

Contents

Author Index—xvii

Foreword—xxiii

Abbreviations—xxv

1 Introduction: Substance abuse in adolescents and young adults—1

Donald E. Greydanus, Gabriel Kaplan, Dilip R. Patel, and Joav Merrick

Section I: Etiology and diagnosis—11

2 Neurobiology of substance use disorders—13

Ahsan Nazeer and Michael R. Liepman

- 2.1 Introduction—13
- 2.2 General concepts—13
 - 2.2.1 Dopamine—15
 - 2.2.2 Serotonin and norepinephrine—17
 - 2.2.3 GABA—17
- 2.3 Neuropharmacology of specific drugs—18
 - 2.3.1 Stimulants—18
 - 2.3.2 Alcohol—19
 - 2.3.3 Opioids—20
 - 2.3.4 Nicotine/tobacco—20
 - 2.3.5 Cannabinoids—22
- 2.4 Summary—23

3 Genetic influences on substance abuse disorders—27

Helga V. Toriello

- 3.1 Introduction—27
- 3.2 Limitations—28
- 3.3 Gene classes—29
- 3.4 Specific addictions—30
 - 3.4.1 Alcohol—30
 - 3.4.2 Cannabis—31
 - 3.4.3 Tobacco—32
 - 3.4.4 Others—32
- 3.5 Epigenetic effects—33
- 3.6 Complex diseases—34
- 3.7 Conclusion—34

4 Essential diagnostic considerations—39

Helen D. Pratt and Sherry Pancost

- 4.1 Introduction—39
- 4.2 Review of the literature—41
- 4.3 Epidemiology—41
- 4.4 Empirical studies of assessment instruments—42
- 4.5 Comorbidity—43
- 4.6 Assessment—43
- 4.7 Screening—45
- 4.8 Diagnosis—55
- 4.9 Biochemical testing—57
- 4.10 Discussion—58

Section II: Treatment—61

5 Psychosocial treatments for substance use disorders—63

Ahsan Nazeer and Michael R. Liepman

- 5.1 Introduction—63
- 5.2 Motivational treatments—64
 - 5.2.1 Precontemplation stage—64
 - 5.2.2 Contemplation stage—65
 - 5.2.3 Preparation stage—66
 - 5.2.4 Action stage—67
 - 5.2.5 Maintenance stage—68
 - 5.2.6 Contemplation of relapse—69
- 5.3 CM and community reinforcement approaches (CRAs)—69
 - 5.3.1 CM—69
 - 5.3.2 CRA—70
- 5.4 Cognitive behavioral approaches—71
 - 5.4.1 Functional analysis—72
 - 5.4.2 Drug refusal skills—73
 - 5.4.3 RP—73
- 5.5 Family interventions—74
 - 5.5.1 Multidimensional family therapy (MDFT)—75
- 5.6 Conclusion—76

6 General pharmacotherapy principles—79

Gabriel Kaplan

- 6.1 Introduction—79
- 6.2 Evaluation for pharmacotherapy—79
- 6.3 When is pharmacotherapy appropriate?—81
- 6.4 Conclusion—82

7 Use of pharmacological agents for smoking cessation—85

Dilip R. Patel and Danielle Hirsch

- 7.1 Introduction—85
- 7.2 Epidemiology—85
- 7.3 Chemistry and pharmacology—87
- 7.4 Effects on health—89
- 7.5 Behavioral approaches to smoking cessation—93
- 7.6 Pharmacological agents—93
 - 7.6.1 Varenicline—95
 - 7.6.2 Bupropion SR—96
 - 7.6.3 Nicotine replacement therapies—97
 - 7.6.4 Second-line medications—102
 - 7.6.5 Vaccine—103
 - 7.6.6 E-cigarettes—103
- 7.7 Conclusion—104

