

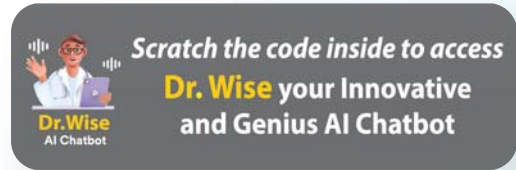


JAYPEE

Textbook of PHYSIOLOGY

Concepts With Clinical Insights

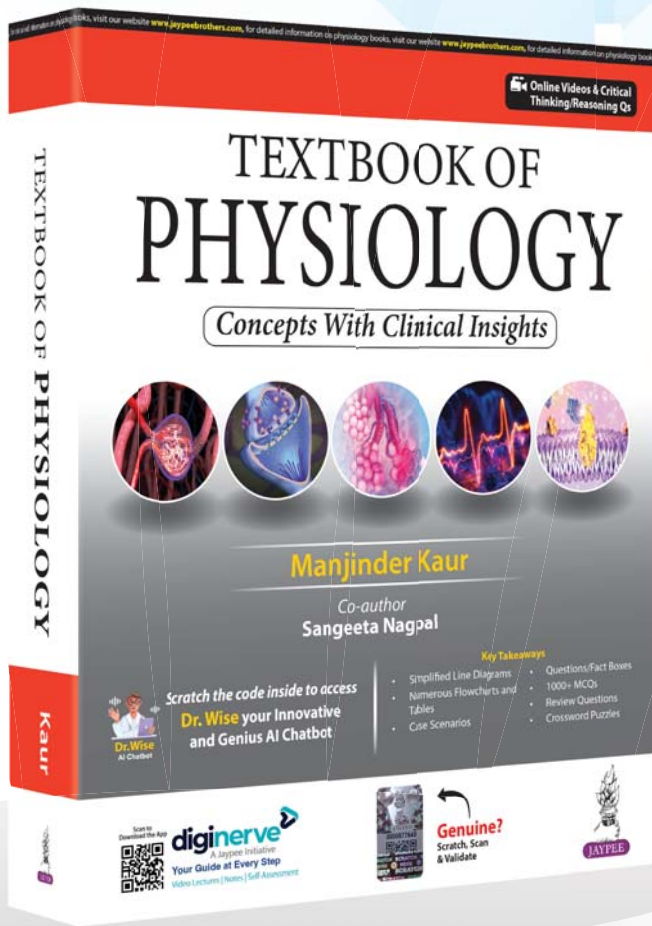
Manjinder Kaur



Key Takeaways

- Simplified Line Diagrams
- Numerous Flowcharts and Tables
- Case Scenarios
- Questions/Fact Boxes
- 1000+ MCQs
- Review Questions
- Crossword Puzzles

Online Videos & Critical Thinking/Reasoning Qs



TOC & Sample Chapter



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Why to Buy this Book ?

- Aligned with **National Medical Commission (NMC)** guidelines, covering all essential topics in medical physiology.
- Written in **clear, concise**, and **student-friendly** language for easy understanding.
- Links theoretical knowledge with practical applications in **medical practice**.
- Features **case scenarios** to help students apply theory to real-world clinical situations.
- Includes **clear line diagrams** to simplify complex concepts.
- Contains **flowcharts** and **tables** for quick and efficient revision.
- Offers **multiple-choice** and **review questions** at the end of each chapter to test comprehension.
- The **reasoning questions** are included to encourage a better understanding of physiological principles.
- Features **crossword puzzles** at the end of each section to make learning fun and engaging.

SAMPLE PAGES

Competencies and Learning Objectives are given in the beginning of each chapter.

Autonomic Nervous System

91 CHAPTER

COMPETENCY ADDRESSED

PY10.5: Describe and discuss structure and functions of reticular activating system and autonomic nervous system.

LEARNING OBJECTIVES

At the end of this chapter, the learner should be able to:

- ✓ Describe the structural details of the autonomic nervous system
- ✓ Describe the functions of autonomic nervous system
- ✓ Describe the regulatory mechanisms under the influence of autonomic nervous system
- ✓ Describe the applied aspects related to autonomic nervous system



QR Codes are provided for Video Summaries and Detailed Explanations.

