

Index

- 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), 235–6, 420–1
- 1-methyl-4-phenyl-4-propionoxypiperidine (MPPP), 235
- 1-methyl-4-phenylpyridinium (MPP+), 235–6
- 2,3-dimercapto-1-propane-sulfonate (DMPS), 227–8
- 3,4-methylenedioxy-methamphetamine (MDMA), 236
- 5-HT receptor ligands, 205
- 5-HT_{2A} antagonists, 206
- 5-methyltetrahydrofolate (5MTHF), 67, 103
- abetalipoproteinemia (ABL), 196–7
- Acanthamoeba*, 306
- accessory nerve lesions, 353
- acetylcholinesterase, 353
- acquired hepatocerebral degeneration (AHD), 147–55
- action myoclonus-renal failure (AMRF) syndrome, 179–81
- action tremor, classification of, 6
- acyclovir, 300
- Addison's disease, 135
- adenyl cyclase, 333
- adrenal disorders, 135
- AIDS, *See* HIV/AIDS
- akathisia
 drug-induced acute, 205–6
 drug-induced tardive (TA), 212, 214
 pseudoakathisia, 205, 212
- akinesia, 19, 21, 280
 acute, 424–5
- alcohol intoxication, 238–9
- alkalosis, respiratory, 406
- allopurinol, 120
- alpha agonists, 387
- alpha-synuclein aggregation, 20–1
 See also Lewy bodies (LB)
- alprostadil, 374
- alternating hemiplegia of childhood, 342
- aluminum toxicity, 174
- Alzheimer type II astrocytosis, 149–52
- amantadine, 208, 213, 255, 387
- amino acid metabolism/transport disorders, 99–101, 117–19, 121
- ammonia levels, 147, 154
- ammonium tetrathiomolybdate, 160–1
- AMPA receptors, 343
- amphetamine-like psychostimulants, 236
- amphetamines, 236
- ampicillin, 306
- amyotrophic lateral sclerosis (ALS), 241–2
- amyotrophic lateral sclerosis and parkinsonism-dementia complex of Guam (ALS/PDC), 241–2
- anal sphincter
 defecatory dysfunction, 386
 denervation, 388
 electromyography (EMG) in dysautonomia diagnostic work-up, 371
- anemia, 121, 375
- anesthetics, drug-induced disorders, 211
- ANNA-1 (anti-Hu) antibodies, 43, 45, 343
- ANNA-2 (anti-Ri) antibodies, 41, 43, 46–7, 55, 343
- Annonaceae*, 242
- anti-amphiphysin antibodies, 44–5, 55, 343, 369
- anti-B2-GPI antibodies, 65–6
- anti-basal ganglia antibodies, 73–6, 80
- antibiotics, 80, 82, 211
- antibodies, *See also specific antibodies*
 antibody screening, 8
 tumor association in paraneoplastic disorders, 40
- anti-Caspr2 antibodies, 46–7, 343
- anticholinergic drugs, *See also specific drugs*
- drug-induced disorders, 204–6, 208, 214
- dystonia, 34
- gastrointestinal side effects, 387
- gastrointestinal symptoms, 384
- parkinsonism, 32
- stroke-related disorders, 252
- anticonvulsants, *See* anti-epileptic drugs (AEDs)
- antidepressants, drug-induced disorders, 205–6, 211
- anti-double-stranded DNA (dsDNA) antibodies, 63
- anti-epileptic drugs (AEDs),
 See also specific drugs
 chorea, 35, 255
 drug-induced disorders, 205, 211
 gastrointestinal side effects, 387
 movement disorder usage and mechanisms of action, 339
 myoclonus, 36, 337
 sleep-related disorders, 327
 tremor, 33
- anti-GABA receptor-associated protein, 56
- anti-GAD antibodies, 44, 52, 55–8, 344, 369
- anti-gliadin antibodies (AGA), 60–2
- anti-glycine receptor antibodies, 55
- anti-Hu (ANNA-1) antibodies, 43, 45, 343
- anti-La antibodies, 65
- anti-LG11 antibodies, 46–7
- anti-Ma1/Ma2 antibodies, 43, 343
- anti-Ma2 encephalitis, 41, 43–4
- antimalarials, drug-induced disorders, 211
- antimicrobial chemotherapy, 306
- anti-muscarinic agents, 372
- anti-NAE antibodies, 59
- anti-NMDA receptor antibodies, 55
- anti-NMDA receptor encephalitis, 41–2, 370, 429–31
- anti-nuclear antibodies (ANA), 63
- antiphospholipid (aPL) antibodies, 63–5, 76
- antiphospholipid syndrome (APS), 63–5

- antipsychotics, *See* neuroleptics (antipsychotics)
 anti-pyruvate kinase antibodies, 80
 anti-Ri (ANNA-2) antibodies, 41, 43, 46–7, 55, 343
 anti-Ro antibodies, 65
 anti-streptococcal antibodies, 80
 anti-Ta antibodies, 343
 anti-thyroglobuline antibodies, 58
 anti-thyroid antibodies, 134
 anti-TPO antibodies, 59
 anti-Tr antibodies, 47
 anti-transglutaminase (anti-TG) antibodies, 60–2
 anti-Yo antibodies, 45, 47, 343
 apolipoprotein (apoB), 196–7
 apomorphine, 374, 384, 386, 402
 arboviruses, 74, 300
 arginine glycine amidinotransferase (AGAT) deficiency, 122
 aripiprazole, 209
 aristaleless-related homeobox (ARX), 338
 aromatic L-aminoacid decarboxylase deficiency (AADC-D), 335
 arousal, disorders of, 318–20
 arteriovenous fistula, dural (DAVF), 421
Aspergillus, 306
 aspiration, 385, 388, 390, 392, 402–3, 405
 asterixis, 4, 144–7, 172–3, 239, 262
 mini-asterixis, 25, 146
 ataxia
 ataxia telangiectasia (AT), 369, 392, 410
 episodic, 342
 Friedreich's (FA), 365, 369, 392, 410
 gastrointestinal complications, 392
 gluten, 61–3
 hematological disease, 189
 hypogonadism, 139
 paraneoplastic, 40, 47
 parkinsonian, 258
 respiratory complications, 400, 410
 spinocerebellar (SCA), 365, 369, 392, 410
 athetosis, 6, 181
 atlanto-axial rotatory subluxation (AARS), 428
ATP13A2 mutations, 105
ATP1A2 mutations, 342, 344
ATP1A3 mutations, 422
ATP6 mutations, 110
ATP7B mutations, 103, 121, 154–5, 157, 183
 atropine, 384
 atypical parkinsonism (AP),
 See also specific disorders
 brain tumors, 280–3
 cerebrospinal fluid analysis, 8
 classification, 3–4
 dopamine transporter (DAT) scans
 11
 dysautonomia, 365, 367–8, 370
 gastrointestinal symptoms, 388–9
 Guadeloupean parkinsonism, 242
 metabolic diseases, 107
 MRI 10
 paraneoplastic disorders, 40
 respiratory complications, 403–5
 vascular phenocopies of, 258
 autoimmune disorders
 antiphospholipid syndrome (APS),
 63–5
 Behçet's disease/other systemic
 vasculitis, 67
 celiac disease (CD), 60–3
 cerebral folate deficiency (CFD)
 syndrome, 67–8
 dysautonomia, 369–70
 epilepsy borderland, 343–4
 Morvan's syndrome, 47, 68
 opsoclonus-myoclonus syndrome
 (OMS), 68
 overview of common, 53
 pediatric autoimmune
 neuropsychiatric disorders
 associated with *Streptococcus*
 (PANDAS), 79–82, 433–4
 Sjögren's syndrome (SjS), 65–7
 steroid-responsive autoimmune
 encephalopathy associated
 with autoimmune thyroiditis
 (SREAT), 58–60, 134
 stiff person syndrome, *See* stiff
 person syndrome (SPS)
 systemic lupus erythematosus
 (SLE), 63–5
 autonomic nervous system (ANS),
 disorders of, *See* dysautonomia
 autosomal dominant nocturnal frontal
 lobe epilepsy (ADNFLE),
 334–5, 339–40
 autosomal-recessive GTP
 cyclohydrolase 1 deficiency
 (AR GTPCH-D), 335
 baclofen, 34, 57, 270, 387
 bacterial infections, 293–4
 ballism
 hemiballism, 4, 252, 254, 271,
 See also hemichorea/
 hemiballism (HCHB)
 multiple sclerosis-related, 271, 273
 paraneoplastic disorders, 39–41
 phenomenology, 4
 post-stroke, 252, 254
 bartonellosis, 305
 basal ganglia
 biotin-responsive basal ganglia
 disease (BRBGD), 102
 calcification, 136–7, 150
 differential diagnosis of MRI T1
 hyperintensities, 150
 dopamine, epilepsy and, 334–5
 helminthic infestations, 307–8
 lesions in uremia, 174–6
 manganism-related lesions, 176–8
 mechanisms underlying stroke-
 related disorders, 247–9, 251,
 254
 microhemorrhage, 151
 neuroanatomy and functional
 organization, 17–19
 pathogenesis of movement
 disorders, 16, 19, 22, 25–6
 thiamine deficiency-related lesions,
 178–9
 tumors, 279–85, 287–8
 bazooka abuse, 224
 behavioral abnormalities, 78, 194,
 434–5
 Behçet's disease, 67
 Bell's palsy, 354
 benign familial epilepsy, 340–2
 benign familial adult myoclonic
 epilepsy, 337
 benign hereditary chorea (BHC), 134,
 408
 benign neonatal familial seizures
 (BFNS), 347
 benign physiological cramps, 354
 benign sleep myoclonus of infancy
 (BSMI), 345
 benzodiazepines, *See also specific drugs*
 drug-induced disorders, 204, 206,
 214
 dystonia, 34
 gastrointestinal side effects, 387
 myoclonus, 36
 paraneoplastic spasms, 45
 stiff person syndrome (SPS), 57
 benztropine, 206
 Bernoulli effect, 404
 beta blockers, 33, 206, 387, 410,
 See also specific drugs
 beta-methylamino-L-alanine
 (BMAA), 242
 biotin-responsive basal ganglia disease
 (BRBGD), 102
 biperiden, 206
 bismuth toxicity, 221, 228
 bizarre posturing, 296
 blepharophimosis, 353
 blepharospasm, 6, 41, 251
 blood-brain barrier (BBB), 61

