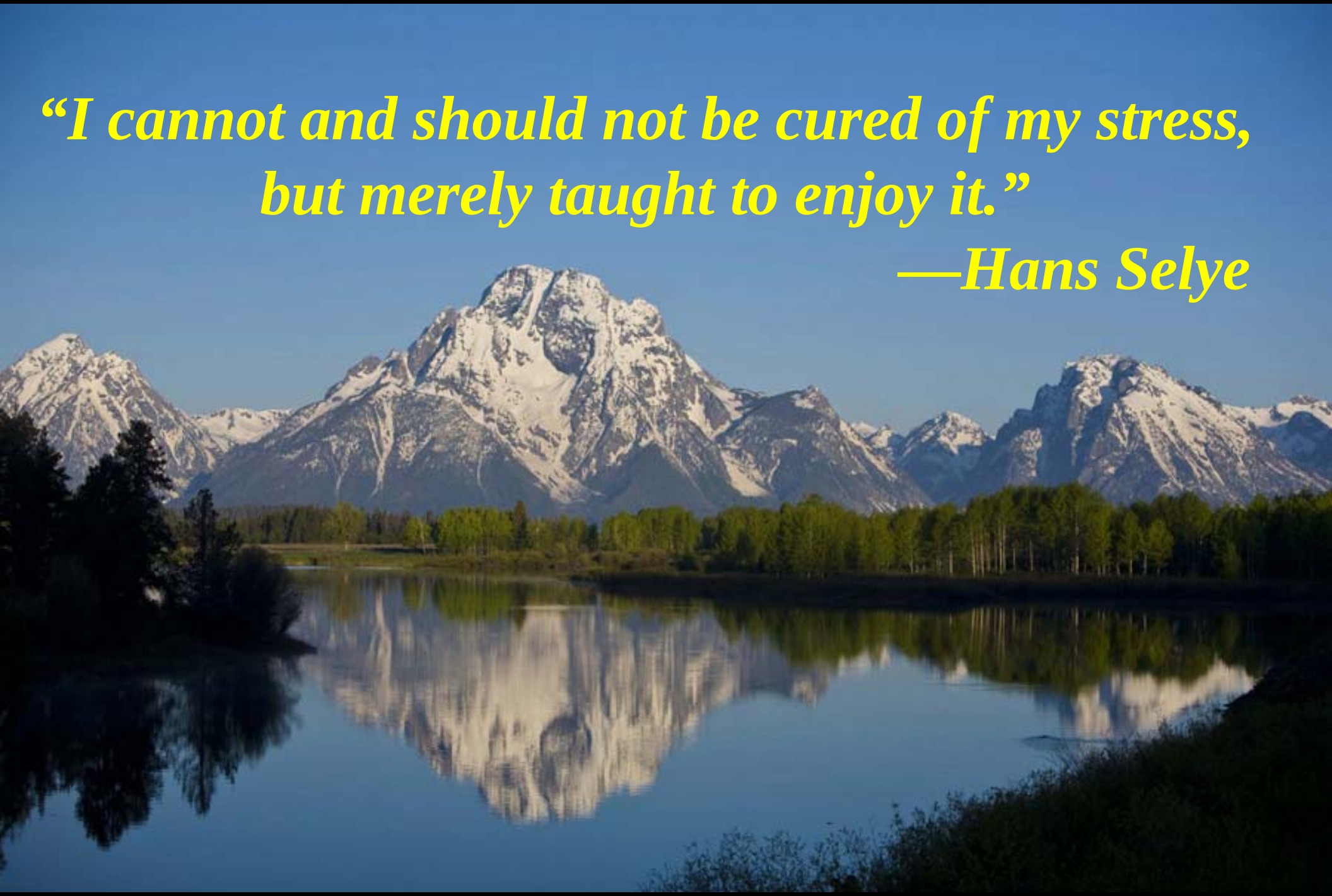
The Nature of Stress

"Life is either a daring adventure, or nothing at all."

— Helen Keller


“I cannot and should not be cured of my stress,
but merely taught to enjoy it.”
—Hans Selye

Times of Change and Uncertainty

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- *Typically, people don't like change!*
- *We are living in a confluence of many changes coming together. People are feeling overwhelmed.*
- *This, on top of personal stressors, compounds stress.*
- *Where there is change, however, there is opportunity!*

The 24/7, on-demand, rushed lifestyle often leaves people overwhelmed, tired, burnt out, and frustrated—

STRESSED!

The association between chronic stress and a host of health-related issues is now undisputed.

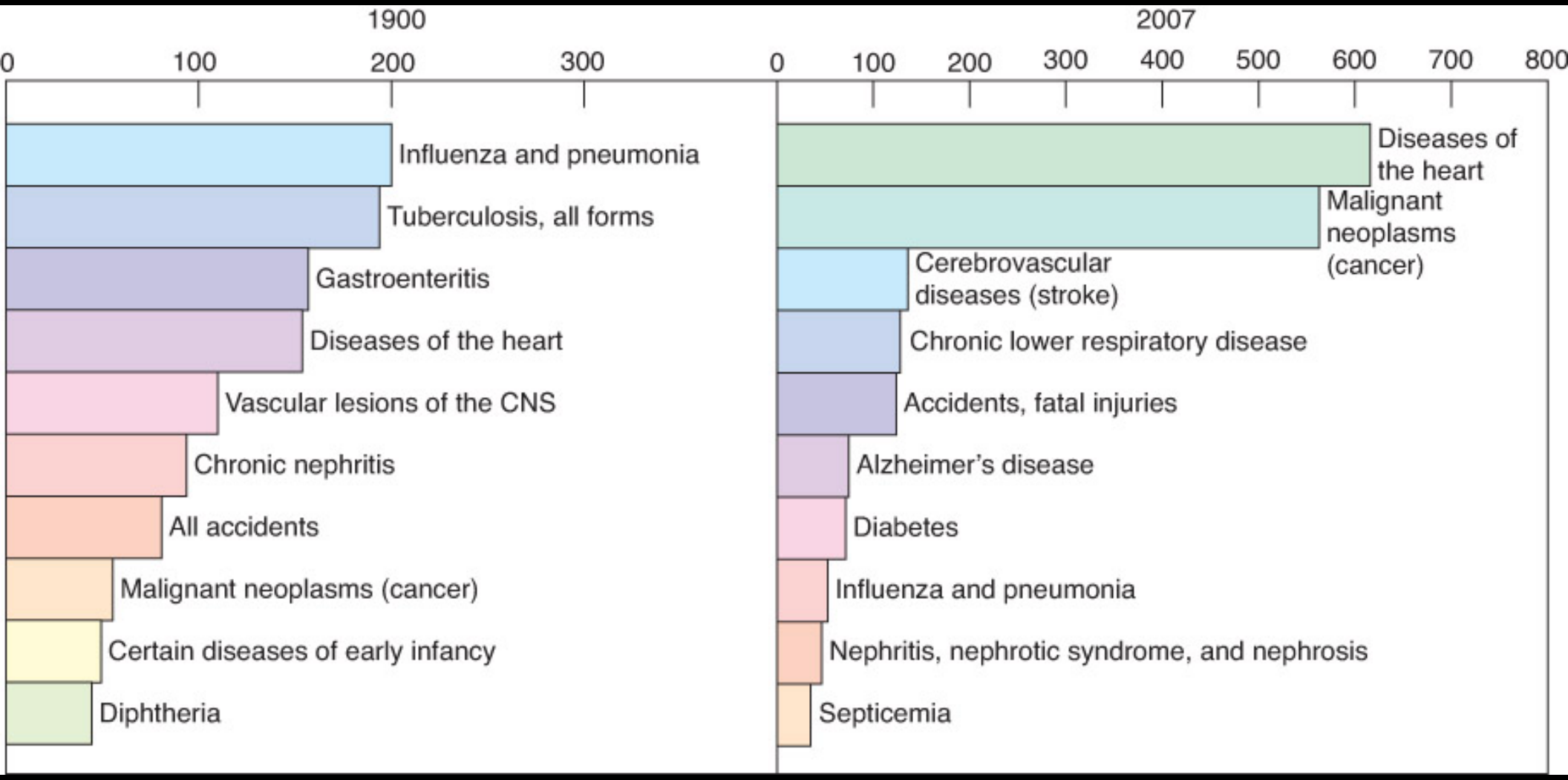

Figure 1.1. Leading Causes of Death in America.

