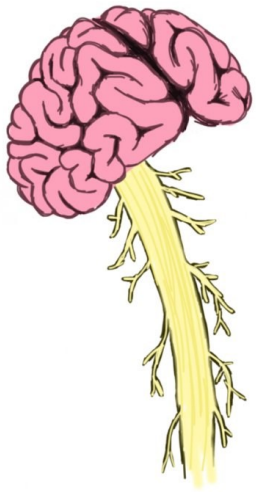
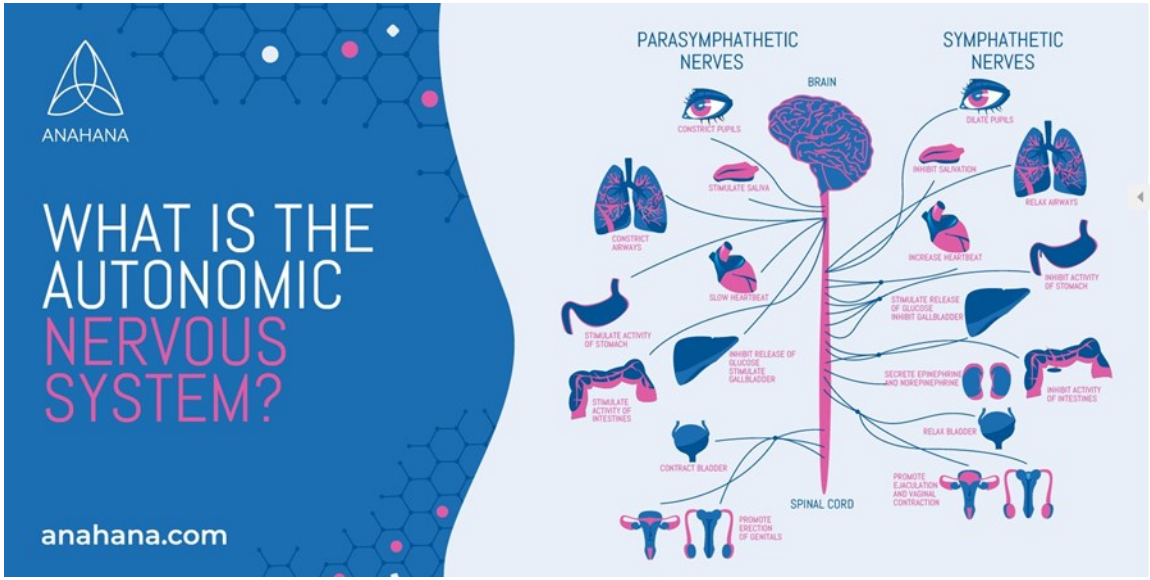
LEARNIG OBJECTIVE 5

To go through Autonomic Nervous System?

LEARNIG OUTCOME

Acquired knowledge about Autonomic Nervous System? Structure & Function





The autonomic nervous system (ANS), also known as vegetative nervous system previously, is a division of the peripheral nervous system (PNS) that regulates and controls internal organs without any awareness by the organism. It is a control system that unconsciously regulates bodily functions such as heart rate, digestion, urination, sexual arousal and fight-or-flight response.

The autonomic nervous system has three distinct divisions:

