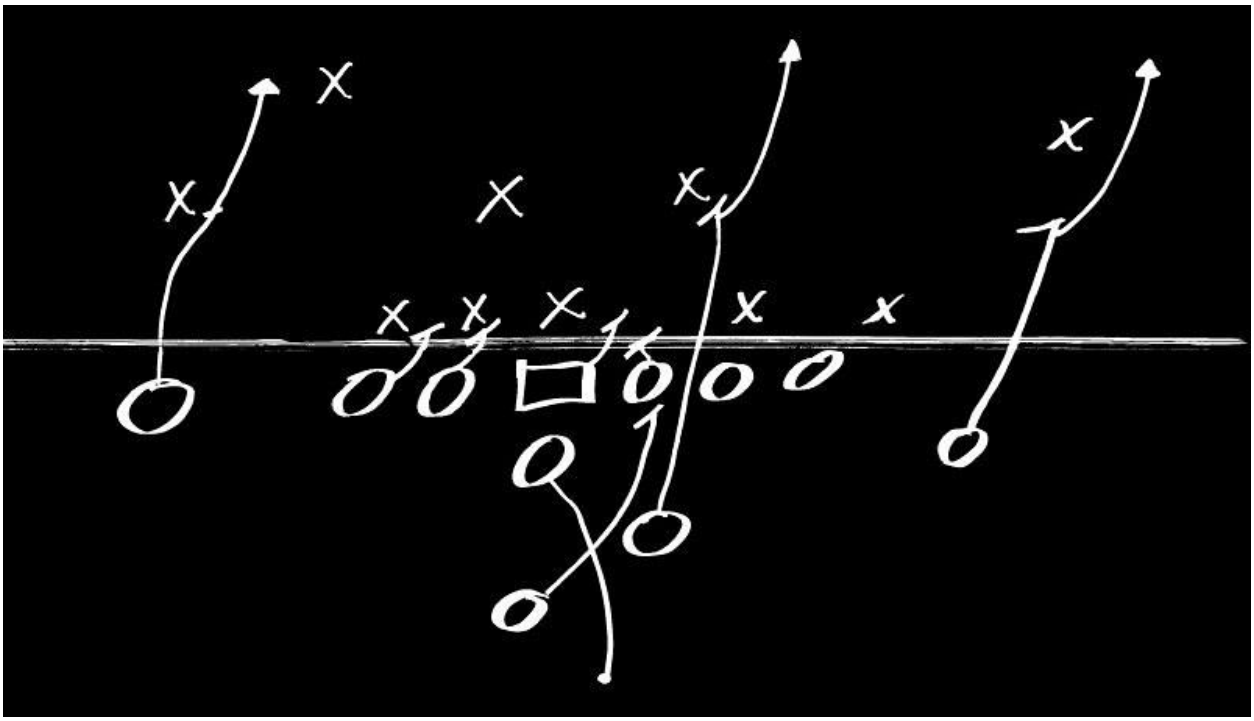
Memory Strategies: Stress



Common-Sense Thinking

Let's illustrate the application of common-sense thinking with **Homeostasis,** which means the regulation of body functions around some useful "set point," like an air conditioning thermostat. You can remember what bodily functions are regulated just by thinking of what NEEDS to be regulated. Obviously, this would mean things like nutrient levels, hormone levels, temperature, water and mineral balance, and waste removal (including CO2, water and energy). Now remind yourself that a homeostatic system needs a reference point (set point) to regulate around. This is like a thermostat that you set at a fixed temperature and the heating/air condition system continually adjusts to keep the temperature at that setting.

For "fight or flight" functions, think about what the body must do to respond to danger. To fight an attacker or flee, here is what you need to do:

- Be aroused and alert (Adrenalin is released, stimulating the brain.)
- See well (Pupils dilate.)
- Activate your muscles (To do that, your muscles need increased blood supply, which means the muscle vessels must dilate. Heart output also increase, causing both (higher heart rate and blood pressure.
- Breathe freely (lung bronchioles dilate)

- Generate energy (created from your body's liver and fat stores)

Now think about what you need to stop doing, at least during the emergency:

- Stop being mellowed out, because you must act
- Stop digestion and other routine visceral functions.

