

Index

Note: Page numbers followed by “f”, “t”, and “b” refer to figures, tables, and boxes, respectively.

- AAI. *See* Active Ageing Index
- accommodation, 285–6
- accommodative coping, 286
- ACEIs. *See* angiotensin converting enzyme inhibitors
- acetylcholine (ACh), 114
- ACL. *See* Americans' Changing Lives survey
- Active Ageing Index (AAI)
- educational inequalities in, 603–4
 - findings, from 2014 results, 597–9
 - gender inequalities in, 599–603, 600t–1t, 602f
 - indicators, domains of, 596, 597f, 603
 - monitoring trends, for EU countries, 604–6, 605f
 - project, 595–7
 - for public policy, 606
 - QOL in, 599
 - ranking EU states by, 598–9, 598f
- Active Ageing Initiative, of WHO, 312, 534, 562, 565–6
- active aging, 291
- activities of, 565
 - barriers to, 562–5
 - bureaucratic barriers to, 563
 - comprehensive strategy of, 566
 - cultural barriers to, 563
 - domains of, 16–17
 - education in, 565
 - empowerment and, 542
 - evidence for, 559–60
 - four domain model of, 19
 - for functional capacity, 559
 - healthy aging and, 562–3
 - ideological barriers to, 563
 - IGOs promoting, 557
 - importance of, 557–60
 - multidimensionality of, 456–7
 - multifaceted design of, 594–5
 - outcomes of, 15
 - as partnership, of citizen and society, 566
 - policy, 558–9
 - political barriers to, 562–3
 - as preventative, 565
 - promoting, 331
 - realizing the promise of, 565–7
 - research and development in, 567
 - societal barriers to, 563–4
 - successful aging and, 560–2
 - for T2D, 560
 - unequal aging, as barrier to, 564
 - WHO on, 9, 457
- active coping, 412
- active lifestyles, 569
- ACTIVE program, 334
- activities of daily living (ADL), 160–70, 216, 410, 505
- AD. *See* Alzheimer's disease
- adaptation
- age-related, 281–2
 - in capability approach, 616
 - goal orientation in, 287–8
 - goals in, 406
 - motivational models of, 282–6
 - to retirement, 289–90
 - SOC model on, 401, 405
 - of SOC strategies, in old age, 283–4
 - to stress, 411–12
- adaptive aging, 396–7
- adaptive coping, 305, 406, 409–10, 416–17
- adaptive homeostasis, 537
- ADEPT. *See* Adult Developmental and Enrichment Project
- adherence
- conscientiousness and, 311
 - medication, 242, 251–3
 - optimization, 251–3
 - to pharmacotherapy, 242
- adjustment, 364, 367
- ADL. *See* activities of daily living
- ADR. *See* adverse drug reaction
- Adult Developmental and Enrichment Project (ADEPT), 321, 327
- adult life span, 355
- adult longevity, revolution of, 29–32
- adulthood, SOC strategies across, 283