Source: National Center for Health Statistics, Washington, DC, 2009.

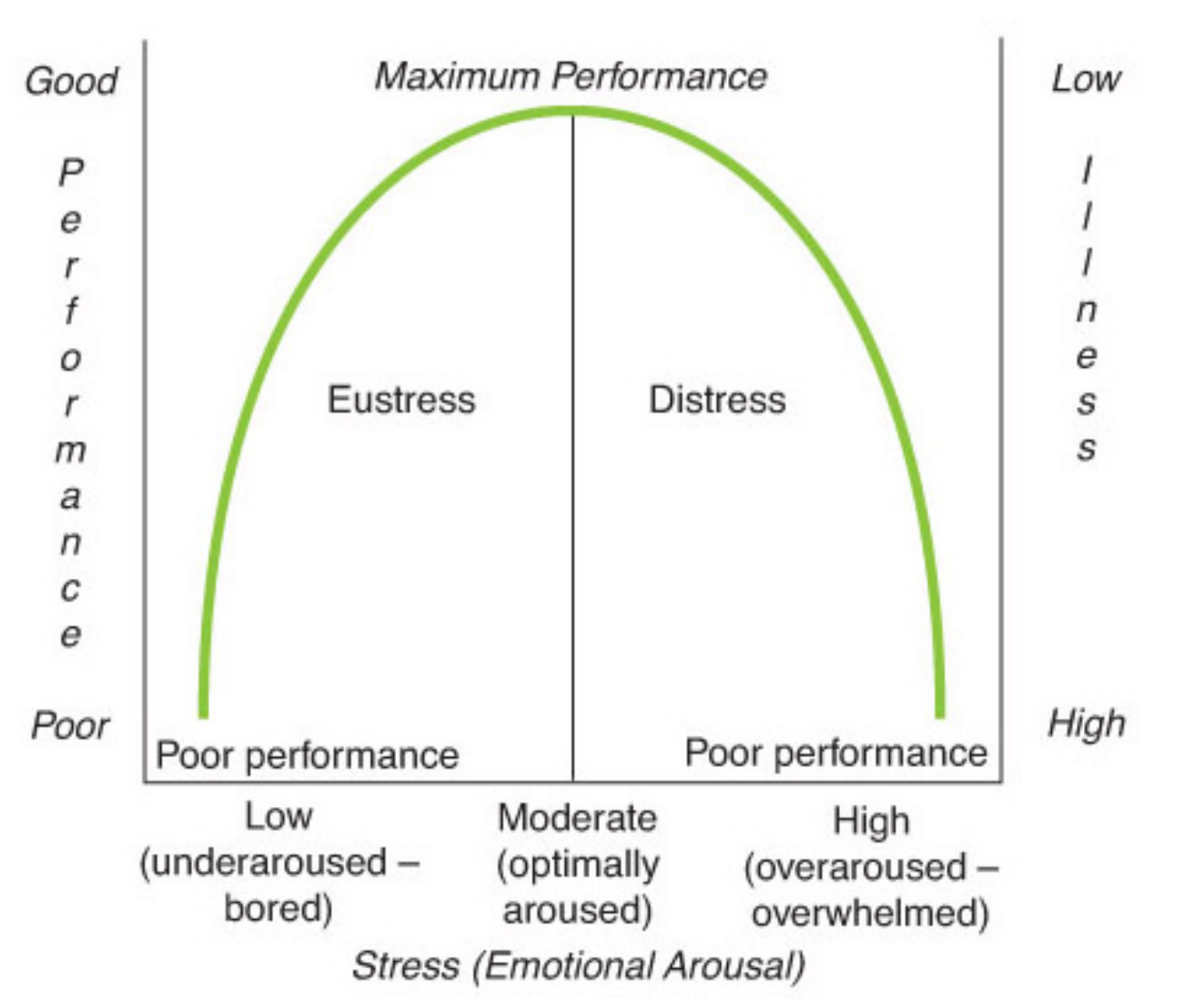

Figure 1.5. The Yerkes-Dodson Curve: Beyond the optimal point, stress will surely affect performance and health.

Definitions of Stress

Definition of Stress

When “stress” is mentioned – what descriptive words does it bring to mind

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- *Stress is the loss of emotional control*
- *Stress is the absence of inner peace*

Definitions of Stress

Stress is a perceived threat (real or imagined) to our mind, body, spirit, or emotions.

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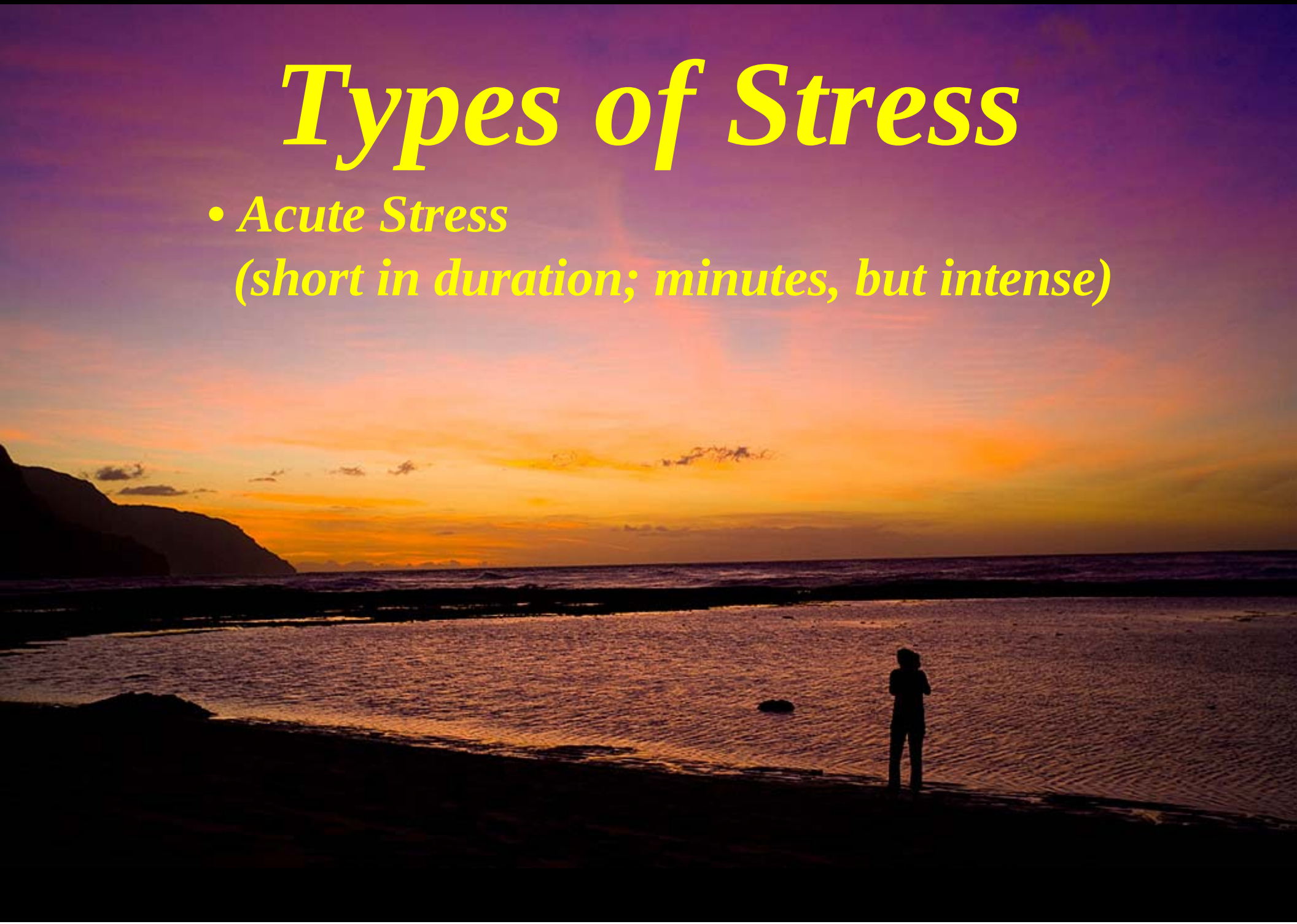
- *Neustress (neutral stress)*
- *Distress (bad stress)*

Types of Stress

- ***Acute Stress***
  (short in duration; minutes, but intense)



Types of Stress

- ***Acute Stress***
  (short in duration; minutes, but intense)

- ***Chronic Stress***
  (much longer in duration; days, weeks, etc., but nowhere near as intense)

What Causes Stress?

