

# Index

Note: page numbers in *italics* refer to figures and tables

- abductor spasmodic dysphonia, 327–8
- academic functioning
  - emotional disturbance, 130
  - interrelationship with language skills and externalizing behaviour, 132–5, 134
  - interventions, 135
  - outcomes in specific language impairment, 85–7
- acoustic neuroma, 376–7, 376
- acoustic reflex test, 379
- activity
  - definition, 35
  - developmental dysarthria, 35–8
- adaptive internal models, 512–18
  - adaptive model theory, 514–15
- adductor spasmodic dysphonia (ADSD), 327–8
- adolescents
  - specific language impairment, 86
  - transitional voice disorder, 479–80
- A-FROM (Living with Aphasia: Framework for Outcome Measurement), 437–8
- agrammatism in aphasia, 230, 242
- agraphia
  - afferent, 256
  - spatial, 256
  - see also* writing disorders
- akinetic-rigid syndrome, 198
- ALERT model, 459, 460, 470
  - anatomically based voice dysfunction, 475–6
  - children, 479
  - irritable larynx syndrome, 481
  - voice disorders
    - direct therapy, 474
    - indirect therapy, 473
- alexia
  - attentional, 255
  - hemianopic, 255
  - pure, 255
  - see also* reading disability
- alexithymia in depression, 311–12
- Alzheimer's disease, 268, 269–72
  - anomia, 270–1
  - brain regions, 269
  - cognitive impairment, 270
  - comprehension, 271–2
  - diagnosis, 270, 529
  - episodic memory impairment, 529
  - linguistic impairment, 270
  - pragmatic impairment, 571–2
  - prodromal stage, 269–70
  - semantic memory impairment, 529–30
  - sentence comprehension, 271
  - vascular dementia comorbidity, 277
- aminoglycoside antibiotics, ototoxicity, 373–4
- amyotrophic lateral sclerosis, 201–2
- anomia
  - Alzheimer's disease, 270–1
  - progressive non-fluent aphasia, 273
  - semantic dementia, 275
- anomic aphasia, 234
- anterior cerebral artery ischaemia, 527
- anterior insula, apraxia of speech, 214
- antipsychotic medication, side effects, 306–7, 308
- aphasia, 224–46, 504–5
  - across languages, 244–6
  - agrammatic, 230, 242
  - anomic, 234
  - assessment
    - aims, 439–40, 445, 448, 450–1
    - approaches, 440, 445–6, 448–9
    - compensatory strategies, 446
    - frameworks, 437–8
    - management integration, 452–4
    - participation in life situations, 445–6
    - spoken output, 445–6
  - automatism, 235
  - bilingual, 245–6
  - brain lesions, 238
  - brain tumours, 227
  - Broca's, 233, 236, 238–40
    - comprehension problems, 242

- aphasia (*cont.*)  
     integration deficit, 244  
     linguistic knowledge, 243  
 causes, 226–7, 526–7  
 classification, 236–7  
 clinical features, 224  
 clinical symptoms, 229–33  
 cognitive impairment targeting, 438–44  
     assessment aims, 439–40  
     assessment approaches, 440  
     intervention aims, 439–40  
     therapy approaches, 440–4  
 communication environment targeting, 447–50  
     assessment aims, 448  
     assessment approaches, 448–9  
     intervention aims, 448  
     therapy approaches, 449–50  
 comprehension  
     auditory, 232, 236  
     problems, 224  
 concreteness effects on performance, 533  
 conduction, 235  
 definition, 225  
 dementia, 282  
 features, 527–8  
 global, 234–5, 527  
 goal-setting, 453  
 imaging, 237, 240  
 integration deficit, 243–4  
 interventions, 436–56  
     aims, 439–40, 445, 448, 450–1  
     assessment integration, 452–4  
     cognitive relay strategies, 442  
     communication environment targeting, 447–50  
     communication partner involvement, 447  
     constraint-induced language therapy, 444  
     efficacy, 454–5  
     language environment targeting, 447–50  
     lexical therapy, 441–2  
     linguistic-specific therapy, 443–4  
     neuropsychological/neurolinguistic approaches, 441  
     participation in life situation targeting, 444–7  
     personal identity, attitudes and self-esteem targeting approaches, 450–2  
     quality of life, 444–5  
     sentence-level therapies, 443–4  
     single spoken word comprehension, 443  
     single word-level therapies, 441–3  
     therapy approaches, 440–4, 449–50, 451–2  
     word retrieval therapy, 442–3  
 language environment targeting, 447–50  
     assessment aims, 448  
     assessment approaches, 448–9  
     intervention aims, 448  
     therapy approaches, 449–50  
 life coaching, 452  
 linguistic impairment targeting, 438–44  
     assessment aims, 439–40  
     assessment approaches, 440  
     intervention aims, 439–40  
     therapy approaches, 440–4  
     linguistic knowledge, 243  
     localization, 237–41, 239  
     non-fluent, 527  
     progressive, 272–3  
     object naming, 238, 239  
     participation in life situations, 444–7  
     assessment, 445–6  
     assessment aims, 445  
     assessment approaches, 445–6  
     intervention aims, 445  
     therapy approaches, 446–7  
 personal identity, attitudes and self-esteem targeting approaches, 450–2  
     assessment aims, 450–1  
     assessment approaches, 451  
     intervention aims, 450–1  
     therapy approaches, 451–2  
 person-centred therapy, 451–2  
 prevalence, 227–8  
 prognosis, 228–9  
 progressive non-fluent, 272–3  
 reading disability, 232–3  
 real-life communication improvement, 453  
 recovery, 228–9  
 semantic memory impairment, 526–8  
 sentence formulation, 230–1, 242  
 sentence processing, 440  
 spontaneous speech impairment, 229–31  
 stroke, 226, 226  
 subcortical, 236  
 syndromes, 233–7  
 total communication approaches, 446–7  
 transcortical motor, 235  
 transcortical sensory, 235–6, 527  
 traumatic brain injury, 226–7, 285  
 verbs, 241–2  
 Wernicke's, 234, 238–40  
 writing as communicative strategy, 453–4  
 writing problems, 232–3  
*see also* primary progressive aphasia  
 apraxia of speech, 211–23  
     anterior insula, 214  
     brain imaging, 214–15  
     Broca's area, 213  
     clinical assessment, 217–18  
     clinical features, 211–12  
     complex neurodevelopmental form, 212–13  
     definition, 211–12, 503  
     differential diagnosis, 216–19, 392  
     DIVA model, 518  
     dual route model of speech planning, 510–11  
     dysarthria differential diagnosis, 216–17, 392  
     electromyography, 218  
     electropalatographs, 218  
     gestural scores, 511  
     idiopathic neurogenic form, 212–13  
     interventions, 397–8  
     knowledge of results/performance feedback, 220  
     lateral prefrontal cortex, 213–14  
     Mayo Clinic account, 503  
     motor learning, 219–20  
     motor programming defect, 220–2

- motor schema theory, 521–2
- motor speech disorders
  - acquired, 400–1, 410, 416–17
  - developmental, 383, 391–2
- movement control assessment, 217
- neurological basis, 212–15
- neurological form, 212–13
- phonetic encoding, 511
- phonetic/motor characteristics, 217–18
- rate of speech, 217–18
- self-select paradigm, 222
- sense of effort, 218–19
- speech articulator strength assessment, 217
- speech prosody, 218
- subcortical lesions, 214
- theoretical models, 220–2
- treatment, 219–20
- see also* childhood apraxia of speech
- articulation
  - cleft lip/palate impact, 8–9
  - motor speech disorders, acquired, 414–15
  - see also* compensatory articulation
- articulatory planning, 510, 519
- psycholinguistic models, 509–12
- artificial larynx, use after total laryngectomy, 179–82
- Asperger’s syndrome, 142
- aspirin ototoxicity, 373
- attention, developmental dysarthria impact, 39
- attention deficit, right hemisphere damage, 260
- attention deficit hyperactivity disorder (ADHD), 568
- attentional alexia, 255
- audiometric tests, 378–80
- auditory brainstem response, 379
- auditory central nervous system disorders, 377–8
- auditory comprehension in aphasia, 232, 236
- auditory processing disorder (APD), 377–8
- auditory temporal processing in dyslexia, 97–8
- augmentative and alternative communication (AAC) systems, 114
  - developmental verbal dyspraxia, 59
  - intellectual disability, 122–3
  - motor speech disorders, acquired, 417–18
- autism language impaired (ALI), 142, 144–5
  - eye movements, 156
  - social competence, 156–7
  - specific language impairment differential diagnosis, 152–4
- autism language normal (ALN), 142
  - eye movements, 156
- autism spectrum disorders, 141–57
  - characteristics, 141–2
  - comorbidity, 154–5
  - conversation skills, 145
  - differential diagnosis, 152–5
  - executive dysfunction, 150–2
  - faux pas recognition, 575–6
  - grammar, 144–5
  - Gricean rules violation, 576
  - language, 142, 143–6, 156–7
    - development, 143
  - language disorders, 142
    - causes, 146–52
      - differential diagnosis, 152–5
      - social cognition, 146–9
      - unique features, 146
    - lexical knowledge, 144
    - mentalizing, 147
    - morphosyntax, 144–5
    - neurocognitive phenotypes, 142
    - phonological development, 143–4
    - pragmatic disorders, 566–7
    - pragmatic language impairment differential diagnosis, 154
    - pragmatic language skills, 145
    - semantic knowledge, 144
    - social communication skills, 145
    - social competence, 156–7
    - social interaction impairment, 420–1
    - specific language impairment differential diagnosis, 152–4
      - overlap, 74, 84
    - speech, 143–4
    - terminology, 142–3
    - theory of mind, 559–60, 561, 565, 566–7
      - mentalizing skills, 573–5
    - weak central coherence, 149–50
- automatic naming in dyslexia, 94–5
- automatism in aphasia, 231, 235
- automatization deficit in dyslexia, 95–6
- basal cell carcinoma, external ear, 360
- basal ganglia, 199
- behavioural disorders
  - internalizing behaviour problems, 126–7, 132
  - pragmatic impairment, 568
  - see also* externalizing behaviour problems
- Bell’s palsy, 188
- benign paroxysmal positional vertigo (BPPV), 377
- bilingual aphasia, 245–6
- biofeedback in motor speech disorders, acquired, 413, 417–18
- brain
  - changes
    - in schizophrenia, 303
    - in stuttering, 345–6
  - cortical regions for language, 527
  - dysfunction in schizophrenia, 306
  - hemispheres in language, 248, 306
    - selectivity, 248–9
  - imaging in memory impairment, 525
  - modularity, 541
  - organization
    - Down’s syndrome, 552–3
    - Williams syndrome, 547
    - Wernicke’s area, 238, 239
  - see also* Broca’s area
- brain imaging
  - cerebral palsy, 40
  - cleft lip/palate, 13–14, 23
  - developmental phonological disorder, 65
  - dyslexia, 99
- brain tumours
  - aphasia, 227
  - developmental dysarthria, 42–3, 46

