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AN INTRODUCTION TO

**Drugs AND THE
Neuroscience of
Behavior**

AN INTRODUCTION TO

Drugs AND THE Neuroscience of Behavior

Adam J. Prus

Northern Michigan University



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Adam J. Prus

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To Jennifer, Kendell and Daniel



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Adam Prus is an Associate Professor in the Department of Psychology at Northern Michigan University, in Marquette, Michigan. He earned his Ph.D. in psychology from Virginia Commonwealth University. While in graduate school, he also worked as a research technician at a large pharmaceutical company. After earning his degree, he served as postdoctoral fellow in the Psychopharmacology Division of the Department of Psychiatry at Vanderbilt University, working under the mentorship of Herbert Meltzer, a leader in antipsychotic drug research.

Adam has published numerous original studies on psychoactive drugs and conducts research projects funded by the National Institute of Mental Health, private foundations, and pharmaceutical companies. When he is not teaching or doing research, Adam spends time with his family, fixes up their house (which he thinks has a lot of potential), and works on his golf game (which may have less potential, but is enjoyable nonetheless).

BRIEF CONTENTS

- 1 Introduction to Psychopharmacology 1**
- 2 The Nervous System 29**
- 3 Neurotransmission 63**
- 4 Properties of Drugs 101**
- 5 Drugs of Abuse 129**
- 6 Psychostimulants 159**
- 7 Nicotine and Caffeine 191**
- 8 Alcohol 225**
- 9 GHB, Inhalants, and Anesthetics 255**
- 10 Opioids 275**
- 11 Cannabinoids 299**
- 12 Psychedelic Drugs 319**
- 13 Treatments for Depression and Bipolar Disorder 353**
- 14 Treatments for Anxiety Disorders 381**
- 15 Antipsychotic Drugs 407**

CONTENTS

1	Introduction to Psychopharmacology	1
	Psychopharmacology	2
	Why Read a Book on Psychopharmacology?	3
	Drugs: Administered Substances That Alter Physiological Functions	4
	Psychoactive Drugs: Described by Manner of Use	5
	Generic Names, Trade Names, and Street Names for Drugs	6
	Drug Effects: Determined by Dose	7
	Pharmacology: Pharmacodynamics, Pharmacokinetics, and Pharmacogenetics	10
	Psychoactive Drugs: Objective and Subjective Effects	11
	Study Designs and the Assessment of Psychoactive Drugs	12
	Experimental Validity: Addressing the Quality and Impact of an Experiment	15
	Animals and Advancing Medical Research	17
	A Lack of Feasible Alternatives	18
	High Predictive Value for Drug Effects in Humans	18
	Assessing Drugs in Carefully Controlled Laboratory Environments	18
	The Regulation of Animal Research	19
	Animal Rights Activism Seeks to Minimize or Eliminate Animal Research	21
	Researchers Consider Many Ethical Issues When Conducting Human Research	22
	FROM ACTIONS TO EFFECTS	
	Therapeutic Drug Development	25
	CHAPTER SUMMARY	27
	KEY TERMS	28
2	The Nervous System	29
	Is There More to the Story of Phineas Gage?	30
	Cells in the Nervous System	31

- Neuron Communication in the Nervous System 31
- Glial Cells: Facilitating Nervous System Functions 33
- The Nervous System: Control of Behavior and Physiological Functions 35**
 - The Peripheral Nervous System: Controlling and Responding to Physiological Processes in the Body 36
 - The Central Nervous System: Controlling Behavior 39
- Blood Flow in the Brain 48**
- Cerebrospinal Fluid 49**
- The Blood–Brain Barrier 51**
- The Nervous System: Rapid Development After Fertilization 52**
- Genes and the Development and Physiological Processes of Cells 55**
- box 2.1 Genetically Modified Organisms 56**
- FROM ACTIONS TO EFFECTS
- Glial Scars and Recovery from Brain Injury 58**
- CHAPTER SUMMARY 60
- KEY TERMS 60

