

The Central Nervous System and Stress



1. Central Nervous System: The brain + spinal cord
2. Autonomic Nervous System (“automatic” functions)
 - a. The Autonomic Nervous System (ANS) is part of the Central Nervous System
 - b. Sympathetic Nervous System (“Fight, Flight or Freeze”)
 - i. Imagine a giant tiger walked in the room
 - ii. When the Sympathetic Nervous System (SNS) is on = Fight, Flight, or Freeze: Blood moves to large muscle groups, away from skin. Digestion goes down. Heart rate and blood pressure goes up. Muscles get tense. Breathing rate gets faster and shallow. Pupils get larger (dilate). You may feel cold or sweat.
 - iii. SNS = The “gas pedal” in the car
 - c. Parasympathetic Nervous System (Relaxation)
 - i. Imagine the tiger left the room and you were safe again
 - ii. When the Parasympathetic Nervous System is on = Relaxation: Blood moves back to hands, feet, and digestive system. Heart rate and blood pressure go down. Breathing rate gets slower. Pupils get smaller. Feel relaxed and peaceful
 - iii. Parasympathetic Nervous System = The “brakes” in the car
 - d. The Sympathetic Nervous System and the Parasympathetic Nervous System cannot be “on” at the same time. Either the “gas” or the “brakes.”
3. Acute Versus Chronic Stress
 - a. Acute stress (short-term stress) = a few minutes of stress
 - i. Acute stress: Gazelle grazing in a field. Lion arrives, gazelle runs away and escapes (“flight”). Moments later, gazelle is grazing happily again.
 - b. Chronic stress (long-term stress) = weeks, months, or years of stress
 - i. Chronic stress: Long-term “fight, flight, or freeze.” Because humans have language and a large frontal lobe, our brain is able to think abstractly and make associations with whatever is stressful. We remember, which brings us back to the stressful situation and we can get stuck.
 - ii. What are some chronic stressors people deal with? How long has your biggest problem been bothering you?

4. What Happens to the Body and Mind When Stress is Chronic?
 - a. The body struggles to keep itself balanced: Blood sugar, cholesterol, adrenaline, blood pressure, and breathing rate go up, more muscle tension, cell death
 - b. Disease: Heart, diabetes, cancer, chronic pain, anxiety, depression. Immunity goes down.
 - c. Medications: Because stress affects digestion, people may need to take higher amounts of medication when they are chronically stressed. They may need less medication when they are relaxed.
5. The Mind-Body Connection
 - a. Which comes first: Stress or mental health problems?
 - b. The mind and body significantly and directly affect each other. Mental and physical health are connected!
6. Self-regulation: Although much of our nervous system is automatic, it *can* come under conscious control. You can use Mind Body Skills to bring your parasympathetic nervous system online (“pump the brakes” → relaxation). Mind Body Skills help balance the two parts of the nervous system.



Adapted from the Center for Mind-Body Medicine (www.cmbm.org)