- Daily events – traffic congestion, deadlines, personal conflicts
- Environmental stressors – pollution, weather extremes or excessive noise
- Physical stressors – physical injury, chronic pain, hunger
- Life events – death of a loved one, birth of a child, moving

Life Events and Health

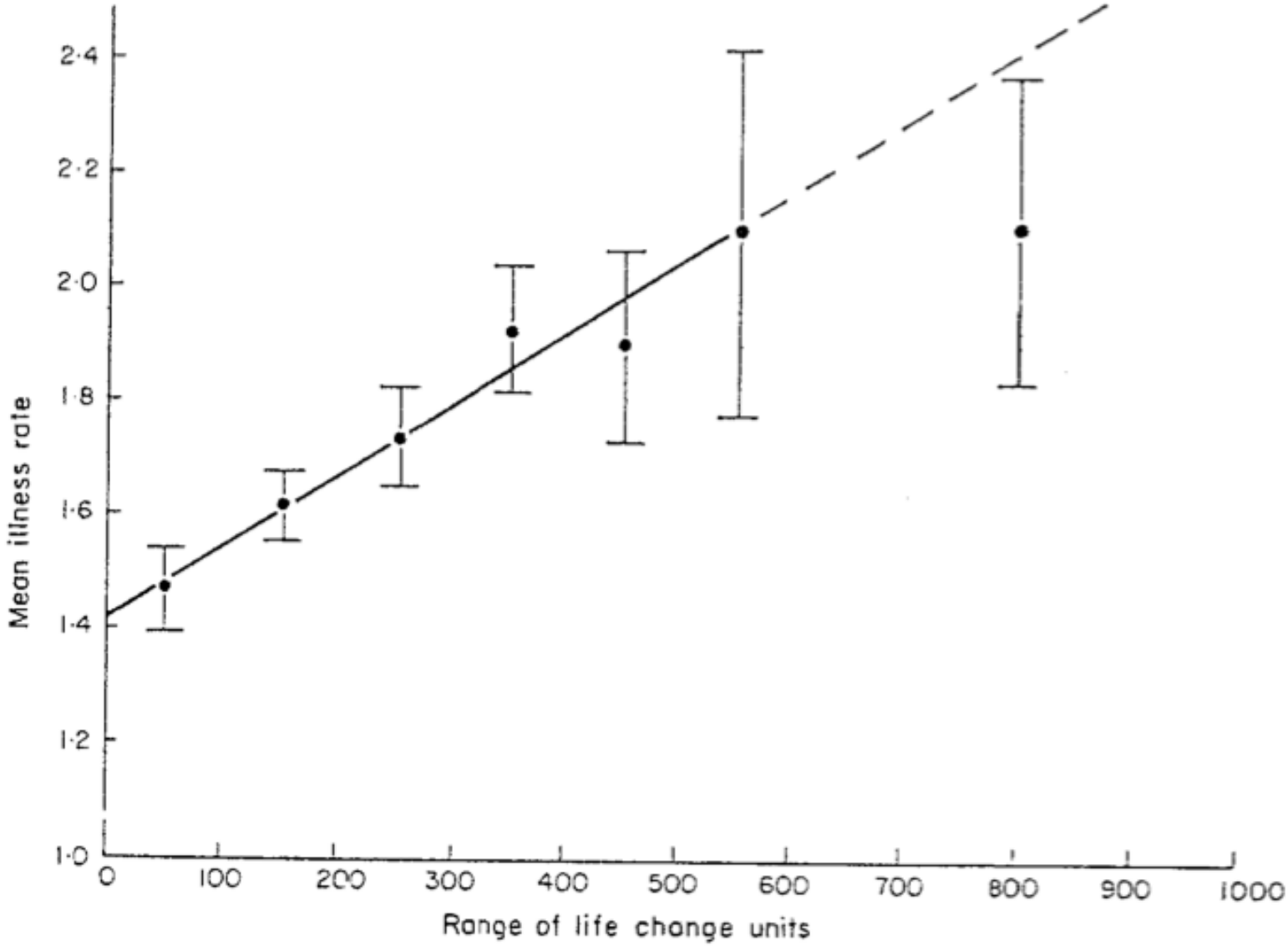
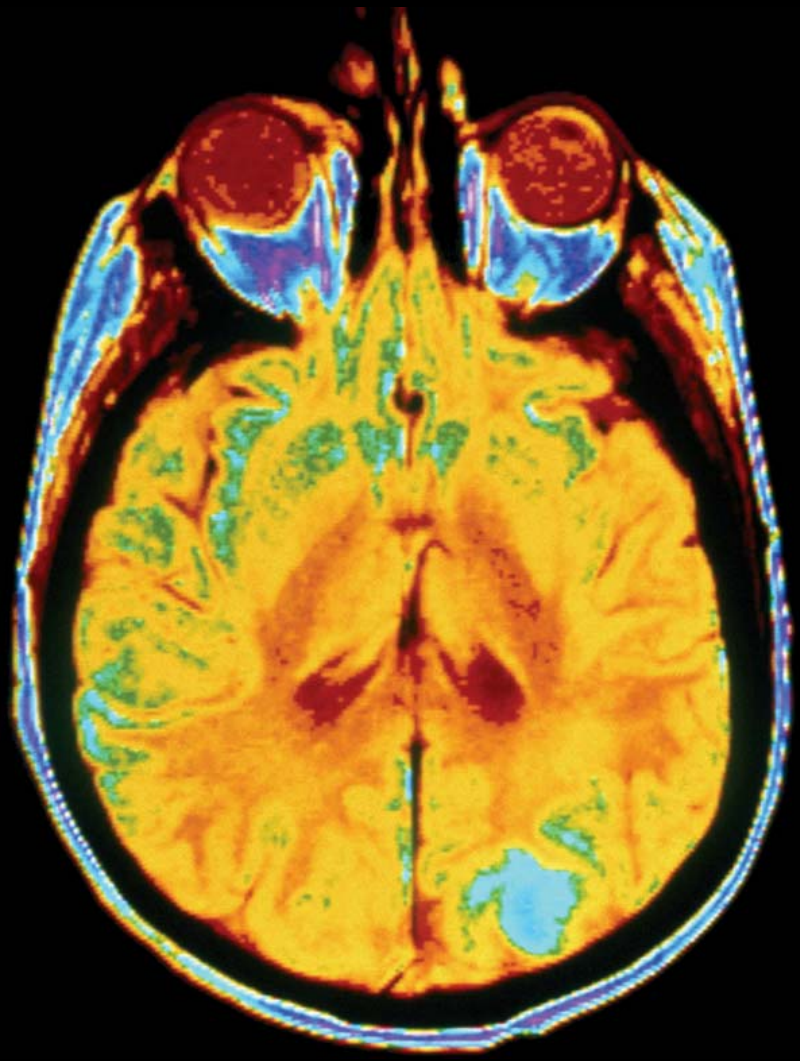
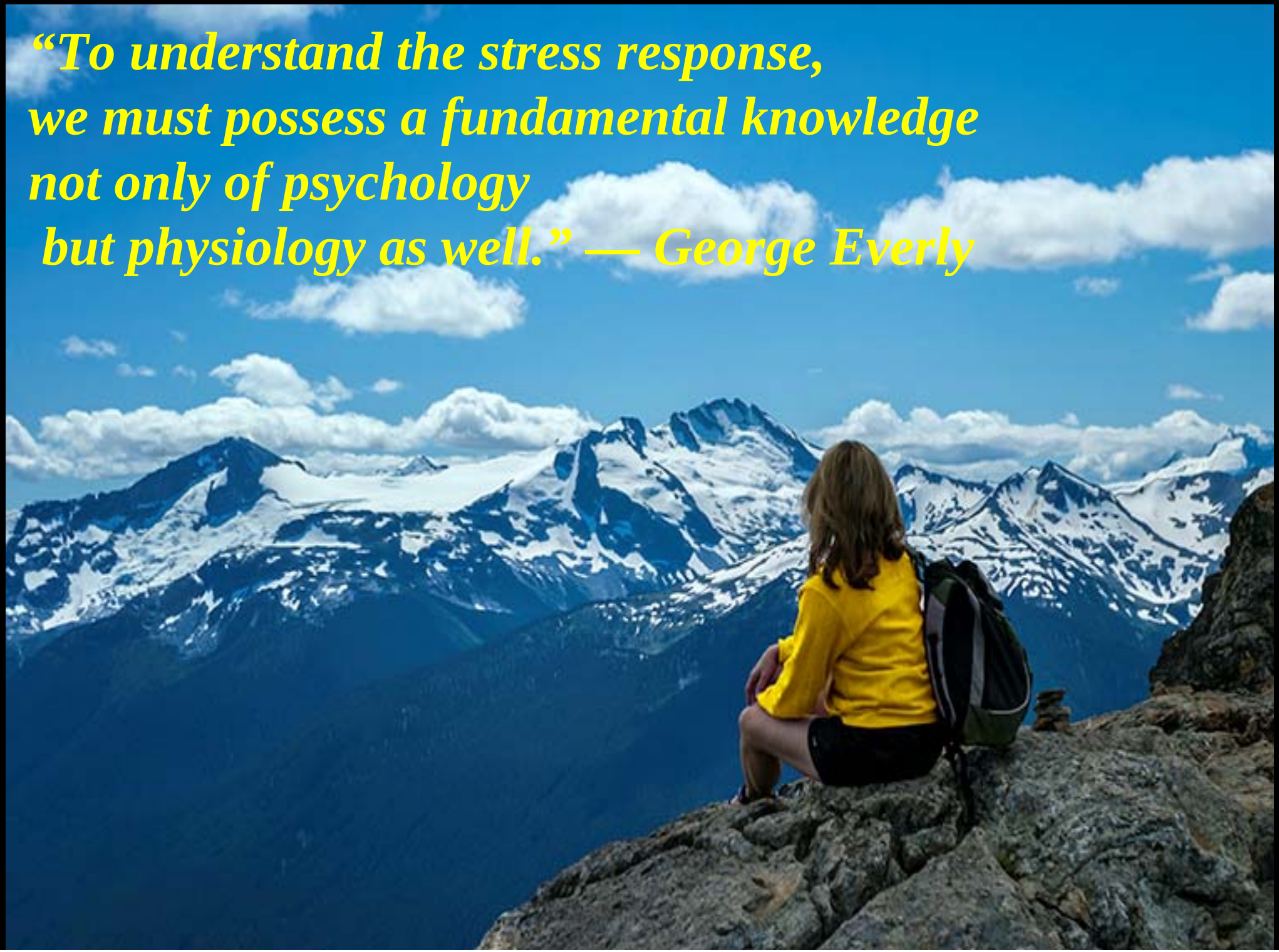


