



Physiology | Lecture 11

Autonomic Nervous System (ANS)

Reviewed by: **مهند برهوم**
Yamen Aljarrah
Yaman Khalil

Nervous system:

1-CNS (Central nervous system)

2-PNS (Peripheral nervous system):

A-Somatic nervous system (SNS): voluntary

B-Autonomic nervous system (ANS): involuntary

ANS (considered as PNS, but the cell bodies of the preganglionic neurons are located in the CNS) division is anatomically distinct from the motor somatic nervous system, which innervates skeletal muscle. This group of efferent paths originates from the central nervous system and innervates heart, smooth muscle, glandular tissue, and enteric nervous system.

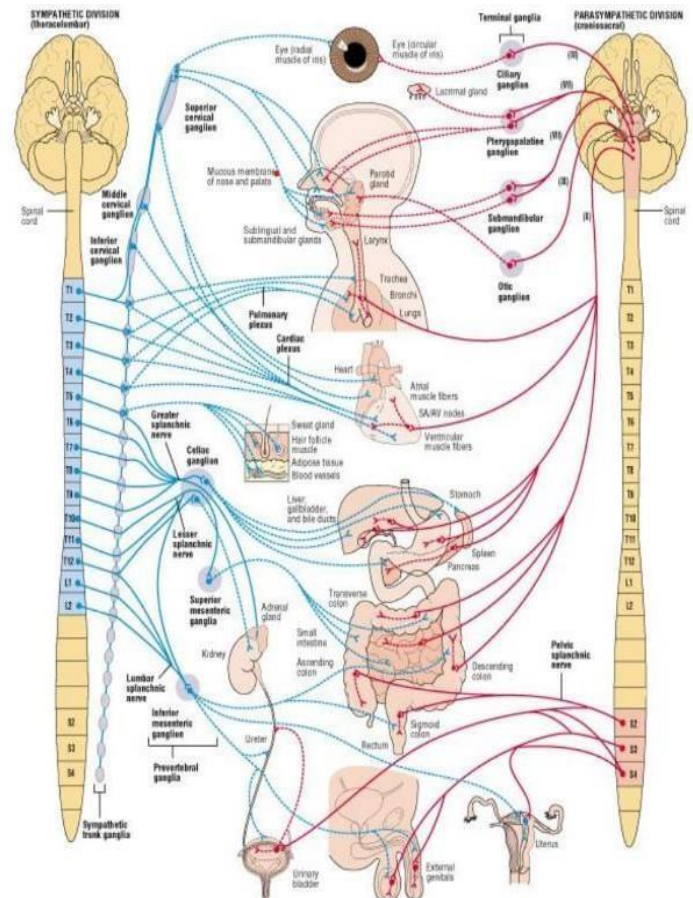
AUTONOMIC NERVOUS SYSTEM (ANS)

We have two divisions for the autonomic nervous system, what we see in red is called the **parasympathetic** division and what we see in blue is the **sympathetic** division.

-By the fibers of the autonomic nervous system we are innervating a lot of organs in our body.

As we can see : the origin of **parasympathetic** division is **craniosacral** , the origin for **sympathetic** division is **thoracolumbar** or the **spinal cord** .

-Not all organs are innervated by both sympathetic and parasympathetic NS , for example: If there were a defect in the parasympathetic order it doesn't mean there will be a defect in the sympathetic order.



The functions of the Autonomic nervous system:

The general function of the **ANS** is control and adaptation of body, some functions:

1. regulation of the activity of visceral organ system such as:

-heart rate -blood pressure -emptying of urinary bladder

- Our bodies are exposed to many internal and external changes, the autonomic nervous system is involved in the adaptation of our bodies with these changes that are taking place to get finally in its involvement in the control of the body, and by regulation these functions, ANS plays a major rule in homeostasis.

2-responses to specific environmental stimuli such as:

-Light: dilation of pupil to low light (mydriasis), constriction of pupil to bright light (miosis)

-Temperature: vasodilation in hot T, vasoconstriction in cold T

T: temperatures

-Stress: The ANS (mainly by sympathetic and adrenal medulla) mediates the immediate response (fight or flight), what exactly happens when we feel stress? let's talk about this example in details:

Example of adaptation to external stimuli (stress): fight or flight

-For either to fight or to flight away we need the activity of our muscles and once we need the activity of our muscle that muscle needs higher oxygenation, nutrition and so on. So, we have a group of reactions that take place in our bodies to adapt them with these new changes and some of these reactions are:

1-Increased heart rate and force of contraction:

Why do we need this? Simply to deliver more blood toward muscles, and by delivering more blood, we get more oxygen for those muscles.

2-Widely dilated pupils:

There is a dilate of pupils because we have smooth muscle cells in it. There will be some relaxation of the smooth muscle cell which results in the dilation of pupils. (It's important because you try to see all the details about that dangerous object by getting dilated pupils).

3-Pallor (pale of fear) as blood is directed to the skeletal muscle:

What we mean by pallor? It is the white **discoloration of the skin**, why that happens?

We need to supply our main muscles with blood, so we reduce blood supply to unnecessary tissue like skin by vasoconstriction, and we increase blood supply to muscles by vasodilation.

