



**STD 10-FIRST BELL- BIOLOGY- CLASS-08**

**Chapter – 1**

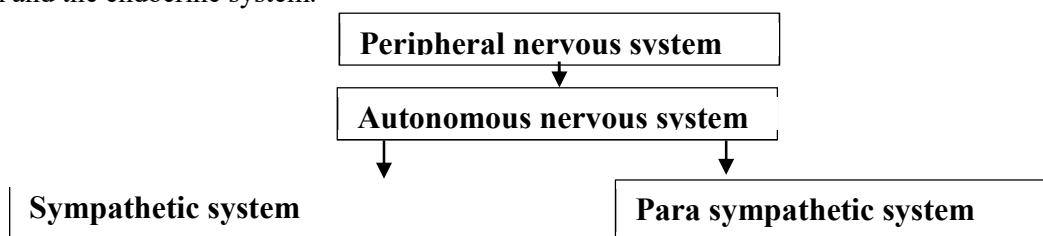
**Sensations and Responses**

**Autonomous nervous system (ANS)**

- The autonomous nervous system is a part of the peripheral nervous system that controls the activities beyond our conscious area. (Heartbeat, respiration)
- The autonomous nervous system consists of sympathetic and parasympathetic systems. They supply nerve fibres to most of our internal organs.

**Organ system that help to deal with emergency situation**

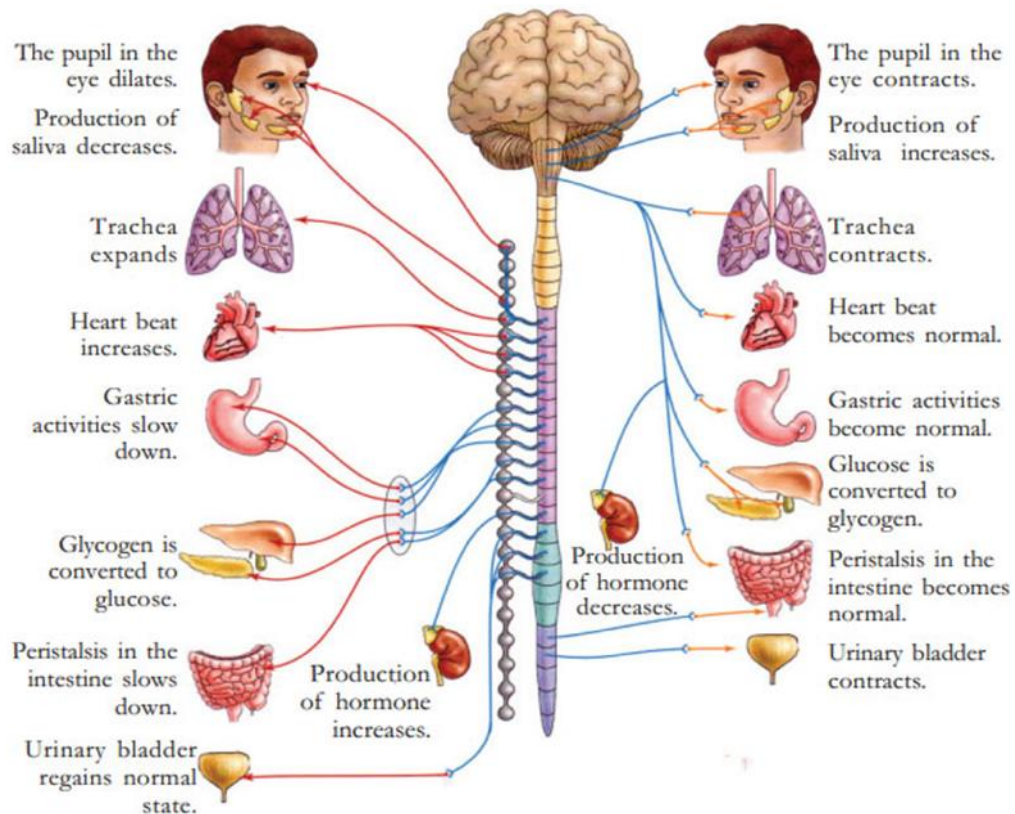
- Endocrine system is also associated with the nervous system.
- One can overcome the emergency situation by the coordination of activities of the autonomous nervous system and the endocrine system.