Well-labeled diagrams are used to clearly illustrate anatomical structures.

SYMPATHETIC NERVOUS SYSTEM (FIG. 91.2)

Sympathetic division of ANS is primarily responsible for the **emergency situations**. However, some basal functions such as **sympathetic vaso-constrictor tone are maintained even at rest**. The various differences and similarities in sympathetic and parasympathetic nervous system are shown in the Table 91.1.

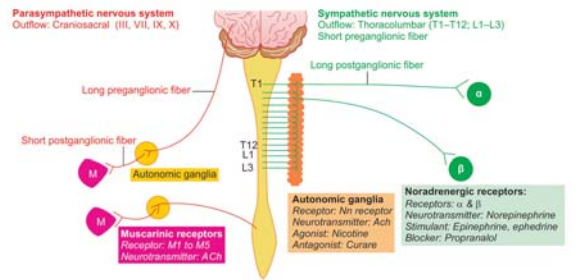


Fig. 91.2: Organization of parasympathetic and sympathetic nervous system.

However, the entire nervous system is also considered as the third division of the autonomic nervous system.

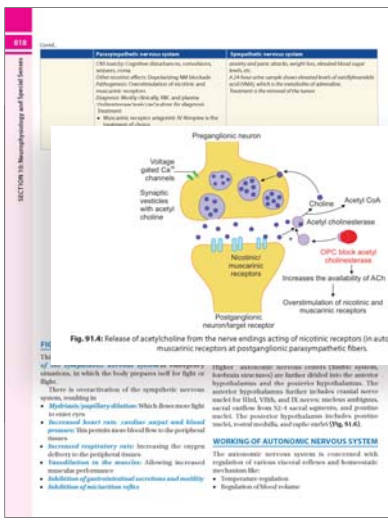
PARASYMPATHETIC NERVOUS SYSTEM (FIG. 91.2)
The parasympathetic division of the autonomic nervous system is primarily responsible for regulating the basal homeostatic and visceral functions. Hence, it is also called the nervous system for 'rest and digest'.

SYMPATHETIC NERVOUS SYSTEM (FIG. 91.2)
Sympathetic division of ANS is primarily responsible for the emergency situations. However, some basal functions such as sympathetic vasoconstrictor tone are maintained even at rest. The various differences and similarities in sympathetic and parasympathetic nervous system are shown in the Table 91.1.

Table 91.1: Similarities and differences between parasympathetic and sympathetic nervous system.

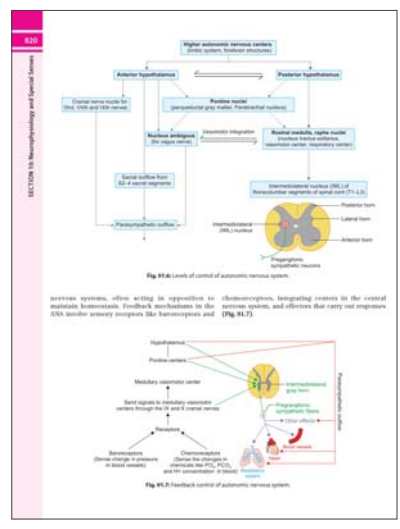
	Parasympathetic nervous system	Sympathetic nervous system
Origin	Craniosacral outflow <ul style="list-style-type: none"> • Cranial nerve nuclei for III, VII, IX, X nerves • Sacral (S2-4 or segments) 	Thoracolumbar outflow (Fig. 91.3) T1 to T12, L1 to L3
Preganglionic (connector) fibers	Type B, myelinated, long, cholinergic nerve fibers	Type B, myelinated, short, cholinergic nerve fibers, exits the thoracolumbar segments of the spinal cord and enters the <i>white rami communicantes</i> , to reach chain of autonomic ganglia (paravertebral sympathetic chain)
Applied Physiology	Damage to preganglionic fibers results in autonomic failure called Shy-Drager syndrome . This condition when accompanied with parkinsonism and cerebellar ataxia is called multiple system atrophy (MSA) . It is a neurodegenerative disorder seen in elderly people. The most common presenting symptom in these patients is erectile dysfunction.	
Autonomic ganglion		
Neurotransmitter	Acetylcholine	Acetylcholine
Receptor	Nicotinic (N_A) type	Nicotinic (N_A) type
Agonist	Nicotine	Nicotine
Blocker	Curare	Curare
Postganglionic (effector) fibers	Type C, unmyelinated, short-cholinergic nerve fibers	Type C, unmyelinated, long, noradrenergic nerve fibers. These fibers enter the <i>gray rami communicantes</i> , and travel to the effector organs.
Applied Physiology	Blockage of nicotinic receptors due to arrow poison containing <i>d-tubocurarine</i> results in blockage of N_A receptors (other nicotinic receptors) present in the neuromuscular junction. This causes transient paralysis of the skeletal muscles .	