- brainstem
  - auditory processing disorder, 377–8
  - auditory response, 379
  - evoked potentials, 379
  - flaccid dysarthria
    - lesions, 206
    - tumours, 188
- branchial arch defects, 360
- Broca's aphasia, 233, 236, 238–40, 527
  - comprehension problems, 242
  - integration deficit, 244
  - linguistic knowledge, 243
- Broca's area, 238, 239, 527
  - apraxia of speech, 213
- bulbar palsy, flaccid dysarthria, 187, 206
- bullous myringitis, 362
- catarrhal otitis, 369
- central auditory processing (CAP), 377
- central sensitivity syndromes (CSS), 481
- cerebellar disorders, ataxic dysarthria, 194, 195, 196, 208
- cerebellum, 194–5
- cerebral palsy
  - aetiology, 40–1
  - developmental dysarthria, 35–6, 38–9, 40–1
  - articulatory error patterns, 33
  - prevalence, 45
  - imaging, 40
  - quality of life, 38–9
- cerebrovascular accident, *see* stroke
- Charcot-Marie-Tooth disease, 44
- childhood apraxia of speech, 212, 391–2
  - differential diagnosis, 392
  - treatment evidence base, 396–9*see also* developmental verbal dyspraxia
- cholesteatoma, 366, 367
  - hearing loss, 369
- chromosomal abnormalities, developmental dysarthria, 42
- Classification Manual for Voice Disorders I, 330, 333
- cleft lip/palate, 3–25, 4
  - aetiology, 6–7
  - articulation, 8–9
  - brain investigations, 23–5
  - compensatory articulation, 9
  - craniofacial syndrome relationship, 21–2
  - development, 3–4, 23
  - diagnosis, 7
  - effects, 7–10
  - epidemiology, 6–7
  - evaluation, 4–5, 6
  - feeding impact, 7–8
  - hypernasality, 8
  - imaging, 13–14, 23
  - incidence, 6
  - language, 9–10
  - management, 14–21, 22
  - midline cleft palate, 4
  - nasal air emission, 8, 20–1
  - oral pressure effects, 8
  - oral-nasal resonance, 8–9
  - prevalence, 6
  - prostheses, 18–19, 19
  - resonance, 8–9
  - sibilant sound distortion, 21
  - speech and language therapy, 20–1
  - surgical intervention, 14–18
  - types, 6–7
  - velopharyngeal function assessment, 10–14*see also* velopharyngeal incompetence (VPI)
- cluttering, 351–8, 496
  - aetiology, 356–8
  - awareness of speaker, 354–5
  - definitions, 352–4
  - diagnostic criteria, 352, 496
  - disfluency, 357
  - disinhibition role, 358
  - epidemiology, 356
  - features, 351–2, 353, 496
    - non-speech, 354–6
    - speech, 354, 355–6
  - neurological underpinning, 357–8
  - non-speech features, 354–5
    - relationship of speech features, 355–6
  - phonological, 358
  - rate exceeds speech production
    - capability, 356–7
  - speech features, 354
    - relationship of non-speech features, 355–6
  - stuttering co-occurrence, 496
  - synergistic view, 357
  - syntactic, 358
  - treatment, 496
- coarse coding hypothesis in right hemisphere
  - damage, 257
- cochlea, 370–4
  - anatomy, 370, 374
  - hair cells, 374
  - hearing loss, 370–4
  - pathology, 370–4
  - physiology, 370
- cognitive disorders, traumatic brain injury, 285–6
- cognitive impairment
  - double dissociation, 505–6
  - Huntington's disease, 314
  - motor speech disorders, 387
  - multiple sclerosis, 314
  - targeting in aphasia, 438–44
  - Williams syndrome, 547–9*see also* intellectual disability; mild cognitive impairment (MCI)
- cognitive modularity, 541–2
  - Down's syndrome, 554–7
  - massive modularity hypothesis, 543–4, 550, 555
  - Williams syndrome, 554–7
- cognitive neuropsychology, 503–6
- cognitive rehabilitation in traumatic brain injury, 294–5
- cognitive resources hypothesis in right hemisphere damage, 260–1
- communication
  - characteristics of communicator types, 113
  - complex needs, 112–13
  - Down's syndrome, 114, 116–17
  - fragile X syndrome, 116–17
  - intellectual disability, 112

- interventions, 118–23
- interpersonal, 291
- language role, 127
- natural environment in interventions, 119–20
- non-speaking individuals with intellectual disability, 112–14
- Williams syndrome, 117–18
- see also* augmentative and alternative communication (AAC) systems
- Communication Function Classification System (CFCFS), 38
- developmental dysarthria, 37–8
- communication training programmes, traumatic brain injury, 294–9
- compensatory articulation, cleft lip/palate, 9
- comprehension
  - Alzheimer's disease, 271–2
    - sentence, 271
  - aphasia, 224
    - auditory, 232, 236
  - Broca's aphasia, 242
  - developmental language disorders, 423
  - in emotional disturbance, 136–7
  - language, 90–1
  - Parkinson's disease dementia, 280
  - right hemisphere damage, 255–6
  - semantic dementia, 275
  - sentence
    - Alzheimer's disease, 271
    - progressive non-fluent aphasia, 273
    - specific language impairment, 78–9
- conceptual processing, 536
- conduction aphasia, 235
- congenital suprabulbar paresis, *see* Worster-Drought syndrome (WDS)
- constraint-induced language therapy (CILT), 444
- context hypothesis in right hemisphere damage, 259
- contextual information, 259
  - detection, 291
- conversation skills
  - autism spectrum disorders, 145
  - Down's syndrome, 554
  - right hemisphere damage, 252–4
  - Williams syndrome, 552
- cortico-pontine-cerebellar pathway, 195
- covert repair hypothesis for stuttering, 346
- craniofacial syndromes, 21–2
- criminal justice system
  - language impairment in people in contact with, 310
- victimization in mental illness, 301
- cross word form mapping, 98
- decoding skill testing, dyslexia, 106
- dementia, 266–83
  - aphasia, 282
  - definition, 267
  - diagnosis, 268–9
  - frontal type and hypokinetic dysarthria, 198
  - functional independence promotion, 266–7
  - pragmatic impairment, 571–3
  - primary progressive aphasia, 282
  - progression from mild cognitive impairment, 268
  - semantic, 572
  - subtypes, 267
  - synucleinopathy spectrum disorders, 278–82
  - see also* Alzheimer's disease; frontotemporal dementia; Lewy body dementia; Parkinson's disease dementia; semantic dementia; vascular dementia
- depression, 311–13
  - alexithymia, 311–12
  - chronic health conditions, 312–13
  - clinical features, 311
  - gene–environment interaction, 311
  - interventions, 311
  - maternal, 312
  - Parkinson's disease, 313
  - staging, 311
  - stroke association, 313
- developmental dyslexia, 88
- developmental language disorders, 419–35
  - assessment, 420–6
  - clinical planning, 423–4
  - comprehension, 423
  - diagnostic accuracy, 421–2
  - evidence standards, 426–9
  - grammar, 434
  - grammatical computation, 422
  - grammatical morpheme types, 433–4
  - language ability continuum, 422–3
  - language assessment tasks, 424–6
  - language deficit assessment, 421–6
  - language input, 432–3
  - language production, 423
  - language type, 422
  - lexical knowledge, 423–4
  - likelihood ratio use, 421
  - linguistic description assessment, 423–4
  - milieu teaching, 429
  - modelling, 429
  - morphosyntactic skills, 423–4
  - neuroanatomical atypical configurations, 420
  - non-verbal intelligence assessment, 420
  - non-word repetition, 422
  - phonological deficits, 424
  - phonological short-term memory, 422
  - pragmatic disorders, 567–8
  - randomized controlled trials, 426–9
  - receptive vocabulary, 423
  - social interaction impairment, 420–1
  - thresholds, 422–3
  - treatment, 419–20, 426–34
    - dosage, 431
    - effectiveness, 429–30
    - efficacy, 429–30
    - gains, 431–2
    - generalization, 430
    - intervention studies, 432–3
    - recasts, 431–2
    - theory contributions, 433–4
  - see also* specific language impairment (SLI)
- developmental phonological disorder, 61–72
  - aetiology, 64–5
  - brain imaging, 65