To remember what a **reflex** is, you know the word means a type of automatic, predictable response. Imagine yourself stepping on a tack or piece of glass. Think about what happens next. You instantly lift the injured foot. You do this without thinking, which means it is a local, spinal reflex. The trauma sensory signal (from the tack or glass injuring your foot) must travel along a nerve that goes to the spinal cord. Once the signal reaches the spinal cord, it must activate a different nerve that goes back to that leg muscles telling them to flex the joint so that your leg lifts automatically. Think also what is happening reflexly in the other leg. To prevent you from falling down, some of that sensory signal in the spinal cord must be sent to another nerve that goes to muscles in the opposite leg so that its joints are extended.

To remind yourself about **synapses,** realize that because each nerve cell is a separate unit, there must be a way for one neuron to affect other neurons (or muscle or gland cell). Communication is best achieved at junction points (synapses) that are very close together. One way to communicate is for a nerve impulse to "spark over" across the gap between two cells. (This is similar to what happens when you get an electrostatic shock from touching a metal door knob when the air is very dry.) If the gap between cells is too large for this "spark over" method to work, a chemical messenger is needed to complete cell-to-cell communication. This chemical messenger is a type of neurotransmitter that is released from a neuron to its target cell. The human brain uses both methods of communication ("spark over" and chemical), but by far neurochemical transmission is the most common mechanism.

Acronym

To remind yourself of what the nervous system does with its three kinds of neurons (sensory, interneuron, motor), use the letters **CPR** (***C*ollect, *P*rocess, *R*espond).** The first letter of each word in an acronym serves as a reminder of the word you want to remember. Match these words with the obvious synonyms for the three types of neurons.

Acrostics

To remember the names of the12 cranial nerves, you can use acrostics. even remember what they are (and the names mostly indicate what they do). Here is a cool acrostic as an illustration of what acrostics can do. The first letter of each word in this acrostic is the first letter of one of the cranial nerves. In this particular example, our acrostic can even help remind you of the function of each nerve.

Picture a mountain with two people sitting on top viewing the valley below.Here is this acrostic: On Old Olympus Towering Tops, A Finn and A German Viewed Some Hops.

And here are the clues it provides: **O**n (olfactory) **O**ld (optic), **O**lympus (oculomotor), **T**owering (trochlear), **T**ops (trigeminal), **A** (abducens), **F**inn (facial), and **A** (auditory or vesstibulocochlear) **G**erman (glossopharyngeal), **V**iewed (vagus) **S**ome (spinal accessory), **H**ops (hypoglossal).

Categorization

To get the big picture of stress-related kinds of tissue, group them according to the features of their nature and functions. Thus, here you see the easy-to-remember items of three tissues important to stress, that the tissues are either glands or neurons, and the functions act on other target tissues.

Example:

Tissue	Nature	Function
Hypothalamus	Neurons	Secretions act on pituitary
Pituitary	Gland	Secretions act on outer part of adrenal and other endocrine organs
Adrenal gland		
Center part	Neurons (modified)	Adrenalin stimulates brain and cardiovascular system
Outer part	Gland	Cortisol stimulates brain and immune system. Anti-inflammatory

Subject-object-verb (SOV)

To help you remember the meaning of "**home**o**sta**sis," think of **"stay home**" where things don't change nearly as much as in the turbulent world outside of home.

To remember the function of the cerebellum, think of hearing a bell (cere**bell**um) that triggers you to stand on one foot. To stand on one foot, you need **to** adjust muscle tension, coordinate with the other leg muscles, and have balance.