Key information is highlighted using Tables



Each chapter contains simplified line diagrams for better understanding.

Flow Charts are provided to Break Down Broad Concepts



SUMMARY

- In this chapter we studied the autonomic nervous system (ANS), covering its structure, functions, regulatory mechanisms, and applied aspects.
- It delves into the control of homeostatic mechanisms and visceral regulations, as well as the coordination of bodily responses to stress and exercise.
- The autonomic nervous system is concerned with regulation of various visceral reflexes and homeostatic mechanisms like temperature regulation, regulation of blood volume, blood pressure, pupillary light reflex, accommodation reflex, vomiting reflex, and deglutition reflex.
- The ANS is divided into the parasympathetic and sympathetic nervous systems, each with distinct functions and effects on target organs. The parasympathetic system regulates basal homeostatic and visceral functions, while the sympathetic system is primarily responsible for emergency situations.
- The parasympathetic division of the autonomic nervous system is primarily responsible for regulating the basal homeostatic and visceral functions. Hence, it is also called the nervous system for 'rest and digest'.
- The sympathetic division of ANS is primarily responsible for emergency situations. However, some basal functions such as sympathetic vasoconstrictor tone are maintained even at rest.
- The feedback control and levels of control of the autonomic nervous system, including the role of higher autonomic nervous centers and the feedback mechanisms involving baroreceptors and chemoreceptors.

Summaries are given in green boxes.

LET US SEE, HOW MUCH YOU HAVE LEARNT?

Review Questions

Long/Short Answer Questions

Explain Why? (Reasoning Questions)

Critical Thinking Case-Based Questions

LET US SEE, HOW MUCH YOU HAVE LEARNT?

- Review Questions
- Long/Short Answers
- Explain Why?(Reasoning Questions)
- Critical Thinking Case-Based-Questions

Give at the end of each chapter.



Best book ever

The book was really great . Helped me with study beautiful . Would recommend to my juniors and would pass on to my siblings as well.