Vasodilation: توسع الوعية الدموية

Vasoconstriction: تضيق الاوعية الدموية

4-Goose pimples:

This reaction happens because of the contraction of the pili erector muscle at the base of each hair follicle they are smooth muscle cells which contracts. By contraction, this reaction will take place. The hair on the head and on the skin stand.



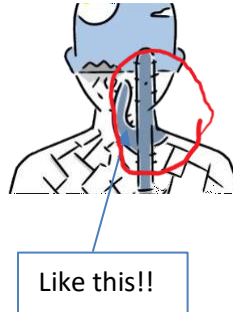
5-Cold sweat:

Simply these people are sweating by activation of sweat gland but why is it cold? because we reduced blood supply towards the skin (by vasoconstriction), so there is no heating for that sweat, which is coming out of the skin.

6-Dry mouth:

As we said the body will shut down all unnecessary tissue like **salivary glands**, for example there will be a *decrease in salivation*, by activation of all fight and flight reaction that causes the vasoconstriction of vessels which supply these salivary glands leading to less secretion of saliva and as a result that person will have a dry mouth.

-During fight or flight reactions (sympathetic), we get all of the conditions happen together . This is essentially different than the parasympathetic action.



Physiological characteristics for both divisions of ANS:

1. high speed of onset: for example, during fight of flight reaction heart rate increase immediately within few seconds (3-5 seconds).

2. Autonomic nature: it is not under your voluntary control (without your conscious).

The reflex responses of ANS are sensitive to emotional states (stress, fear, euphoria, etc).

***NOTE:** some functions are brought under voluntary control such as urination and defecation through the participation of voluntary muscles.

3. Tonic activity: all the time we have specific levels of sympathetic activity and specific levels of parasympathetic.

The ANS fires continuous impulses to target organs at a very low rate. The basal rate of firing is called (**sympathetic tone**) and (**parasympathetic tone**) These tones establish basal rate of contractile activity in smooth muscle cells, and secretory activity of glandular tissues, The activity of these effector cells can be changed because of an increase or a decrease in the activity of any divisions of the ANS **by increasing or decreasing the number of action potentials per unit time (frequency of action potentials).**

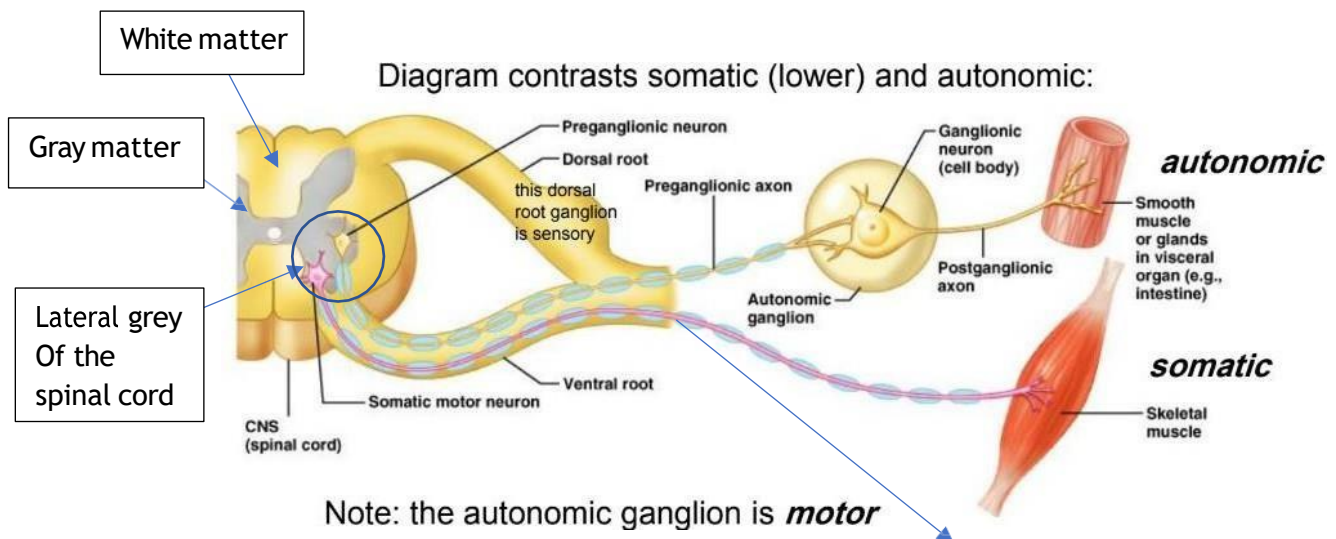
Anatomical characteristics and synaptic organization of ANS

Two neurons carry impulses of the **ANS** from the CNS to the effector organs. The first is known as **preganglionic neuron**; the cell body is located in the CNS (in appropriate nucleus in the brain or in the lateral gray of the spinal cord) as seen in the below picture. The fibers of preganglionic are **small (in diameter)** and **myelinated**, and usually end within a (ganglion) where they synapse with the second neuron called **postsynaptic neuron**. The second neuron (postsynaptic) carries impulses to the target organ.

-Axon of 1st (**preganglionic**) neuron leaves CNS to synapse with the 2nd (ganglionic) neuron.