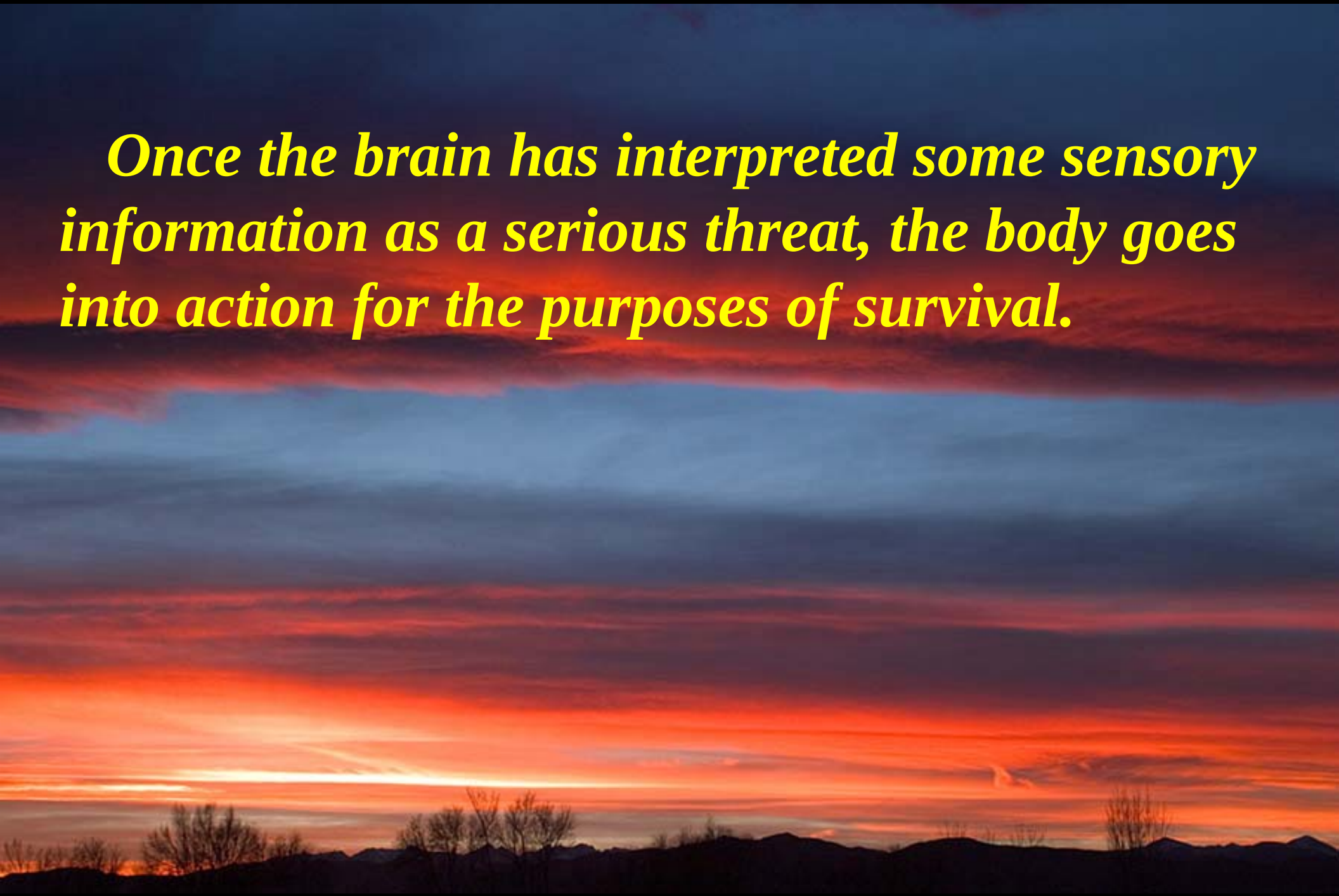
FIG. 1.—Mean illness rates and standard errors of the mean for equal divisions of the total range of life change units.

Holmes & Rahe, 1967

Physiology of Stress




“To understand the stress response,
we must possess a fundamental knowledge
not only of psychology
but physiology as well.” — George Everly



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The term "psychophysiology" refers to this mind-body connection.