**Physical changes during emergency situation**

| Organ                  | Sympathetic system                       | parasympathetic system                       |
|------------------------|--|--|
| <b>Pupil</b>           | The pupil in the eye dilates             | The pupil in the eye constricts              |
| <b>Salivary gland</b>  | Production of saliva decreases.          | Production of saliva increases               |
| <b>Trachea</b>         | Trachea expands                          | Trachea contracts                            |
| <b>Heart</b>           | Heart beat increases                     | Heart becomes normal                         |
| <b>Stomach</b>         | Gastric activities slow down             | Gastric activities becomes normal            |
| <b>Liver</b>           | Glycogen is converted to glucose.        | Glucose is converted to glycogen.            |
| <b>Intestine</b>       | Peristalsis in the intestine slows down. | Peristalsis in the intestine becomes normal. |
| <b>Urinary bladder</b> | Urinary bladders regains normal state.   | Urinary bladder contracts.                   |
| <b>Adrenal Gland</b>   | Production of hormone increases          | Production of hormone decreases.             |

## Actions of sympathetic and parasympathetic systems during emergency situations



- The smooth functioning of internal organs occurs due to the opposite actions of the sympathetic system and parasympathetic system.

| Sympathetic system   | Para sympathetic system  |
|--|--|
| The activities stimulated by this are inhibited by the parasympathetic system. | The activities stimulated by this system are inhibited by sympathetic system |

## Health of a Nervous system

- A healthy nervous system is the basis of rhythmic body activities. Even minor changes in the nervous system may affect physiological activities.
- There is a rhythm for the activities in the body. To maintain this rhythm, a healthy nervous system is needed. So, any disorder in the nervous system will adversely affect the health and equilibrium of the body and the mind.

## Diseases or defects affecting the nervous system

- The health of the nervous system may get disrupted due to several reasons. Any disorder in the nervous system will adversely affect the healthy and equilibrium of the body and the mind.

| Disease             | Causes  | Symptoms   |
|---------------------|---|--|
| Alzheimer's         | <ul style="list-style-type: none"> <li>Accumulation of an insoluble protein in the neural tissues of the brain. Neurons get destroyed.</li> </ul> | <ul style="list-style-type: none"> <li>Loss of memory</li> <li>Inability to recognize friends and relatives</li> <li>Inability to do routine works.</li> </ul> |
| Parkinson's Disease | <ul style="list-style-type: none"> <li>Destruction of specialised ganglions in the brain.</li> </ul>  | <ul style="list-style-type: none"> <li>Loss of body balance</li> <li>Irregular movement of muscles</li> </ul>  |

|          |  |  |
|----------|--|--|
|          | <ul style="list-style-type: none"> <li>Production of dopamine, a neurotransmitter in the brain gets reduced</li> </ul> | <ul style="list-style-type: none"> <li>shivering of the body</li> <li>Profuse salivation.</li> </ul>   |
| Epilepsy | <ul style="list-style-type: none"> <li>Continuous and irregular flow of electric charges in the brain.</li> </ul>      | <ul style="list-style-type: none"> <li>Epilepsy due to continuous muscular contraction.</li> <li>Frothy discharge from the mouth</li> <li>Clenching of the teeth following which the patient falls unconscious.</li> </ul> |

**Other examples for diseases affecting the nervous system:**

- Rabies, Polio myelitis, Cerebral palsy, Autism, Meningitis, Stroke, Paralysis

**Humanity, Fraternity, fellowship (Values)**

- A complete cure through treatment is not possible for several diseases affecting the nervous system. Disease is not a crime or curse. Anybody can become ill. So a diseased person needs care and love. The difficulties which happen to the mind affect our body. Caring with great love and consideration help the patient to overcome the disease easily.



The health of the nervous system is essential for mental and physical wellbeing. Proper care should be taken to maintain the health of nervous systems.

*Prepared by:*

Riyas  
 PPMHSS Kottukkara  
 Kondotty-Malappuram  
[www.apluseducare.blogspot.com](http://www.apluseducare.blogspot.com)  
 09747944422