- developmental phonological disorder (*cont.*)
    - cognitive-linguistic aspects, 65–8
    - comorbidity, 63
    - diadochokinetic rate, 67
    - diagnostic criteria, 62
    - heritability, 64–5
    - interventions, 71–2
    - oral-sensory feedback, 67
    - outcomes, 63–4
      - enhancement, 71–2
    - phonological awareness, 66
    - phonological working memory, 66–7
    - prevalence, 62–3
    - reading disability association, 155
    - sensory-motor aspects, 65–8
    - service delivery, 72
    - socioeconomic factors, 65
    - specific language impairment
      - association, 155
    - speech delay, 69–71
    - speech motor control, 67
    - speech perception, 65–6
    - subtypes, 68–71
    - tongue strength reduction, 67
    - undifferentiated lingual gestures, 67
  - developmental verbal dyspraxia, 49–60
    - aetiology, 50, 51
    - assessment, 58
    - augmentative and alternative
      - communication systems, 59
    - combined representational and motor
      - speech planning/programming, 57–8
    - definition, 49
    - differential diagnosis, 58
    - epidemiology, 50
    - gender ratio, 50
    - heritability, 50–1
    - interventions, 59–60
    - language impairment, 54
    - literacy development, 55–6, 59–60
    - motor planning for speech, 59
    - motor skills, 51–2
    - motor speech planning/processing, 56–7
    - neurological function, 51
    - personal narrative speaking task, 54, 55
    - phonological awareness, 59–60
    - phonological processing, 55–6
    - prosody, 53–4, 57, 60
    - speech production, 52–3
    - spelling task, 55–6, 56
    - symptoms, 51–6
    - verbal dyspraxia, 52
  - diadochokinetic rate (DKR), 67
  - Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)
    - cluttering, 352
    - dementia, 268–9
    - schizophrenia, 302
    - specific language impairment, 73
  - Diagnostic Evaluation of Articulation and Phonology, developmental verbal dyspraxia, 52, 53, 53, 53
  - discourse
    - right hemisphere damage, 252–4, 264
    - traumatic brain injury, 286–9
  - disfluency
    - cluttering association, 357
    - stuttering association, 349–51
      - assessment, 486
    - types, 342
  - diuretics ototoxicity, 373
  - DIVA (Directions Into Velocities of Articulators)
    - model, 515–18, 516
    - feedback control, 517
    - feedforward control, 517
  - Down's syndrome, 546, 552–4
    - brain organization, 552–3
    - cognitive modularity, 554–7
    - cognitive-linguistic profile, 553–4
    - communication, 114
    - conversation skills, 554
  - epidemiology, 552
  - features, 552
  - genetics, 552
  - hearing loss, 361
  - intellectual disability, 114–15, 116–17, 118
  - lexical knowledge, 553
  - non-verbal skills relationship to linguistic
    - ability, 554–7
  - phonological development, 554
  - pinna, 361, 361
  - pragmatic language skills, 554, 568–9
  - syntax, 115, 553–4
  - vocabulary, 553
- drug abuse, *see* recreational drug use
- Duchenne muscular dystrophy, developmental dysarthria, 43
- dynamical systems theory, 506–7
- dysarthria
  - apraxia of speech differential diagnosis,
    - 216–17, 392
  - assessment, 401, 409–10
  - ataxic, 521–2
  - classification, 28–9
  - definition, 27
  - diagnosis, 27–8
  - flaccid, 413
  - Huntington's disease, 314
  - hyperkinetic, 413, 477–8
  - hypokinetic, 413
    - motor schema theory, 521–2
    - voice therapy, 477
  - interventions, 397, 398–9
  - Mayo Clinic account, 502–3
  - motor speech disorders
    - acquired, 400–1, 409–10
    - developmental, 383, 391–2
  - spastic, 413
  - traumatic brain injury, 285
- dysarthria, acquired, 185–210
  - adult, 187–203
  - ataxic, 194–5, 196, 207–8
  - classification, 185–7, 186, 203–4
  - clinical features, 203–9
  - definition, 185
  - flaccid, 187–91
    - clinical features, 204–6
    - lower motor neuron association, 188, 189, 191–2
  - hyperkinetic, 199, 200, 209

- hypokinetic, 197–9, 208–9
- lesion site, 186
- Mayo Clinic classification system, 185–6, 203–4
- mixed, 199–203
- paediatric, 187–203
- spastic, 191–4, 207
- dysarthria, developmental, 26–48
  - activity, 35–8
  - aetiology, 40–4
  - ataxic dysarthria, 32
  - attention impact, 39
  - body structure/function, 29–35
  - brain tumours, 42–3, 46
  - cerebral palsy, 35–6, 38–9, 40–1
    - articulatory error patterns, 33
    - prevalence, 45
  - classification, 28–9, 30–3, 47
    - communication participation, 37–8
  - communication patterns, 28
  - contextual factors, 38–40
  - co-occurring impairments, 47–8
  - description, 27–9
  - diagnosis, 30–1, 34–5, 47
  - disability, 29–40
  - dyskinetic dysarthria, 31–2
  - environmental factors, 38
  - flaccid dysarthria, 32
  - function in, 29–40
  - incidence, 44–6
  - integrated care path, 48
  - management, 48
  - mixed dysarthria, 32
  - Möbius syndrome, 42, 46
  - motivation impact, 39
  - non-progressive conditions, 40–3
  - outcomes, 26–7
  - participation, 35–8
    - measures, 48
  - perceptual speech characteristics, 33–4
  - prevalence, 44–6
  - progressive conditions, 43–4
  - site of lesion, 47
  - spastic dysarthria, 31
  - speech
    - intelligibility, 35, 36
    - rate, 36–7, 37
  - traumatic brain injury, 46
  - types, 31–3
  - Worster-Drought syndrome, 41, 45–6
  - written communication, 37
- dyslexia, 88–108
  - assessment, 100–6
  - automatic naming, 94–5
  - automatization deficit, 95–6
  - brain activity compensation, 99
  - brain imaging, 99
  - causes, 92–3
  - characteristics, 92–3
  - cognitive process weakness, 104
  - compensated, 92
  - comprehensive evaluation, 103–4
  - controlled processing, 95–6
  - cross-linguistic research, 99–100
  - curricula, 107–8
  - decoding skill testing, 106
  - deficit determination, 102–3
  - definitions, 88–9
  - developmental, 88
  - early risk factors, 100–2
  - evaluation, 102–6
  - eye movement, 96
  - fluency problems, 100
  - hallmark phenotype, 92–3
  - instructional practices, 106–7
  - interventions, 97–8, 106–8
  - magnocellular pathway impaired
    - function, 96–7
  - memory impairment, 98
  - naming speed, 94–5
  - oral language skills assessment, 104–5
  - orthography relevance, 99–100
  - otitis media association, 101
  - outcomes, 90
  - phonological processing, 93–4, 101
    - assessment, 104
  - prevalence, 89–90
  - programmes, 107–8
  - reading skills analysis, 105–6
  - school-aged assessment, 102
  - screening, 101
  - specific language impairment, 83
  - surface, 275, 532
  - temporal processing, 97–8
  - visual processing, 96–7
  - word form information linking, 98
  - word-reading skill analysis, 105–6
- Dyslexia, Dyspraxia Attention Treatment Programme (DORE Program), 96
- dysphagia
  - antipsychotic medication side effects, 308
  - in schizophrenia, 308–9
  - types, 308
- dysphonia, spasmodic, 478
- dysphonia severity index (DSI), 331
- dyspraxia, *see* developmental verbal dyspraxia
- ear, *see* cochlea; external ear; middle ear; vestibule
- echolalia in aphasia, 231
- ecstasy, working memory deficit, 306
- education of students with emotional disturbance, 110, 135
- electroglottography (EGG), 469
- electromyography (EMG), 218
- electropalatographs, apraxia of speech, 218
- emotion, cognition in traumatic brain injury, 291–2
- emotional disturbance, 125–40
  - academic functioning, 130
  - academic interventions, 135
  - behavioural characteristics, 128–9
  - behavioural modification programmes, 136
  - behavioural predictors, 132
  - bipolar dimensions, 126–7
  - characteristics, 128–30
  - communication needs, 135–7
  - communication skills of students, 130–5
  - comprehension, 136–7