Index

- blood pressure (BP)
 hypertension, *See* hypertension
 hypotension, *See* hypotension
 monitoring in dysautonomia, 371
 blood tests, routine, 8
 boca torcida, 237
Bordetella pertussis, 74
Borrelia burgdorferi, 74
 botulinum toxin injection
 bruxism, 317
 dystonia, 11, 34, 214, 368
 gastrointestinal complications, 384, 386–7
 myoclonus, 37
 oro-facial dyskinesia, 213
 respiratory complications, 405, 408
 tremor, 33
 bradykinesia
 HIV/AIDS-related, 94
 neurophysiology, 21
 phenomenology, 2–4
 post-stroke, 255
 respiratory complications, 398
 brain tumors
 dystonia, 284–7
 hemichorea/hemiballismus, 283–4
 hemifacial spasm, 287
 introduction, 279
 myoclonus and restless legs syndrome (RLS), 287–8
 parkinsonism, 279–83
 Tourettism, 288
 tremor, 287
 brain-lung-thyroid syndrome, 40, 134
 brainstem tumors, 281–2
 branched-chain α -keto acid
 dehydrogenase (BCKD)
 complex, 100
 Brody's disease, 355
 bromocriptine, 387, 402
 bruxism, 316–17

C19Orf12 mutations, 105
CACNA1A mutations, 342, 344
CACNL1A5 mutations, 344
 calcium channel blockers, 205–6, 211, 213
 calcium salt of ethylene diamine tetraacetic acid (CaNa₂EDTA), 224, 228
 calcium/calmodulin-dependent protein kinase, 76
 calomel, 225
 camptocormia, 401
 candy sign, 304
 cannabis, 270
 carbamazepine, 11, 35
 carbidopa, 11
 carbon disulfide intoxication, 240
 carbon monoxide poisoning, 151, 241, 420–1
 cardiomyopathy, 195
 cardiopulmonary bypass surgery, chorea, 430
 cardiovascular dysautonomia
 clinical features, 363–4
 clinical presentation, 366–9
 consequences of, 376
 diagnostic work-up, 371–2
 management, 373–5
 prevalence, 365
 carotid sinus hypersensitivity (CSH), 364
 cataplexy, 345
 catatonia
 lethal malignant, 423–4
 neuroleptic-induced (NIC), 423
 catechol O-methyltransferase
 inhibitors, 387
 catheterization, urinary, 374
 caveolin 3, 355
 CD4+ T-cell count, 94, 96
 CD8 T lymphocytes, 41
 ceftriaxone, 306
 celiac disease (CD), 60–3
 cell signaling, dopamine's role and epileptic behavior, 333–4
 central sleep apnea, 410
 cerebellar degeneration, alcoholic (ACD), 239
 cerebellar tremor, 260, 262
 cerebellar tumors, 288
 cerebellopontine angle tumors, 286–7
 cerebral folate deficiency (CFD) syndrome, 67–8, 102–3
 cerebrospinal fluid (CSF) analysis, 8, 60, 103
 cerebrotendinous xanthomatosis (CTX), 108
 ceruloplasmin levels, 121–2, 158
 cervical dystonia (CD), 251, 286, 368
 channelopathies, 16, 339–45
 chelation therapy
 acquired hepatocerebral degeneration (AHD), 154–5
 bismuth toxicity, 228
 dialysis dementia, 174
 hemochromatosis, 191
 lead toxicity, 228
 manganism, 224
 mercury toxicity, 227
 superficial siderosis (SS), 192
 Wilson's disease (WD), 103, 156, 160–2
 chemotherapy
 antimicrobial, 306
 chemotherapy-induced parkinsonism, 420–1
 Chikungunya virus, 300
 childhood acute neuropsychiatric symptoms (CANS), 81
 chlorpromazine, 203
 chorea
 acquired hepatocerebral degeneration (AHD), 148
 antiphospholipid syndrome (APS), 64–5
 Behçet's disease (BD), 67
 benign hereditary (BHC), 134, 408
 chorea acanthocytosis (ChAC), 194–5
 chorea gravidarum, 79, 428–9
 critical illness chorea, 429–30
 emergencies, 428–31
 ethanol withdrawal, 238
 etiological classification of choreic syndromes, 32
 gluten ataxia, 61
 hematological disease, 193–5
 hemichorea, 252–4,
 See also hemichorea/
 hemiballism (HCHB)
 HIV/AIDS-related, 75, 77, 81, 91
 Huntington's disease,
 See Huntington's disease (HD)
 hyperthyroidism, 135
 management principles of symptomatic, 35
 metabolic diseases in adulthood, 100, 102
 metabolic disorders in childhood, 122
 multiple sclerosis-related, 271
 paraneoplastic, 39–41
 phenomenology/classification, 4–5
 phenytoin-induced, 429–30
 renal disease, 174, 176
 respiratory complications, 408
 Sjögren's syndrome (SjS), 67
 stroke-related, 249, 252–5
 Sydenham's chorea, *See* Sydenham's chorea (SC)
 systemic lupus erythematosus (SLE), 64–5
 chorein, 194–5
 choreoathetosis, 95, 137, 237, 253
 paroxysmal kinesigenic (PKC), 273
 Chvostek's sign, 136
 cirrhosis, *See also* liver disease
 metabolic tremor, 25
 SLC30A10-related cirrhosis, dystonia, parkinsonism, polycythemia, and hypermanganesemia, 163
 classification, 1–7

- clinical neurophysiology, 10–11
 clonazepam, 36, 206, 213, 317, 323, 387
 clonidine, 213, 387
 clozapine, 81, 209, 211, 213
 coat hanger pain, 363
 cocaine, 215, 224, 236–8
 combined antiretroviral therapy (cART), 90, 93–4
 complex regional pain syndrome (CRPS), 368
 computed tomography (CT), 174, 296
 confusion, deep brain stimulation-induced, 434
 congenital nephrotic syndrome of the Finnish type (NPHS1, CNF), 181
 constipation, 384–6, 388
 continuous positive airway pressure (CPAP), 404–5
 contraction fasciculation/contraction pseudotremor of chronic denervation, 355
 cooling, limb, 270
 copper
 twenty-four-hour urinary copper excretion, 159, 162
 accumulation in Wilson's disease, *See* Wilson's disease (WD)
 hepatic parenchymal copper concentration, 159
 serum "free", 159
 copulatory dyskinesia, 208, 210
 cortical plasticity abnormalities, 24
 corticobasal degeneration (CBD), 365, 368, 389
 corticosteroids
 steroid-responsive autoimmune encephalopathy associated with autoimmune thyroiditis (SREAT), 60, 134
 Sydenham's chorea (SC), 82
 cortico-striato-pallido-thalamocortical loop, 247–8
Corynebacterium diphtheriae, 74
 covert dyskinesias, 214
 coxsackievirus, 57
 crack dancing, 237
 cramps (muscle), 353–5
 sleep-related leg cramps, 317–18
 writer's cramp, 5–6, 357
 cranial dystonia, 251, 407,
 See also oromandibular dystonia
 creatine deficiency, 122
 creatine kinase (CK), 194–6
 creatine phosphokinase (CPK) levels, 423
 critical illness chorea, 429–30
Cryptococcus, 91, 93
 cryptococcal abscesses, 306
 crystal meth, 236
 CV2/collapsin response mediator protein-5 (CRMP5)
 antibodies, 40–1, 179, 343
 cyanide, 241, 420–1
 cycad seed toxicity, 241–2
 cyclic adenosine monophosphate (cAMP), 333
 cyclin-dependent kinase-like 5, 339
 cyclosporine A, 419
Cysticercus cellulosae, 308
 cytomegalovirus, 57, 74
 cytosine-adenine-guanine (CAG)-repeat expansions, 126–7
 DARPP32, 333
 deep brain stimulation (DBS)
 chorea, 35
 chorea acanthocytosis (ChAc), 195
 drug-induced disorders, 213–14
 dystonia, 23, 34, 427
 emergencies, 434–7
 epilepsy, 335
 gastrointestinal symptoms, 386
 metabolic diseases, 104
 multiple sclerosis (MS)-related disorders, 270–1
 parkinsonism, 21, 94–5, 138–9, 375
 respiratory complications, 401–2
 stroke-related disorders, 255, 262
 tremor, 33
 defecatory dysfunction, 384, 386
 deferiasirox, 191
 deferiprone, 104, 192
 dementia
 dialysis dementia, 173–4
 HIV/AIDS-associated (HAD), 90, 96
 parkinsonism-dementia complex of Guam (PDC), 241–2
 parkinsonism-dementia syndrome (PDS), 242
 Parkinson's disease with (PDD), 366
 vascular, 256
 with Lewy bodies (DLB), 367, 370–1, 389
 demyelination, neuropathic tremor, 355–6
 dengue/dengue virus, 74, 76, 294
 dental amalgam, 225
 dentatorubral pallidoluysian atrophy (DRPLA), 127, 181
 desferoxamine, 174
 diabetes mellitus, 131–4
 dialysis-related disorders, 173–9
 diaphragmatic myoclonus, 409
 diazepam, 57, 206, 387
 diffusion tensor imaging (DTI), 223
 dihydropteridine reductase deficiency (PTPS-D), 335
 dimercaprol, 156, 227
 dimercaptosuccinic acid (DMSA), 227–8
 dimmer-switch hypothesis, 25
 DMPS (2,3-dimercapto-1-propane-sulfonate), 227–8
 dominant type (of movement disorder), recognition of, 1–7
 domperidone, 384–5
 dopamine
 cell-signaling role and epileptic behavior, 333–4
 dimmer-switch hypothesis, 25
 dopamine and serotonin synthesis pathway, 109
 Parkinson's disease pathogenesis, 16
 restless legs syndrome (RLS), 182–3
 the basal ganglia, epilepsy and, 334–5
 dopamine agonists
 dysautonomia, 374
 gastrointestinal side effects, 387
 respiratory complications, 402
 restless legs syndrome (RLS), 182
 dopamine antagonists, drug-induced disorders, 206
 dopamine blocking agents (DBA), *See* neuroleptics (antipsychotics)
 dopamine-depleting agents,
 See also specific drugs
 drug-induced disorders, 205, 213–14
 post-stroke chorea, 255
 dopamine receptor blocking agents (DRBA), 214
 dopamine receptor hypersensitivity, 210
 dopamine transporter (DAT) binding, 335
 dopamine transporter (DAT) scans, 11, 20, 96, 223, 256, 259
 dopaminergic drugs, *See also specific drugs/drug types*
 drug-induced disorders, 211, 215
 effects on gastrointestinal symptoms, 386
 restless legs syndrome (RLS), 324
 sleep-related disorders, 326–7
 withdrawal of, 364, 402, 423
 dopa-responsive dystonia (DRD), 23, 108–9, 426–7
 droxidopa, 374–5
 drug abuse, 211, 215, 224, 234–8, 421
 drug-induced disorders
 acute akathisia, 205–6
 acute dystonia, 203–5