The Fight-or-Flight Response

The Stress Response

by Walter Cannon

Stage 1: Stimuli is sent to the brain

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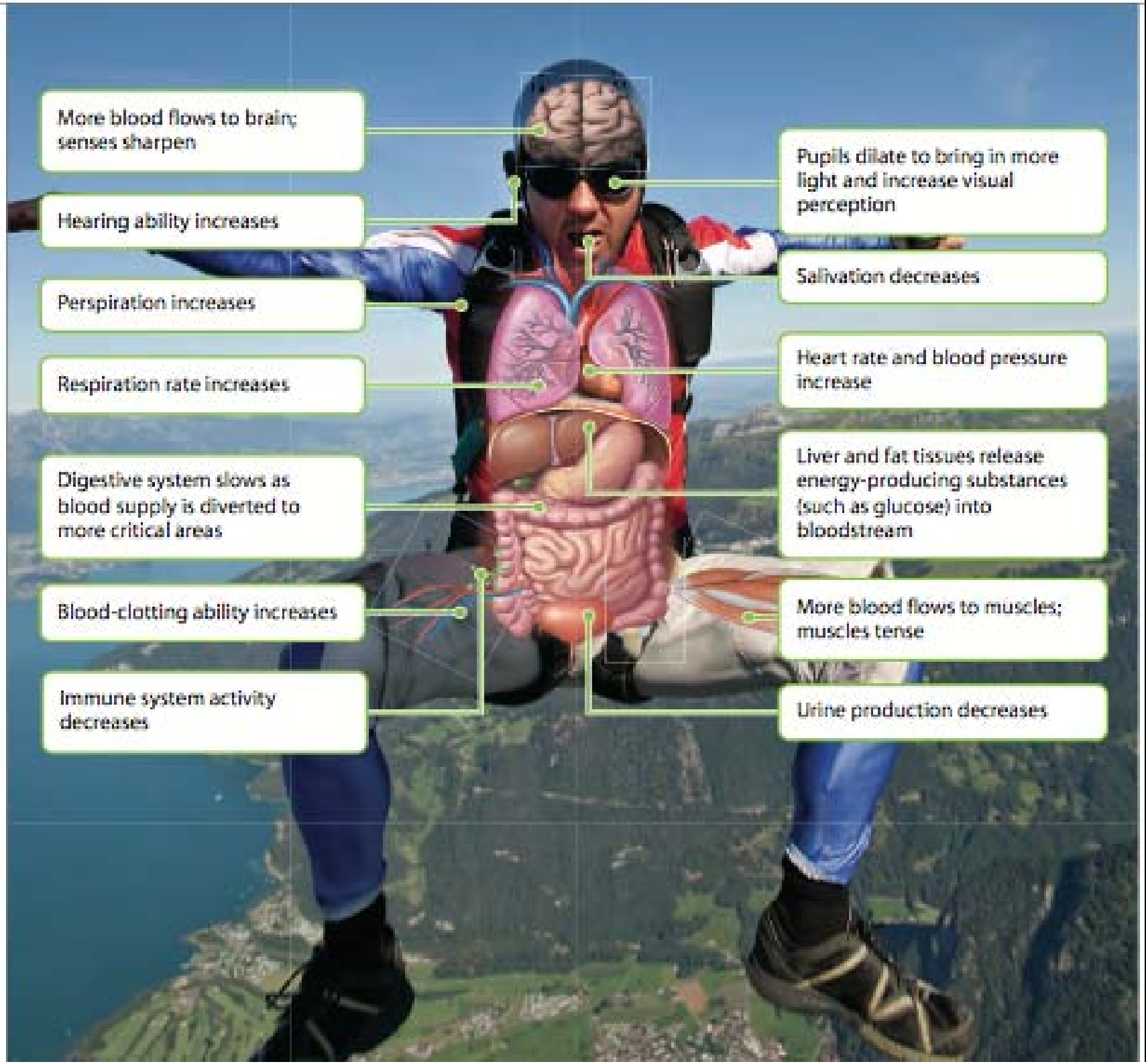
Stage 3: Body stays activated until threat is over

Stage 4: Body returns to homeostasis (physiological calmness, once the threat is gone)

The Stress Response

Physical Symptoms

- *Increased blood pressure*
- *Increased heart rate*
- *Increased vasodilatation to periphery*
- *Increased serum glucose for energy metabolism*
- *Increased free fatty acids for energy metabolism*
- *Increased blood clotting ability*
- *Increased neural activity to muscles (contraction)*
- *Decreased gastric activity*
- *Increased perspiration (to cool body temp)*

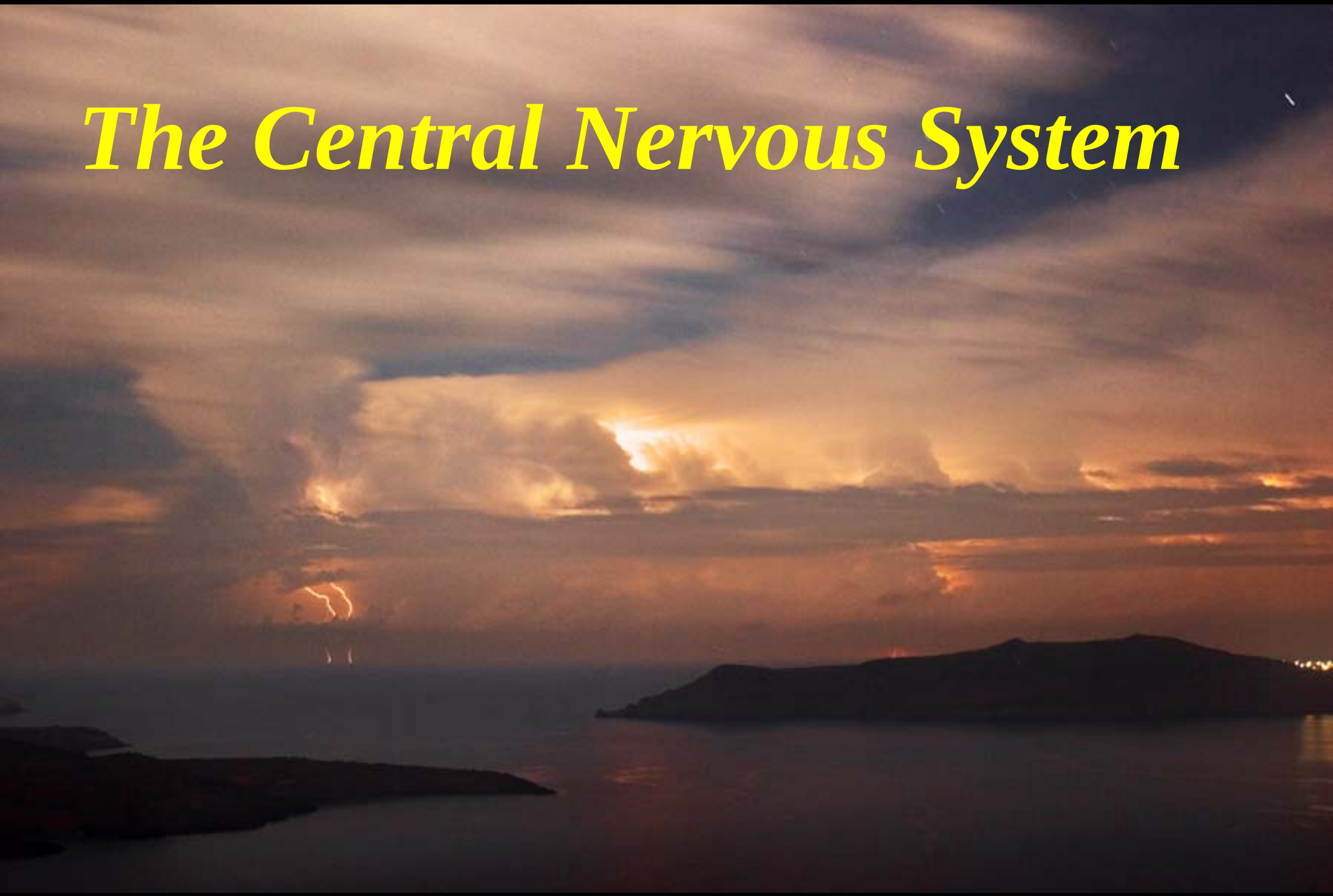

More blood flows to brain; senses sharpen
Hearing ability increases
Perspiration increases
Respiration rate increases
Digestive system slows as blood supply is diverted to more critical areas
Blood-clotting ability increases
Immune system activity decreases
Pupils dilate to bring in more light and increase visual perception
Salivation decreases
Heart rate and blood pressure increase
Liver and fat tissues release energy-producing substances (such as glucose) into bloodstream
More blood flows to muscles; muscles tense
Urine production decreases

Can the Flight or Flight be Harmful?

- Many of our stressors today trigger activation of the flight or fight response, but neither fight nor flight is necessary
  - Examples?
- Excessive stress (overactivation of these systems) is related to headache, upset stomach, racing heartbeat, and even depression

Why Zebras Don’t Get Ulcers

The Central Nervous System



The Central Nervous System

The Central Nervous System (CNS) consists of the brain and spinal column while the peripheral nervous system (PNS) comprises all neural pathways to the extremities.