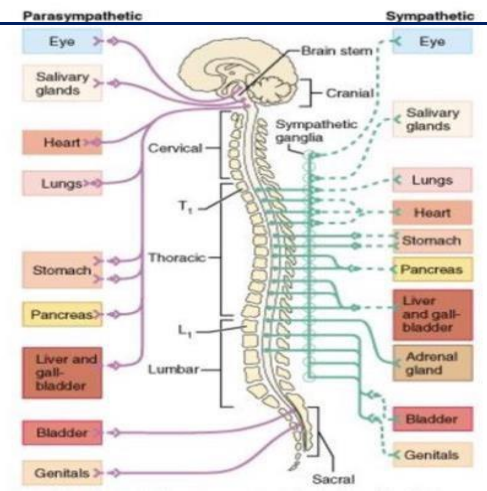
Ganglion: a collection of cell bodies of neurons outside the CNS.

-Axon of 2nd (**ganglionic**) neuron extends to the organ it serves.

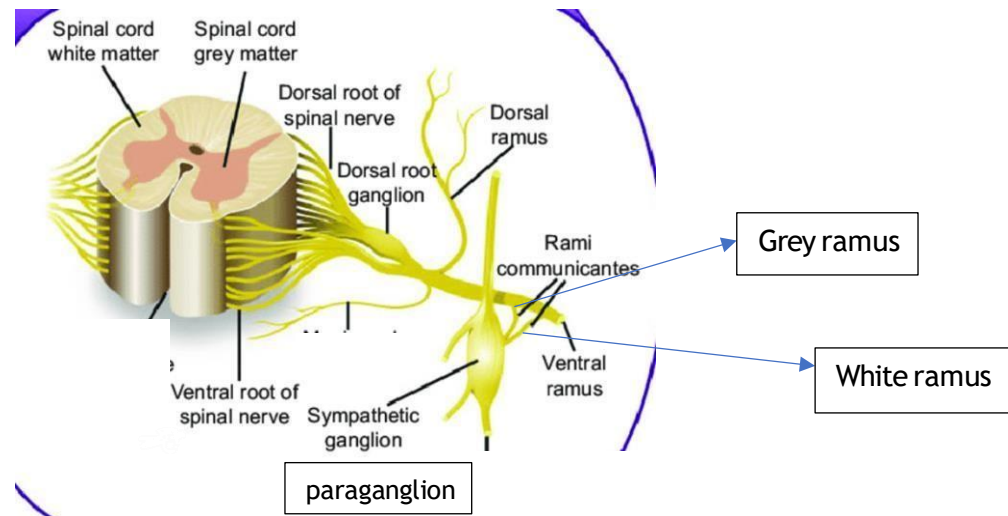


somatic nervous system has only one neuron (long axon) between the CNS and effectors. However, ANS has two neurons (pre and post ganglionic) except when talking about the fibers in the fourth possibility in page 8

-Remember: Each segment of spinal cord contains gray (in middle) and white (surrounding the gray) matters, spinal cord is subdivided into **cervical region** (8 pairs of spinal nerves), **thoracic region** (12 pairs), **lumbar region** (5 pairs), **sacral region** (5 pairs), and **coccygeal region** (1 pair). 31 pairs of spinal nerves together. Dorsal root and ventral root fuse to give one spinal nerve which is divided to ventral and dorsal rami.



-There are two types of ganglia: 1-Paravertebral ganglia: beside spinal cord (are connected to ventral rami by two channels A-white ramus B-grey ramus)
2-Prevertebral ganglia



I think you have understood the anatomy of spinal cord, Let's talk about SNS and PSNS:

SNS (sympathetic ANS) (flight or fight)

As we mentioned before, the cell bodies of preganglionic neurons lie in lateral gray of spinal cord at segmental levels of T1 through L3, so it's origin **Thoracolumbar** (thoracic and lumbar).

Axons leave spinal cord via ventral roots, then leave ventral root via white rami communicans to enter a vertebral ganglion of the sympathetic chain at the same segmental level.