Index

- drug-induced disorders (cont.)
 chorea, 34
 in HIV infection, 95–6
 myoclonus, 409
 neuroleptic-malignant syndrome (NMS), 214–15
 parkinsonism (DIP), 96, 206–8, 419–21
 sleep-related disorders, 323
 tardive dyskinesias (TD), 208–14
 withdrawal-emergent syndrome, 214
- dural arteriovenous fistula (DAVF), intracranial, 421
- dysautonomia
 clinical features, 363–4
 clinical presentation, 364–70
 diagnostic work-up, 370–2
 management issues, 372–5
 pathophysiology, 370
 prevalence, 365
- dyskinesias
 levodopa-induced (LID), 425
 oro-facial, 40–2, 210, 213
 paroxysmal, *See* paroxysmal dyskinesias
 peripheral neuropathies and focal, 357
 respiratory, 401–2
 tardive, 208–14, 406–7, 429–30
- dysphagia
 ataxia, 391–2
 deep brain stimulation (DBS) and, 402
 essential tremor (ET), 391
 Huntington's disease (HD), 390, 408
 parkinsonism, 384–5, 388–9, 402–3
- dysphonia, spasmodic, 407
- dystonia
 brain tumors, 284–7
 cervical, 251, 286, 368
 cranial, 251, 407,
 See also oromandibular dystonia
 dopa-responsive (DRD), 108–9, 426–7
 drug-induced acute, 203–5
 drug-induced tardive (TD), 211–12, 214
 dysautonomia, 368
 dystonic tremor, 5, 33, 260–2
 emergencies, 426–8
 facial, 157
 gastrointestinal complications, 391
 hematological disease, 189, 194
 hemidystonia, 250
 HIV/AIDS-related, 92–3, 95
 management principles of
 symptomatic, 33–5
 metabolic diseases in adulthood,
 103, 105–9
- metabolic diseases in childhood,
 116–22
 methanol intoxication, 239
 mirror, 6
 multiple sclerosis-related, 272–3
 myoclonus-dystonia, 12, 238
 oromandibular, 212, 251, 391,
 See also cranial dystonia
 paraneoplastic, 40–1
 paroxysmal, 273
 pathogenesis, 21–4
 peripheral neuropathies, 357
 phenomenology/classification, 5–6
 rapid onset dystonia-parkinsonism
 (RDP), 420, 422
 renal disease, 181
 respiratory complications, 400, 402,
 407–8
 SLC30A10-related cirrhosis,
 dystonia, parkinsonism,
 polycythemia, and
 hypermanganesemia, 163
 status dystonicus/dystonic storm,
 408, 426–7
 stroke-related, 249–52
 tardive, 6, 23, 34
 Wilson's disease (WD), 157
- Echinococcus cysticus*, 308
- Ecstasy, 236
- electroencephalography (EEG)
 epilepsy, 335–6
 parkinsonism, 21
 sleep-related disorders, 319
 subacute sclerosing panencephalitis
 (SSPE), 302
- electromyography (EMG)
 anal sphincter, 371
 asterixis, 145–7, 173
 myoclonus versus myoclonic
 epilepsy, 335–6
 neuromuscular disorders and
 peripheral neuropathies,
 352–4, 356
 sleep-related disorders, 316, 320
 stiff person syndrome (SPS), 57
- emergencies
 acute parkinsonism, 419–26
 chorea, 428–31
 deep brain stimulation-induced,
 434–7
 dystonia, 426–8
 introduction, 419
 myoclonus, 431–3
 tics, 433–4
- encephalitis, *See also specific types*
 bacterial disease, 303–6
 fungal infections, 306
 helminthic infestations, 307–8
- introduction, 293
 overview of CNS infections, 293
 protozoal infections, 306–7
 viral diseases, 293–303, 422–3
- encephalitis lethargica (EL), 300–1, 422
- endocrinological diseases
 adrenal disorders, 135
 diabetes mellitus, 131–4
 gonadal dysfunction, 139–40
 hypothalamus-pituitary axis
 disturbances, 138–9
 overview of movement disorders
 and, 131
 parathyroid disorders, 135–8
 thyroid disorders, 40, 134–5, 355
- endothelians, 194
- entacapone, 387
- Entamoeba histolytica*, 306
- enteroviruses, 74
- ephedrone (methcathinone) abuse,
 224, 236
- epilepsy (borderland of)
 channelopathies, 339–45
 dopamine, the basal ganglia and
 epilepsy, 334–5
 dopamine's cell signaling role,
 333–4
 epileptic lingual myoclonus, 288
 genetically determined epilepsies,
 337–9
 monoamine neurotransmitter
 disorders, 335
 myoclonus versus myoclonic
 epilepsy, 335–7
 paroxysmal kinesigenic dyskinesia
 (PKD), 345
 sleep-related disorders, 319, 345–7
- episodic ataxia, 342
- episodic paroxysmal laryngospasm,
 407
- Epstein-Barr virus (EBV), 74, 76, 93,
 300
- erythrocyte acanthocytosis, 193
- erythropoietin, 375
- Escherichia coli*, 74, 81–2
- esophagitis, 390
- essential tremor (ET)
 alcohol effects, 238
 gastrointestinal complications, 391
 hyperthyroidism, 134
 pathophysiology, 24–5
 phenomenology/classification, 6
 respiratory complications, 410
- estrogens, 65
- ethanol exposure, 238–9
- ethylene glycol intoxication, 239–40
- expiratory muscle strength training
 program (EMST), 401, 403