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- ***The Neocortical Level***

(The conscious power to override the stress response is here)

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- ***The Vegetative Level***

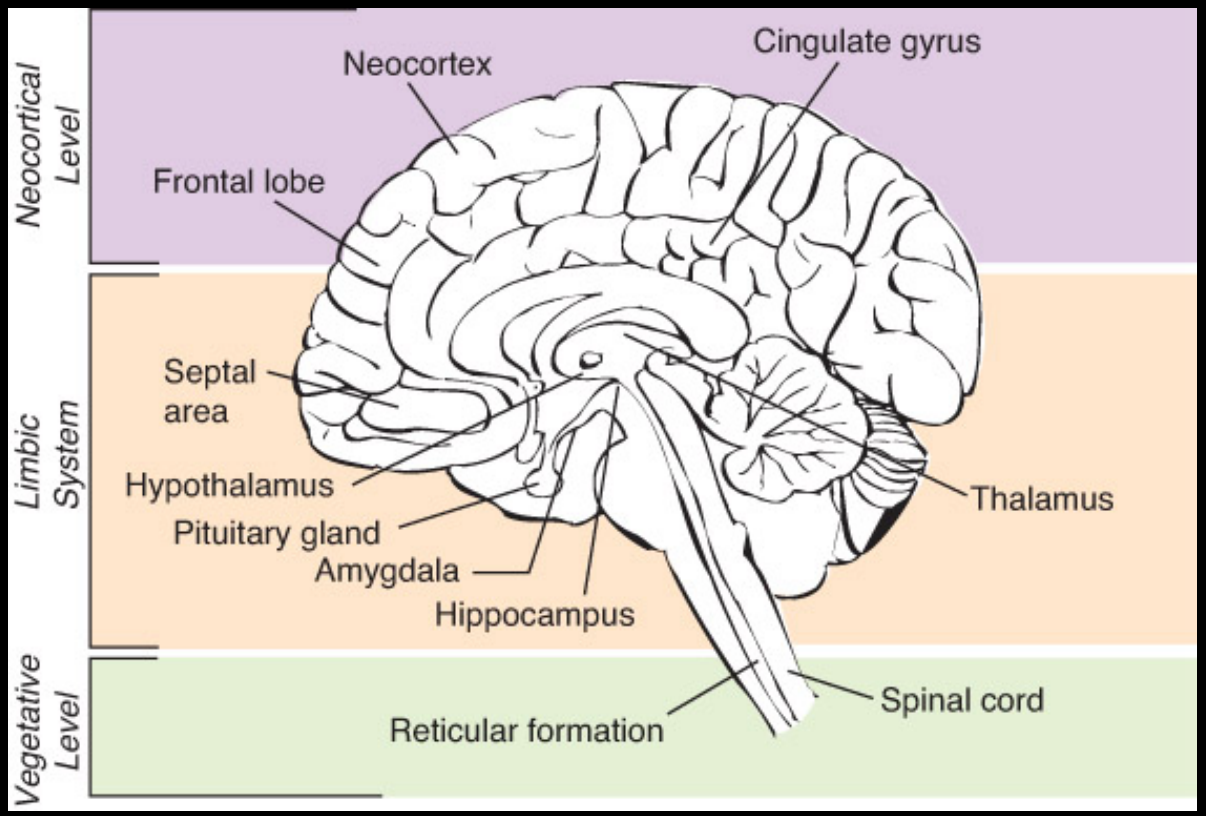


Figure 3.1. The three levels of the human brain include the vegetative level, the limbic system, and the neocortical level.

The Autonomic Nervous System

Sympathetic Nervous System (Stress Response)

Parasympathetic Nervous System (Relaxation Response)

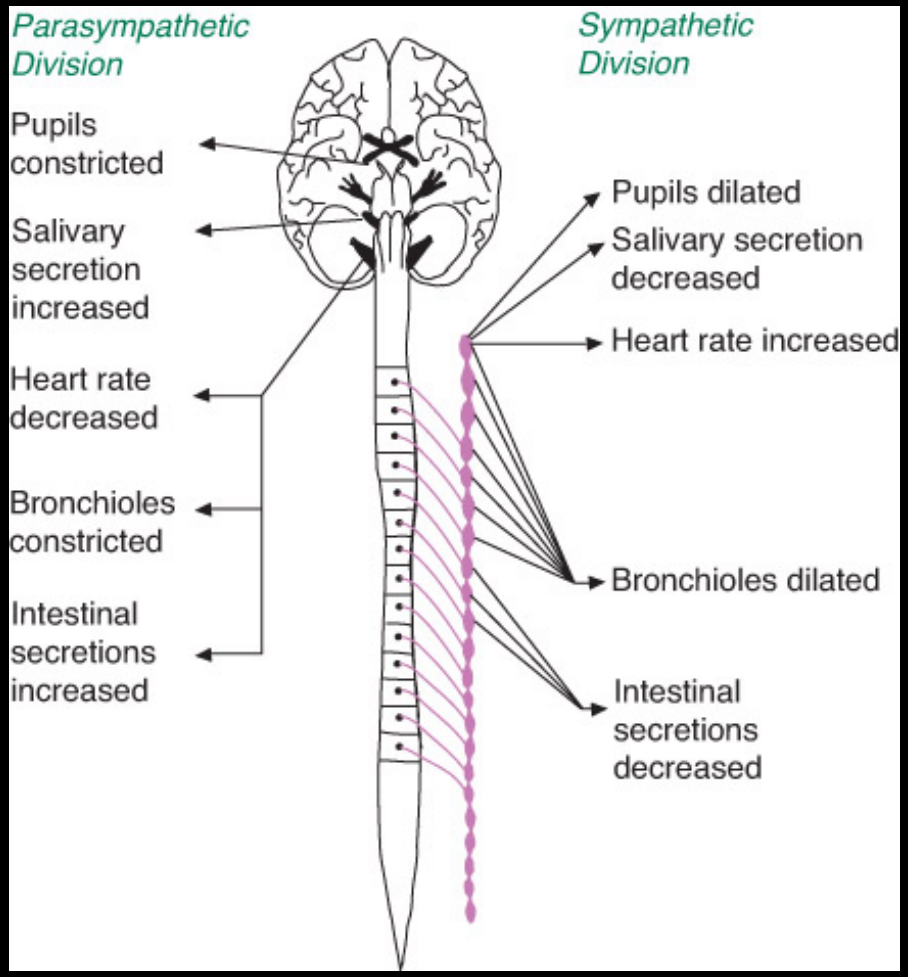


Figure 3.3. The sympathetic and parasympathetic nervous systems. Internal organs are typically innervated by neural fibers from both sympathetic and parasympathetic divisions.

The Endocrine System

The Endocrine System

The endocrine system is made of many hormonal glands. Stress triggers the pituitary, hypothalamus, and adrenal glands. The adrenal gland is often called the stress gland for its role in the fight-or-flight response.

