

## Pharmacology Course for Physical Therapy Assistants

October 5, 2019

### Objectives

This course is designed to advance the knowledge of physical therapist assistants in the realm of drugs, and their effects on the human body that informs the specific practice, and basic precautions associated with the physical mobility/activity in these patients.

The course will lay a foundational element to the realm of pharmacology that is important in establishing the need to understand the role of drugs in patients, as well as provide the broad explanation of why and how drugs behave the way they do. Fundamentals will also provide a basis for utilizing principles that apply across various drug groups.

Thereon, the course will delve into common drug classes, their common effects, side-effects, and impact on mobility and exercise.

Finally, the attendees will receive resources for reference, and on-the-field use of aids to be able to translate the knowledge obtained in this course to the first-day of practice in their respective specialties.

1. Orientation to fundamentals of Pharmacology
  - a. Pharmacodynamics
    - i. Definition
    - ii. Types of effects of drugs
    - iii. Major sites of drug actions
    - iv. Receptor-mediated Drug Actions
    - v. Receptor-Ligands and changes with prolonged administration
      1. Agonists – Antagonists-Reverse Agonists
    - vi. Regulation of receptors based on drug availability
  - b. Pharmacokinetics
    - i. ADME of Pharmacokinetics
    - ii. Routes of Administration – Precautions during patient handling
    - iii. First-Pass Elimination and expected effects of first-pass
    - iv. Elimination of Drugs and problems associated with failing organs of excretion
      1. Zero order kinetics – concept of  $\frac{1}{2}$  life
      2. First order kinetics
    - v. Variations of impact of drugs based on genetics, aging, other factors
  - c. Side-effects of Drugs – Concepts of Tolerance, Addiction, Withdrawal
  - d. Drugs of Abuse – Scheduled Substances
2. Important drug classes encountered by physical therapists & physical therapy assistants
  - a. Musculoskeletal drugs
  - b. CNS Drugs
  - c. Cardiac Drugs
  - d. Vascular Drugs
  - e. Pulmonary Drugs
  - f. Antibiotics
3. Working with patients on important drug classes
  - a. Musculoskeletal drugs

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- b. CNS Drugs
  - c. Cardiac Drugs
  - d. Vascular Drugs
  - e. Pulmonary Drugs
  - f. Antibiotics
4. Orientation to the AGS Beer's Criteria®. – List of Drugs of concern in the elderly population
  5. Orientation to the SIDER® database – for comprehensive side-effects of drugs
  6. Orientation to the use of electronic mobile references for on the field application.