

# Clinical Pharmacokinetics in Theory and Practice – Introductory Course

Spring 2025

*Pharmacokinetics is the study of what the body does to the drug, while pharmacodynamics relates to what the drug does to the body. This course in Clinical Pharmacokinetics gives the introduction to pharmacokinetic concepts and their physiological correlates. Various hands-on exercises and seminars conveys an intuitive understanding to the participants of the clinical application of pharmacokinetic concepts.*

## About the course

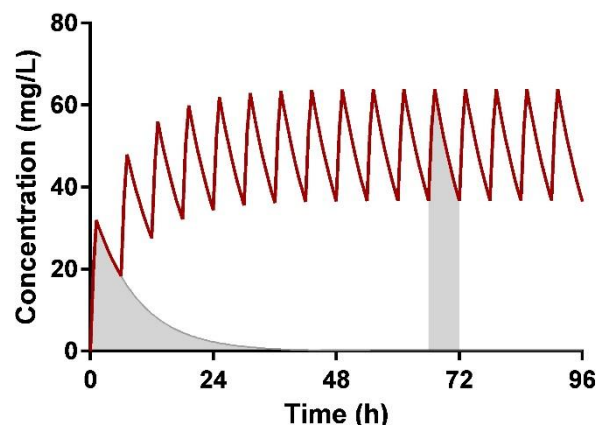
The course is front-loaded with pharmacokinetic concepts and theories illustrated by hands-on labs. Later in the course, clinical applications will be highlighted by lectures and seminars on pharmacogenetics, drug-drug interactions, pediatric and geriatric pharmacokinetics, bioequivalence and introduction to pharmacokinetic-pharmacodynamic relations and model-informed precision dosing.

## Objectives

The course aims to help the participants develop an understanding of clinical pharmacokinetics to be able to guide clinicians in choosing the right drug and the right dose based on the pharmacokinetic properties of the drug and the individual patient's characteristics and comorbidities.

After the course, the participant will be able to:

- Explain pharmacokinetic concepts from a clinical perspective
- Apply knowledge of pharmacokinetics and concentration-effect relationships for guiding the choice of drug and dosing for the treatment of individual patients.
- Predict how pharmacokinetic properties influences the monitoring of drug treatment.
- Describe how pharmacokinetics (and to some extent - dynamics) change throughout life, during pregnancy and how it is affected by dysfunction of the kidneys, liver and heart.



Copyright: Staffan Rosenberg 2016

## Target Group

Physicians (residents or specialists), doctoral students and researchers and other professionals (pharmacists, biomedical scientists, biochemists etc.) active in Clinical Pharmacology and with an urge to acquire or update their knowledge and skills in Clinical Pharmacokinetics.

Physicians, doctoral students and other professional active in pharmaceuticals-intensive specialities e.g. neurology, psychiatry, anesthesia and intensive care, internal medicine, haematology, gastroenterology, emergency medicine, geriatrics, infectious diseases, nephrology and those involved in the care of transplanted patients.

## Course content

Pharmacokinetic concepts and their physiological correlates: distribution, clearance, absorption after single and repeated dosing; protein binding, non-linear kinetics, flaws and errors, dose-response relationships, drug-drug interactions, bioequivalence, pharmacogenetics, geriatric pharmacokinetics, neonatal pharmacokinetics, introduction to population pharmacokinetics, computer exercises, seminars and a home exam to consolidate the knowledge and skills.

## Course set up

Lectures, seminars and computer exercises individually and in small groups.

The first day starts at 9.30, other days start at 8.15. Day 2-5 starts with a reflection and a quiz to recapitulate the contents of the previous day.

A course evaluation and home exam is sent to the participants on the last day of the course. Submission of the home exam within two weeks is required for the issue of a course certificate.

## Quotes from previous participants

*"I am really impressed how you made such a big and difficult area understandable! I have learnt a lot!"*

*"Very knowledgeable lecturers which gives rise to very interesting discussions during the course."*

*"I think all lectures were great, I especially like that the more hard-core PK was the focus the first few days and then a bit of PD and also PK in special populations towards the end. Good schedule!"*

## Application

To apply visit [Clinical Pharmacokinetics in Theory and Practice](#)

Last day to apply is **February 17, 2025**.

Registration is binding. For cancellations later than six (6) weeks before the start of the course, 50 percent of the course fee will be charged, and for cancellations later than three (3) weeks before the start of the course, the full course fee will be charged. For complete terms and conditions, see our [general terms and conditions](#). Please note that the course is subject to the condition that we receive a sufficient number of participants.

## Course management

**Olof Breuer**, course leader, Senior Consultant, MD, PhD

**Staffan Rosenberg**, course leader, Senior Consultant, MD, PhD, Associate professor, Karolinska Institutet, department of Laboratory Medicine, Division of Clinical Pharmacology

## Quote from course leaders

*"It's fun to teach at this course with such engaged participants and lively discussions! The course dinner on Tuesday evening contributes to positive group dynamics."*

## More information

**Questions regarding course content:**  
Staffan Rosenberg, course leader

Email: [staffan.rosenberg@ki.se](mailto:staffan.rosenberg@ki.se)

**Questions regarding application:**  
Sandra Lannergren, project coordinator  
Karolinska Institutet Executive Education  
Email: [sandra.lannergren@ki.se](mailto:sandra.lannergren@ki.se)

**Dates:** March 17-21, 2025

**Venue:** Karolinska Institutet, Campus Flemingsberg, room 41 "Takterrassen", Alfred Nobels Allé 8

**Fee:** 5000 SEK excl. VAT

Karolinska Institutet is one of the world's foremost medical universities. Our vision is to advance knowledge about life and strive towards better health for all. Karolinska Institutet accounts for over 40 per cent of the medical academic research conducted in Sweden and offers the country's broadest range of education in medicine and health sciences. Since 1901 the Nobel Assembly at Karolinska Institutet has selected the Nobel laureates in Physiology or Medicine. Karolinska Institutet Executive and Professional Education delivers competence development for municipalities, governments and businesses and works for development in healthcare and for a healthier society.

