



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT OF CARDIO PULMONARY PERFUSION CARE
TECHNOLOGY

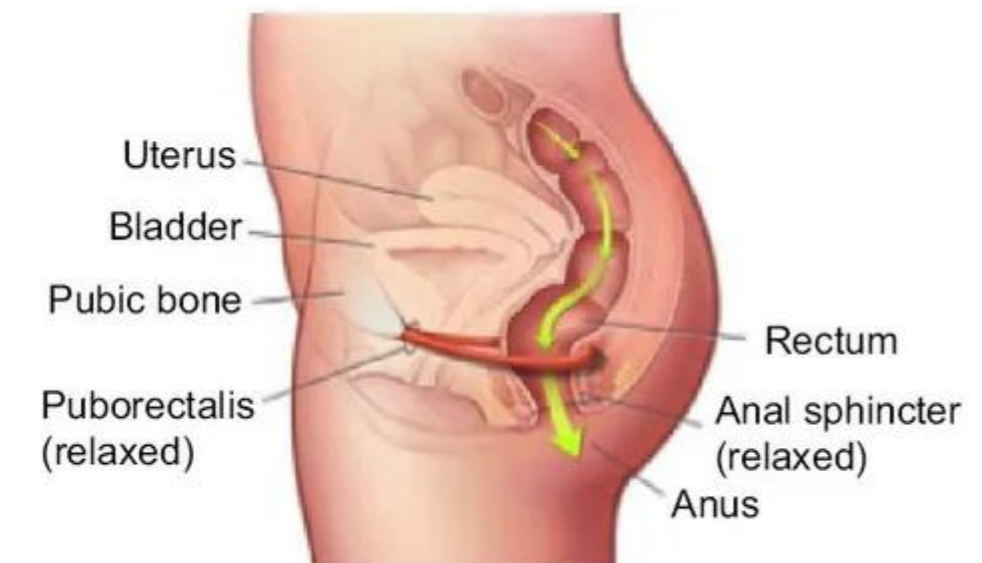
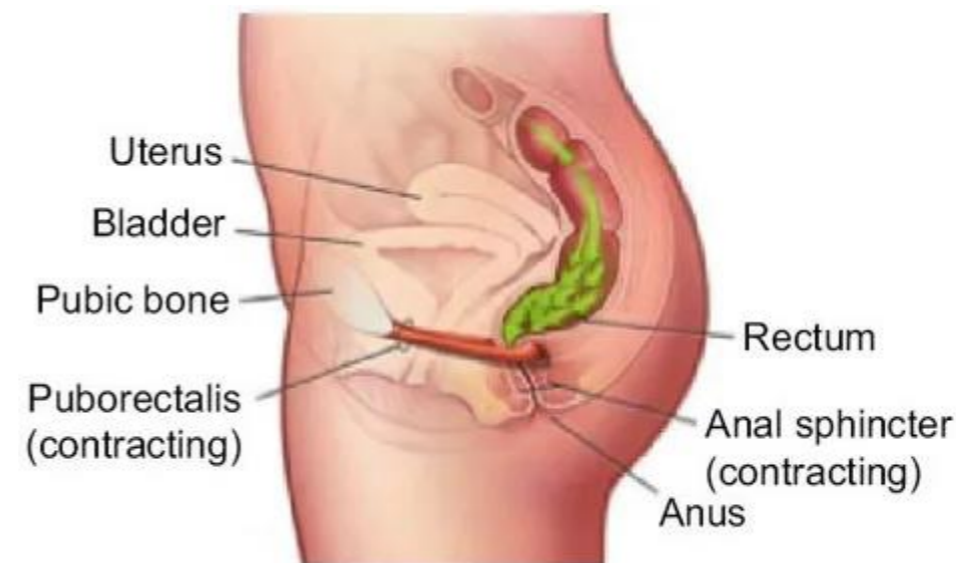
COURSE NAME : GASTROENTEROLOGY

3RD YEAR

TOPIC : PHYSIOLOGY OF DEFECATION

DEFECATION

- Defecation, also called bowel movement, the act of eliminating solid or semisolid waste materials (feces) from the digestive tract.