- **There are 4 possibilities:**

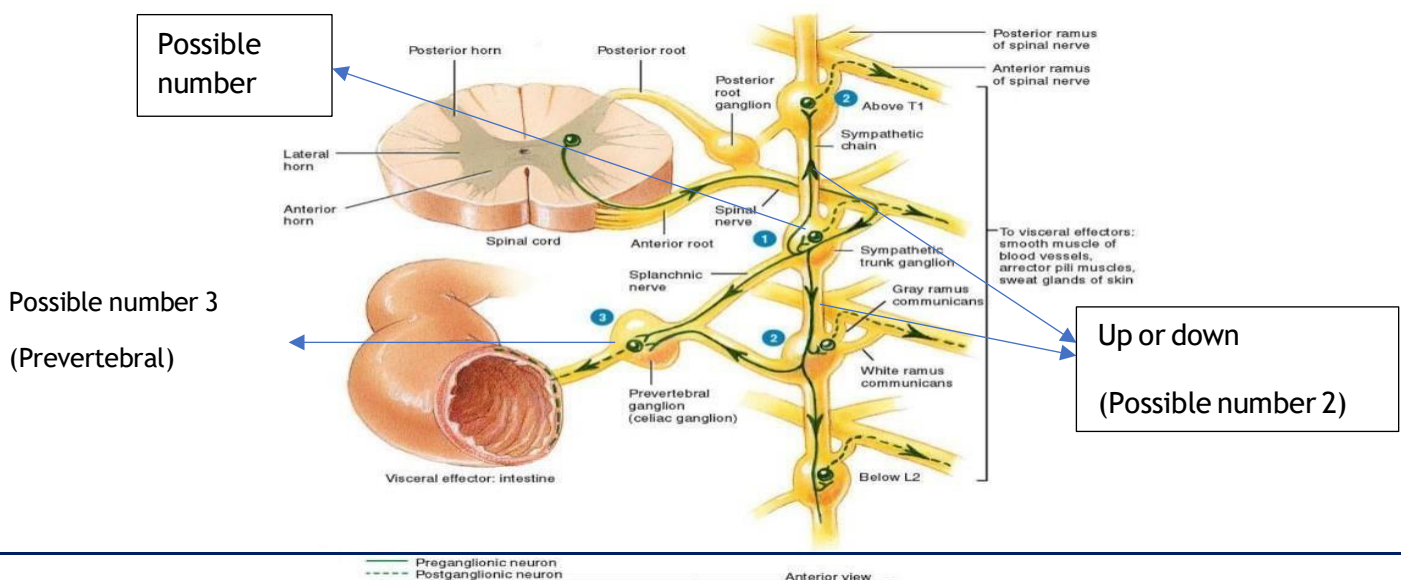
1-preganglionic neurons synapse with postganglionic neurons at the segmental level.

2-preganglionic neurons turn **cranial(up)** or **caudal(down)** and synapse with sympathetic postganglionic neuron at higher or lower segmental level. (Synapse may occur at more than one postganglionic neuron)

***(After 1 or 2)** By the way that chain of ganglia is called “**paravertebral ganglia**” they are near the spinal cord and near the vertebral column. After synapse with neurons at paravertebral ganglia, axons of second neurons leave ganglia via gray rami communicans to return to the corresponding spinal nerve.

3- Some preganglionic fibers that enter ganglia pass without any synapse at the paravertebral ganglia and continue to some ganglia located in the abdomen known as **prevertebral ganglia** (far away from the vertebral column), where they have the synapse with the second neuron. There are three unpaired prevertebral ganglia: **celiac, superior mesenteric, and inferior mesenteric ganglia.**

4-Some preganglionic fibers pass without synapse in paravertebral ganglia and prevertebral ganglion. These fibers continue to **adrenal gland (suprarenal gland)** where they synapse onto **chromaffin cells**. These cells liberate epinephrine into blood stream.



-Adrenal gland (possibility number 4)

- Synapse in gland
- Can cause body-wide release of epinephrine

Synaptic Organization of sympathetic ganglia:

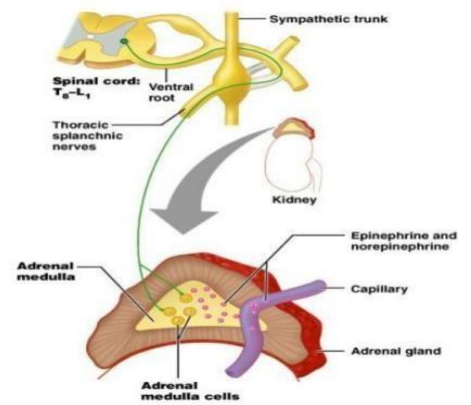
-Short preganglionic fibers and long postganglionic fibers.

-It has high convergence and divergence

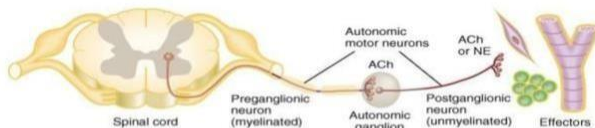
convergence: many neurons synapse with one neuron.

divergence: one neuron with many terminal synapses with many postsynaptic neurons.

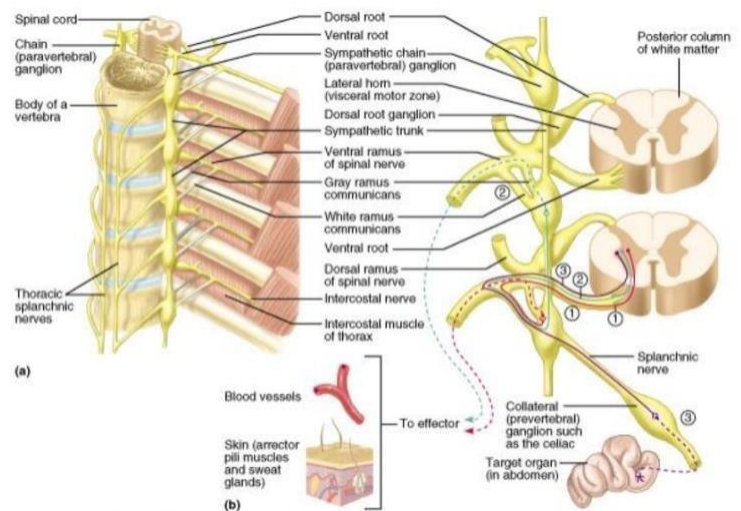
This organization of the sympathetic system induces widespread effects on target cells innervated by sympathetic postganglionic fibers.