I. sympathetic

II. parasympathetic

ANAHANA

FUNCTIONS OF THE AUTONOMIC NERVOUS SYSTEM

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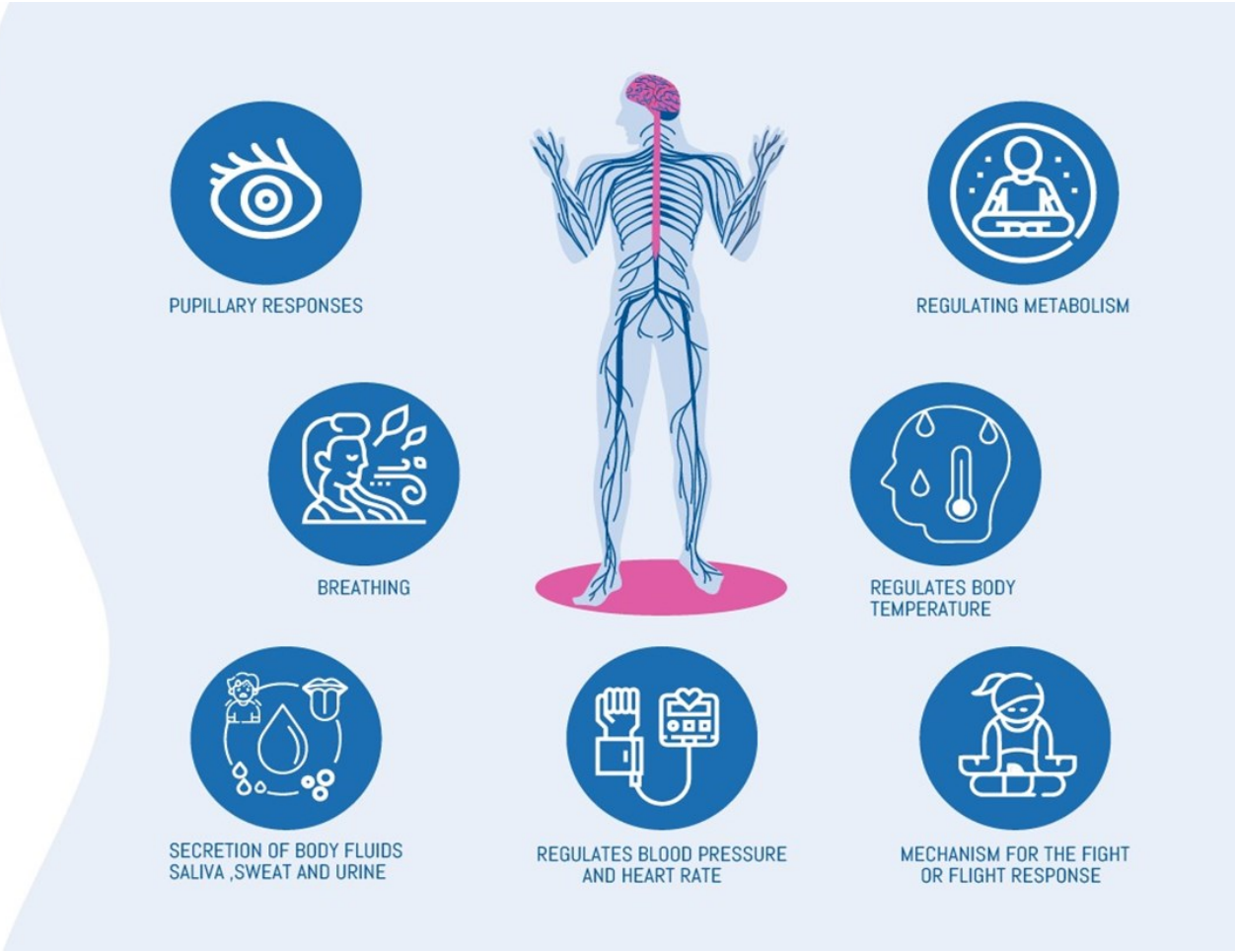