Index

- extracellular-signal-regulated kinase (ERK), 334
 extrapyramidal side effects (EPS), 203
 eye-of-the-tiger sign, 104, 124
- FA2H mutations, 105
 face of the giant panda sign, 103, 122, 158–60
 facial dystonia, 157
 facial nerve, neuropathy, 354
 faciomandibular myoclonus, 316
 Fahr's disease, 136
 familial hemiplegic migraine (FHM), 344
 Fanconi's syndrome, 183
 fasciculations, paraneoplastic disorders, 46–7
 fatty acid hydroxylase-associated neurodegeneration (FAHN), 105
 fecal incontinence, 388
 fentanyl, 234
 ferritin, 190–1, 325
 ferroportin, 189
 fever, acute parkinsonism with, 422–4
 flapping/flapping tremor, 25, 173
 flexor digitorum superficialis, neuromyotonia, 353
 fluoxetine, 234
 folate metabolism disorders, 102–3
 folinic acid, 67
 FOLR1 mutations, 103
 FOXP1 mutations, 338
 Friedreich's ataxia (FA), 369, 392, 410
 frontal lobe tumors, 280, 282, 285–6
 FTL mutations, 105
 fucosidosis, 151
 functional imaging, 10, *See also specific techniques*
 dystonia, 23
 parkinsonism, 19–20
 tremor, 24–5
 fungal infections, 294
- gabapentin, 327, 387
 gait disorder, vascular parkinsonism, 257–9
 galactosemia, classic, 101
 galantamine, 409
 Galloway-Mowat syndrome, 180
 GALT mutations, 101
 gamma-knife thalamotomy, 271
 gamma-aminobutyric acid (GABA), 44, 55–7, 131, 210
 GABA type B receptor antibodies, 344
 GABA-ergic drugs, 213
 GABA-ergic transmission, 337
 gamma-hydroxybutyrate, 36
 gastritis, 390
 gastrointestinal complications, *See also specific complications*
 ataxias, 392
 clinical features, 364
 gastrointestinal side effects of common drugs, 387
 hyperkinetic disorders, 389–92
 hypokinetic disorders, 383–9, 393
 restless legs syndrome (RLS), 392–3
 gastroparesis, 384–5, 391
 Gaucher's disease (GD), 106–7
 GCDH mutations, 101, 117
 GCH1 mutations, 108, 427
 generalized epilepsy with febrile seizure plus (GEFS+), 341–2
 genetics, *See also specific genes*
 genetic tests, 8–9, 158
 ghrelin, 138
 Gilles de la Tourette syndrome (GTS), 238
 globus pallidus, 17–19, 24, 148–9
 GLRA1/GLRB mutations, 342
 glucocerebrosidase deficiency, 106–7
 glucose metabolism/transport disorders, 101–2, 124–6, 338
 glucose transporter type 1 (GLUT-1) deficiency syndrome, 101–2, 124–5, 338
 GLUT-1 mutations, 102
 glutamic acid decarboxylase (GAD), 56, 344
 glutaric acidemia type 1 (GA1), 101, 117–19
 gluten ataxia, 61–3
 gluten sensitivity, 61
 gluthethimide, 270
 glycine receptor antibodies, 344
 glycine receptors, 342
 glycogen metabolism disorders, 355
 glycogen synthase kinase 3 β (GSK3 β), 334
 glycopyrrolate, 384
 GM1 gangliosidosis, 107
 GM2 gangliosidosis, 107
 gold mining, 225
 gonadal dysfunction, 139–40
 Gordon Holmes spinocerebellar ataxia syndrome (GHS), 139
 GOSR2 mutations, 7
 Grave's disease, 135
 growth hormone (GH) levels, 138
 Guadeloupean parkinsonism, 242
 guanfacine, 387
 guanidine compounds, 173
 guanidinoacetate methyltransferase (GAMT) deficiency, 122
 guanosine triphosphate cyclohydrolase I (GTPCH1), 108
 Guillain-Mollaret triangle, 261
- H1N1 influenza, 76, 301
 hallucinations, deep brain stimulation-induced, 434
 haloperidol, 209, 255
 Hashimoto's encephalopathy, 58, 134
 hatter's shakes, the, 226
Helicobacter pylori, 81, 386–8
 helminthic infestations, 294, 307–8
 hematocrit levels, 193
 hematological disease
 abetalipoproteinemia (ABL), 196–7
 hematological malignancies, 197–8
 hemochromatosis, 189–91
 polycythemia vera (PV), 192–3
 sickle cell disease (SCD), 197
 superficial siderosis (SS), 191–2
 hematopoietic stem cells, 192
 hemiballism, 252, 271, *See also hemichorea/hemiballism (HCHB)*
 hemichorea, 252–4, *See also hemichorea/hemiballism (HCHB)*
 hemichorea/hemiballism (HCHB)
 acute, 428–30
 brain tumors, 283–4
 HIV/AIDS-related, 77, 81, 90–2
 non-ketotic hyperglycemia (NKH), 131–2
 hemidystonia, 250
 hemifacial spasm, 37, 287, 354
 hemimasticatory spasm, 354
 hemochromatosis, 189–91
 hemolytic anemia, 121
 hemorrhage, deep brain stimulation-induced, 435–6
 hemosiderin deposition, 191–2
 hepatic encephalopathy, 144–7, 153–4, 239
 hepatic failure, 144, 154, *See also liver disease*
 hepatic parenchymal copper concentration, 159
 hepatolenticular degeneration, *See Wilson's disease (WD)*
 hepcidin, 189
 hereditary hemochromatosis (HH), 189
 hereditary spastic paraplegias, 135
 heroin, 234

Index

- herpes 6 virus, 74, 301
 herpes simplex virus (HSV), 74, 300–1
 highly active antiretroviral therapy, 82
 histology
 dystonia, 21
 parkinsonism, 19
 tremor, 24
 HIV/AIDS
 central nervous system infection-related disorders, 89–96
 cerebral toxoplasmosis, 307
 HIV/AIDS-associated dementia (HAD), 90, 96
 HIV-associated neurocognitive disorder (HAND), 90, 92, 94–5
 systemic infection-related disorders, 73–5, 77–8, 81–2
 HLA (human leucocyte antigen) testing, 62
 Holmes' tremor, 7, 24, 33, 77, 260–2
 homocystinuria, 101, 121
 hot cross bun sign 10
 HPRT mutations, 120
 human leukocyte antigen-H (HFE) mutations, 191
 human leukocyte antigen-H protein, 189
 hummingbird sign 10
 Huntington's disease (HD)
 dysautonomia, 368–9
 gastrointestinal complications, 389–91
 hypothalamus-pituitary axis disturbances, 139
 juvenile, 126–7
 phenomenology/classification, 4
 respiratory complications, 408
 hydrocephalus, 422
 hyperammonemia, 147
 hypercapnia, 405
 hyperekplexia, 342
 hyperglycemia, 430
 hyperglycemic hyperosmolar state, 150
 non-ketotic (NKH), 131–2
 hyperkalemic periodic paralysis, 345
 hyperkinetic disorders, 3–7,
 See also specific disorders
 hypermanganesemia,
 See also manganese toxicity
 hypermanganesemia with dystonia, polycythemia, and cirrhosis (HMDPC), 105–6
 SLC30A10-related cirrhosis, dystonia, parkinsonism, polycythemia, and hypermanganesemia, 163
 hyperparathyroidism, 136–7
 hyperpolarization-activated cyclic nucleotide-gated (HCN) channel activity, 334
 hypertension
 nocturnal (NH), 364, 366, 371, 373, 375
 supine (SH), 364, 371
 hyperthyroidism, 134–5
 hyperviscosity, chronic, 193
 hypoadrenalism, 135
 hypoglycemia, 134
 hypogonadism, 139
 hypokalemic periodic paralysis, 344
 hypokinetic disorders, 2–4,
 See also specific disorders
 hypoparathyroidism, 136–7
 hypophonia, 398–401
 hypotension
 orthostatic, *See* orthostatic hypotension (OH)
 post-prandial (PPH), 363, 366, 373, 375
 hypothalamus-pituitary axis disturbances, 138–9
 hypothyroidism, 134, 355
 hypoxic-ischemic injury, 150
 IgM paraproteinemic neuropathy, 355
 imiglucerase, 107
 immediate early genes (IEGs), 334
 immune reconstitution inflammatory syndrome (IRIS), 95
 immunological tests, 8
 immunotherapy
 associated neurologic manifestations, 198
 drug-induced disorders, 207
 opsoclonus-myoclonus, 36
 paraneoplastic spasms, 45
 stiff person syndrome (SPS), 57–8
 Sydenham's chorea (SC), 82
 inborn errors of metabolism (IEMs),
 See metabolic diseases (in adulthood); metabolic diseases (in childhood)
 incontinence
 fecal, 388
 urinary, *See* urogenital dysautonomia
 infantile convulsions and paroxysmal choreoathetosis (ICCA) syndrome, 345
 infantile epileptic-dyskinetic encephalopathy, 338
 infantile neuroaxonal dystrophy (INAD), 104, 123, 150
 infantile spasms, 338–9
 infection, deep brain stimulation-related, 436
 infection-related disorders,
 See also specific infections
 clinical features, 76–81
 emergencies, 422–4
 epidemiology, 73–5
 etiology, 73
 management, 81–2
 overview of most common, 74
 pathophysiology, 75–6
 influenza viruses, 74, 301
 inhibition, dystonia, 24
 interferon (IFN), 95
 interferon alpha, 198, 297
 intoxication
 alcohol, 238–9
 carbon monoxide, 151, 241, 420–1
 cyanide, 241, 420–1
 drug abuse, 211, 215, 224, 234–8, 421
 metal, *See* metal poisoning
 natural toxins, 241–2
 organophosphates, 421
 solvents, 239–41, 420–1
 summary, 243
 toxin-induced parkinsonism, 420
 intravenous immunoglobulin (IVIg), stiff person syndrome (SPS), 58
 intubation, 404
 investigations, overview of diagnostic, 7–11
 ipratropium bromide, 384
 iron accumulation
 hemochromatosis, 189–91
 neurodegeneration with brain (NBIA), 104–5, 123–4, 150
 iron deficiency, 182, 324–5, 393
 iron salts, 387
 irritable bowel syndrome (IBS), 392
 Isaac's syndrome, 46–7
 isoniazid, 269–70
Ixodes ricinus, 297–8
 janus kinase 2 (JAK2) mutation, 193
 Japanese encephalitis (JE), 74, 294–7, 422
 jaw dystonia, 41
 JC virus, 91, 93, 302–3
 jerky dystonic hand, 260
 jerky movement disorders, 4–5,
 See also specific disorders
 Joubert-syndrome-related disorders (JSRD), 181
 juvenile myoclonic epilepsy (JME), 335
 Kayser-Fleischer rings, 121, 157–8
 KCNA1 mutations, 342