8 Marijuana: Current concepts and conundrums—109

Donald E. Greydanus, Elizabeth K. Hawver, and Megan M. Greydanus

- 8.1 Introduction—109
 - 8.1.1 *Cannabis sativa* plant—109
 - 8.1.2 Prevalence—110
 - 8.1.3 Cannabis lab testing—117
- 8.2 Medical adverse effects—118
 - 8.2.1 Cannabis hyperemesis—119
 - 8.2.2 Dental effects of cannabis—119
 - 8.2.3 Pulmonary effects—120
 - 8.2.4 Cannabis and cancer—121
 - 8.2.5 Cardiovascular effects—121
 - 8.2.6 Motor vehicle accidents—122
 - 8.2.7 Sports doping—122
 - 8.2.8 Adverse effects: Psychiatric—122
 - 8.2.9 Management—127
 - 8.2.10 Pharmacological therapies—129
 - 8.2.11 Cannabis intoxication—130
 - 8.2.12 Cannabis withdrawal—130
- 8.3 Cannabis-associated psychosis—130
 - 8.3.1 Cannabis dependence—130
- 8.4 Summary—132

9 Primary care management of alcohol use disorders of adolescents and young adults—145

Angela Nash and Oscar G. Bukstein

- 9.1 Introduction—145
- 9.2 Epidemiology: Drinking patterns and beverage preferences—146
 - 9.2.1 Drinking patterns—146
 - 9.2.2 Drinking preferences—146
- 9.3 Confidentiality in primary care—147
- 9.4 Screening in primary care—148
 - 9.4.1 Screening—148
 - 9.4.2 Screening tools—149
- 9.5 Assessment of risk—150
- 9.5.1 Screening the college student—152
- 9.6 BIs for the primary care office—152
- 9.7 MI—153
- 9.8 A clinical vignette—154
- 9.9 Specific BIs for college students—156
- 9.10 Sedative/hypnotics—157
 - 9.10.1 Epidemiology—157
 - 9.10.2 Associated problems—157
- 9.11 Conclusions—158

10 Opioids and prescription drugs—163

Joseph L. Calles, Jr.

- 10.1 Introduction—163
- 10.2 Prescription drugs—163
- 10.3 Analgesics—164
- 10.4 Tranquilizers—166
- 10.5 Stimulants—167
- 10.6 Others—168
- 10.7 OTC drugs—168
- 10.8 DXM—169
- 10.9 Antihistamines—169
- 10.10 Illicit opioids—169
- 10.11 Conclusion—170

11 Illicit stimulant abuse in adolescents and young adults—173

Marc Lener, Sarah Ann Anderson, and Iliyan Ivanov

- 11.1 Introduction—173
- 11.2 History of cocaine and methamphetamine—174
- 11.3 Epidemiology—175
- 11.4 Risk factors and comorbidity—177

- 11.5 Pharmacology and pathophysiology—178
- 11.6 Clinical manifestations of intoxication, overdose, and withdrawal—179
- 11.7 Identification of warning signs—184
- 11.8 Problem use (abuse and dependence)—186
- 11.9 Treatment of illicit stimulant abuse and dependence—187
- 11.10 Biological treatments—187
- 11.11 Behavioral treatments—188
- 11.12 Clinical management of co-occurring ADHD and stimulant use disorders—190
- 11.13 Summary—191

12 Date rape drugs and hallucinogens—195

Colleen Dodich and Monika Siedlarz

- 12.1 Introduction—195
- 12.2 Hallucinogens—196
 - 12.2.1 LSD—196
 - 12.2.2 Mescaline (2,3,4-trimethoxy-phenethylamine)—197
 - 12.2.3 Psilocybin (and closely related psilocyn)—198
 - 12.2.4 *Salvia divinorum*—199
 - 12.2.5 PCP—200
 - 12.2.6 Ketamine—201
 - 12.2.7 MDMA—202
 - 12.2.8 Methamphetamine—203
- 12.3 Date rape drugs—205
 - 12.3.1 GHB—205
 - 12.3.2 Flunitrazepam (Rohypnol)—206
- 12.4 Epidemiology—207
- 12.5 Diagnosis—208
- 12.6 Management principles—209
- 12.7 Conclusions—210