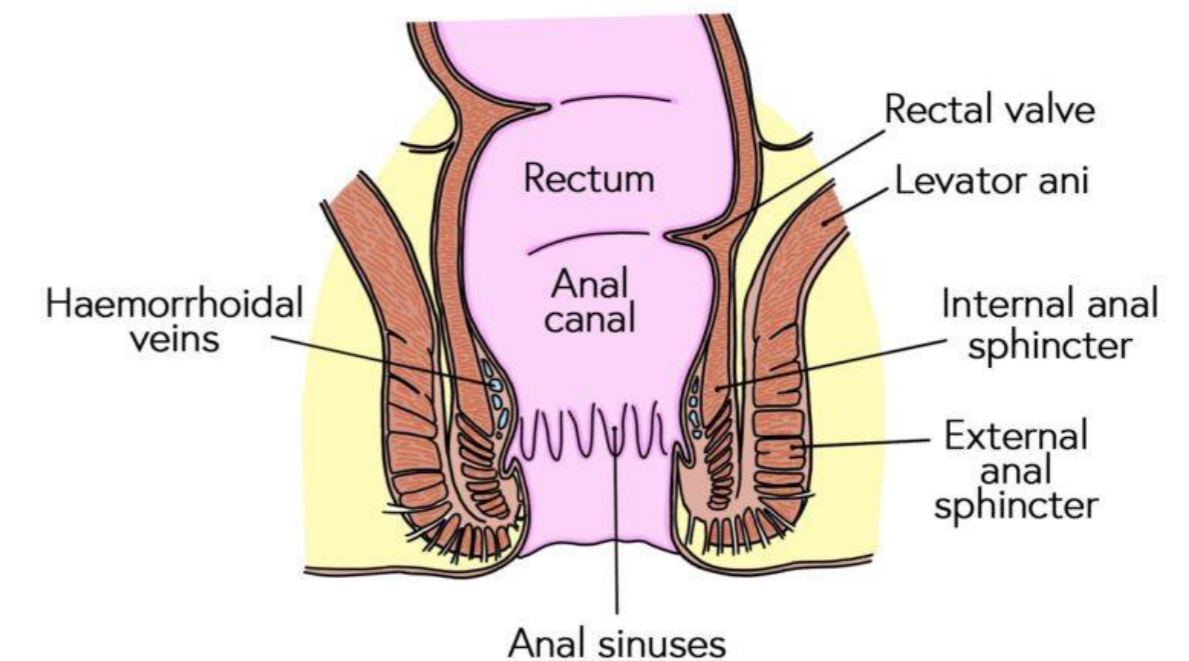




INTERNAL AND EXTERNAL ANAL SPINCTER



- Internal anal sphincter - **Circular smooth muscle** that lies immediately inside the anus..
- External anal sphincter –
 - Composed of **straited voluntary muscle** that surrounds internal sphincter and extend distal to it. The external sphincter is controlled by nerve fibres in **puidental nerve** which is a part of **somatic nervous system**.
 - Under subconscious control the external sphincter is kept constricted unless conscious signal inhibits the constriction.





DEFECATION REFLUX



1. Intrinsic reflex

- Myenteric Defecation Reflex triggers a weak peristalsis movement that propels the feces towards the rectum. This reflex is called the intrinsic defecation reflex and is innervated by the myenteric plexus.
- Enteric nervous system - Myenteric plexus
- Weak reflex fortified with Parasympathetic defecation reflex

2. Parasympathetic defecation reflex

Autonomic nervous system - Parasympathetic fibers of pelvic nerves





INTRINSIC DEFECATION REFLUX



ENS - MYENTERIC PLEXUS

- STIMULUS - Feces enter the rectum - distention of rectal wall
- RECEPTORS - Stretch receptors in the rectal wall
- AFFERENTS - Sensory fibers terminating in MYENTERIC plexus
- CENTER – myenteric plexus
- EFFERENTS - Motor signals to smooth muscles
- EFFECTORS - Smooth muscle cells of Descending, Sigmoid colon & Rectum
- RESPONSE - Peristaltic waves forcing feces towards rectum. Relaxation of internal anal sphincter