- KCNE2/KCNE3 mutations, 344
 KCNMA1 mutations, 343
 KCNQ2/KCNQ3 mutations, 340
 Kell glycoprotein, 196
 Kelly-Seegmiller syndrome, 119
 ketogenic diet, 102, 125
 Klinefelter's syndrome, 139
 Kufor-Rakeb disease (PARK9), 105
 Kx red blood cell (RBC) antigen, 196
 kyphoscoliosis, 401
- laboratory tests, overview of, 8
 Lance-Adams syndrome, 432
 Langerhans cell histiocytosis, 151
 laryngeal dystonia, 426–7
 laryngeal spasm, 41, 404, 407, 426
 latissimus dorsi, neuromyotonia in, 353
 laxatives, 384, 386
 lead toxicity, 221, 228
 Lee Silverman Voice Treatment (LSVT), 400
 leg cramps, sleep-related, 317–18
 Legionnaires' disease, 74, 81
 lentiform fork sign, 133
 leptin, 138
 Lesch-Nyhan syndrome, 119–21
 lesion studies
 dystonia, 22–3
 parkinsonism, 19
 tremor, 24–5
 lethal catatonias (LC), 423–4
 leucine, 100
 leukoencephalopathy, 234
 levetiracetam, 35–6, 255, 270
 levodopa (L-dopa)
 dopa-responsive dystonia, 427
 dysautonomia, 374
 gastrointestinal side effects, 385, 387
 H. pylori and fluctuations, 81, 386–8
 HIV-related parkinsonism, 94
 levodopa-induced dyskinesias (LID), 425
 metabolic diseases, 109–10
 parkinsonism management principles, 32
 respiratory complications, 401–2
 restless legs syndrome (RLS), 182
 sleep-related disorders, 326
 thyroid-stimulating hormone (TSH) levels and, 134
 vascular parkinsonism, 257, 259
 Lewy bodies (LB), 19–20, 24
 dementia with (DLB), 367, 370–1, 389
 dysautonomia, 366, 370
 Lewy body disease (LBD), 405
 LGI1 protein, 343
 limb cooling, 270
 limb shaking attacks (LSA), 253–4
 LIMP-2 mutations, 180
 lingual myoclonus, 288
 liver disease
 acquired hepatocerebral degeneration (AHD), 147–55
 alcoholic, 239
 asterixis, 144–7
 cirrhosis and metabolic tremor, 25
 introduction, 144
 SLC30A10-related cirrhosis, dystonia, parkinsonism, polycythemia, and hypermanganesemia, 163
 Wilson's disease, *See* Wilson's disease (WD)
 liver flap, 145
 liver transplantation, 153, 155, 162
 lorazepam, 206
 low-density lipoprotein (LDL), 196–7
 LRRK2 mutations, 366
 lubiprostone, 384, 386
 Lyme disease (neuroborreliosis), 81, 305
 lysosomal hydrolase β -glucocerebrosidase (GCase), 180
 lysosomal integral membrane protein type 2 (LIMP-2), 180–1
 lysosomal storage disorders (LSD), 106–8, 120
 Lytico-Bodig disease, 241–2
- Machado-Joseph disease, 127, 369, 410
 mad hatter syndrome, 226
 magnetic resonance imaging (MRI)
 acquired hepatocerebral degeneration (AHD), 148–9
 brain tumors, 280–3, 285
 differential diagnosis of basal ganglia T1 hyperintensities, 150
 dystonia, 23
 encephalitis, 296, 298–9
 hematological disease, 191–2
 hemichorea/hemiballism hyperglycemia, 131
 hepatic failure, 154
 manganese toxicity, 148–9, 176–8, 223–4, 239
 metabolic diseases, 103–4, 121, 124
 parkinsonism, 19
 renal disease, 174, 176–8
 steroid-responsive autoimmune encephalopathy associated with autoimmune thyroiditis (SREAT), 60
 Wilson's disease (WD), 103, 122, 150, 158–60
- magnetic resonance spectroscopy (MRS), 56, 176
 magnetoencephalography (MEG)
 myoclonus, 335
 parkinsonism, 21
 tremor, 25
 malaria, cerebral, 306–7
 malnutrition, 389–90
 mammalian target of rapamycin (mTOR), 337–8
 management principles
 chorea, 35
 dystonia (symptomatic), 33–5
 myoclonus, 35–7
 parkinsonism, 32
 tremor, 32–3
 manganese toxicity, 221,
 See also hypermanganesemia
 acquired hepatocerebral degeneration (AHD), 148–9, 152–5
 MRI, 148–9, 176–8, 223–4, 239
 parkinsonism, 176–8, 222–3, 420–1
 maple syrup urine disease (MSUD), 99–100
 Marinesco-Sjögren syndrome (MSS), 139
 masseter muscle, spasm, 354
 May-White syndrome, 180
 McArdle's disease, 355
 McLeod syndrome (MLS), 195–6
 MDMA (3,4-methylenedioxy-methamphetamine), 236
 measles, 74, 301
 medium spiny neurons (MSNs), 19
 MEF2C mutations, 338
 mefloquine, 303
 melatonin, 323
 meningitis, tuberculous (TbM), 304
 meningoencephalitis, 297, 300, 303
 meningoencephalomyelitis, 297
 meperidine, 234
 mercury toxicity, 221, 225–8
 metabolic acidosis, 174
 metabolic diseases (in adulthood)
 disorders of biosynthesis and breakdown of complex molecules, 106–8
 disorders of intermediate metabolism, 99–106
 myoclonus, 432
 neurotransmitter defects and related disorders, 108–10
 metabolic diseases (in childhood)
 chorea, 122
 cytosine-adenine-guanine (CAG)-repeat expansions, 126–7
 dystonia, 116–22
 general concepts, 115–16

Index

- metabolic diseases (in childhood) (cont.)
 myoclonus, 122–3
 neuronal intranuclear inclusion disease (NIID), 127–8
 parkinsonism, 123–4
 paroxysmal dyskinesias, 124–6
 metabolic screening, 8
 metabolic tremor, 146
 metal poisoning, 225–8
 bismuth, 221, 228
 lead, 221, 228
 manganese, *See* manganese toxicity
 mercury, 221
 summary of metals causing movement disorders, 221
 thallium, 221, 228
 tin, 221, 228
 metal storage disorders, 103–6, 121–4,
See also specific disorders
 methadone, 234, 327, 387
 methamphetamine, 236
 methanol, 239, 420–1
 methcathinone abuse, 224, 236
 methotrexate, 198
 methylmalonic aciduria (MMA), 100–1
 methylprednisolone, 60, 82
 metoclopramide, 95, 206, 209, 385
 microangiopathy, 176
 microbiology, laboratory tests’
 overview, 8
 microsomal triglyceride transfer protein (MTP), 197
 midodrine, 374
 miglustat, 107–8
 migraine, 78
 familial hemiplegic (FHM), 344
 milkmaid’s grip, 5
 Minamata disease, 227
 MIN-associated neurodegeneration (MPAN), 105
 mini-asterixis, 25, 146
 minipolymyoclonus, 355
 mirror dystonia, 6
 mitochondrial dysfunction, 20–1
 mitochondrial respiratory chain defects, 102
 mitochondrial sterol 27-hydroxylase (CYP 27) deficiency, 108
 molecular mechanisms
 dystonia, 23
 parkinsonism, 20–1
 tremor, 25
 monamine neurotransmitter disorders, 335
 monoamine oxidase (MAO) inhibitors, 32, 234, 236, 387
 morning glory sign 10
 Morvan’s syndrome, 47, 68
 motor imperistence, 5
 MPP+ (1-methyl-4-phenylpyridinium), 235–6
 MPPP (1-methyl-4-phenyl-4-propionoxypiperidine), 235
 MPTP (1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine), 235–6, 420–1
 multiple sclerosis (MS), 24, 33, 268–74
 multiple system atrophy (MSA)
 abductor vocal cord paresis, 425–6
 dysautonomia, 365, 367, 370, 374
 gastrointestinal symptoms, 388–9
 hypoparathyroidism with basal ganglia calcifications, 137
 respiratory complications, 400, 403–5
 work-up illustration, 12–14
 Murray Valley encephalitis, 300
Mycobacterium tuberculosis, 74, 91, 303
Mycoplasma pneumoniae, 74, 81
 myoclonus
 asterixis, 144–7, 172–3, 239
 benign sleep myoclonus of infancy, 345
 brain tumors, 287–8
 causes of, 36
 cortical, 335–6
 diaphragmatic, 409
 drug-induced, 211, 214, 409
 emergencies, 431–3
 encephalitis, 302
 ethanol and, 238–9
 faciomandibular, 316
 lingual, 288
 management principles, 35–7
 metabolic, 432
 metabolic diseases in childhood, 122–3
 minipolymyoclonus, 355
 multiple sclerosis-related, 273–4
 myoclonic epilepsy versus, 335–7
 myoclonus-dystonia, 12, 238
 negative, *See* asterixis
 opsoclonus-myoclonus syndrome (OMS), 39–40, 46, 68, 76, 95
 palatal myoclonus/tremor, 37, 260–2, 274, 409
 paraneoplastic disorders, 40, 46–7
 paroxysmal kinesigenic, 288
 peripheral neuropathies, 356
 phenomenology/classification, 4
 post-hypoxic, 431–2
 progressive encephalitis with rigidity and myoclonus (PERM), 44–5, 55
 renal disease, 172–3
 respiratory, 408–9
 stroke-related, 262
 tardive, 211, 214
 myoglobinuria, 183
 myokymia, 273–4, 352–4
 myopathies, muscle cramps and stiffness in, 355
 myophosphorylase deficiency, 355
 myorhythmia, 7, 40, 305
 narcolepsy, 345
 narcotics, drug-induced disorders, 211
 nausea, 385, 388, 390–1
 neoplastic brain disease, *See* brain tumors
 nephrin, 181
 nephrolithiasis, 183
 nephronophthisis type 1 deletion syndrome, 181
 neuroacanthocytosis, 193–6
 neuroborreliosis (Lyme disease), 81, 305
 neurobrucellosis, 305
 neurodegeneration with brain iron accumulation (NBIA), 104–5, 123–4, 150
 neuroferritinopathy, 105, 150
 neurofibromatosis type I, 151
 neuroimaging, 9–10, 19–20, 23–5,
See also specific techniques
 neuroleptic malignant syndrome (NMS), 364, 423–4
 neuroleptic-induced catatonia (NIC), 423
 neuroleptic-malignant syndrome (NMS), 214–15
 neuroleptics (antipsychotics),
See also specific drugs
 chorea, 35, 82, 255
 drug-induced disorders and,
See drug-induced disorders
 extrapyramidal side effects in HIV/AIDS, 96
 gastrointestinal side effects, 387
 receptor binding profile of atypical neuroleptics, 209
 tardive respiratory dyskinesia, 406
 neuromuscular disorders, 352–5, 358,
See also specific disorders
 neuromyotonia, 40, 46–7, 352–4
 neuronal intranuclear inclusion disease (NIID), 127–8
 neuropathic tremor, 355–6
 neuropathology (gross)
 dystonia, 21
 parkinsonism, 19
 tremor, 24
 neuropeptide Y (NPY), 138