As a reminder of the parts of a neuron and what neurons think ***Do Some Action***: Do **(dendrites)** Some **(soma)** Action **(axon).** To help you recall what that "action" is, imagine the axon blasting off a bolt of lightning **(nerve impulse)**, causing the axons squirt out some juice **(neurotransmitter or neurohormones).**

To remember that the **brain stem controls involuntary body functions** or functions that we don't have to think about, you might imagine yourself pulling a brain out of a jar of preservative by the stem. Automatically things start to happen. You might feel your heart racing, you breathe faster, you sweat, you lose bladder control. All sorts of things happen without you thinking about them or controlling them.

Memory Palace

In this module, you will need to remember the names of all the endocrine organs and what they do. The Memory Palace technique might work well here. First, think of an image for each organ and an action in the image that captures what that organ does. Then, one at a time, attach each image to an object or location, such as in your bedroom, classroom, backyard, whatever works for you. You can even use your own body parts.

Here is an example. Start with the **pituitary**. The ”pit” part of the word might make you think of a pit in the ground, like a rock quarry or coal mine. To remind you that the pituitary controls all endocrine organs, imagine seeing all sorts of stuff coming out of the pit: coal, gold, rocks, silver, and so on. To illustrate how you might attach this image to an object in your Memory Palace, suppose your first object is a lamp. You can see yourself turning on the lamp to see the pit beneath it, with the coal, gold, silver, etc. spewing out of it.

For the **pineal gland**, you might think of a pie (the “pi” in “pineal” sounds like pie). The pineal gland makes melatonin, which helps you sleep. An image for melatonin might be a sound-alike, melanin (meaning “black”). Think now of a totally black pie that, as you eat it, makes you sleepy. You even see yourself taking a quick nap.

For the **thyroid**, you might think of the “thigh” (sound-alike) of your leg. To remember what the thyroid does (increases metabolism and energy production), imagine seeing your thigh muscles bulging in with great energy.

For the **parathyroid**, you might think of “parachute” from the first syllable of the word (para). To remember that the parathyroid regulates calcium levels, see what comes to mind when you think of calcium. If you think of bones, imagine of a parachute landing with a bucket of bones. If you think of milk, you might visualize delivering a case of milk by parachute.

For the **thymus**, you could think of your other thigh. To remember that the thymus makes T cells that fight infections, you might imagine knocking down attackers by repeatedly hitting them with your thigh.

For the **pancreas**, you might imagine a frying pan. To remember that the pancreas regulates sugar levels, imagine the pan is full of sugar.

For the **adrenal gland**, first remember that it has two main parts. You might visualize kidney beans (“renal” is part of the word “adrenal”). Now imagine there are two piles of kidney beans. In one pile, the beans are jumping, to remind you of being excited and activated. In the other pile, the beans are quiet and still, to remind you of resting and avoidance of irritation. You could also imagine this quiet pile of beans sitting in a bowl of water to remind you of the function of salt and water balance.

For the **reproductive organs**, you probably don’t need help in visualizing reminders.

Story Chain

To help you remember what senses both you and animals share, imagine this scene: You are playing with friends in the school playground, and the extreme heat of the summer day is getting to you. It is so hot that you go into the school to sit down in a classroom to rest and cool off. Because the room is dark, you bang your leg on the teacher's desk ***(pain)*** and you jump back ***(muscle tone)*.** You reach down and feel ***(touch)*** your knee and leg to see how bad the damage is. You hear ***(sound)*** your friend come in and turn on the light switch and you see ***(light)*** more clearly where you are. Your friend has brought lunch their lunch to share with you. Now you can smell ***(odor)*** the peanut butter and jelly sandwich. You take a bite ***(taste)*** *of the sandwich.* You start to feel better now. The pain is going away and you are feeling cooler.

Wrapping UP

Now you see examples of how you can use the seven memory techniques to help you remember important information. You don't have to use these specific examples. Create associations that work for you. We suggest you make a list of these seven techniques and use them throughout this module (and those that follow too!).