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ANAHANA

AUTONOMIC NERVOUS SYSTEM STRUCTURES

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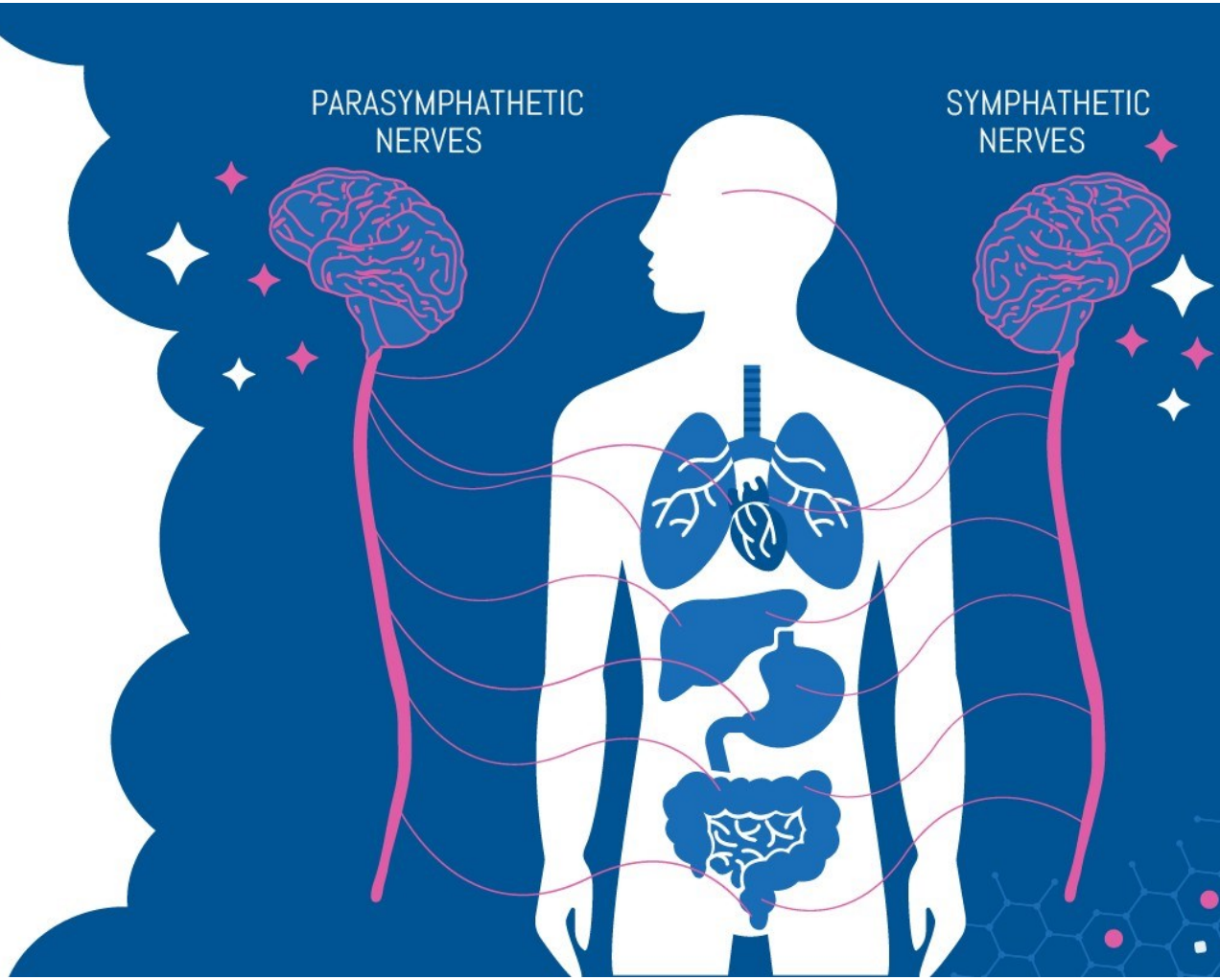

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- The system works through reflexes from the brainstem to the spinal cord and organs.
- It regulates functions such as cardiac regulation, vasomotor activity, respiration, reflex activities such as sneezing, swallowing, coughing and vomiting.
- It works in conjunction with the peripheral nervous system.
- The sympathetic nervous system is associated with fight-or-flight response.
- On the other hand, the parasympathetic nervous system is associated with rest and digest.
- Both the divisions are opposite to each other as one initiates physiological response and the other inhibits it.

functions of the sympathetic division:

- It diverts the blood flow from skin and gastrointestinal tract by vasoconstriction.
- It enhances blood flow to lungs and skeletal muscles.
- It allows greater oxygen exchange in the alveoli by dilating the bronchioles with the help of epinephrine.
- It enhances blood flow in the skeletal muscles by contracting cardiac cells and increasing heart rate.
- It dilates the pupils and relaxes the ciliary muscles, thus enhancing the vision in the eye.
- It vasodilates the coronary vessels of the heart.
- It constricts the urinary and intestinal sphincters.
- It helps in stimulating orgasm.
- It inhibits peristalsis.

functions of the parasympathetic division

- It increases the blood flow towards the gastrointestinal tract by dilating the blood vessels.
- It constricts the bronchioles when there is no need of oxygen.
- The vagus nerves in the cardiac branches control the heart parasympathetically.
- It contracts the ciliary muscles and constricts the pupil allowing closer vision.
- It accelerates peristalsis by stimulating the salivary glands and thus enhances absorption of nutrients.
- They stimulate sexual arousal and also take part in the erection of genital tissues.