Basic Anatomy of ANS



- **Preganglionic neuron**
 - cell body in brain or spinal cord
 - axon is myelinated type B fiber that extends to autonomic ganglion
- **Postganglionic neuron**
 - cell body lies outside the CNS in an autonomic ganglion
 - axon is unmyelinated type C fiber that terminates in a visceral effector



PSNS (Parasympathetic) (rest and digest)

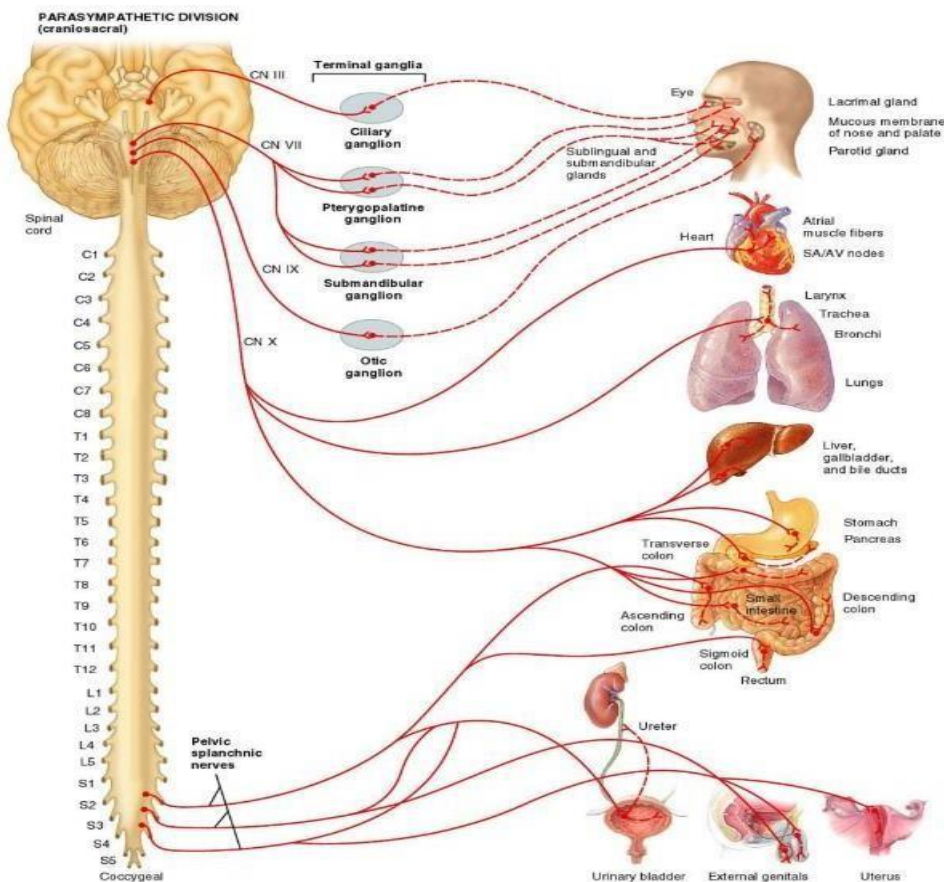
The preganglionic fibers arise in appropriate cranial nuclei and in segments S3 and S4 (sometimes S2, S5 also) SO, it's origin is Craniosacral. These fibers leave the CNS in the III, VII, IX, and X (**vagus**) **nerve for fibers of cranial origin** and in **pelvic nerves for fibers of sacral origin**. The preganglionic fibers are long and go all the way to the effector organ where they synapse with the second postganglionic neuron located within the tissue of the effector organ or to a ganglion located very close to the effector organ. The axons of postsynaptic neurons are short.

-cranial origin: vagus nerves

-sacral origin: pelvic nerves

Synaptic Organization of parasympathetic ganglia:

In parasympathetic there is **no or little** convergence and divergence. The ratio of pre to post ganglionic neurons is 1:1 or 1:2. As a result of this arrangement, the parasympathetic actions tend to be more discrete and confined to the innervated organ.



If we analyze the parasympathetic as you see, we have long preganglionic fibers synapse with one neuron (a few amount) located at the effector organ, so we do not have high divergence and convergence in parasympathetic, but we have in sympathetic.

Division of ANS	Sympathetic (fight or flight)	Parasympathetic (rest and digest)
Origin	Thoracolumbar (thoracic and lumbar)	Craniosacral (cranial and sacral)
Convergence and Divergence	High existence	Almost no existence
Effect	Diffused effect	Localized effect
Pre/Post ganglionic neuron length	short/long	long/short

***NOTE:** The terminals of autonomic nerve fibers are unlike terminals of the somatic motor fibers (skeletal neuromuscular junction). The autonomic terminals are highly branched forming extensive network of fibers beaded with small swellings or varicosities. These **varicosities** are sites from where transmitter is released.