- emotional disturbance (*cont.*)
  - cultural factors, 129
  - definition, 125–6, 128
  - demographic characteristics, 129–30
  - educational programming, 135
  - eligibility criteria, 125–6, 129
  - externalizing, 126, 132
  - gender differences, 129
  - internalizing, 126–7, 132
  - language disorders
    - association, 127–8, 130–2
    - identification, 135
    - instructional interventions, 138–39
    - reading skills, 136–7
    - research needs, 137
    - skills building, 138
    - untreated, 135
  - language skills/externalizing behaviour/
    - academic fluency and skills
    - interrelationships, 132–5, 134
  - neuropsychological functioning, 137–8
  - policy needs, 140
  - pragmatic impairment, 568
  - prevalence, 117
  - psychological interventions, 136
  - racial factors, 129
  - reading disability, 136–8
    - interventions, 139–40
  - research needs, 137–40
  - socioeconomic factors, 130
  - specific language impairment, 86–7
  - types, 126–7
- empty speech, 234, 275
- endolymph, 370, 371
- endolymphatic hydrops, 368, 376
- endoscopy, trans-nasal flexible
  - fibreoptic, 466–7
- epilepsy, developmental dysarthria, 42
- episodic memory, 525–6
  - impairment
    - Alzheimer’s disease, 529
    - herpes simplex encephalitis, 528
  - semantic memory differential diagnosis, 526
- essential voice tremor (EVT), 477
- executive dysfunction
  - autism spectrum disorders, 150–2
  - language disorders, 150–2
  - right hemisphere damage, 260
- expressive language impairment, 54
- external ear, 359–63
  - anatomy, 359–60
  - cancer, 360
  - ceruminous impaction, 362
  - clinical management, 360–2
  - congenital conditions, 363
  - disorders, 360
  - ear canal oedema, 362–3
  - ear canal pathology, 362
  - pathology, 361–2
    - hearing loss, 362–3
  - physiology, 360
- externalizing behaviour problems, 126, 132, 137–8
- emotional disturbance interrelationship with
  - language skills and academic fluency/
    - skills, 132–5, 134
- extrapyramidal syndromes, 191–2, 197, 199, 209
- eye movements
  - autism language impaired/normal, 156
  - dyslexia, 96
- facial nerve lesions in flaccid dysarthria, 188–91, 204–5
- facial prosthesis in maxillofacial cancer, 174
- facioscapulohumeral dystrophy (FSHD), infantile form, 44
- FastForward intervention programme for dyslexia, 97–8
- faux pas recognition
  - in autism spectrum disorders, 575–6
  - theory of mind, 575–7
- feedback control, 512–14
  - DIVA model, 517
- feedback devices, stuttering treatment, 494
- feedforward control, 513
  - DIVA model, 517
- feeding, cleft lip/palate impact, 7–8
- flow glottography, 469
- fluency disorders, *see* cluttering; stuttering
- fragile X syndrome, 115–17
- frontotemporal dementia, 268, 272–7, 530–1
  - frontal variant, 276–7
    - diagnostic criteria, 276
  - neurodegeneration, 272
  - onset, 272
  - pathology, 530
  - pragmatic impairment, 572
  - progressive non-fluent aphasia, 272–3
  - semantic dementia, 273–5, 274
  - subtypes, 272
  - variants, 530–1
- Functional Communication
  - Classification System, developmental dysarthria, 38
- gender reassignment, voice therapy, 478–9
- genetic syndromes, 541–2, 545–58
- gestural scores, 507, 508, 509–11
  - apraxia of speech, 511
  - prosody generator, 519
- global aphasia, 234–5
- glomus jugulare tumour, 368–9
- glottal stops in cleft lip/palate, 9
- GODIVA (Gradient Order DIVA) model, 517
- Goldenhar syndrome, 22
- grain size theory, 99–100
- grammar
  - autism spectrum disorders, 144–5
  - developmental language disorders, 434
- grammatical computation, 422
- grammatical morphemes, 433–4
- grammatical specific language impairment (G-SLI), 73–4
- grapheme–phoneme connections, 95, 99
- Gricean rule violations, 576, 577
- Guillain–Barré syndrome, 190



- hallucinations
  - Parkinson's disease, 313
  - schizophrenia, 303, 306
- head and neck cancer, 161–84
  - aetiology, 163
  - benign tumours, 162
  - diagnosis, 163
  - incidence, 161
  - larynx, 174–84
  - malignant tumours, 162
  - maxillofacial, 172–4
  - nasopharyngeal, 172–4
  - palliative care, 164
  - pathology, 162–3
  - staging, 163
  - tongue, 168–72
    - partial resection, 165, 168–70
  - treatment, 161–2, 163–8
    - chemotherapy, 165–6
    - curative, 164
    - free flaps, 165
    - intensity-modulated radiation therapy, 166–7
    - radiation therapy, 165–8
    - supportive, 164
    - surgical approach, 164–5
    - surgical reconstruction, 165
- hearing loss/disorders, 359–80
  - ageing, 371–2
  - audiometric tests, 378–80
  - auditory central nervous system, 377–8
  - cochlear, 370–4
  - Down's syndrome, 361
  - external ear, 359–63
    - pathology, 362–3
  - high frequency, 371, 372
  - inner ear, 370–7
  - mental illness association, 316
  - middle ear, 363–9
  - noise-induced, 372–3
  - Treacher Collins syndrome, 361–2
  - vestibular, 375–7
- hemianopic alexia, 255
- hemifacial microsomia, 22
- hepatolenticular degeneration, *see* Wilson's disease
- hereditary cerebellar ataxias, developmental dysarthria, 44
- herpes simplex encephalitis, 528, 534–5
- Huntington's disease
  - developmental dysarthria, 44
  - neuropsychiatric disorders, 314
- hypernasality
  - cleft lip/palate, 8
  - evaluation, 6
  - nasalance correlation, 12
  - non-cleft, 5–6
  - velopharyngeal sphincter dysfunction, 173, 413
- hyperpituitarism, voice disorders, 330
- hypoglossal nerve lesions, 205
- hypokinetic dyskinesia, 199
- hyponasality
  - nasalance correlation, 12
  - velopharyngeal dysfunction, 413
- hypothyroidism, voice disorders, 330
- hypoxic-ischaemic encephalopathy, 193–4
- immittance audiometry, 379
- inborn metabolic disorders, 42
- Individuals with Disabilities Education Act (US, 1997), 120
  - emotional disturbance, 110, 125–6
- infant feeding with cleft lip/palate, 7–8
- information processing model, 505, 506
- informational encapsulation of language, 543
- inner ear
  - anatomy, 370
  - see also* cochlea; vestibule
- integrated care path in developmental dysarthria, 48
- Integrated Phonological Awareness, 398
- intellectual disability, 109–24
  - access to children without disabilities, 121
  - aetiology, 110
  - assessment scales, 109
  - augmentative and alternative communication systems, 122–3
  - classification, 110–11
  - communication, 112
    - interventions, 118–23
  - comorbidities, 111
  - definitions, 124
  - diagnosis, 109–10
  - Down's syndrome, 114–15, 116–17
  - epidemiology, 110
  - fragile X syndrome, 115–17
  - interventions, 118–23
  - language, 124
    - development, 111–12
  - limitation determination, 110
  - milieu teaching, 121–2
  - non-speaking individuals, 112–14
  - pragmatic impairment, 568–9
  - pragmatic skills, 118
  - receptive language, 124
  - speaking individuals, 114–18
  - terminology, 109, 124
  - Williams syndrome, 117–18
  - working memory, 112
  - see also* cognitive impairment
- intelligence, non-verbal, 420
- intercostal nerve lesions in flaccid dysarthria, 206
- internalizing behaviour problems, 126–7, 132
- International Classification of Diseases (ICD), 300
  - dementia, 268–9
  - intellectual disability, 110
  - specific reading disorder definition, 89
- International Classification of Functioning, Disability and Health (ICF), aphasia, 437
- International Classification of Functioning, Disability and Health – Children and Youth Version (ICF-CY)
  - activity definition, 35
  - developmental dysarthria classification, 29, 38

- ICFDH (*cont.*)
    - developmental phonological disorder
      - diagnostic criteria, 62
    - developmental verbal dyspraxia
      - assessment, 58
    - motor speech disorders, 383–4
  - International Dyslexia Association, 108
    - definition of dyslexia, 88
  - interpersonal communication, 291
  - interpersonal relationships
    - language disorder impact, 127–8
    - traumatic brain injury, 293
  - intrusion errors, 507
  - irony, 305, 306
  - schizophrenia, 573–5
    - theory of mind, 573–5, 576–7
  - irritable larynx syndrome (ILS), 481–2
  
  - klapp model of motor programming, 221–2
  - knowledge acquisition, 544
  - kymography, 469
  
  - language/language disorders
    - access disorders, 538–9
    - acquisition
      - behaviourist views, 542
      - cognitive precursors, 545
      - nativist approach, 542–4
      - neuroconstructivist approach, 544–5
      - Piaget's views, 544–5
    - autism spectrum disorders, 141, 142,  
143–6, 156–7
      - causes, 146–52
      - development of language, 142, 143
      - differential diagnosis, 152–5
      - phenotypes, 156
      - social cognition, 146–9
      - unique features, 146
    - brain cortical regions, 527
    - brain hemispheres, 248, 306
    - cleft lip/palate, 9–10
    - cognition hypothesis of delayed acquisition,  
111–12
    - cognitive architecture, 542–4
    - comprehension, 90–1
    - development
      - autism spectrum disorders, 142, 143
      - intellectual disability, 111–12
    - developmental language disorders, 424–6
    - domain specificity, 542–3
    - Down's syndrome, 115, 116–17
      - social use, 115
    - in emotional disturbance, 127–8, 130–2
      - behavioural difficulties, 132
      - identification, 135
      - instructional interventions, 138–39
      - reading skills, 136–7
      - research needs, 137
      - skills building, 138
      - untreated, 135
    - executive dysfunction, 150–2
    - fragile X syndrome, 116–17
    - informational encapsulation, 543
    - intellectual disability, 111–12, 124
    - interpersonal relationships impact, 127–8
    - Lewy body dementia, 281–2
    - modularity, 542–3, 545
      - informational encapsulation, 543
    - motor speech disorders, 387
    - Parkinson's disease, 280
    - Parkinson's disease dementia, 279
    - performance variation, 538
    - production, 504
      - developmental language disorders,  
423
    - psychopathy, 309
    - role in communication, 127
    - schizophrenia, 304–8
    - sensory-motor schemas, 544–5
    - skills
      - building in emotional disturbance, 138
      - emotional disturbance interrelationship  
with externalizing behaviour and  
academic fluency/skills, 132–5,  
134
    - specific language impairment, 85–7
    - storage disorders, 538–9
    - structural deficits, 154
    - stuttering, 347–51
      - disordered encoding, 346
    - targeting in aphasia, 438–44
    - traumatic brain injury, 285–6
    - Williams syndrome, 117–18
    - see also* developmental language disorders;  
pragmatic language; pragmatic language  
impairment (PLI); pragmatic language  
skills; receptive language impairment
  - laryngeal cancer, 174–84
    - hemilaryngectomy, 175
    - partial laryngectomy, 174–6
      - voice therapy, 176–8
    - radiation therapy, 175
    - subtotal supraglottal laryngectomy, 176
    - supracricoid partial laryngectomy with  
cricohyoidoepiglottomy, 176
  - total laryngectomy, 178–84
    - artificial larynx use, 179–82
    - oesophageal speech use, 182–3
    - thoracic fixation loss, 179
    - tracheo-oesophageal speech, 183–4, 183
    - voice rehabilitation, 179–84
  - tracheostoma, 176, 178–9
  - unilateral cordectomy, 175
- laryngeal suspensory system, assessment in  
voice disorders, 461
- laryngomalacia, 329
- laryngopharyngeal reflux (LPR), 332
- larynx
  - anomalies, 329
  - imaging, 337
  - irritable larynx syndrome, 481–2
  - trauma, 331–2
  - tumours, 330
- lateral prefrontal cortex, apraxia of speech,  
213–14
- learning disability, *see* intellectual disability
- Lee Silverman Voice Treatment (LSVT), 411,  
412, 413, 415–16, 472
- left hemisphere, pragmatics, 254
- lenticular nucleus, 199