13 The role of the pediatrician and primary care clinician—215

Ray Chih-Jui Hsiao, Kristin A. Miselis, and Christopher K. Varley

- 13.1 Introduction—215
- 13.2 Screening and assessment—216
- 13.3 Confidentiality and consent—218
- 13.4 Safety—220
- 13.5 Screening tools and algorithm in adolescents—223
- 13.6 Screening tools in young adults—226
- 13.7 Summary—227
- 13.8 Brief intervention—228

- 13.9 Referral to treatment and the primary care clinician's role in treatment—230
- 13.10 Conclusions—231

Section III: Special populations—237

14 Substance use disorders in adolescents and young adults: Comorbidity and treatment—239

Brieana M. Rowles, Aaron Ellington, Andrew R. Tarr, John L. Hertzner, and Robert L. Findling

- 14.1 Introduction—239
- 14.2 Common comorbid psychiatric conditions—239
 - 14.2.1 Clinical samples—240
- 14.3 General principles of assessment and diagnosis—240
- 14.4 General principles of treatment—241
 - 14.4.1 ADHD—242
 - 14.4.2 Depressive disorders—246
 - 14.4.3 BPD—250
 - 14.4.4 Psychotic disorders—250
 - 14.4.5 Anxiety disorders—251
 - 14.4.6 Treatment recommendations and prognosis—252

15 Adolescent girls and substance abuse: Recent trends, risk factors, and consequences—257

Ruqiya Shama Tareen

- 15.1 Introduction—257
- 15.2 Gender differences in substance abuse—257
- 15.3 Risk factors for substance abuse in female adolescents—258
 - 15.3.1 Puberty status and timing—259
- 15.4 Hormonal changes and emotional reactivity—260
- 15.5 Childhood sexual abuse—261
- 15.6 Consequences of substance abuse in female adolescents—262
- 15.7 Substance abuse and sexual activity—262
- 15.8 Substance abuse and unwanted pregnancy—263
- 15.9 Substance abuse and psychiatric disorders—264
- 15.10 Perinatal mood disorders—265
- 15.11 Spectrum of perinatal mood disorders—267
 - 15.11.1 Postpartum blues—267
 - 15.11.2 Postpartum psychosis—268
 - 15.11.3 Postpartum depression (PPD)—268
- 15.12 Substance abuse and suicide risk in young girls—269

- 15.13 Impact of substance abuse on adolescent mother and offspring—269
- 15.14 Substance abuse and unintentional injuries—270
- 15.15 Prevention and treatment strategies specific for adolescent girls—271
- 15.15.1 Self-in-relation theory of women development—271
- 15.15.2 Social-structural model—272
- 15.15.3 Theory of gender and power—272
- 15.16 Treatment of comorbid psychiatric illness—273
- 15.17 Treatment of substance abuse in pregnant adolescents—275
- 15.18 Future of substance abuse treatment—277
- 15.19 Conclusions—277

16 Prescription stimulant and other substance abuse in college students—281

Brandon Johnson and Jeffrey Newcorn

- 16.1 Introduction—281
- 16.2 Alcohol—282
 - 16.2.1 Prevalence and demographic features—282
 - 16.2.2 Consequences—283
 - 16.2.3 New methods of ingestion—283
 - 16.2.4 Prevention and treatment—284
- 16.3 Nicotine—285
 - 16.3.1 Treatment—286
- 16.4 Marijuana—287
 - 16.4.1 Consequences—287
 - 16.4.2 Association with other conditions and implications for prevention and treatment—288
- 16.5 Cocaine—288
- 16.6 Prescribed stimulants—289
 - 16.6.1 Associations/risk factors for misuse and diversion—291
 - 16.6.2 Prevention and treatment—291
- 16.7 Conclusions—292