- 3 Neurotransmission 63**
 - Drugs for Alzheimer’s Disease Alter Acetylcholine Neurotransmission 64**
 - Electrical Events Within a Neuron and the Release of Neurotransmitters 65**
 - box 3.1 Electrophysiology and Microdialysis 66**
 - Nerve Impulses: Electrical Potential Changes in Neurons 66**
 - Resting Potential 67
 - Action Potential 71
 - Refractory Periods 71
 - Propagation of Action Potentials Down Axons 72**
 - Neurotransmitters: Signaling Molecules for Neuronal Communication 74**
 - Neurotransmitter Synthesis 74
 - Neurotransmitter Storage 75
 - Calcium Influx and Neurotransmitter Release 75
 - Neurotransmitters Bind to Receptors 75
 - Termination of Neurotransmission 75
 - Neurotransmission: Neurotransmitter Binding to Receptors 76**
 - Receptors: Ionotropic or Metabotropic 76
 - Different Types of Neurotransmitters and Communication 80**
 - Glutamate and GABA Are the Most Abundant Neurotransmitters 81

Monoamine Neurotransmitters: Dopamine, Norepinephrine, Epinephrine, and Serotonin 84

Dopamine 85

Norepinephrine and Epinephrine 87

Serotonin 88

Acetylcholine 89**Neuropeptides: A Large Class of Neurotransmitters 92****Nitric Oxide: A Unique Neurotransmitter 92****Other Types of Chemical Transmission in the Nervous System 93**

Neurotrophins 93

Hormones 93

FROM ACTIONS TO EFFECTS

Treating Alzheimer's Disease 96

CHAPTER SUMMARY 99

KEY TERMS 99

4 Properties of Drugs 101**Do Environmental Stimuli Contribute to Heroin Tolerance? 102****Pharmacokinetic Properties and Drug Passage Through the Body 103**

Absorption 103

Distribution 106

Metabolism 108

Elimination 109

Pharmacodynamics: Describing the Actions of Drugs 111**box 4.1 Radioligand Binding for Measuring Receptor Affinity 114****Psychoactive Drugs and Receptors 115****box 4.2 The [³⁵S]GTPγS Binding Assay Assesses G-Protein Activation 118****Neurotoxins and Damage to the Nervous System 122****Physiological Adaptations to Chronic Drug Use 123**

FROM ACTIONS TO EFFECTS

Heroin Tolerance and Environmental Factors 125

CHAPTER SUMMARY 126

KEY TERMS 127

5 Drugs of Abuse 129**James Olds's Important Discovery 130****Regulatory Agencies and Drug Classification 131****Clinical Definitions and the Diagnosis of Drug Addiction 134****Theoretical Models and the Features of Drug Addiction 136**

Disease Model of Drug Addiction 136
Associative Learning Principles Used in Addiction Models 137
Drive, Opponent-Process Theory, and Incentive-Saliency Models
of Drug Addiction 139

box 5.1 Self-Administration 140

Drugs of Abuse and Reward Circuitry 142

Drug Abuse and Changes to Learning and Memory Systems 147

Neurobiology and the Stages of Drug Addiction 150

**Psychological and Pharmacological Therapies for Treating Drug
Dependence 151**

FROM ACTIONS TO EFFECTS

Food Addiction 156

CHAPTER SUMMARY 157

KEY TERMS 158

6 Psychostimulants 159

Fleischl and the Neurologist 160

Psychostimulants: A Large Variety of Substances 161

**Psychostimulants: Herbal Remedies, Prescription Drugs,
and Substances of Abuse 162**

Ephedra 162

Amphetamines 162

Methylphenidate 164

Cathinones 164

Cocaine 165

Instrumental and Recreational Purposes of Psychostimulants 166

Amphetamines 167

Methylphenidate 167

Cathinones 167

Cocaine 168

Psychostimulant Administration 170

Routes and Forms of Psychostimulant Administration 170

Psychostimulants and Monoamine Neurotransmitters 173

Amphetamines 173

Methylphenidate and Cathinones 173

Cocaine 175

Cocaine- and Amphetamine-Regulated Transcript 175

Pharmacological Effects of Psychostimulants 177

Physiological Effects 177

Behavioral Effects 178

Subjective Effects 179

box 6.1 Drug Discrimination	180
Adverse Effects	180
Psychostimulant Drugs Produce Sensitization and Tolerance	183
FROM ACTIONS TO EFFECTS	
Psychostimulant Addiction	185
Linking Pharmacological Actions to Reinforcing Effects	185
Genetics Influence the Susceptibility to Psychostimulant Addiction	186
Treatments for Psychostimulant Addiction	187
CHAPTER SUMMARY	189
KEY TERMS	190