- neurophysiology
 dystonia, 23–4
 parkinsonism, 21
 tremor, 25
- neurosyphilis, 77, 93, 304–5
- neurotuberculosis, 303–4
- n-hexane intoxication, 240
- nicotinic acetylcholine (nACh)
 receptors, 334, 339
- Niemann-Pick type C (NP-C) disease,
 107–8, 120
- nigrostriatal pathway compression,
 421–2
- NKX2-1 mutations, 40, 134
- NMDA receptors, 343
 anti-NMDA receptor antibodies, 55
 anti-NMDA receptor encephalitis,
 41–2, 370, 429–31
- Nocardia*, 304
- nocturnal frontal lobe epilepsy
 (NFLE), 339, 345
- nocturnal hypertension (NH), 364,
 366, 371, 373, 375
- non-jerky movement disorders, 5–7,
See also specific disorders
- non-ketotic hyperglycemia (NKH),
 131–2
- non-rapid eye movement (NREM)
 sleep parasomnias, 345
- norepinephrine (NE) levels, 367, 371
- normeperidine, 234
- NPC1/NPC2 mutations, 107, 120
- NPHS1 mutation, 181
- NUP62 mutations, 102, 110
- obsessive-compulsive disorder, 78–82
- obstructive sleep apnea (OSA), 405,
 410
- octreotide, 375
- oculogyric crisis, 426–7
- oculopalatal tremor, 269
- olanzapine, 205, 209, 255
- ondansetron, 270
- Onuf's nucleus, 371
- ophthalmological dysautonomia,
 364–6
- ophthalmologists, 12
- ophthalmoplegia, supranuclear, 305
- opioids
 gastrointestinal side effects, 387
 opioid abuse, 234–5
 sleep-related disorder management,
 327
- opisthotonus, 296
- opsoclonus, 46, 343
 opsoclonus-myoclonus syndrome
 (OMS), 39–40, 46, 68, 76, 95
- organophosphate intoxication, 421
- orofacial dyskinesia, 40–2, 210, 213
- oromandibular dystonia, 212, 251,
 391, *See also* cranial dystonia
- orthostatic hypotension (OH)
 consequences of, 376
 correlation between cardiac
 sympathetic denervation and,
 372
 definition and phenomenology, 364
 management issues, 373–5
 parkinsonism, 365, 367, 374–5
- orthostatic tremor, 6–7
- osmotic demyelination syndrome, 175
- oxycodone, 387
- painful legs and moving toes,
 95, 357
- palatal myoclonus/tremor, 37, 260–2,
 274, 409
- pallidum, 25
- PANK2 mutations, 104–5, 110, 123
- pantothenate kinase-associated
 neurodegeneration (PKAN),
 104, 123–4, 150
- para-aminosalicylic acid (PAS), 224
- paradoxical vocal cord motion
 (PVC), 404–5
- parakinesia, 4
- Paramyxovirus, 74
- paraneoplastic disorders
 antibodies and tumor association,
 40
 ataxia/paraneoplastic cerebellar
 degeneration (PCD), 47
 chorea and ballism, 39–41
 dystonia, 41
 epilepsy borderland, 343–4
 hematological malignancies, 198
 myoclonus, neuromyotonia and
 fasciculations, 46–7
 opsoclonus-myoclonus, 46
 oro-facial dyskinesia, 41–2
 parkinsonism, 43–4
 progressive supranuclear palsy-like
 syndrome, 42–3
 renal cancer-related, 179
 rigidity and spasms, 44–5
 stiff person syndrome (SPS), 55
 tremor, 45–6
- paraquat, 236
- parathyroid disorders, 135–8
- parenchymal neurosyphilis, 304
- parietal lobe tumors, 285–6
- parkinsonism, *See also specific
 disorders*
 acquired hepatocerebral
 degeneration (AHD), 148
 acute, 419–26
 with fever, 422–4
 Addison's disease, 135
- amyotrophic lateral sclerosis and
 parkinsonism-dementia
 complex of Guam (ALS/PDC),
 241–2
- atypical, *See* atypical parkinsonism,
specific disorders
- brain tumors, 279–83
- carbon monoxide poisoning, 421,
 421
- chemotherapy-induced, 420–1
- cyanide poisoning, 241, 421
- definition of, 3
- drug abuse, 235–6, 421
- drug-induced (DIP), 96, 206–8,
 419–21
- dysautonomia, 364–6, 372–5
- encephalitis, 303
- ethanol withdrawal, 238
- gastrointestinal symptoms, 383–9
- gluten ataxia, 61
- Guadeloupean, 242
- hematological disease, 189, 191, 193,
 198
- hemi-parkinsonism, 303
- HIV/AIDS-related, 75, 77–8, 81–2,
 90, 94–5
- hyperparathyroidism, 137
- hypoparathyroidism with basal
 ganglia calcifications, 137
- levodopa test, 11
- liver disease, 154
- lower body, 19, 257
- management principles, 32
- manganese-induced, 176–8, 222–3,
 421
- metabolic diseases in adulthood,
 106, 108
- metabolic diseases in childhood,
 123–4
- MRI, 19
- multiple sclerosis (MS) association,
 271
- organophosphate intoxication,
 421
- paraneoplastic, 43–4
- parkinsonism-dementia syndrome
 (PDS), 242
- parkinsonism-hyperpyrexia
 syndrome, 364, 423–4
- pathogenesis, 16, 19–21
- post-encephalitic, 301
- psychogenic, 11
- rapid onset dystonia-parkinsonism
 (RDP), 420, 422
- REM sleep behavior disorder (RBD)
 and, 320–1
- renal disease, 174, 176–8, 183
- respiratory complications, 398–405
- Sjögren's syndrome (SjS), 65–7