The receptors on effector cells are scattered widely over the innervated organ. Unlike skeletal muscles, there is no specialized receptive region at the effector cell. The effect of ANS on these cells can be excitatory or inhibitory. This effect depends on transmitter type, receptor subtype and changes in functional proteins induced in cell by binding of transmitter to its receptor.

Effects of sympathetic stimulation

Sympathetic system innervates widely distributed tissues. These include **sweat glands, smooth muscle cells of blood vessels supplying skeletal muscle, skin..., and smooth muscle cells of hair follicles.** (In humans, the **previously mentioned target tissues do not have any parasympathetic innervation**). This innervation is consistent with diffuse projections of the sympathetic postganglionic fibers that originate in vertebral ganglia and distribute with the spinal nerves.

Both divergence and diffuse projections contribute to the broad, coordinated activation of the sympathetic system. Divergence allows a single preganglionic neuron to influence multiple postganglionic neurons, and those postganglionic neurons then spread out to affect many tissues, which we describe as diffuse projections.

The sympathetic which has excitatory effects on these tissues regulates:

1-Blood pressure: (blood vessels supplying skeletal muscles are major players). In addition to that the effect on heart also contributes in regulation of blood pressure.

One of the methods to control blood pressure is controlling the diameter of the blood vessels, vasoconstriction increases blood pressure and vasodilation decreases blood pressure. Vessels in our body are only innervated by the sympathetic nervous system. There is no parasympathetic control over blood vessels.(an exception to the general rule of the dual autonomic innervation)

2-Body temperature: by the sympathetic effects on cutaneous blood vessels and sweat glands. Body temperature can be controlled by controlling the vascular tone (dilation / restriction) of cutaneous blood vessels .

Vasodilation does more heat loss to the body, while vasoconstriction does less heat loss. The sympathetic nervous system also controls sweat gland activity (When body temperature rises, sweat production increases, leading to more evaporation and greater cooling) .

Blood vessels and sweat glands are innervated only by the sympathetic nervous

system (an exception to the general rule of the dual autonomic innervation)

3-Cardiovascular system: effects on vessels will result in redistribution of blood by enhancing blood flow to skeletal muscles and reducing blood flow to skin and mesentery.

4- Effects on the heart: increasing cardiac output (volume of blood pumped per minute).

Increased cardiac output is necessary because it enhances oxygen delivery to muscles and other tissues during the fight or flight response . Another effect of the sympathetic nervous system over the heart is increasing the force of contraction of cardiac muscles in the heart.

5-Respiratory system: causes relaxation of bronchial muscle which results in bronchodilation.

It allows more air flow towards the lungs and more exchange of gases.

6- Gastrointestinal system: inhibition of motility and secretion.

7-Metabolic effects:

- Mobilization of glucose.
- Increased lipolysis.
- Increased metabolic rate

Effects of parasympathetic stimulation

Overall, the parasympathetic, in contrast to sympathetic system is viewed as regulator of activities involved in replenishment of energy supply and general maintenance of the organism.

The control provided by parasympathetic system is discrete and selectively directed to individual organs.

- 1) **Gastrointestinal system:** increases motility and secretory activity.
- 2) **Glands:** increases secretory activity (**remember sweat glands are under sympathetic control**).
- 3) **Heart:** ONLY decrease rate of contraction (**bradycardia**). It does NOT decrease the force of contraction of the heart.

For example, at conductive tissue we have slow depolarization contraction potential by increasing parasympathetic stimulation, the rate of **slow** depolarization become **slower**, in this case the number of action potential generated per minute will be less. While by sympathetic stimulation we are **increasing** the rate of slow depolarization and we got more frequent generation of action potential.

للتوضيح: التحفيز الودي يزيد من فعالية مضخة القلب وهذا الذي نحتاجه أثناء حدوث الجهد العالي، أما التحفيز اللاودي يقلل من فعالية ضخ القلب للدم وهذا الذي يؤدي إلى إراحة القلب مثلاً بعد رياضة شديدة أو بعد صعود درج الكلية

- 4) **Pupil:** control pupil diameter by papillary light reflex (**miosis, regulates the amount of light falling on retina**).

Functions of the pupillary parasympathetic control :

1. regulates light entry
2. enhances near vision
3. opposes sympathetic dilation.

- لكل من التحفيزين الودي و اللاودي اثره على العين (تمدد وانقباض حدقة العين للتكيف مع الضوء)، لكن التحفيز اللاودي يعتبر المسؤول الأساسي عنها وهنا خاصة للرؤية القريبة.

- 5) Accommodation of the lens for **near** vision (by changing the convexity of the

lens by contraction of smooth muscle cells)
6) Voiding the **urinary bladder** (micturition or urination).

