

## Table of Contents

<i>List of Plates</i>	page xi
<i>List of Figures</i>	xii
<i>List of Tables</i>	xvi
<i>Preface</i>	xvii
<b>1 What is Addiction?</b>	1
Learning Objectives	1
Introduction	1
The Phenomenology of Substance Use Disorders	4
The Demography of Addiction	5
The Stigma of Addiction	5
The Diagnosis of Addiction	6
A Brain Disease Model of Addiction	9
Non-Drug Addictions	12
Summary Points	14
Review Questions	14
Further Reading	14
Spotlight	15
References	16
<b>2 Human Neuroscience Approaches Toward the Understanding of Addiction</b>	21
Learning Objectives	21
Introduction	21
Measuring the Brain's Electrical Activity	22
Visualizing the Brain's Structure and Function	24
Biochemical Imaging	27
Limitations of Neuroimaging Research	28
Summary Points	29
Review Questions	29
Further Reading	29
Spotlight 1	30
Spotlight 2	32
References	32

<b>3 Brain-Behavior Theories of Addiction</b>	34
Learning Objectives	34
Introduction	34
The Incentive-Sensitization Theory	35
The Allostatic Model: Dysregulation in Homeostasis	36
The Impaired Response Inhibition and Salience Attribution (iRISA) Syndrome Model	38
The Future of Brain-Behavior Theories of Addiction	40
Summary Points	42
Review Questions	42
Further Reading	42
Spotlight	43
References	45
<b>4 From the Motivation to Initiate Drug Use to Recreational Drug Use: Reward and Motivational Systems</b>	47
Learning Objectives	47
Introduction	47
Reward and Motivational Systems Guide the Direction of Behavior	48
Predicting Rewards: Evidence for the Primary Role of Dopamine	51
Final Common Pathway: All Drugs Lead to One	53
Is Addiction a Reward Deficiency Syndrome?	55
Corticostriatal Circuitry and Effort–Reward Imbalance	56
Role of Memory Systems	56
Summary Points	58
Review Questions	58
Further Reading	59
Spotlight	60
References	61
<b>5 Intoxication</b>	64
Learning Objectives	64
Introduction	64
Drug Pharmacodynamics	66
Actions of Addictive Drugs	66
Brain Mechanisms of Intoxication: Evidence From Neuroimaging Pharmacological Studies	68
Modulators of Intoxication: Challenges in Human Research	73
Summary Points	75
Review Questions	76
Further Reading	76

<b>Table of Contents</b>	<b>ix</b>
Spotlight	76
References	78
<b>6 Withdrawal</b>	<b>81</b>
Learning Objectives	81
Introduction	81
What Does Withdrawal Look Like?	82
Acute Withdrawal Symptoms and Associated Neural Mechanisms	85
Protracted Withdrawal Symptoms and Associated Neural Mechanisms	87
Electrophysiological Mechanisms of Withdrawal	88
A Model of Opposing Mechanisms: Between-System Response to Drugs	90
Summary Points	91
Review Questions	92
Further Reading	92
Spotlight 1	93
Spotlight 2	94
References	94
<b>7 Craving</b>	<b>98</b>
Learning Objectives	98
Introduction	98
Cue-Elicited Craving Paradigms and Associated Neural Mechanisms	99
Neurophysiological Underpinnings of Craving	101
Contextual Cues	102
Do Drugs Hijack the Reward Circuitry of the Brain?	103
Greater Craving or Greater Attention?	105
Neuromolecular Mechanisms	106
Summary Points	107
Review Questions	107
Further Reading	108
Spotlight	108
References	110
<b>8 Impulsivity</b>	<b>114</b>
Learning Objectives	114
Introduction	114
Neuropharmacology of Impulsivity	116
Is Impulsivity Pre-existing or Drug Induced?	117
Risky Decision Making	120

Inhibitory Control	121
Delay Discounting of Reward	123
Summary Points	125
Review Questions	125
Further Reading	126
Spotlight	127
References	128
<b>9 Impacts of Brain-Based Discoveries on Prevention and Intervention Approaches</b>	130
Learning Objectives	130
Introduction	130
Pharmacological Approaches	132
Behavioral Approaches	135
Combined Approaches	137
Treatment Outcomes	138
Summary Points	141
Review Questions	141
Further Reading	141
Spotlight 1	142
Spotlight 2	143
References	144
<b>10 Conclusions</b>	148
Learning Objectives	148
Introduction	148
Risk Factors Inform Better Prevention and Intervention	149
Addiction Endophenotypes	150
Sex Differences in Addiction	155
The Question of Causality	156
General Conclusions	157
Summary Points	159
Review Questions	159
Further Reading	160
Spotlight 1	161
Spotlight 2	162
References	162
<i>Glossary</i>	165
<i>Index</i>	173
<i>Color plate section found between pages 172 and 173</i>	