

# Essentials of Pharmacology

Basic Principles and General Concepts

Fifth Edition

This book covers the whole gamut of pharmacology including basic principles, brief review of pathophysiology of major diseases, and pharmacological basis of therapeutics.

Each chapter opens with a list of contents at a glance. The coverage in the text includes pharmacokinetics, pharmacological actions, mode of action, clinical applications, preparations, dosages, drug interactions, contraindications and adverse effects. At the end of each chapter, study questions as well as references as guide are given for further reading. The level of integrative approach closely matches the needs of medical, pharmacy and dental students.

Significant features of the fifth edition: Additional two chapters and three appendices

- Pharmacovigilance is an emerging pharmacological science. For all medicines there is a trade-off between benefits and the potential for harm. As the newer and newer medicines hit the market the need for pharmacovigilance grows more than ever before. Hence, the undergraduate health professionals need to receive proper training at the outset in the discipline of pharmacovigilance.
- Stem cells, directed to differentiate into specific cell types, offer the possibility to treat a myriad of diseased states. Stem cell research has the potential to revolutionize treatment of several diseases. It is an emerging field with clinical implications. Medicine of future will be based on cell therapies, focused on repair of tissues/organs by cell transplants.
- Overviews of Pharmionics, Pharmacoepidemiology and Pharmacoconomics have been added in the appendices.

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At 42nd Annual Conference of Indian Pharmacological Society, 2009, Kolkata, he was felicitated for lifetime achievement in appreciation of his pioneering research and outstanding contributions to the discipline of pharmacology.

He has to his credit more than 140 original research papers. He is also co-author of the book *Ocular Pharmacology*.

Fifth  
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Sharma



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## Preface to the Fifth Edition

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Some readers have suggested that it will be useful if chapters on pharmacovigilance and stem cell: Basics and potential uses are included in the new forthcoming fifth edition. I welcome this suggestion with thanks. An attempt has been made to highlight the following additional chapters (22 and 23) as relevant to the students of pharmacology.

**Pharmacovigilance** is an important pharmacological science. It plays an important role in the rational use of medicines by providing information about adverse drug reactions (ADRs). Challenges are posed by the ever increasing range and potency of medicines, all of which carry an inevitable and sometimes unpredictable potential for harm. For all medicines there is a trade-off between benefits and the potential for harm. Pharmacovigilance makes an important contribution to the health of the nation.

**Stem cells**, directed to differentiate into specific cell types, offer the possibility to treat a myriad of diseased states. Elucidation and exploitation of stem cell has the potential to revolutionise treatment of several diseases. Stem cell research is an emerging field with clinical implications focused on repair, replacement or regeneration of cells to salvage impaired organ functions. The promise of stem cell therapies is an exciting one. Through intensive research, stem cell therapeutics can be nurtured safely. The ICMR guidelines on stem cells hold significance.

Overview of **Pharmionics, Pharmacoepidemiology and Pharmacoeconomics** has been added in the appendices.

VN Sharma

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## Preface to the First Edition

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Pharmacology has become a broad and deep discipline. A single text—even a long one—cannot adequately cover every aspect of the subject. An attempt to summarize the present understanding of pharmacology in a comprehensive book for the serious student of this subject is a formidable undertaking.

This book is an attempt to provide pharmacological knowledge to the medical, dentistry and pharmacy students and also others concerned with health services. The objectives in this text are to provide a basic understanding as well as to present the essential material giving step-by-step easy to understand explanation for the scientific basis of drug therapy, at a level that the students of these disciplines can handle.

The heavily burdened students may find this book of a size that is manageable. Of course, it was rather difficult to decide as to how much detail should be included in this book. Throughout, the goal has been that the text is geared to medical, dental and pharmacy and other health science students. However, only the users of this book can tell to what extent these goals have been met.

The text is organised in a sequence that builds new information on informations already assimilated, for example early presentation of general aspects of pharmacology, followed by autonomic pharmacology prepares students to understand especially the drugs affecting central nervous system and cardiorenal system.

The coverage in each chapter includes pharmacokinetics, drug effects, mode of action, rationale of clinical applications, preparations, dosages, relevant drug interactions, contraindications and adverse effects.

The text incorporates short sets of key points, set off in outlined boxes which summarize important points wherever special emphasis is needed; and the terms associated with the subject.

Each chapter opens with a list of the contents of the chapter at a glance. It indicates knowledge that should be acquired after reading the chapter itself. At the end of each chapter, study questions are given. It is a series of questions designed to provide a check to see if the contents stated in the beginning of the chapter have been mastered. After answering the questions, it is suggested that students should re-read the contents to determine whether they have met the goals.

To cater for graduate students and teachers, fairly extensive list of references has been included at the end of each chapter which will be useful as guide to further reading.

Readers and users are invited to send their reactions and suggestions to me so that plans can be formulated for subsequent edition. Comments will be welcome.

V.N. Sharma



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