7 Nicotine and Caffeine 191

Is Nicotine Not Addictive?	192
Nicotine: Key Psychoactive Ingredient in Tobacco	192
Discovery of Tobacco	196
Pharmacokinetic Properties and Tobacco Use	198
Nicotine Absorption Through Lung and Oral Tissues	198
Liver Enzyme Differences and the Metabolism of Nicotine	199
Nicotine and Nervous System Functioning	200
Nicotine's Potent Pharmacological Effects	204
Nicotine's Effects on Cardiovascular Function and Appetite	205
Nicotine Affects Movement and Cognitive Functioning	206
box 7.1 Conditioned Taste Aversion	208
Nicotine's Positive and Negative Subjective Effects	209
The Serious Adverse Effects of Tobacco Use	210
Nicotine and Psychological Dependence	211
Environmental, Genetic, and Receptor Differences Between Light and Heavy Tobacco Users	212
FROM ACTIONS TO EFFECTS	
Why People Smoke and How They Quit	214
Caffeine	215
Caffeine and Related Compounds in Plants	215
Caffeine Has an Ancient History	217
Caffeine Absorption, Duration, and Interaction with Other Psychoactive Drugs	218
Caffeine: Antagonist for Adenosine Receptors	219
Caffeine: Mild Psychostimulant Effects	220
Tolerance and Dependence During Sustained Caffeine Use	220
FROM ACTIONS TO EFFECTS	
Why People Consume Caffeinated Products	221

CHAPTER SUMMARY 222

KEY TERMS 223

8 Alcohol 225

“Halfway to Concord” and “Taking Hippocrates’ Grand Elixir” 226

Alcohol: The Most Commonly Used Depressant Substance 226

Alcohol Production Through Fermentation and Distillation 227

The History of Alcohol Consumption 230

Pharmacokinetic Factors and Alcohol’s Effects 231

Alcohol and Central Nervous System Functioning 233

Alcohol and GABA_A Receptors 233

Glutamate NMDA Receptors and Alcohol’s Pharmacological Effects 235

Alcohol: Inhibited Neurotransmission 235

Alcohol and Serotonin Receptors 235

Alcohol and the Endocannabinoid System 236

Pharmacological Effects of Alcohol 237

Types of Drinking and Number of Drinks Consumed 237

Acute Alcohol Consumption and Cardiovascular and Respiratory Functioning 238

Alcohol’s Depressive Effects on Behavior and Cognitive Functioning 239

Alcohol and Positive Subjective Effects 242

Severe Adverse Effects of High BAC 243

Chronic Heavy Alcohol Consumption and Adverse Cardiovascular and CNS Effects 244

Alcohol: Tolerance and Sensitization 246

Alcohol Addiction and Withdrawal 247

Psychosocial Interventions, Therapeutic Drugs, and Alcohol

Use Disorders 248

FROM ACTIONS TO EFFECTS

Hangover 252

CHAPTER SUMMARY 254

KEY TERMS 254

9 GHB, Inhalants, and Anesthetics 255

Did Ancient Greek Oracles Come from Chemical Inhalants? 256

Gamma-Hydroxybutyrate 256

Uses for GHB 257

GHB: Natural and Synthetic 259

GHB Pharmacological Action 260

GHB's Depressant Pharmacological Effects 262
 GHB Overdose and Risk for Addiction 263

box 9.1 Electroencephalography 264

Inhalants 266

History of Inhalants 268
 Inhalants: Rapid Absorption and Elimination 269
 Actions of Inhalable Solvents 269
 Inhalants: Pharmacological Effects and Interference
 with Oxygen Intake 270