17 Sports doping by adolescent athletes—297

Dilip R. Patel and Donald E. Greydanus

- 17.1 Introduction—297
- 17.2 Protection for consumers—299
- 17.3 Definitions—300
- 17.4 Anabolic agents—300
 - 17.4.1 Epidemiology—301
 - 17.4.2 Effects—302
 - 17.4.3 Adverse effects—302

17.4.4	Use of additional or concomitant doping agents with AAS —	303
17.4.5	Prevention —	304
17.5	Dihydroepiandrosteredione (DHEA) —	304
17.6	Androstenedione —	305
17.7	hGH —	305
17.8	Gamma hydroxybutyrate (GHB) —	306
17.9	Clenbuterol —	306
17.10	Creatine —	307
17.11	Stimulants —	309
17.11.1	Ephedrine —	309
17.11.2	Caffeine —	310
17.12	Blood doping and erythropoietin (EPO) —	310
17.13	Miscellaneous sports-doping agents —	311
17.14	Conclusions —	312

18 Prenatal drug exposure: Maternal and fetal issues — 319

Colleen Dodich, Shalin Patel, and Amanda Williams

18.1	Introduction —	319
18.2	Screening and diagnosis —	321
18.3	Alcohol —	322
18.4	Tobacco —	324
18.5	Marijuana —	325
18.6	Opioids —	326
18.7	Cocaine —	329
18.8	Methamphetamine/amphetamines —	330
18.9	Benzodiazepines —	331
18.10	Inhalants —	332
18.11	Conclusions —	332

Section IV: New challenges and policy — 335

19 New drugs of abuse in the 21st century — 337

Joseph L. Calles, Jr.

19.1	Introduction —	337
19.2	Cannabinoids —	337
19.3	Stimulants —	339
19.4	Dissociative anesthetics —	341
19.5	Hallucinogens —	342
19.6	Conclusions —	343

20	Estimating the societal burden of substance abuse: Advantages and limitations of current methodologies — 345
	Jonathan P. Caulkins, Anna Kasunic, and Michael A. C. Lee
20.1	Introduction — 345
20.2	The cost-of-illness (COI) approach — 346
20.3	What components drive the costs of abuse for each substance? — 348
20.3.1	Cigarette smoking — 348
20.3.2	Alcohol — 350
20.3.3	Illegal drugs — 351
20.4	Variations and controversies — 354
20.4.1	Revisiting costs of crime — 355
20.4.2	Including domestic violence, child abuse, and neglect — 356
20.4.3	Including intangible costs of dependence and death — 357
20.4.4	Cost offsets — 358
20.4.5	Imperfect rationality — 359
20.5	Conclusions — 359
21	The pros and cons of legalization — 365
	Jonathan P. Caulkins, Anna Kasunic, Mark Kleiman, and Michael A. C. Lee
21.1	Introduction — 365
21.1.1	Difficult policy choices — 367
21.2	Current policy: Prohibition — 368
21.3	The effects of drug legalization — 371
21.3.1	Product regulation — 371
21.3.2	Availability to youth — 372
21.3.3	The monetary and human costs of enforcement — 374
21.3.4	State-level versus nationwide legalization — 375
21.4	Middle paths and alternative approaches — 375
21.4.1	Decriminalization — 376
21.4.2	A kinder, gentler prohibition — 376
21.4.3	Embracing harm reduction — 377
21.5	Conclusions — 378
22	Internet resources and treatment facilities — 381
	Jeffrey Berman and Michael Paoello
22.1	Informational websites — 381
22.2	Treatment center websites — 382

Section V: Acknowledgments — 387

23 About the editors — 389

24 About the Department of Pediatric and Adolescent Medicine, Western Michigan University School of Medicine — 391

24.1 Mission and service — 391

24.2 Research activities — 391

24.3 Contact — 392

25 About the National Institute of Child Health and Human Development in Israel — 393

25.1 Mission — 393

25.2 Service and academic activities — 393

25.3 Research activities — 393

25.4 National collaborations — 394

25.5 International collaborations — 394

25.6 Targets — 394

26 About the book series Health, Medicine and Human Development — 397

Index — 399