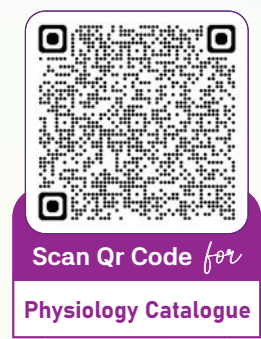
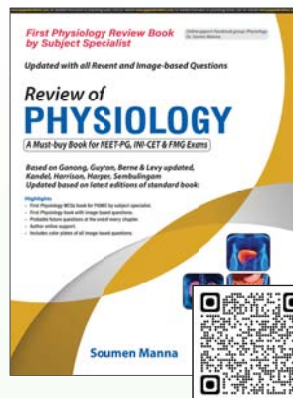
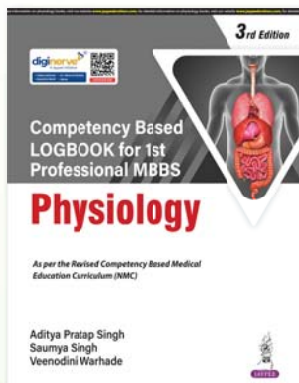
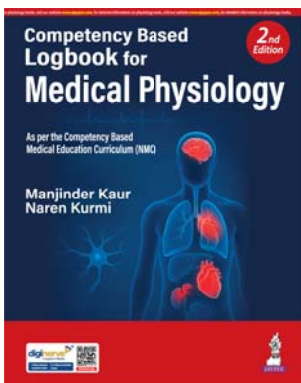
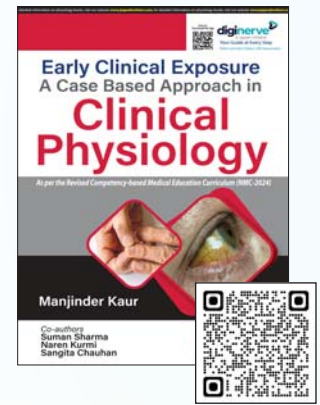
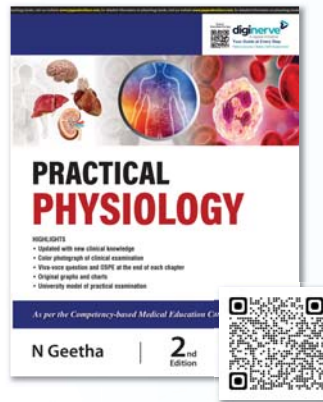
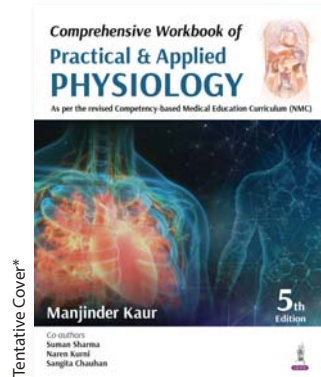
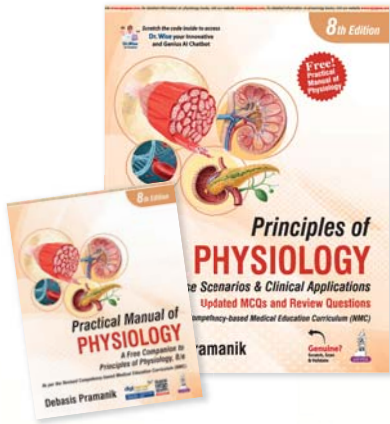
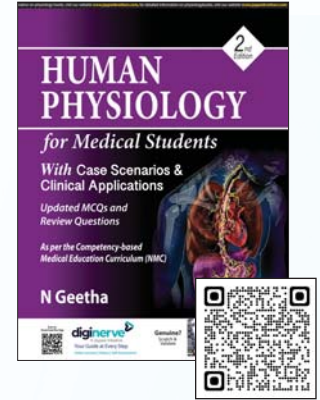
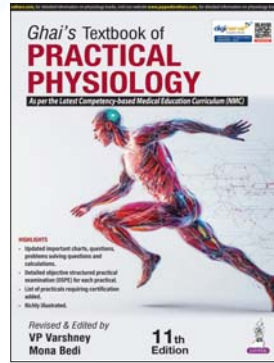
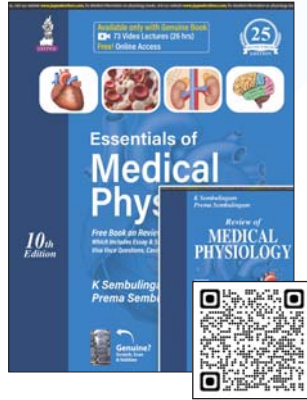
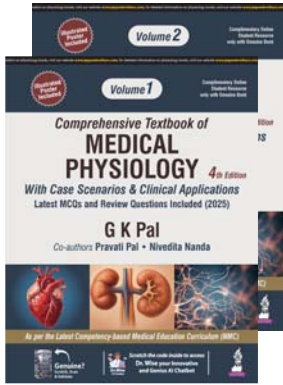
Flowchart are good

Flowchart are good , but a bit complex, added new topics which are missing from other books.

Fabulous book

Loved it passed my first year with this. Definitely recommended for clinical aspects of physiology

Other Useful Titles



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