SYMPATHETIC NERVOUS SYSTEM

Stress Response

Revs you up, preparing you to fight, take flight or freeze

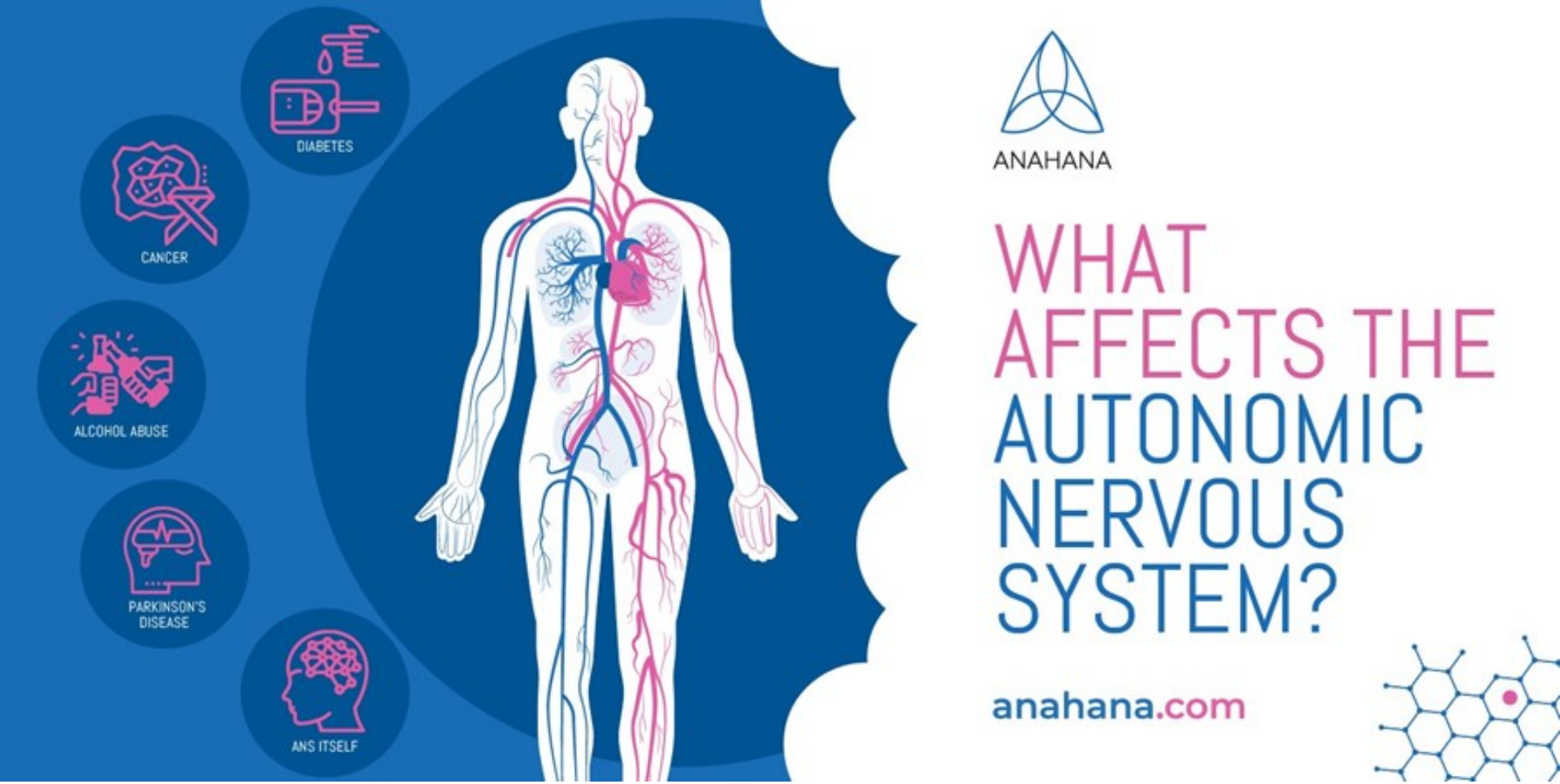
- Heart beats fast
- Breath is fast and shallow
- Pupils of eyes expand (can make you sensitive to light)
- Gut becomes inactive (difficult to digest)
- Blood rushes to your skeletal muscles and away from your brain, making it hard to think clearly
- Hormones rush through your body, making you feel anxious
- Expends your energy

PARASYMPATHETIC NERVOUS SYSTEM

Relaxation Response

Calms you down, preparing you to rest, think and restore

- Heart beats in slow, rhythmic pattern
- Breath is full and slow
- Pupils of the eyes shrink
- Gut is active (helps you digest and absorb the nutrients from your food)
- Increased blood flow to gut, lungs and brain
- Hormones rush in, lifting your mood and helping you to relax
- Conserves your energy



- Type 2 diabetes.
- Autoimmune and inflammatory conditions.
- Congenital and genetic conditions.
- Infections.
- Poisons and toxins.
- Trauma.
- Tumors or Cancer