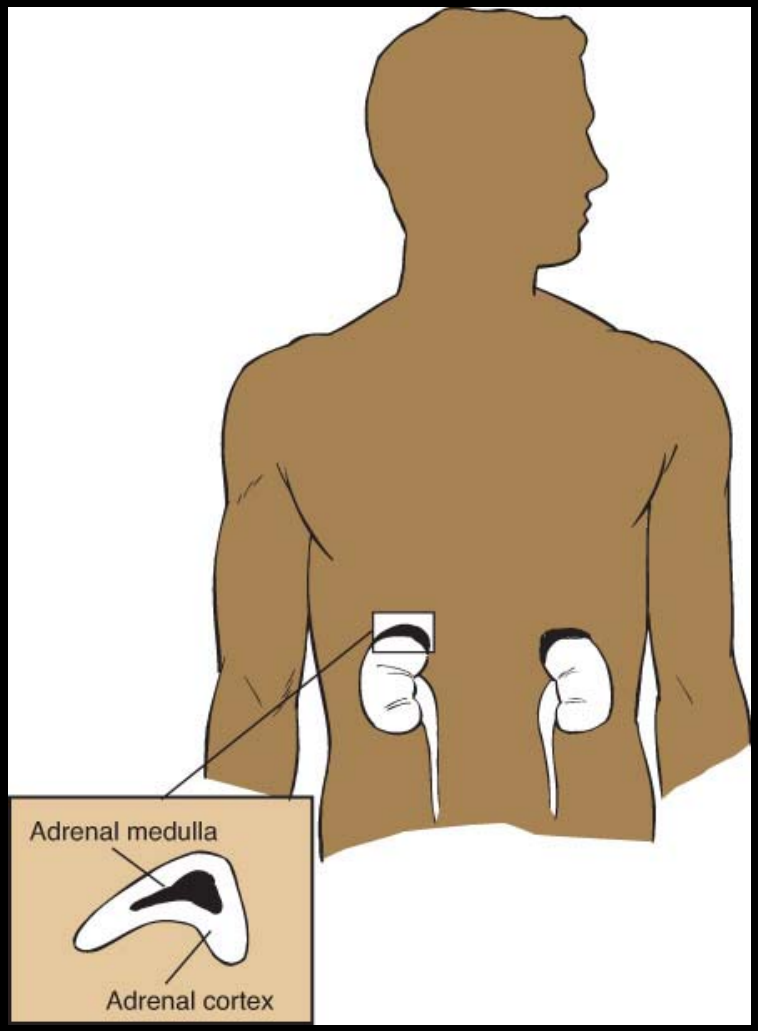
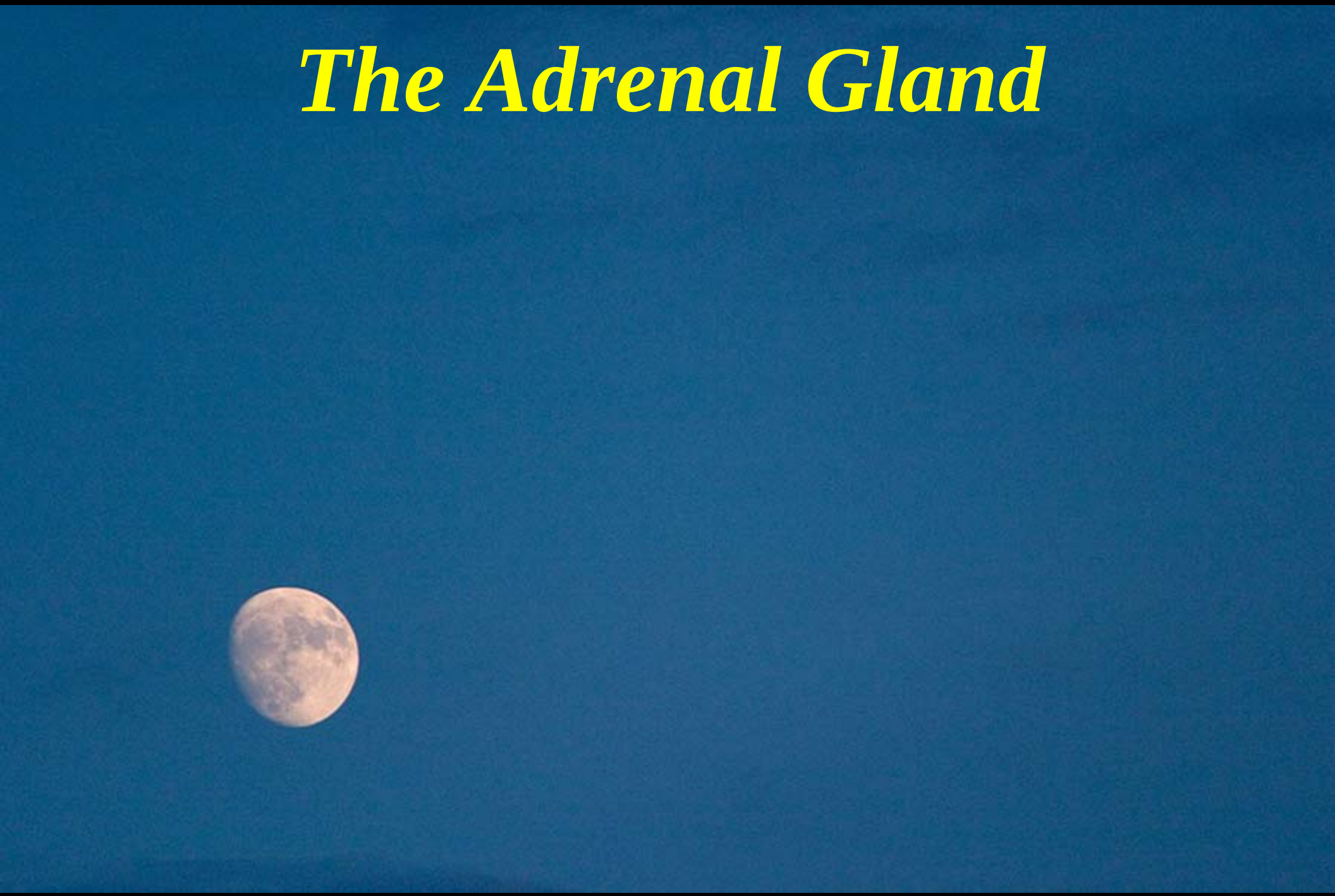


Figure 3.5. The adrenal glands sit on top of each of the kidneys and are cone-shaped in appearance.

The Adrenal Gland



The Adrenal Gland

The adrenal gland has two parts; the medulla and cortex. The medulla releases epinephrine and norepinephrine. The cortex releases corticosteroids (e.g., cortisol) which then help prepare the body's energy production for flight or flight.

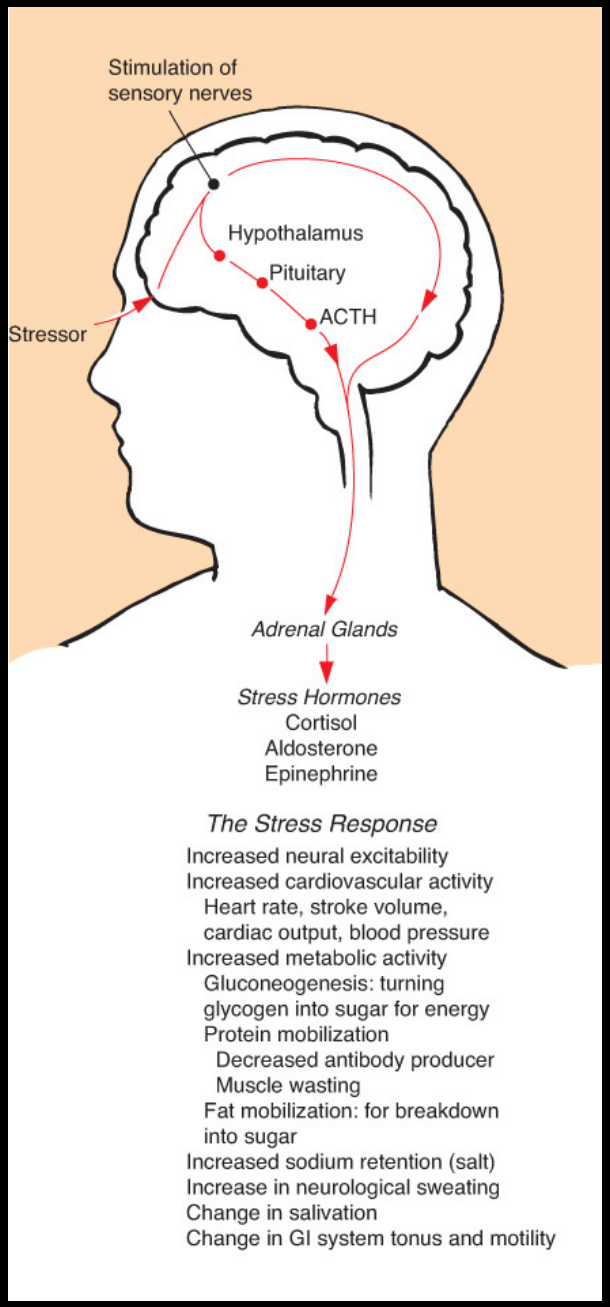


Figure 3.4. The physiological response to stress.

A Parable of Psychophysiology

(Your body has several physiological dynamics to ensure your physical survival)

Immediate effects	Intermediate effects	Prolonged effects
Text message or phone call	Email	Overnight delivery
Flushed face Rapid heart rate	Nauseous feeling in stomach Muscle tension	Suppressed immune system

The immediate, intermediate, and prolonged effects of the stress response.