- Lewy body dementia, 268, 278–9, 281–2
  - language disorders, 281–2
  - phenotype, 281
- lexical knowledge
  - autism spectrum disorders, 144
  - developmental language disorders, 423–4
  - Down’s syndrome, 553
  - Williams syndrome, 550–1
- lexico-semantics, right hemisphere
  - damage, 263–4
- limb apraxia in developmental verbal dyspraxia, 52
- limb motor learning, 522
- linguistic ability, non-verbal skills
  - relationship, 554–7
- linguistic knowledge in aphasia, 243
- literacy development
  - developmental verbal dyspraxia, 55–6, 59–60
  - specific language impairment, 85
- magnetic resonance imaging (MRI), apraxia of speech, 215
- magnocellular pathways, impaired function in dyslexia, 96–7
- massive modularity hypothesis, 543–4, 555
  - Williams syndrome, 550
- maxillofacial cancer, 172–4
  - facial resection/facial prosthesis, 174
- maximum phonation time (MPT), 466
- Mayo Clinic
  - apraxia of speech account, 503
  - classification system
    - acquired dysarthria, 185–6, 203–4
    - motor speech disorders, 385–6
  - dysarthria account, 502–3
  - speech production models, 501–2
- memory
  - phonological short-term, 422
  - phonological working memory, 66–7
  - see also* episodic memory; semantic memory; working memory
- memory impairment, 524–6
  - brain imaging, 525
  - dyslexia, 98
  - neuropsychological assessment, 525
- Ménière’s disease, 375–6
- meningitis, otitis media association, 369
- mental illness
  - aetiology, 300–2
  - assessment, 316
  - burden of disease, 300–1
  - comorbidity with physical health disorders, 301
  - criminal victimization, 301
  - dysphagia, 308
  - epidemiology, 300–2
  - management of communication disorders, 315–17
  - pragmatic impairment, 569
  - see also* psychiatric disorders
- mental retardation
  - pragmatic impairment, 568–9
  - see also* cognitive impairment; intellectual disability
- mentalization
  - autism spectrum disorders, 147
  - schizophrenia, 303–4
  - see also* theory of mind
- metaphor in schizophrenia, 573–5
- middle cerebral artery infarction, 527
- middle ear, 363–9
  - anatomy, 363–5, 364
  - clinical management, 365–9
  - hearing loss, 369
  - ototoxicity, 373–4
  - pathology, 365–9
  - physiology, 363–5
  - presbycusis, 371–2
- middle latency response, 379–80
- mild cognitive impairment (MCI), 267–8
  - amnesic, 268
  - diagnostic criteria, 268
- milieu teaching, intellectual disability, 121–2
- Möbius syndrome, developmental dysarthria, 42, 46
- modularity, *see* cognitive modularity
- morphosyntactic skills
  - autism spectrum disorders, 144–5
  - developmental language disorders, 423–4
  - Down’s syndrome, 553–4
  - Williams syndrome, 549–50
- motivation, developmental dysarthria
  - impact, 39
- motor learning, 394–6, 398
  - feedback, 395–6
  - limb, 522
  - principles, 520–2
- motor programming
  - apraxia of speech, 220–2
  - Klapp model, 221–2
  - schema theory, 220–1
- motor schema theory, 520–2
  - apraxia of speech, 521–2
  - recall schema, 520–1
  - recognition schema, 521
- motor speech disorders, 501
  - motor schema theory, 521–2
- motor speech disorders, acquired, 400–18
  - apraxia of speech, 400–1, 410
    - treatment, 416–17
  - articulation, 414–15
  - assessment, 400–10
    - augmentative and alternative communication devices, 417–18
  - biofeedback, 413, 417–18
  - comprehensibility of speech, 403–4
  - differential diagnosis, 409
  - elicitation tasks, 405–7
  - functioning level, 401–2
  - hyper-adduction, 413
  - impact assessment, 402–3
  - intelligibility, 401, 412
    - articulation, 414
    - assessment, 403–7
  - interventions, 410–18
    - apraxia of speech, 416–17
    - principles, 411–12
    - respiratory system treatment, 412–13

- motor speech disorders, acquired (*cont.*)
  - speech subsystem treatment, 412–16
  - treatment effectiveness assessment, 411
  - treatment frequency, 412
- Lee Silverman Voice Treatment, 411, 412, 413, 415–16
- participation assessment, 402–3
- phonatory system treatment, 413
- physiological assessment, 409–10
- physiology, 401
- postural adjustment, 412–13
- prosody, 407–9, 415–16
- psychosocial effects, 404
- quality of life, 402–3
- resonance, 413–14
- respiratory system treatment, 412–13
- rhythm of speech, 408
- tempo of speech, 408
- velopharyngeal dysfunction, 413–14
- motor speech disorders, developmental, 383–99
  - assessment frameworks, 384–91, 387
  - dynamic assessment, 390
  - proposed, 386–91
  - classification, 385–6
  - cognitive impairment, 387
  - diagnosis, 385, 387–90, 392
  - differential diagnosis, 388, 391–2
  - language impairment, 387
  - treatment, 393–6, 397
    - compensatory strategies, 393–4
    - evidence base, 396–9
    - impairment-based, 393–4
    - motor learning, 394–6, 398
    - participation-based, 393–4
  - see also* apraxia of speech; childhood apraxia of speech; dysarthria
- moyamoya, developmental dysarthria, 44
- multiple sclerosis
  - cognitive impairment, 314
  - mixed dysarthria, 202–3
  - neuropsychiatric disorder, 314
- multisensory, structured language (MSL) programmes, 108
- muscle fibrosis, radiation therapy side effect, 168
- muscle tension dysphonia (MTD), 327
- muscular dystrophy, developmental dysarthria, 43
- myasthenia gravis, developmental dysarthria, 44
- naming speed in dyslexia, 94–5
- narrative in traumatic brain injury treatment, 286
- nasal air emission, cleft lip/palate, 8, 20–1
- nasal substitution, oral pressure in cleft lip/palate, 8
- nasalance, 12
- Nasometer, 12
- nasopharyngeal cancer, 172–4
  - pharyngeal flap surgery, 173
  - prosthodontic treatment, 173
  - velopharyngeal sphincter dysfunction, 172–4
- National Reading Panel, 103, 107
- neck, *see* head and neck cancer
- neglect, right hemisphere damage, 255, 260
- neurodegenerative disease, pragmatic impairment, 571–3
- neurological disorders, adult, 524–40
  - semantic memory impairment, 526–32
- neuropsychiatric disorders, 313–15
  - biopsychosocial framework, 315
  - Huntington’s disease, 314
  - multiple sclerosis, 314
  - rehabilitation interventions, 314–15
- noise-induced hearing loss (NIHL), 372–3
- non-stuttering-like disfluencies (NSLD), 341–2
- non-verbal intelligence, 420
- non-verbal skills, linguistic ability relationship, 554–7
- object naming in aphasia, 238, 239
- obturator, cleft lip/palate prostheses, 18–19, 19
- oculo-auriculo-vertebral spectrum (OAVS) disorders, 360, 361
- oesophageal speech after total laryngectomy, 182–3
- older people, voice disorder treatment, 480
- operant conditioning, stuttering treatment, 489–90
- oral apraxia, 51–2
- oral pressure, cleft lip/palate effects, 8
- oral-nasal resonance, cleft lip/palate, 8–9
- orthography relevance for dyslexia, 99–100
- Orton–Gillingham programmes, 108
- osteoradionecrosis, 167–8
- otitis media, 365–6, 369
  - dyslexia association, 101
  - with effusion, 70
  - hearing loss, 369
  - meningitis association, 369
  - necrotizing, 369
  - serous, 369
- otosclerosis, 367–8
- ototoxicity, 373–4
- palatal drop prosthesis, 172
- palatal lift prosthesis
  - cleft lip/palate, 19
  - velopharyngeal dysfunction, 173
- palatal obturator prosthesis, nasopharyngeal cancer, 173
- palatoplasty, cleft lip/palate, 14, 15
- paragrammatism in aphasia, 230–1, 234
- paralimbic system in psychopathy, 310
- parkinsonism, 199
- Parkinson’s disease
  - depression, 313
  - developmental dysarthria, 44
  - hallucinations, 313
  - hypokinetic dysarthria, 197–8, 199, 209
  - language impairment, 280
  - neuropsychiatric disorder, 313
  - non-demented, 280–1
  - prosody deficits, 280–1
  - psychosis, 313
  - speech and language therapy, 313