FROM ACTIONS TO EFFECTS

Stimulus Properties of GHB and Toluene 272

CHAPTER SUMMARY 273

KEY TERMS 274

10 Opioids 275

A "Treatment" for Morphine Addiction? 276

Opioids: Natural and Synthetic 277

History of Opium Use 279

Pharmacokinetic Properties and Opioid Abuse 280

Opioid Drug Interactions with the Endogenous Opioid System 282

Opioid Drugs: Classification by Receptor Action 284

**Opioid System Interactions with Reward, Pain,
 and Stress Systems 286**

Opioid Reinforcing and Analgesic Effects 289

Opioid Receptor Agonists and Reinforcing Effects 289

box 10.1 Conditioned Place Preference 292

Opioid Analgesic Effects 294

Opioid Drugs and Other Therapeutic Effects 294

Opioid Drugs and Respiratory Function 295

User Tolerance and Dependence with Chronic
 Opioid Administration 295

FROM ACTIONS TO EFFECTS

Pharmacological Approaches for Treating Opioid Addiction 296

CHAPTER SUMMARY 298

KEY TERMS 298

11 Cannabinoids 299

Should Medical Marijuana Be Legal? 300

Historical Use of Cannabis 302

Methods of Cannabis Preparation 304

Cannabinoid Compounds and the Endocannabinoid System	306
Cannabinoids and CB₁ and CB₂ Receptors	307
Physiological Effects of Cannabinoids	309
Behavioral Effects of Cannabinoids	310
Subjective Effects of Cannabinoids	311
Cannabinoid Tolerance and Dependence	313
Cannabis and Risk of Lung Disease	315
FROM ACTIONS TO EFFECTS	
Medical Marijuana	316
CHAPTER SUMMARY	318
KEY TERMS	318