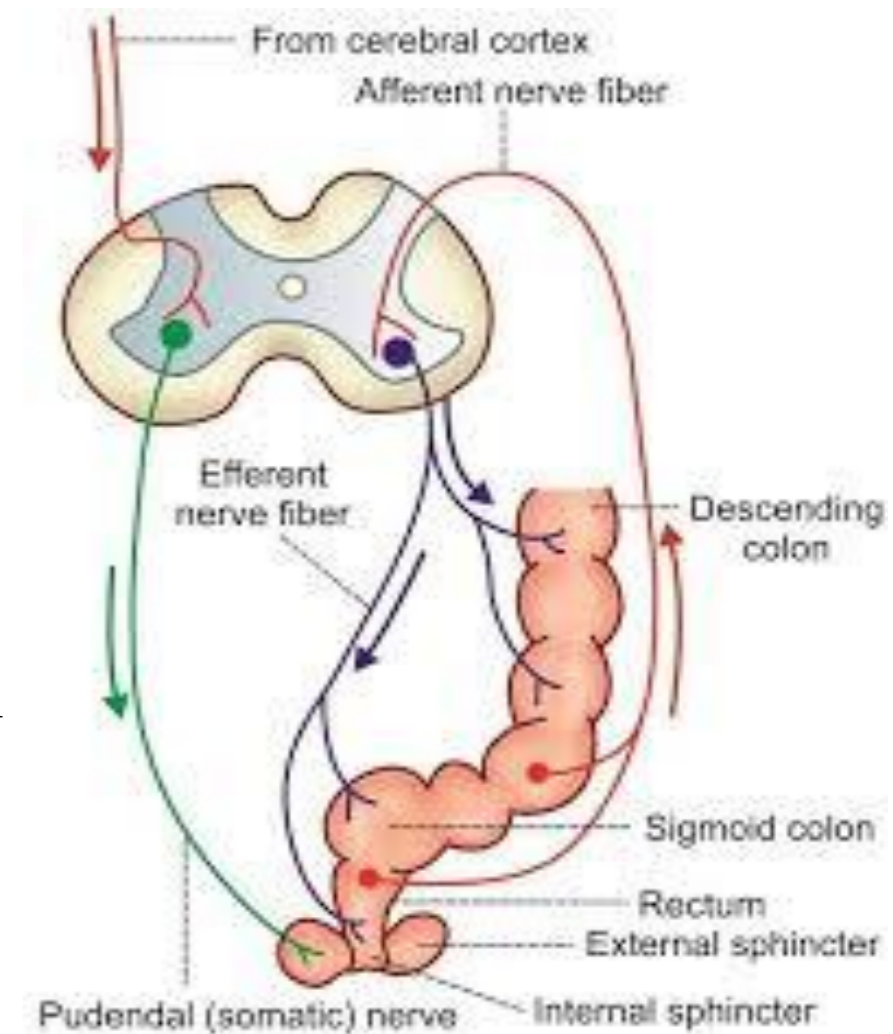


PARASYMPATHETIC DEFECATION REFLEX

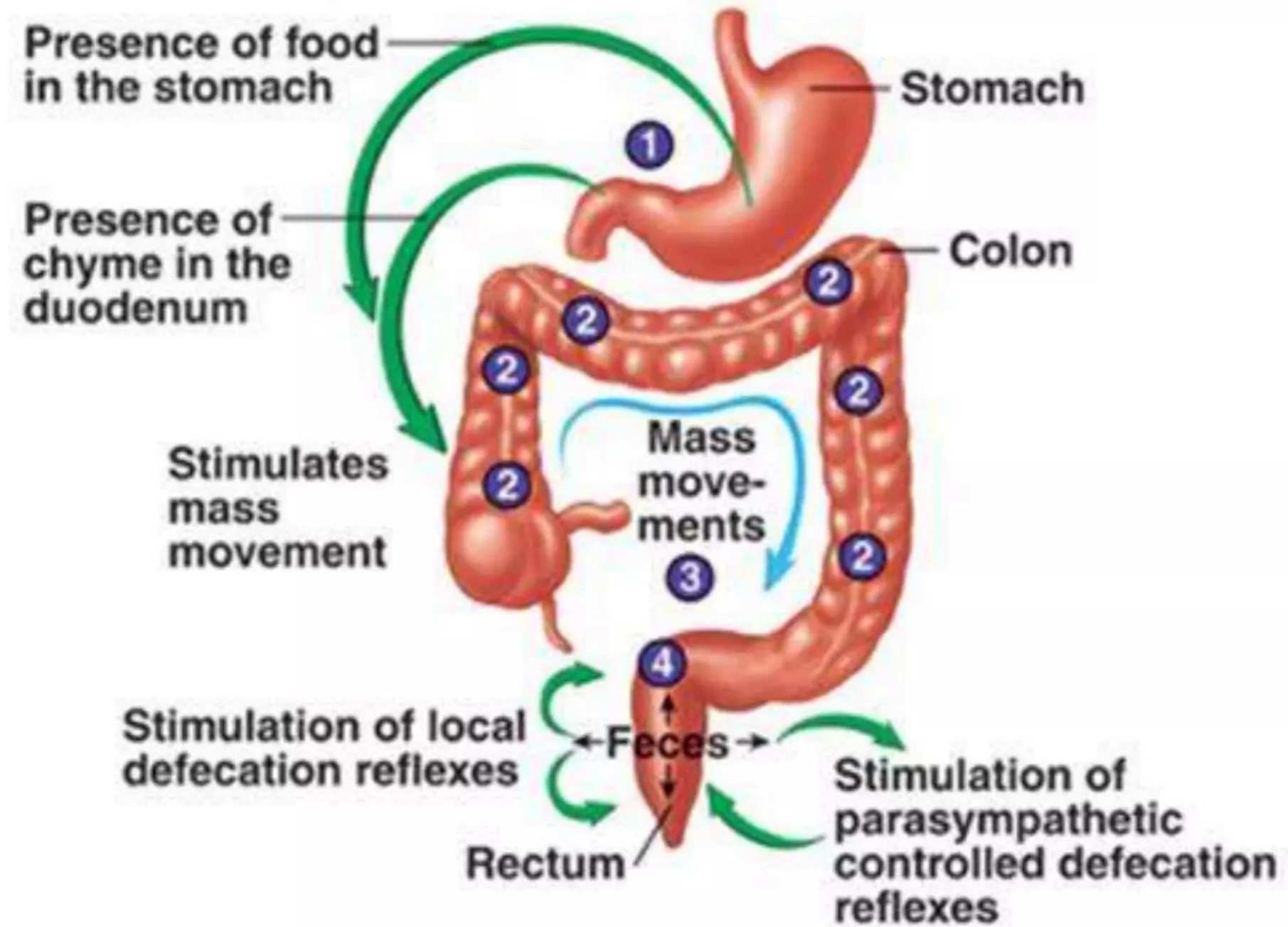


PARASYMPATHETIC PELVIC NERVES

- **STIMULUS** - Feces enter the rectum distention of rectal wall
- **RECEPTORS** - Stretch receptors in the rectal wall
- **AFFERENTS** - Sensory fibers terminating in S2 - S4 cord level
- **CENTER** - S2 S4 spinal cord segments
- **EFFERENTS** - Pelvic Parasympathetic nerves
- **EFFECTORS** - Smooth muscle cells of Descending, Sigmoid colon & Rectum
- **RESPONSE** - Peristaltic waves forcing feces towards rectum Relaxation of internal anal sphincter



DEFECATION INTEGRATED REFLUXES





DEFECATION



- Combination of intrinsic & Parasympathetic defecation reflexes
 - Action of parasympathetic reflex results in the **contraction of descending colon, sigmoid colon and rectum and relaxation of internal anal sphincter**
- At convenience Valsalva maneuver
 1. Closure of glottis
 2. Deep inspiration
 3. Abdominal contraction
- Inhibition of external anal sphincter via PUDENDAL NERVE (voluntary control)
 - Results in the **relaxation of external anal sphincter**



REFERENCES



- <https://youtu.be/0uoZcYepP0s>
- <https://youtu.be/eV4Y2i59ZF0>
- <https://youtu.be/EV1ucAYNneo>



THANK YOU