- Parkinson's disease dementia, 278–81
  - comprehension impairment, 280
  - language impairment, 279
  - pragmatic impairment, 572–3
  - rate/risk of evolution to, 279
  - semantic memory, 280
- participation, developmental dysarthria, 35–8
- perception deficit, right hemisphere
  - damage, 258
- perilymphatic fistula, 368
- perseveration, aphasia, 231–2, 235
- personality disorder, 309–11
  - non-verbal communication, 311
  - verbal deficit, 309–10
- person-centred therapy for aphasia, 451–2
- pervasive developmental disorder, 309
- pervasive developmental disorder-not otherwise specified, 142
- pharyngeal flap surgery in nasopharyngeal cancer, 173
- pharyngeal fricatives, cleft lip/palate, 9
- pharyngoplasty for cleft lip/palate
  - Hynes (sphincter), 16–17, 17
  - posterior pharyngeal flap, 14–16, 15
  - primary, 17–18
  - secondary, 17–18
  - sphinctering, 16
- phonemes, 99–100
- phonemic awareness, 93
- phonemic paraphasias, 504–5
- phonetic encoding, 504–5
- phonetic programming, 504–5
- phonological awareness, 138
- phonological development
  - autism spectrum disorders, 143–4
  - Down's syndrome, 554
  - normal, 61–2
  - specific language impairment, 77–8
  - stuttering, 348–9
  - Williams syndrome, 551
- phonological disorders
  - developmental language disorders, 424
  - differential diagnosis, 392
  - see also* developmental phonological disorder
- phonological encoding, 509–11, 510, 518, 519, 519
- phonological processing
  - cluttering, 358
  - developmental verbal dyspraxia, 55–6
  - dyslexia, 93–4, 101
    - assessment, 104
  - naming speed, 94–5
- phonological short-term memory, 422
- phonological working memory, 66–7
- phonosurgery, 476
- phonotrauma, 326–7
  - children, 479
- phrenic nerve lesions in flaccid dysarthria, 206
- poliomyelitis, bulbar, 188, 190–1
- positron emission tomography (PET), apraxia of
  - speech, 215
- posterior cerebral artery infarction, 527
- posterior nasal fricative, cleft lip/palate, 9
- posture training, 475
- pragmatic interpretation, theory of mind, 561–4, 565–6
- pragmatic language impairment (PLI), 73–4, 81
  - autism spectrum disorder differential diagnosis, 154
  - Down's syndrome, 115, 118
  - Williams syndrome, 118
- pragmatic language skills, 142–3
- pragmatics/pragmatic disorders, 559
  - attention deficit hyperactivity disorder, 568
  - autism spectrum disorder differential diagnosis, 154
  - autism spectrum disorders, 145, 566–7
  - behavioural disorders, 568
  - dementia, 571–3
  - developmental language disorders, 567–8
  - Down's syndrome, 115, 118, 554, 568–9
  - emotional disorders, 568
  - frontotemporal dementia, 572
  - intellectual disability, 118, 568–9
  - interpersonal communication, 291
  - left hemisphere, 254
  - mental illness, 569
  - mental retardation, 568–9
  - neurodegenerative disease, 571–3
  - Parkinson's disease, 572–3
  - right hemisphere damage, 254–5, 258, 569–70
    - rehabilitation, 264
  - schizophrenia, 305, 571
  - specific language impairment, 81, 118, 567–8
  - theory of mind, 561–4
    - acquired disorders, 569–73
    - developmental disorders, 564–9
    - evaluation, 573–7
    - traumatic brain injury, 289–92, 570–1
    - Williams syndrome, 118, 552, 568
- pre-auricular tags/appendages, 360
- presbycusis, 371–2
  - levels, 371–2
  - recruitment, 372
- primary progressive aphasia, 531
  - dementia, 282
  - language variants, 531
  - progression, 282
- principles of motor learning (PML), 394–6, 398
- programming, 504–5
- progressive non-fluent aphasia, 272–3
- progressive supranuclear palsy, 198
- prosody
  - developmental verbal dyspraxia, 57, 60
  - excess and equal stress pattern, 53–4
  - motor speech disorders, acquired, 407–9
  - Parkinson's disease, 280–1
  - right hemisphere damage, 250–1
  - treatments, 263
  - speech motor control models, 518–20
  - Williams syndrome, 551–2
- prosody generator, 518–19, 519
- pseudobulbar palsy
  - hypokinetic dysarthria, 198
  - spastic dysarthria, 193–4
- psychiatric disorders, 300–17
  - aetiology, 300–2

- psychiatric disorders (*cont.*)
    - depression, 311–13
    - dysphagia, 308
    - epidemiology, 300–2
    - management of communication disorders, 315–17
    - neuropsychiatric disorders, 313–15
    - personality disorder, 309–11
  - psycholinguistic models of articulatory planning, 509–12
  - psychopathy
    - language disorders, 309
    - paralimbic system deficit, 310
    - verbal deficit, 309–10
  - psychosis, Parkinson’s disease, 313
  - psychosocial factors, speech delay, 70–1
  - pure tone audiometry, 378–9
  - pyramidal system, 192
  - quinine ototoxicity, 373
  - RAVE-O reading intervention programme, 95
  - reading
    - assessment, 105
    - consolidated phase, 91–2
    - controlled processing, 95–6
    - development, 90–2, 104
    - full alphabetic stage, 91
    - grain size theory, 99–100
    - instruction guidelines, 103, 107
    - learning to, 91–2
    - partial alphabetic stage, 91
    - phoneme unit size, 99–100
    - programmes, 107–8
    - right hemisphere damage, 255–6
    - stages of learning, 91–2
    - supplemental phonological awareness instruction, 138
  - reading disability
    - alexia, 255
    - aphasia, 232–3
    - cleft lip/palate, 10
    - in emotional disturbance, 136–8
      - interventions, 139–40
    - schizophrenia, 305–6
    - semantic dementia, 275
    - specific language impairment association, 83, 85–6, 155
    - speech sound disorder association, 155
  - receptive language impairment
    - cerebral palsy, 35–6
    - developmental verbal dyspraxia, 54, 57–8
    - emotional disturbance, 127–8, 131
    - intellectual disability, 111, 112–13, 124
    - specific language impairment, 73, 74, 80, 85, 87
  - receptive vocabulary, 423, 550
    - Down’s syndrome, 114–15
    - fragile X syndrome, 116
    - specific language impairment, 423
  - recreational drug use, schizophrenia, 306
  - recruitment
    - noise-induced hearing loss, 373
    - presbycusis, 372
  - recurrent respiratory papillomatosis (RRP), 329
  - relaxation techniques, 475
  - resonance, cleft lip/palate impact, 8–9
  - Response to Intervention (RTI)
    - movement, 107–8
  - right hemisphere damage, 247–65
    - assessment of communication disorders, 261–2
    - attention deficit, 260
    - clinical profiles, 250
    - coarse coding hypothesis, 257
    - cognitive mechanisms, 256–61
    - cognitive resources hypothesis, 260–1
    - communication deficit, 249–56
    - comprehension, 255–6
    - context hypothesis, 259
    - conversation skills, 252–4
    - discourse, 252–4, 264
    - executive function deficit, 260
    - lexico-semantics, 263–4
    - neglect, 255, 260
    - perception deficit, 258
    - pragmatics, 254–5, 258
      - impairment, 569–70
      - rehabilitation, 264
    - prosody, 250–1
    - treatments, 263
  - reading, 255–6
  - rehabilitation strategies, 262–4
    - awareness raising, 263
    - cognitive impairment considerations, 263
    - discourse, 264
    - hierarchy of stimuli, 263
    - lexico-semantics, 263–4
    - pragmatics, 264
    - process-oriented treatment, 262–3
    - prosodic treatments, 263
    - task-specific treatment, 262–3
  - semantics, 251–2
  - suppression deficit hypothesis, 258
  - terminology, 247–8
  - theory of mind, 254, 258–9
  - writing disorders, 256
- right hemisphere function, 249
- sarcasm, 291
- scanning speech, 208
- schema theory of motor control, 220–1
- schizophrenia, 302–9
  - antipsychotic medication side effects, 306–7, 308–9
  - brain changes, 303
  - brain dysfunction, 306
  - causes, 302–4
  - dysphagia, 308–9
  - environmental factors, 303
  - genetic factors, 303
  - hallucinations, 303, 306
  - irony, 573–5
  - language, 304–8
  - mentalization, 303–4
  - metaphor, 573–5
  - neurodevelopmental hypothesis, 303
  - pragmatic impairment, 571
  - pragmatics, 305
  - reading disability, 305–6