NOTES:

Pupil constriction = myosis

Pupil dilation = mydriasis

Sympathetic nervous system -- urine storage

Para-sympathetic nervous system -- urine voiding

It has some extra information but it's a good summary:

Effects of the two branches of the ANS

Organ	Sympathetic Effect	Parasympathetic Effect
Pupil	dilation	constriction
Lens	Far focus (lower curvature)	Near focus (increased curvature)
Salivary Gland secretion	High in viscosity	serous
Heart	Increased rate and pressure	Lower rate and pressure
Lungs	Dilation of respiratory passages	Constriction of respiratory passages
Gastrointestinal	Decreased motility	Increased motility
Kidneys	Decreased filtration rate	Increased filtration rate
Male genitalia	Ejaculation	Erection
Vascular smooth muscle	Variable depending on the neurotransmitter	Relaxation
Sweat glands	Increased activity	No innervation
Arteries to skeletal muscle	dilation	No innervation
Veins	Variable depending on the neurotransmitter	No innervation

Please check on the professor's handout,
Very Important ..

University of Jordan
Faculty of Medicine

Department of Physiology & Biochemistry

Medical and Dental 1st year students. Introduction to Physiology

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Textbook of Medical Physiology, Guyton, 14th Ed: 763-773, 13th ed:
773-784, 12th ed: 729-738, and 11th ed. P748-760.

AUTONOMIC NERVOUS SYSTEM (ANS):

This nervous division is anatomically distinct from the motor somatic nervous system, which innervates skeletal muscle. This group of efferent paths originates from the central nervous system and innervates heart, smooth muscle, glandular tissue and enteric nervous system. ANS has two subdivisions, **sympathetic and parasympathetic**, which together perform the following functions on effector tissues they innervate.

1. Regulation of the activity of visceral organ systems:
examples of functions under ANS control include:
 - heart rate
 - arterial blood pressure
 - digestion, intestinal motility, secretions (these functions are controlled in conjunction with hormones.
 - emptying of urinary bladder
 - secretory activity of respiratory tract and airways resistance (by regulation of diameter of bronchioles).

By regulation of these functions, ANS plays an important role in maintaining constancy of internal environment (homeostasis).

2. Rapid responses to specific environmental stimuli, these include:
 - Light: constriction of the pupil to bright light (miosis), and dilation of pupil to low light (mydriases).
 - Temperature: cutaneous vasodilation and sweating in a warm environment, and vasoconstriction in cold.
 - Stress: The ANS (mainly the sympathetic and the adrenal medulla) mediates the immediate response (fight or flight response) to threatening stimuli. This involves a series of well coordinated responses to meet the metabolic demands for severe physical exertion. The features of this response include:

- increase heart rate and force of contraction.
- Widely dilated pupils.
- Pallor (pale of fear) as blood is directed to the skeletal muscle.
- Goose pimple.
- Cold sweat.
- Dry mouth.

Characteristics of autonomic responses:

1. Speed of onset: ANS can produce dramatic changes in the level of activity of organs they innervate within seconds. Changes in heart rate, sweating, goose pimples, and rise or fall in blood pressure can take place within few seconds (3-5 sec).
2. Automatic nature: regulation of visceral functions occurs **without conscious control**. Some functions are brought under voluntary control such as urination and defecation through the participation of voluntary muscles. The impulses in ANS to target organs are set up **reflexively** in response to specific type of sensory information. The reflex responses are sensitive to emotional states of the body. Stress, excitements, euphoria, fear, anxiety or anger can influence reflexes and induce a variety of symptoms, such as sweating, palpitation, or digestive disturbances.
3. Tonic activity: The ANS fires continuous impulses to target organs at very low rate. The basal rate of firing is called “sympathetic tone” and “parasympathetic tone”. These tones establish basal rate of contractile activity in smooth muscle cells, and secretory activity of glandular tissues. The activity of these effector cells can be changed as a result of an increase or a decrease in the activity of any divisions of the ANS.

Physiological anatomy:

Two neurons carry impulses of the ANS from the CNS to the effector organs. The first is known as **preganglionic neuron**, the cell

body is located in the CNS (in appropriate nucleus in the brain or in the lateral gray of the spinal cord). The fibers of preganglionic are small and myelinated, and usually end within a ganglion where they synapse with the second neuron called **postsynaptic neuron**. The second neuron (postsynaptic) carries impulses to target organ.

DIVISIONS OF ANS:

There are two divisions of the ANS sympathetic and parasympathetic autonomic nervous systems.

Sympathetic nervous system:

The cell bodies of preganglionic neurons lie in lateral gray of spinal cord at segmental levels of T1 through L3. Axons leave spinal cord via ventral roots, then leave ventral root via white rami communicans to enter a vertebral ganglion of the sympathetic chain at the same segmental level. The preganglionic axon then can:

- * Synapse with postganglionic cells at the **same segmental level**.

- * Turn cranial or caudal and synapse with sympathetic postganglionic neuron at **higher or lower segmental level**. Synapse may occur at more than one postganglionic neuron.

After synapse with neurons at paravertebral ganglia, axons of second neurons leave ganglia via gray rami communicans to return to the corresponding spinal nerve.

- * Some preganglionic fibers that enter ganglia **pass without any synapse** at the paravertebral ganglia and continue to some ganglia located in the abdomen known as **prevertebral ganglia**, where they have the synapse with the second neuron. There are three unpaired prevertebral ganglia: celiac, superior mesenteric and inferior mesenteric ganglia.

- * Some preganglionic fibers pass without synapse in paravertebral ganglia and celiac ganglion. These fibers continue to adrenal gland where they synapse onto chromaffin cells. These cells liberate epinephrine into blood stream.