Index

- parkinsonism, (cont.)
 SLC30A10-related cirrhosis,
 dystonia, parkinsonism,
 polycythemia, and
 hypermanganesemia, 163
 solvent intoxication, 239–40, 421
 stroke-related, 249, 255–9, 389
 systemic lupus erythematosus
 (SLE), 64–5
- Parkinson's disease (PD)
 classification, 3–4
 dopamine transporter (DAT)
 scans, 11
 drug-induced parkinsonism (DIP)
 and, 206–8
 dysautonomia, 364–6, 370–5
 emergencies, 422, 424–6
 gastrointestinal symptoms,
 383–8
Helicobacter pylori and, 81
 hematological disease, 189, 191
 HIV infection co-morbidity, 95
 hypothalamus-pituitary axis
 disturbances, 138–9
 hypothyroidism implications, 134
 influenza association, 301
 lysosomal storage disorders (LSD)
 and, 106
 manganese and, 224
 MPTP-induced parkinsonism-
 related discoveries, 235–6
 multiple sclerosis (MS) coexistence,
 271
 neuroleptic-malignant syndrome
 (NMS) and, 215
 pathogenesis, 16, 19–21
 renal disease, 183
 respiratory complications, 398–403
 with dementia (PDD), 366
- paroxysmal dysautonomia, 54
 paroxysmal dyskinesias
 choreic, 253–4
 exercise-induced (PED), 16, 23,
 101–2
 kinesigenic (PKD), 16, 137, 345
 neurometabolic disorder-related,
 124–6
 non-kinesigenic (PNKD), 61, 342–3
 paroxysmal exercise-induced
 dyskinesia (PED), 124
 paroxysmal dystonia, 273
 paroxysmal kinesigenic
 choreoathetosis (PKC), 273
 paroxysmal kinesigenic myoclonus,
 288
 paroxysmal movement disorders
 (PMD), epilepsy and,
See epilepsy (borderland of)
- Parry-Romberg syndrome, 354
- Partington syndrome, 338
- pathogenesis
 dystonia, 21–4
 introduction to, 16–17
 neuroanatomy and functional
 organization of basal ganglia
 and motor system, 17–19
 parkinsonism, 19–21
 summary and conclusions, 26
 tremor, 24–5
- PCCA/PCCB mutations, 100
- pediatric acute-onset neuropsychiatric
 syndrome (PANS), 81
- pediatric autoimmune
 neuropsychiatric disorders
 associated with *Streptococcus*
 (PANDAS), 79–82, 433–4
- penguin sign 10
- penicillamine, 155–6, 160–2, 227
- penicillin G benzathine, 82
- pentamidine-induced hypoglycemia,
 95
- percutaneous endoscopic gastrostomy
 (PEG) tubes, 388, 392
- pergolide, 402
- pericardial fibrosis, 402
- periodic limb movement disorder
 (PLMD), 324
- periodic limb movements during sleep
 (PLMS), 240, 272, 324, 327
 brain tumors, 288
 epilepsy and, 345
 sickle cell disease (SCD), 197
- periodic limb movements during
 wakefulness (PLMW), 324
- perioperative decompensation, 425
- peripheral nerve hyperexcitability
 syndromes, 46–7, 352–5
- peripheral neuropathies, 352, 355–8
- perlecan, 353
- Perrault syndrome, 139
- pesticides, 236, 421
- pethidine, 234
- pharmacological tests, 11
- phenomenology, 1–7
- phenothiazine, 95
- phenytoin, 35
 phenytoin-induced chorea, 429–30
- physiotherapists, 12
- pimozide, 81, 255
- PLA2G6 mutations, 104, 123
- PLA2G6-associated neurodegeneration
 (PLAN), 104–5
- Plasmodium falciparum*, 74, 306–7
- pleuropulmonary fibrosis, 402
- pneumonia, aspiration, 385, 388, 390,
 392, 402–3, 405
- polycythemia
 polycythemia vera (PV), 192–3
- SLC30A10-related cirrhosis,
 dystonia, parkinsonism,
 polycythemia, and
 hypermanganesemia, 163
- polyethylene glycol, 384, 386, 388
- polymicrocavitation (vacuolar change/
 spongy degeneration), 149–52
- polymyography, 10–11
- polysomnography, 315–16, 318, 320
- portosystemic shunting, 144, 153–4
- positron emission tomography (PET),
 10
 acquired hepatocerebral
 degeneration (AHD), 152
 brain tumors, 281, 283
 epilepsy, 335
 manganese toxicity, 223
 parkinsonism, 20, 208, 235
 renal disease, 175
 stiff person syndrome (SPS), 56
- posterior fossa tumors, 286, 288
- post-hypoxic myoclonus, 431–2
- post-prandial hypotension (PPH),
 363, 366, 373, 375
- potassium hexacyanoferrate, 228
- potassium permanganate, 222, 224
- Powassan virus, 300
- pramipexole, 326, 387
- prednisone, 82
- pregabalin, 327
- primary central nervous system
 lymphoma (PCNSL), 93,
 197–8, 280–4
- primidone, 33, 270, 387
- prions, 74
- progressive encephalitis with rigidity
 and myoclonus (PERM), 44–5,
 55
- progressive multifocal
 leukoencephalopathy (PML),
 77, 91–3, 302–3
- progressive rubella encephalitis, 302
- progressive supranuclear palsy (PSP)
 brain tumors, 280–3
 dysautonomia, 367–8
 gastrointestinal symptoms, 389
 respiratory complications, 403
 vascular, 258
- progressive supranuclear palsy-like
 (PSP-like) syndromes, 40,
 42–3, 94, 242, 305
- progressive system atrophy (PSA),
 365, 370
- proline-rich transmembrane protein 2,
 345
- propionic acidemia (PA), 100–1
- propranolol, 33, 387, 410
- protein kinase A (PKA), 333
- proteinuria, 179–80

- protozoal infections, 294
 PRRT2 mutations, 345
 pseudoakathisia, 205, 212
 pseudoathetosis, 253
 pseudohypoparathyroidism, 136–7
 pseudolaminar necrosis, 149
 psychogenic parkinsonism, 11
 psychogenic tremor, 7
 psyllium, 384
 pure autonomic failure (PAF), 366–7
 Purkinje cells, 47, 239
 putamen, 17, 19
 pyridoxal-phosphate-dependent epilepsy (PLP-DE), 335
 pyruvate dehydrogenase complex (PDHc) deficiency, 125–6
 pyruvoyltetrahydropterin synthase deficiency (DHPR-D), 335

 QSART (Quantitative Sudomotor Axon Reflex Test), 372
 quetiapine, 205, 209

 rabbit syndrome, 419
 radiotherapy-induced disorders, 353
 rapid onset dystonia parkinsonism (RDP), 422
 rasagaline, 387
 Rasmussen's encephalitis (RE), 344
 reflex myoclonic epilepsy, 336
 REM sleep behavior disorder (RBD), 20, 43, 314, 318, 320–3, 345
 renal diseases
 movement disorder causation, 172–9
 movement disorders associated with, 179–83
 movement disorders causing renal insufficiency, 183
 reserpine, 213–14
 respiratory complications,
 See also specific complications
 ataxia, 400, 410
 conclusion, 410
 dysautonomic features, 364
 hyperkinetic disorders, 399, 406–10, 430
 hypokinetic disorders, 398–406
 respiratory dyskinesias, 208, 401–2
 respiratory flutter, 400
 resting tremor, 6, 25, 33, 94, 262
 restless legs syndrome (RLS), 323–7
 brain tumors, 288
 diabetes, 133
 gastrointestinal complications, 392–3
 HIV/AIDS-related, 95
 multiple sclerosis (MS), 272–3
 peripheral neuropathy, 357–8
 renal disease, 181–3
 restrictive respiratory disorders, 401
 Rett's syndrome, 410
 rhabdomyolysis, 183
 rheumatic fever (RF), 73–5, 78–80
 rhythmic masticatory muscle activity (RMMA), 316
 rhythmic movement disorders (RMD), 314–16
 Richards-Rundle syndrome, 139
Rickettsia, 305
 rifaximin, 393
 rigidity
 HIV/AIDS-related, 94
 hypokinetic disorders' phenomenology/classification, 3–4
 paraneoplastic disorders, 40, 44–5
 serotonin syndrome, 236
 stiff person syndrome (SPS), 52–8
 ring chromosome 20 epilepsy, 335
 rippling muscle disease, 355
 risperidone, 82, 95, 209, 255
 risus sardonicus, 157
 rituximab, 58
 rivastigmine, 256
 ropinirole, 326, 387
 rotigotine, 326
 rubella, 74, 302
 rubral tremor, 92–3
 Russian spring-summer encephalitis (RSSE), 297–9

Salmonella, 74
 Sandhoff disease, 107
 Satoyoshi syndrome, 355
 SCARB2 mutations, 180
 SCGE mutations, 12
Schistosoma mansoni, 74
 Schwartz-Jampel syndrome, 353
 SCL2A1 mutations, 338
 scleroderma, 353–4
 SCN1A mutations, 344
 SCN2A mutations, 341
 SCN4A mutations, 344
 Segawa's disease, 108–9
 Seitelberger's disease, 123
 seizures, epileptic, *See* epilepsy (borderland of)
 selective serotonin reuptake inhibitors (SSRIs), 236
 selegiline, 387
 sensory function, in dystonia, 24
 sepiapterin reductase deficiency (SR-D), 335
 serotonin syndrome, 236, 364, 431–3
 serotonin synthesis, dopamine and serotonin synthesis pathway, 109

 sex chromosome aneuploidies, 140
 sexual dysfunction, *See* urogenital dysautonomia
 shoulder elevation, sustained, 356
 sialorrhea, 384, 403
 sickle cell disease (SCD), 197
 sildenafil, 374
 single-photon emission computed tomography (SPECT), 10
 brain tumors, 281, 285
 dysautonomia, 366, 371–2
 manganese toxicity, 223
 parkinsonism, 20, 208
 renal disease, 176
 steroid-responsive autoimmune encephalopathy associated with autoimmune thyroiditis (SREAT), 59
 stroke-related disorders, 256, 259
 Sjögren's syndrome (SjS), 65–7
 skin vasomotor reflex, 372
 SLC19A3 mutations, 102
 SLC2A1 mutations, 16, 101, 124
 SLC30A10 mutations, 105, 144, 152, 155, 163
 sleeping sickness, 307
 sleep-related disorders
 bruxism, 316–17
 epilepsy and, 345–7
 future directions, 327
 leg cramps, 317–18
 periodic limb movements during sleep, *See* periodic limb movements during sleep (PLMS)
 REM sleep behavior disorder, *See* REM sleep behavior disorder (RBD)
 restless legs syndrome, *See* restless legs syndrome (RLS)
 rhythmic movement disorders (RMD), 314–16
 sleepwalking and other disorders of arousal, 318–20
 slit-lamp examination, 159
 small intestine bacterial overgrowth (SIBO), 392–3
 SNAP25, 345
 SNCA mutations, 366
 sodium oxybate, 36
 solvent intoxication, 239–41, 420–1
 Spanish flu, 301
 spasms, muscle, 44–5, 52–8
 spastic paraparesis, 148
 specialists, consulting other, 11–12
 speech therapy, 390, 400
 spinal cord tumors, 288
 spinocerebellar ataxias (SCA), 365, 369, 392, 410