- recreational drug use, 306
- social cognition, 303–4
- social communication, 304
- speech, 304–8
- speech and language therapy, 307–8
- stress-vulnerability model, 303
- symptoms, 302–4
- theory of mind, 303–4, 306
- triggers, 303
- word retrieval, 305
- seizures in developmental dysarthria, 42
- semantic dementia, 273–5
  - anomia, 275
  - comprehension impairment, 275
  - imaging, 274
  - neuropsychological symptoms, 531–2
  - pragmatic impairment, 572
  - reading disability, 275
  - semantic knowledge loss, 274
  - semantic memory impairment, 530–2
  - speech, 275
  - surface dyslexia, 275, 532
- semantic knowledge
  - accessing, 538–9
  - autism spectrum disorders, 144
  - deficits in clinical practice, 539–40
  - impaired semantic memory, 536–7
  - loss in semantic dementia, 274
  - neurocognitive model, 537–8
  - representations, 536
  - Williams syndrome, 550–1
- semantic memory, 525–6
  - cognitive models, 532–8
    - domain-specific, 537
    - hub-and-spoke, 537–8
    - intercorrelational, 535–7
    - neurocognitive, 537–8
    - sensory-functional, 534–5
  - definition, 526
- episodic memory differential diagnosis, 526
- familiarity of objects, 533–4
- impaired, 526–32
  - Alzheimer's disease, 529–30
  - aphasia, 526–8
  - clinical practice, 539–40
  - episodic memory sparing, 534
  - herpes simplex encephalitis, 528
  - knowledge categories, 536–7
  - Parkinson's disease dementia, 280
  - selective, 537
  - semantic dementia, 530–2
  - semantic therapy, 540
- semantic models, cognitive, 532–8
- semantics
  - expressive, 252
  - right hemisphere damage, 251–2
  - semantic/syntactic domain dissociation in stuttering, 349
- sense of effort in apraxia of speech, 218–19
- sentence comprehension
  - Alzheimer's disease, 271
  - progressive non-fluent aphasia, 273
- sentence formulation in aphasia, 230–1, 242
- sentence processing
  - aphasia, 440
  - semantic dementia, 275
- sibilant sound distortion, cleft lip/palate, 21
- single photon emission tomography (SPECT),
  - apraxia of speech, 215
- social cognition
  - schizophrenia, 303–4
  - theory of mind, 258
- social communication, 142–3
  - schizophrenia, 304
  - skills in autism spectrum disorders, 145
- social competence, autism spectrum disorder, 156–7
- social dysexecutive disorder, 276
- social outcomes of specific language impairment, 85–7
- socioeconomic factors in developmental phonological disorder, 65
- spasmodic dysphonia, 478
- spastic dysphonia, *see* abductor spasmodic dysphonia; adductor spasmodic dysphonia
- spastic hemiplegia, 193
- specific language impairment (SLI), 73–87, 419
  - academic outcomes, 85–7
  - adolescents, 86
  - autism spectrum disorder
    - differential diagnosis, 152–4
    - overlap, 74, 84
  - causality theories, 75–7
  - classification, 73–4
  - complex syntax, 78–9
  - comprehension, 78–9
  - computational grammatical complexity
    - hypothesis, 75–6, 78
  - developmental course, 74–5
  - developmental phonological disorder
    - association, 155
  - dyslexia association, 83
  - emotional problems, 86–7
  - epidemiology, 74–5
  - extended optional infinitive account, 75, 78
  - genetic influences, 82–3
  - grammatical, 73–4
  - grammatical morphology, 78
  - language, 85–7
    - development, 86
  - lexical semantics, 79–80
  - linguistic characteristics, 77–81
  - literacy development, 85
  - molecular genetics, 82
  - morphosyntactic skills, 423–4
  - neuroanatomical atypical configurations, 420
  - non-word repetition deficit, 77–8
  - phonology, 77–8
  - pragmatic, 73–4
  - pragmatic disorders, 567–8
  - pragmatic skills, 81, 118
  - prevalence, 74
  - processing deficit, 76–7
  - reading disability, 83, 85–6, 155
  - receptive vocabulary, 423
  - relationship with other developmental language disorders, 83–4
- sentence production, 79



- specific language impairment (SLI) (*cont.*)
  - social interaction impairment, 420–1
  - social outcomes, 85–7
  - stuttering, 349–51
  - terminology, 73
  - word acquisition delay, 80
  - word learning, 80
- specific reading disorder, *see* dyslexia
- speech
  - ability after tongue cancer, 169, 170
    - rehabilitation, 170–2
  - agrammatic in aphasia, 230
  - autism spectrum disorders, 143–4
  - automatism in aphasia, 231, 235
  - combined representational and
    - motor planning/programming in
    - developmental verbal dyspraxia, 57–8
  - comprehensibility, 403–4
  - empty, 234, 275
  - intelligibility, 35
  - motor control in developmental
    - phonological disorder, 67
  - motor planning for in developmental verbal dyspraxia, 57, 59
  - motor programming in developmental
    - verbal dyspraxia, 57
  - oesophageal after total laryngectomy, 182–3
  - paragrammatic in aphasia, 230–1, 234
  - phonological development, 61–2
  - prosodic formulation, 518
  - rate
    - apraxia of speech, 217–18
    - cluttering, 356–7
    - reduction in motor speech disorders,
      - acquired, 415, 417
    - voice disorders, 465–6
  - rehabilitation
    - ability after tongue cancer, 170–2
    - after total laryngectomy, 179–84
    - partial laryngectomy, 176–8
  - rhythm, 408
  - scanning, 208
  - schizophrenia, 304–8
  - semantic dementia, 275
  - spontaneous in aphasia, 229–31
  - telegraphic, 233, 236
  - tempo, 408
  - tracheo-oesophageal after total
    - laryngectomy, 183–4, 183
    - see also* disfluency
- speech and language therapy
  - cleft lip/palate, 20–1
  - Parkinson's disease, 313
  - schizophrenia, 307–8
  - velopharyngeal incompetence, 20
- speech audiometry, 379
- speech breathing
  - exercises, 475
  - voice disorder assessment, 462
- speech bulb, velopharyngeal dysfunction,
  - 173–4, 174
- speech delay, classification, 69–71
- speech motor control models, 501–2, 503–6
  - adaptive internal models, 512–18, 513
  - DIVA model, 515–18
  - feedback control, 512–14
    - DIVA model, 517
  - feedforward control, 513
    - DIVA model, 517
  - gestural scores, 507, 508, 509–11
    - apraxia of speech, 511
    - prosody generator, 519
  - imitation learning phase, 517
  - motor learning principles, 520–2
  - motor schema theory, 520–2
  - prosodic control, 518–20
- speech planning, 519
  - dual route model, 510–11, 510
  - phonetic encoding, 511
- speech proficiency, velopharyngeal function
  - effects, 10–11
- speech prosody, apraxia of speech, 218
- speech sound disorder, *see* developmental
  - phonological disorder
- spontaneous speech impairment, aphasia, 229–31
- squamous cell carcinoma
  - external ear, 360
  - middle ear, 369
- stereotypes in aphasia, 231
- stercilia, 370
- Stickler syndrome, cleft lip/palate, 21–2
- stroke
  - aphasia, 226, 226, 227
  - apraxia of speech, 212
  - depression association, 313
  - haemorrhagic, 226, 227
  - infarction, 226, 226
  - right hemisphere, 249–50
    - prosody effects, 251
- stuttering, 341–51, 484–97
  - adaptability to change, 347
  - aetiology, 344–7
  - affective components, 342–3
  - assessment
    - older individuals, 490–2
    - very young children, 486–8
  - brain changes, 345–6
  - cluttering co-occurrence, 496
  - cognitive perception, 343–4
  - covert repair hypothesis, 346
  - definition, 341
  - developmental factors, 487–8
  - differential diagnosis, 495–6
  - disfluency, 349–51
  - DIVA model, 518
  - duration, 491
  - epidemiology, 344
  - features
    - non-speech, 342–4
    - speech, 341–2, 343–4
  - fluency enhancement, 492, 493
  - frequency, 491
  - genetic basis, 487
  - genetic factors, 345
  - impact on life, 491–2
  - language, 347–51
    - disordered encoding, 346
    - semantic/syntactic domain
      - dissociation, 349
  - learned behaviour, 346–7

- neurogenic, 494–6
- neurological findings, 345–6
- non-speech features, 342–3
  - relationship to speech features, 343–4
- older individuals, 490–4
- phonological development, 348–9
- psychogenic, 495–6
- psycholinguistic factors, 346
- recovery, 487
- self-regulation, 347
- severity, 491
- specific language impairment, 349–51
- speech features, 341–2
  - relationship to non-speech features, 343–4
- treatment
  - change of reaction to, 493–4
  - direct, 489
  - feedback devices, 494
  - fluency shaping, 492, 493
  - goals, 488, 492
  - indirect, 488–9
  - medications, 494
  - older individuals, 490, 492–4
  - operant conditioning, 489–90
  - self-help/support groups, 494
  - speech modification, 492
  - stuttering modification therapies, 492–3
  - very young children, 488–90
- very young children, 486–90
- word retrieval delay, 349
- stuttering-like disfluencies (SLD), 341–2
- subcortical aphasia, 236
- subcortical lesions, apraxia of speech, 214
- suppression deficit hypothesis, right hemisphere damage, 258
- surface dyslexia, 275, 532
- swallowing
  - after total laryngectomy, 179
  - rehabilitation after glossectomy for tongue cancer, 172
- swimmer's ear, 362
- syntax
  - cluttering, 358
  - Down's syndrome, 115, 553–4
  - fragile X syndrome, 116
  - semantic/syntactic domain dissociation in stuttering, 349
  - Williams syndrome, 117, 549–50
  - see also morphosyntactic skills
- synucleinopathy spectrum disorders, 278–82
- tardive dyskinesia, 307
- task dynamic model, 507
- tauopathies, 272
- telegraphic speech, 233, 236
- temporal lobes
  - processing in dyslexia, 97–8
  - semantic hub role, 537–8
- theory of mind, 559–77
  - autism spectrum disorders, 559–60, 561, 565, 566–7
    - mentalizing skills, 573–5
  - capacity, 573
  - false belief tests, 564–5
  - faux pas recognition, 575–7
  - Gricean rule violations, 577
  - intentions, 559–60
  - irony, 573–5, 576–7
  - pragmatic disorders
    - acquired, 569–73
    - developmental, 564–9
    - evaluation, 573–7
  - pragmatic interpretation, 561–4, 565–6
  - pragmatic skills in traumatic brain injury, 291
  - right hemisphere damage, 254, 258–9
  - schizophrenia, 303–4, 306
  - social cognition, 258
  - utterance interpretation, 560–1
- thoracic fixation loss after total laryngectomy, 179
- thought disorder, 306
- thyroid cancer and thyroidectomy, 331
- tinnitus
  - aspirin ototoxicity, 373
  - Ménière's disease, 375
  - noise-induced hearing loss, 373
  - presbycusis, 372
- TNM (tumour-node-metastasis) system of tumour staging, 163
- tongue, developmental phonological disorder, 67
- tongue cancer, 168–72
  - partial glossectomy, 165, 168–70
  - flaps, 169–70
  - outcomes, 169–70
  - palatal drop prosthesis, 172
  - reconstruction, 166, 169–70
  - rehabilitation, 170–2
  - speech ability, 169, 170
  - rehabilitation, 170–2
- tracheo-oesophageal speech, after total laryngectomy, 183–4, 183
- tracheo-oesophageal voice prosthesis, 183–4
- tracheostoma, laryngeal cancer, 176, 178–9
- transcervical electrolarynx, 179–82, 180, 181
- transcortical motor aphasia, 235
- transcortical sensory aphasia, 235–6
- transcranial magnetic stimulation (TMS), right hemisphere function, 249, 251
- transgender voice, 478–9
- trans-nasal flexible fiberoptic endoscope, 466–7
- traumatic brain injury (TBI), 284–99
  - acceleration-deceleration injury, 284–5
  - aphasia, 226–7, 285
  - causes, 284
  - cognitive disorders, 285–6
  - cognitive rehabilitation, 294–5
  - communication training programmes, 294–9
  - developmental dysarthria, 46
  - discourse analysis, 286–9
    - cohesion analysis, 288–9
    - macrostructural analysis, 287
    - microlinguistic analysis, 287
    - microstructural analysis, 287
    - psycholinguistic analysis, 287–8
    - sociolinguistic analysis, 288
    - superstructural analysis, 287
  - dysarthria, 285
  - emotion in cognition, 291–2