Synaptic organization of sympathetic ganglia:

Individual postsynaptic neuron in vertebral ganglia can receive signals from many preganglionic fibers (**convergence**) and one preganglionic neuron can relay impulse to many postganglionic neurons at different segmental levels (**divergence**). This organization of the sympathetic system induces widespread effects on target cells innervated by sympathetic postganglionic fibers.

Parasympathetic nervous system:

The preganglionic fibers arise in appropriate cranial nuclei and in segments S3 and S4 (sometimes S2, S5 also). These fibers leave the CNS in the III, VII, IX, and X (vagus) nerves for fibers of cranial origin and in pelvic nerve for fibers of sacral origin. The preganglionic fibers are long and go all the way to the effector organ where they synapse with the second postganglionic neuron located within the tissue of the effector organ or to a ganglion located very close to the effector organ. The axons of postsynaptic neurons are short.

Synaptic organization of parasympathetic nervous system:

In parasympathetic there is no or little branching of preganglionic fibers (divergence). The ratio of pre to post ganglionic neurons is 1:1 or 1:2. As a result of this arrangement, the parasympathetic actions tend to be more discrete and confined to the innervated organ.

Organization of the autonomic neuroeffector junction:

The terminals of autonomic nerve fibers are unlike terminals of the somatic motor fibers (skeletal neuromuscular junction). The autonomic terminals are highly branched forming extensive network of fibers beaded with small swellings or varicosities. These varicosities are sites from where transmitter is released.

The receptors on effector cells are scattered widely over the innervated organ. Unlike skeletal muscle, there is no specialized receptive region at the effector cell. The effect of ANS on these cells can be stimulatory or inhibitory. This effect depends on transmitter type, receptor subtype and changes in functional proteins induced in cell by binding of transmitter to its receptor.

Effects of sympathetic stimulation:

Sympathetic system innervates widely distributed tissues. These include, *sweat glands*, *smooth muscle cells of blood vessels* supplying skeletal muscle, skin, etc, *smooth muscle cells of hair follicles*. This innervation is consistent with diffuse projections of the sympathetic postganglionic fibers that originate in vertebral ganglia and distribute with the spinal nerves.

In human, **the previously mentioned target tissues do not have any parasympathetic innervation**. Thus, the sympathetic which has excitatory effects on these tissues regulates:

- Blood pressure (blood vessels supplying skeletal muscle are major players). In addition to that the effect on heart also contributes in regulation of blood pressure.
- Body temperature by the sympathetic effects on cutaneous blood vessels and sweat glands.

In addition to its effect on widely distributed tissues, sympathetic system is involved in handling **stress responses** (fight or flight reaction). Together with adrenal gland, the sympathetic system is designed to promote the production of energy for muscular work and to shut down organs which have nonessential functions in reaction to stressful situations. These effects on the following systems include:

- Cardiovascular system: effects on vessels will result in redistribution of blood by enhancing blood flow to skeletal muscle and reducing blood flow to skin and mesentery.

Effects on heart: increasing cardiac output (volume of blood pumped per minute).

- Respiratory system: causes relaxation of bronchial muscle which result in bronchodilation.
- Digestive system: inhibition of motility and secretion.
- Metabolic effects:
 - Mobilization of glucose.
 - Increased lipolysis.
 - Increased metabolic rate.

Effects of parasympathetic stimulation:

Overall, the parasympathetic, in contrast to sympathetic system is viewed as regulator of activities involved in replenishment of energy supply and general maintenance of the organism.

The control provided by parasympathetic system is discrete and selectively directed to individual organs.

The types of actions produced by parasympathetic stimulation include:

- Gastrointestinal system: increases motility and secretory activity.
- Glands: increases secretory activity (but remember sweat glands are under sympathetic control).
- Heart: decrease rate of contraction (bradycardia).
- Pupil: control pupil diameter by papillary light reflex (miosis) (regulates the amount of light falling on retina).
- Accommodation of the lens for near vision.
- Voiding the urinary bladder (micturition).

QUIZ!

<https://forms.gle/mvn59cAHvky8LZ2CA>

Additional Resources

رسالة من الفريق العلمي:

قال رسول الله عليه الصلاة والسلام : (مَا مِنْ أَيَّامٍ الْعَمَلُ الصَّالِحُ فِيهِنَّ أَحَبُّ إِلَى اللَّهِ مِنْ هَذِهِ الْأَيَّامِ الْعَشْرِ).
قَالُوا: وَلَا الْجِهَادُ فِي سَبِيلِ اللَّهِ؟ قَالَ: «وَلَا الْجِهَادُ فِي سَبِيلِ اللَّهِ، إِلَّا رَجُلٌ خَرَجَ بِنَفْسِهِ وَمَالِهِ فَلَمْ يَرْجِعْ مِنْ ذَلِكَ بِشَيْءٍ»

احرصوا على اغتنام العشر من ذي الحجة واملؤوا هذه الأيام المباركة بالذكر والطاعات
ولا تنسونا من صالح دعائكم ❤️❤️

For any feedback, click the code.



Versions	Slide #	Before	After
V0 → V1			
V1 → V2			