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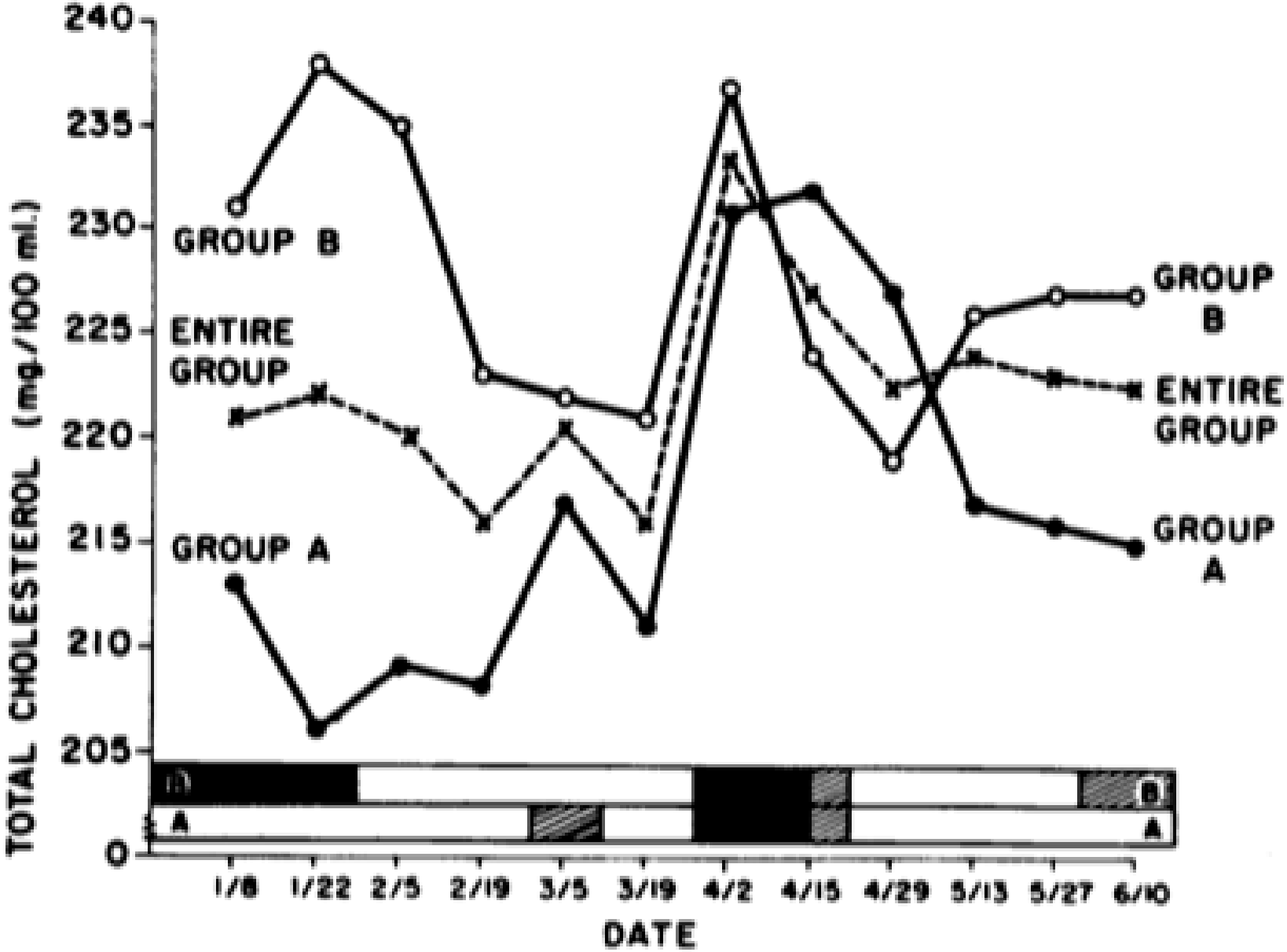
Stress Physiology: Take Home Message

- ***The stress response involves a cascade of stress hormones throughout the body.***

- ***The strength of the "stress-hormone cocktail" depends on the intensity and duration of stress.***

- ***Repeated (chronic) stress shrinks (atrophies) brain cells.***

Tax Season



Friedman, Rosenman, & Carroll, 1958

Holistic Wellness Paradigm

"The integration, balance, and harmony of mind, body, spirit, and emotions where the whole is always greater than the sum of the parts."

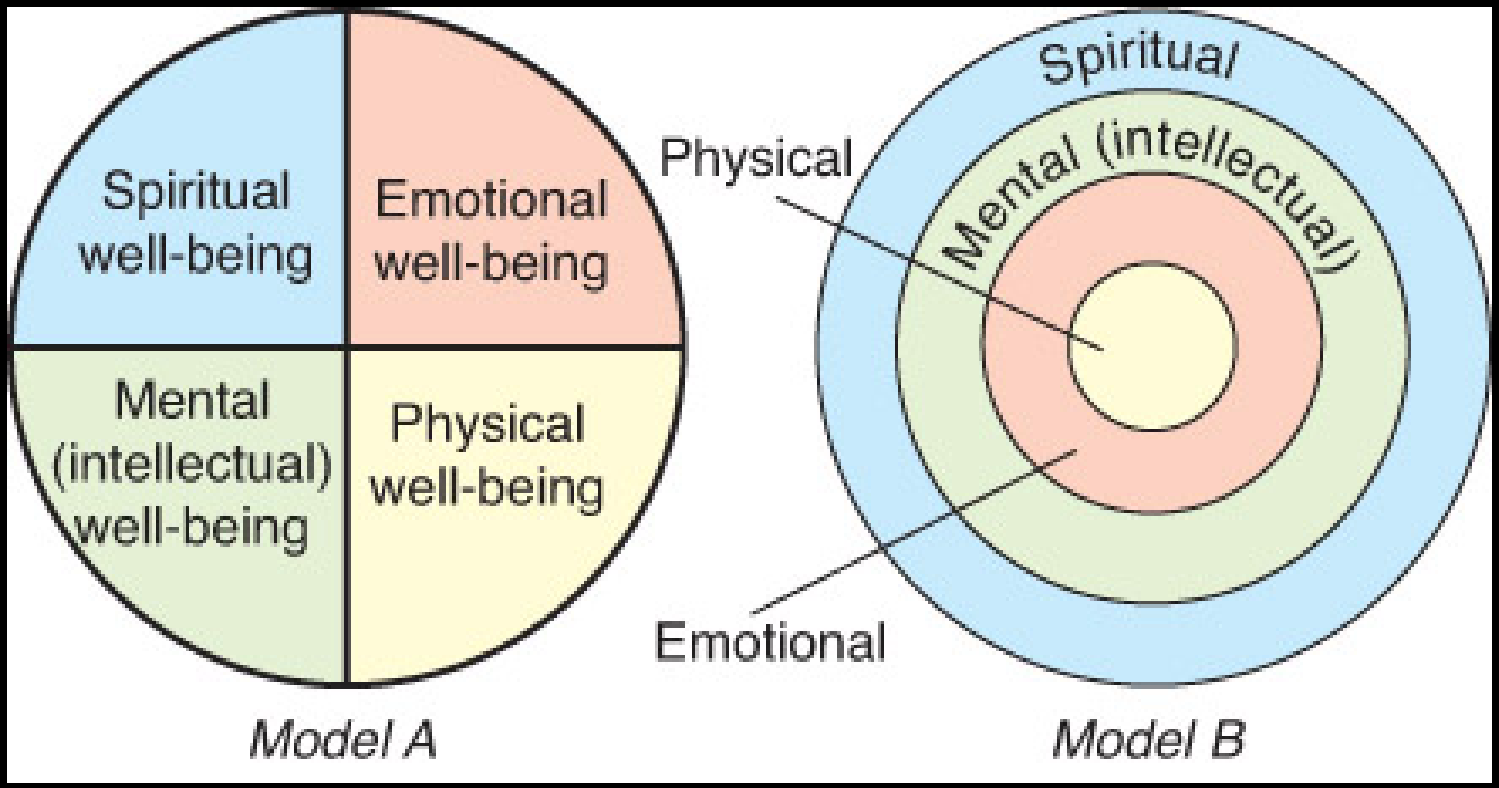


Figure 1.10. Two different perspectives of the same wellness model paradigm.

"I'm an old man now. And I have known a great many problems in my life…

most of which never happened.

—Mark Twain

Questions?