12 **Psychedelic Drugs** 319

Did Hofmann Take a “Trip”? 320

Hallucinogens 321

Origins of LSD and Other Hallucinogens 322

LSD Ingestion and Effects 324

LSD and the Serotonin Neurotransmitter System 324

LSD’s Mild Physiological Effects and Profound Hallucinogenic Effects 326

Hallucinogens and Flashbacks 328

Mixed Stimulant–Psychedelic Drugs 329

MDMA Therapeutic and Recreational Use 329

MDMA Metabolism and the Length of Psychedelic Drug Effects 330

MDMA and Serotonin and Dopamine Neurotransmission 332

MDMA’s Psychedelic and Psychostimulant Effects 334

box 12.1 Social Interaction Tests 337

MDMA’s Psychostimulant Actions 338

MDMA Use in Psychotherapy 339

Tolerance and Dependence During Chronic MDMA Use 341

Recreational Use of Dissociative Anesthetics 341

Development of Phencyclidine, Ketamine, and Dizocilpine 342

Absorption and Elimination of Phencyclidine 342

Phencyclidine’s Dopamine and Serotonin Neurotransmission 343

Dissociative Anesthetics and Glutamate Neurotransmission 344

The Anesthetic and Psychedelic Effects of Dissociative Anesthetics 346

Dissociative Anesthetics and Schizophrenia-Like Effects 347

Tolerance, Dependence, and the Use of Dissociative Anesthetics 348

Other Psychedelic Drugs 348

FROM ACTIONS TO EFFECTS

Synesthesia 350

CHAPTER SUMMARY 351
KEY TERMS 352

13 **Treatments for Depression and Bipolar Disorder** 353

Did Reserpine Revolutionize the Study of Antidepressant Medications? 354

Mental Disorders 355

Depression 355

The Prevalence of Clinical Depression 356

Neuroimaging Techniques and Functioning Differences in Depression 358

Antidepressant Drugs and Depression 359

box 13.1 Animal Behavioral Models for Identifying Antidepressant Drugs 360

Limitations in Antidepressant Drug Effectiveness and Development 367

Antidepressant Drugs and Monoamine

Neurotransmitter Systems 368

Bipolar Disorder 371

Neurobiology of Bipolar Disorder 372

Bipolar Disorder, Mood Stabilizers, and Other Drugs 373

FROM ACTIONS TO EFFECTS

Pharmacogenetic Factors and Treatment Response in Depression 377

CHAPTER SUMMARY 378

KEY TERMS 379

14 **Treatments for Anxiety Disorders** 381

Was Miltown Too Good to Be True? 382

DSM Definitions of Anxiety Disorders 382

The Amygdala's Role in Anxiety 385

Anxious Feelings, the Amygdala, and the Sympathetic Nervous System 387

Stress and the HPA Axis 388

Anxiolytic and Antidepressant Drugs and the Treatment of Anxiety 391

Barbiturates 391

Benzodiazepines 394

Anticonvulsant Drugs for Treating Anxiety 399

Antidepressant Drugs and the Treatment of Anxiety Disorders 400

FROM ACTIONS TO EFFECTS

How Do Antidepressant Drugs Reduce Anxiety? 401

box 14.1 Animal Models for Screening Anxiety Treatments 402

CHAPTER SUMMARY 406

KEY TERMS 406

15 Antipsychotic Drugs 407

Kraepelin's Influence in Distinguishing Neurological from Mental Disorders 408

Schizophrenia 408

box 15.1 Prepulse Inhibition 410

Schizophrenia's Complex Neurobiological Profile 412

A Brief History of Schizophrenia and Its Treatment 414

Antipsychotic Drugs and the Treatment of Schizophrenia 415

Typical and Atypical Antipsychotic Drugs 417

Typical Antipsychotic Drugs: The First Effective Medications for Schizophrenia 418

Atypical Antipsychotic Drugs: First-Line Treatments for Schizophrenia 420

Third-Generation Antipsychotic Drugs 423

Administration Forms for Antipsychotic Drugs 423

box 15.2 Conditioned Avoidance and Catalepsy Measures Distinguish Atypical from Typical Antipsychotic Drugs 424

FROM ACTIONS TO EFFECTS

Antipsychotic Drug Actions and Dopamine Neurotransmission in Schizophrenia 425

CHAPTER SUMMARY 428

KEY TERMS 428

REFERENCES 429

GLINDEX 461

Since my undergraduate years in psychology, I've been fascinated by how psychoactive substances produce behavioral effects. This interest led to a career in psychopharmacology research that included many graduate and postdoctoral years studying lab rats in Skinner boxes and mazes. Once I began teaching undergraduates at a university, I found that my students were also curious about how drugs altered behavior. Students wondered not only about the physiological impacts of college drug use but also about how medicines can treat psychological disorders such as depression and schizophrenia. But of particular interest were the effects of psychoactive drugs on the brain. This introductory textbook developed from my efforts to address these interests.

An Introduction to Drugs and the Neuroscience of Behavior offers an introduction to the field of psychopharmacology from the perspective of how drug actions in the brain affect psychological processes. The text approaches this rapidly advancing field by providing an introduction to major topics in psychopharmacology. I kept in mind that students have different backgrounds in neuroscience. Therefore, Chapter 2 provides an introductory overview of the nervous system, and Chapter 3 provides a basic coverage of neurotransmission.

Chapter 4 provides an overview of pharmacology principles, covering important drug properties that are necessary for understanding psychoactive drug actions and effects. By mastering these chapters on the nervous system and pharmacology, students will possess a sufficient background to comprehend subsequent chapters on psychoactive drugs.

In addition to the major drug classes in psychopharmacology, this book addresses newer drugs and recent trends in drug use. For example, the current edition includes information on bath salts, energy drinks, modern tobacco products such as tobacco orbs, medicinal marijuana, synthetic marijuana, and antidepressant drug use for treating anxiety.

How the Materials Are Organized

During the development of this textbook, I carefully attended to how this material is delivered to an undergraduate audience. My approach consists of a careful, step-by-step presentation of information supplemented by illustrations,

figures, boxes, and several unique pedagogical features. These features include the following.

From Actions to Effects

Each chapter ends with a section called “From Actions to Effects.” These sections cover a topic that brings together information presented in the chapter, providing a way to assemble multiple topics for addressing a single concept. In particular, these topics focus on a concept that requires understanding a drug’s actions to account for its effects. These sections aid in the conceptual understanding of chapter material.

Stop & Check

Stop & Check questions conclude each section in each chapter. These questions allow students to self-assess their understanding of main points covered in the previous section.

Review!

Chapters include important reminders of facts or concepts covered in previous chapters. This helps integrate the diverse material covered in this text.

Research Techniques and Methods

Chapters include boxes that cover a research technique or method used in psychopharmacology research. These boxes model good working science and provide an easy reference when students come across research findings derived from each technique. These studies are also important in fostering critical thinking habits in students.

Key Terms

Each chapter ends with a list of key terms from the chapter. A definition is provided for each key term in a combined glossary and index at the end of the book.

Visit www.cengagebrain.com to access the free companion Web site for this text, which includes a glossary, flash cards, quizzes, and more.

Supplementary Materials

The text comes equipped with PowerPoint presentations and a test bank of exam questions organized by chapter, provided by Renee Haskew-Layton at Chimborazo Publishing, Inc. Access these supplements on the companion Web site at www.cengagebrain.com.

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