Index

- spongiform leukoencephalopathy, 234
 spongy degeneration
 (polymicrocavitation/vacuolar change), 149–52
 SSA/SSB antibodies, 65
 startle epilepsy, 336
 startle reflex/response, 4, 342
 static encephalopathy of childhood
 with neurodegeneration in adulthood (SENDA), 105
 status dystonicus, 408, 426–7
 stereotypies, 262, 339
 tardive, 210, 212–14
 steroid-responsive autoimmune
 encephalopathy associated
 with autoimmune thyroiditis
 (SREAT), 58–60, 134
 stiff limb syndrome, 44
 stiff person syndrome (SPS), 39, 44–5,
 52–8, 343
 dysautonomia, 370
 gastrointestinal complications, 393
 respiratory complications, 405–6
Streptococcus, 73–4
 pediatric autoimmune
 neuropsychiatric disorders
 associated with *Streptococcus*
 (PANDAS), 79–82, 433–4
 streptomycin, 306
 striatum, 17–19
 stridor, 403–5, 425–7
 stroke-related disorders
 asterixis, 262
 chorea, 252–5
 dystonia, 249–52
 mechanisms underlying, 247–8
 myoclonus, 262
 parkinsonism, 255–9, 389
 prevalence of, 248–9
 tremor, 24, 259–62
 subacute sclerosing panencephalitis
 (SSPE), 301–2
 subcortical arteriosclerotic
 encephalopathy (SAE), 258–9
 substantia nigra, 17–20
 subthalamic nucleus (STN), 17–19
 deep brain stimulation (DBS), 94–5,
 375
 sulpiride, 255
 sunflower cataracts, 121, 158
 superficial siderosis (SS), 191–2
 supine hypertension (SH), 364, 371
 swallowing abnormalities,
 See dysphagia
 sweating abnormalities, 364, 366, 368,
 372–3, 375
 Sydenham's chorea (SC), 35, 73–6,
 78–9, 82, 428–9
 sympathetic sweat response, 372
 synaptic plasticity, 16
 syntaxin binding protein 1, 339
 syphilis, neurosyphilis, 77, 93, 304–5
 systemic lupus erythematosus (SLE),
 63–5
 systemic vasculitis, 67
 T cells, anti-GAD65-reactive, 57
Taenia solium, 74, 308
 tardive dyskinesia (TD), 208–14,
 391–2, 406–7, 429–30
 tardive dystonia, 6, 23, 34
 task-specificity, 5–6, 194
 Tay-Sachs disease, 107
 temporal lobe epilepsy, 335, 339
 temporal lobe tumors, 280, 282
 temporalis muscle, spasm, 354
 tests, overview of diagnostic, 7–11
 tetanus, 428
 tetany, 355
 tetraabenazine
 chorea, 35, 82, 154, 255
 dystonia, 34
 gastrointestinal side effects, 387
 hemochoreoathetosis, 93
 neuroleptic malignant syndrome
 causation, 215
 tardive dyskinesias (TD), 213
 tardive dystonia (TDt), 214
 TH mutations, 109, 427
 TH1/TH2 response, 75
 thalamic tremor, 262, 260
 thalamus
 lesions in encephalitis, 296–7
 thalamotomy, 252, 255, 262,
 270–1
 tumors, 280–5, 287
 thallium toxicity, 221, 228
 thermoregulatory sweat test, 372
 thiamine deficiency, 178–9
 thiamine metabolism dysfunction
 syndrome-2 (THMD2), 102
 thiomersal, 225
 thrombone tremor, 304
 thyroid disorders, 40, 134–5, 355
 thyroid stimulating hormone (TSH)
 levels, 134
 tiapride, 255
 tibial nerve injury, 353
 tick-borne encephalitis (TBE), 297–9
 tics
 antiphospholipid syndrome (APS),
 64
 brain tumors, 288
 drug abuse, 238
 emergencies, 433–4
 gastrointestinal complications, 391
 pediatric autoimmune
 neuropsychiatric disorders
 associated with *Streptococcus*
 (PANDAS), 79–82
 phenomenology/classification, 5
 respiratory complications, 408–9
 stroke-related, 263
 Sydenham's chorea (SC), 78
 tardive Tourettism, 211
 tin toxicity, 221, 228
 TITF1 mutations, 408
 tolcapone, 387
 toluene intoxication, 240
 tongue tremor, 287
 tonic spasms, 273
 topiramate, 35–6, 255, 387
 torticollis, 427–8
 spasmodic, 272, 391
 spastic, 286
 Tourette's syndrome (TS)
 emergencies, 433–4
 gastrointestinal complications,
 391
 post-stroke, 263, 288
 respiratory complications, 408–9
 streptococcal infection association,
 79–81
 Tourettism
 brain tumors, 288
 post-stroke, 263
 tardive, 211, 214
 toxoplasmosis, 91–3, 306
 tracheostomy, 404
 transcranial magnetic stimulation
 (TMS), 24, 56
 transferrin, 190
 transferrin receptor, 189
 transplantation, liver, 153, 155, 162
 trazodone, 206
 tremor
 action, 6
 brain tumors, 287
 causes of enhanced physiologic, 33
 cerebellar, 260, 262
 drug-induced parkinsonism (DIP),
 207
 drug-induced tardive, 211, 214
 dystonic, 5, 33, 260–2
 encephalitis, 297
 essential, See essential tremor (ET)
 hematological disease, 189
 HIV/AIDS-related, 77–8, 90,
 92, 94
 Holmes', 7, 24, 33, 77, 260–2
 hyperthyroidism, 134–5
 hypoparathyroidism with basal
 ganglia calcifications, 137
 Lyme disease, 81
 management principles, 32–3
 mercury toxicity, 226
 metabolic, 146

- metabolic diseases in adulthood, 103
- MPTP-induced parkinsonism, 235
- multiple sclerosis (MS), 268–71
- neuropathic, 355–6
- neurophysiology, 21
- orthostatic, 6–7
- palatal myoclonus/tremor, 37, 260–2, 274, 409
- paraneoplastic, 40, 45–6
- pathogenesis, 24–5
- phenomenology/classification, 6–7
- psychogenic, 7
- renal disease, 173
- resting, 6, 25, 33, 94, 262
- rubral, 92–3
- sex chromosome aneuploidies, 140
- stroke-related, 249, 259–62
- task-specific, 5
- thalamic, 262, 260
- thrombone, 304
- tongue, 287
- Wilson’s disease (WD), 157
- wing-beating, 77, 157
- withdrawal, 238
- writing, 5
- Treponema pallidum*, 74, 77, 304
- trientine, 155, 160–2
- trihexyphenidyl, 206
- trimethoprim-sulfamethoxazole (TMP-SMX), 77, 306
- Tropheryma whipplei*, 305, 431–2
- Trousseau’s sign, 137
- Trypanosoma brucei gambiense*, 307
- TSC1/TSC2 mutations, 337
- tuberculosis (TB), 303–4
- tumors
 - antibodies association in paraneoplastic disorders, 40
 - brain, *See* brain tumors
 - twitch-convulsive syndrome, 431–2
 - typhoid fever, 305
 - tyrosine hydroxylase, 76
 - deficiency (TH-D), 335
 - upper airway obstruction (UAO), 398–403
 - uremia
 - basal ganglia lesions in, 174–6
 - uremic encephalopathy, 133, 172–3
 - urine
 - twenty-four-hour urinary copper excretion, 159, 162
 - urinary catheterization, 374
 - urogenital dysautonomia
 - clinical features, 363–4
 - clinical presentation, 365, 367
 - diagnostic work-up, 370–1
 - management, 372–4
 - pathophysiology, 370
 - prevalence, 365
 - vacuolar change (polymicrocavitation/spongy degeneration), 149–52
 - vacuolar protein sorting 13 (VPS13A) mutation, 195
 - valproate, 36, 213, 255, 419
 - valproic acid, 35, 82
 - valvular heart disease, 402
 - varicella-zoster virus (VZV), 74, 91–3
 - ventral pallidum (VP), 17
 - very-low density lipoprotein (VLDL), 196–7
 - vesicular monoamine transporter type 2 inhibitors, 387
 - VGKC-complex antibodies, 343
 - vigabatrin, 213
 - viral infections, 74, 76–7, 294, 422–3
 - vitamin-responsive disorders, 102–3
 - vocal cord disorders, 400, 403–5, 410, 425–6
 - voltage-gated potassium channels, antibodies to related proteins, 46
 - Von Economo’s encephalitis, 422
 - weight loss, 138–9, 384, 389–91
 - welders, manganese in, 223–4
 - West Nile virus, 57, 74, 299–300
 - western blot, 194
 - Whipple’s disease, 305–6, 431–2
 - Wilson’s disease (WD), 103–4, 121–2, 155–63
 - clinical features, 103, 121, 156–8
 - diagnosis, 103, 121–2, 158–60
 - dysautonomia, 365, 369
 - MRI, 103, 122, 150, 158–60
 - renal features, 183
 - treatment, 103, 160–3
 - wing-beating tremor, 77, 157
 - withdrawal tremor, 238
 - withdrawal-emergent syndrome, 214
 - Woodhouse-Sakati syndrome, 139
 - writer’s cramp, 5–6, 357
 - writing tremor, 5
 - xanthomas, tendon, 108
 - XK protein, 195–6
 - X-linked adrenoleukodystrophy (XALD), 135
 - zinc, 160–1
 - ziprasidone, 209