- traumatic brain injury (TBI) (*cont.*)
  - flaccid dysarthria, 188–90
  - incidence, 284
  - interpersonal relationships, 293
  - language impairment, 285–6
  - open injury, 284
  - penetrating injury, 284
  - pragmatic impairment, 289–92, 570–1
  - psychosocial outcomes, 293–4
  - quality of life, 293–4
  - social integration, 294
  - social isolation, 293
  - treatment, 294–9
    - conversational skills, 294–5
    - narrative use, 286
    - social skills, 294–5
- Treacher Collins syndrome
  - hearing disorders, 361–2
  - pinna, 361–2
- trigeminal lesions, flaccid dysarthria, 188, 204
  
- upper motor neuron lesions, 192–3
- utterances
  - interpretation in theory of mind, 560–1
  - recurring in aphasia, 231, 235
  
- vagus nerve lesions in flaccid dysarthria, 205, 206
- Van der Woude syndrome, cleft lip/palate, 21
- vascular dementia, 277–8
  - comorbidity, 277
  - diagnostic criteria, 277
  - verbal fluency, 278
- velocardiofacial syndrome (VCFS), 5, 22
- velopharyngeal closure
  - screening, 11–12
  - surgical techniques, 173
- velopharyngeal dysfunction
  - craniofacial syndrome relationship, 21–2
  - hypernasality, 173, 413
  - hyponasality, 413
  - management, 413–14
    - prosthodontic treatment, 173–4
  - motor speech disorders, acquired, 413–14
  - nasopharyngeal cancer, 172–4
- velopharyngeal function assessment in cleft lip/palate, 10–14
  - imaging, 13–14
  - objective, 12
  - perceptual, 11
  - velopharyngeal closure screening, 11–12
- velopharyngeal incompetence (VPI), 3
  - compensatory articulation, 9
  - management, 5–6
  - speech and language therapy, 20
  - speech impact, 4
- velopharyngeal port, 13
- velum, muscles, 5
- verbal deficit
  - personality disorder, 309–10
  - psychopathy, 309–10
- verbal dyspraxia, *see* developmental verbal dyspraxia
  
- verbal fluency in vascular dementia, 278
- Verbal Motor Production Assessment for Children, developmental dysarthria assessment, 34
- verbs in aphasia, 241–2
- vertigo
  - benign paroxysmal positional, 377
  - Ménière's disease, 375
- vestibular schwannoma, 376–7, 376
- vestibule
  - anatomy, 375
  - pathology, 375–7
  - physiology, 375
- visual attention deficit, dyslexia, 97
- visual processing in dyslexia, 96–7
- vocabulary
  - autism spectrum disorders, 144
  - Down's syndrome, 553
  - use/diversity in stuttering, 349
  - Williams syndrome, 550–1
  - see also* receptive vocabulary
- vocal fold(s)
  - histoarchitecture, 337
  - injuries, 337
  - scarred/stiff, 476
  - tumours, 330
  - vibration, 337
  - vibratory features assessment, 466–9
- vocal fold paralysis, 329, 331
  - flaccid, 476–7
  - flaccid dysarthria, 205–6
- vocal tract, posture assessment, 466–7
- voice disorders, 321–40
  - adolescent transitional, 479–80
  - aetiology, 321–2
  - assessment
    - acoustic, 463
    - aerodynamic measures, 462–3, 463
    - auditory perceptual, 460–1
    - body posture/alignment, 461
    - electroglottography, 469
    - equipment, 458–9
    - flow glottography, 469
    - glottal source waveform, 465
    - history taking, 459–60
    - instrumental, 462–70
    - kymography, 469
    - laryngeal suspensory system, 461
    - maximum phonation time, 466
    - orofacial posture, 461
    - perceptual evaluation, 460
    - phonetogram, 464
    - probing facilitative techniques, 469–70
    - process, 459–62
    - speaking rate/duration, 465–6
    - spectral-acoustic analysis of voice, 464–5
    - speech breathing, 462
    - stroboscopy, 466–7, 467, 468
    - tools, 458–9
    - trans-nasal flexible fibrooptic endoscopy, 466–7
  - visual perceptual, 461
  - vocal efficiency, 463

- vocal fold vibratory features
  - assessment, 466–9
  - vocal range profile, 463
  - vocal tract postures, 466–7
- causative factors, 334–5, 335
- classification, 322, 330, 470
  - revised, 332–3
- diagnosis, 470
- evaluation, 457–70
- functional, 324–9
  - adductor spasmodic dysphonia, 327–8
    - aetiology, 325
    - criteria, 323–4
    - definition, 325
    - environmental, 325–6
    - muscle tension dysphonia, 327
    - vs. organic, 322–4
  - personality characteristics/traits
    - association, 328–9
  - phonotrauma, 326–7
  - psychogenic, 325
- Lee Silverman Voice Treatment, 472
- molecular biology, 336–7
- muscle misuse, 332–3
- organic, 329–32
  - congenital, 329
  - endocrine, 330–1
  - vs. functional, 322–4
  - laryngeal trauma, 331–2
  - laryngeal tumours, 330
  - laryngopharyngeal reflux, 332
  - neurological disease, 331
- personality-based factors, 480–1
- psychogenic, 480–1
- research, 335–9
  - histoarchitecture, 337
  - laryngeal imaging, 337
  - molecular biology, 336–7
  - translational, 336
  - treatments, 338
  - wound healing, 337
- self-report inventories, 458
- treatment, 338, 339–40, 457–83
  - anatomically based voice
    - dysfunction, 475–9
  - approaches, 470–1
  - children, 479–80
  - complexities, 336
  - direct therapy, 474–5
  - emotional factors, 474
  - feedback devices, 472
  - geriatric population, 480
  - hydration, 473
  - hyperkinetic dysarthria, 477–8
  - hypokinetic dysarthria, 477
  - indirect therapy, 473–4
  - integrative management, 457
  - intervention planning, 470–82
  - management team, 457–8
  - outcome measurement, 482
  - phonosurgery, 476
  - posture training, 475
  - relaxation, 475
  - spasmodic dysphonia, 478
  - speech breathing exercises, 475
  - technology role, 472
  - therapy programme selection/
    - success, 471–2
  - transgender voice, 478–9
  - vocal fold flaccid paralysis, 476–7
  - vocal fold scarring/stiffness, 476
  - vocal rest/conservation, 473
  - vocal technique adjustment, 474
  - voice dosimetry, 473–4
  - voice therapy, 471–2, 474–9
    - variables influencing, 334–5
- voice dosimetry, 473–4
- voice quality terminology, 322–3
- voice rehabilitation
  - after total laryngectomy, 179–84
  - partial laryngectomy, 176–8
- voice therapy, 471–2, 474–5
  - anatomically based voice dysfunction, 475–9
  - transgender voice, 478–9
  - see also* voice disorders, treatment
- voice-related quality of life (VR-QOL), 323
- weak central coherence theory, 259
  - autism spectrum disorders, 149–50
- Wernicke's aphasia, 234, 238–40, 527
- Wernicke's area, 238, 239
- Williams syndrome, 546–52
  - brain organization, 547
  - cognitive impairment, 547–9
  - cognitive modularity, 554–7
  - cognitive-linguistic profile, 547–52
  - conversation skills, 552
  - diagnosis, 547
  - features, 547
  - genetics, 546–7
  - incidence, 546
  - intellectual disability, 117–18
  - lexical knowledge, 550–1
  - massive modularity hypothesis, 550
  - non-verbal skills relationship to linguistic
    - ability, 554–7
  - phonological development, 551
  - pragmatic language skills, 552, 568
  - prosody, 551–2
  - semantic knowledge, 550–1
  - syntactic ability, 549–50
  - vocabulary, 550–1
- Wilson's disease, mixed dysarthria, 203
- word(s)
  - concrete, 533
  - decoding, 90–1
  - information about, 92
  - information storage, 98
  - learning in Down's syndrome, 114–15
  - storage of meaning, 92
- word retrieval
  - schizophrenia, 305
  - stuttering, 349
- word-finding problems in aphasia, 229–30
- word-level assessment, 106
- working memory
  - components, 98
  - deficit with ecstasy use, 306

---

working memory ( <i>cont.</i> ) intellectual disability, 112	Worster-Drought syndrome (WDS), developmental dysarthria, 41, 45–6
World Health Organization (WHO)	wound healing
cluttering definition, 352–3	radiation therapy side effect, 168
mental health, 301	vocal fold injuries, 337
<i>see also</i> International Classification of Diseases (ICD); International Classification of Functioning, Disability and Health (ICF); International Classification of Functioning, Disability and Health for Children and Youth (ICF-CY)	writing disorders
	aphasia, 232–3
	right hemisphere damage, 256
	xerostomia, radiation therapy side effect, 167