- advanced aging, 557–8, 565
- adverse drug reaction (ADR), 253–4
- affect
- emotion in, 372–3
 - personality and, 528
 - positive, 13
 - stress and, 304
- affectivity, 373, 375–6
- affordable housing, 482t. *See also* MacHouse Affordable Housing Intervention Study
- age
- ApoE and, 98–100
 - chronological, 492, 537
 - differences, in coping strategies, 403–5
 - genes and, 98–100, 99f
 - very old, 445–8, 447t, 506–8
 - at which aging begins, 536
 - wisdom and, 359–63, 366
- age discrimination, 564
- age friendly communities, 578–9
- ageism, 161, 507, 564
- agency, 576, 580, 613–14
- age-related adaptations, 281–2
- age-related brain impairment, resilience, 116–17
- age-related changes, in cognitive representation of goals, 287–8
- age-related changes, in psychoneuroimmune system, 268
- age-related cues, 393–4
- age-related diseases
- arterial stiffness and, 132–3
 - cellular senescence and, 45–7
 - in health span, 60–1
- age-related motivational changes, in different life domains, 288–9, 289t
- aging. *See also specific topics*
- adaptation process of, 281
 - adaptive, 396–7
 - advanced, 557–8, 565
 - arterial, 132–3
 - arteries, heart in, 131
 - bio-clinical perspective on, 66
 - brain plasticity and, 113–17
 - as choice, 395
 - cognitive, 117, 321, 325
 - decline model of, 393
 - defining, 395–6
 - demographic, 322, 492, 534, 557–8
 - diseases, 74–6
 - diseases, telomere, as determinant in, 74–6
 - endocrine system in, 268–9
 - global, 153–4, 179, 455
 - grammar of, 8
 - health and rate of, immune system in, 270–1, 277–8
 - heterogeneity, variability and, 402
 - hormones in, 24–5
 - immune system in, 53–4, 269–71, 277–8
 - leisure activities in, 290–1
 - longevity, 266
 - as loss, 610–11, 613
 - meaning of, 66
 - molecular level, 41
 - multidimensionality of, 513–14
 - multi-level, multi-systemic influences on, 1
 - nervous system in, 268
 - nervous-endocrine-immune communication with, 269–70
 - neurobiology of, 268
 - new, 456–7
 - oxidative-inflammation theory of, 271–4
 - OxS in, 544–5
 - pathological versus nonpathological, 6–7
 - periods of, 221
 - personality in, 515
 - in place, 585
 - positive expectations of, 281–2
 - positive view of, 1–2
 - premature, 272–3
 - process, as heterogeneous, 265
 - productive, 14, 19
 - psychology of, 430–6
 - psychosocial factors in, 3
 - as restricted activity, 492
 - social stereotypes of, 385–7, 393–5
 - spirituality and transcendence, in psychology of, 430–6
 - stereotypes of, 385–7, 393–5, 579
 - study of, as multidisciplinary scientific subject, 1
 - subjective representations of, 612
 - technology for, 222
 - tissue, 76
 - unequal, 564
 - usual, 610–13
- aging gene, 559
- aging societies, 299
- aging well. *See also* semantic network, of aging well
- four domains model of, 16–18, 514, 528–9
 - healthy habits in, 514–15
 - theories of, 512–14
- aging well paradigm, 1–2, 9
- agnosticism, 443
- Aix. *See* augmentation index
- Alameda County Study, 301
- alcohol, 101, 184, 301, 303
- Alkire, S., 618–20
- allostasis, 537
- allostatic load, 537
- altruism, 432
- Alzheimer's disease (AD), 180–3, 186
- Americans' Changing Lives (ACL) survey, 479–80, 483
- amino acids, 210–12

- angiotensin converting enzyme inhibitors (ACEIs), 142–3
- antiaging industry, 24–5
- anti-inflammaging, 538
- antioxidants, 184, 538, 547
cognitive decline and, 181
as nutrients, 180–1, 274–5
- apolipoprotein E (ApoE), 95–6, 96f
age and, 98–100
in life span, 97–8
lifestyle, longevity and, 100–1
- apoptosis, 41
- applications matrix, of
gerontechnologies, 228t
- Araújo, L., 497, 504
- Ardelt, M., 356–7
- Aristotle, 6, 428, 438
- arterial aging, 132–3
- arterial stiffness, 131–2
diabetes, 140
drug treatment for, 142–3
metabolic factors in, 140–1
nutrients, diet patterns and, 141–2
obesity, 140–1
PA and, 142
by PWV, 137–9
- arteries, 131
- arteriosclerosis
development of, 132–3
noninvasive methods to measure, 135–9
- assimilation, 285–6
- Assimilative and Accommodative Coping, 406
- assimilative coping, 286
- assisted living facilities, 394
- astrocytes, senescent, 45–6
- Atchley, Robert, 434
- atheism, 443
- atherosclerosis, 46–7
- atherosclerotic CVD, 74–7
- augmentation index (Aix), 136
- autonomy, 364–5, 367
- avoidant coping, 413, 415–16, 418
- awareness of benefits, of healthy behavior, 308–10
- baby boomers, 557–8
- bacteria, 270
- balance, emotional, 373, 378–80
- Baltes, Margret, 282, 293
Baltes, P., and
in BAS, 321, 324, 328–9
on SOC, 12, 324, 513
on testing-in-the-limits procedure, 326
- Baltes, Paul, 12, 281, 321, 324, 326, 328–9, 513
- BAS. *See* Berlin Aging Study
- basal activation state, 56–8
- basal metabolic rate (BMR), 203–4
- Bastian, C. C. von, 340–3
- behavior. *See also* promoting healthy behavior and lifestyles; successful aging behaviors and lifestyles
individual, 300, 313
interpersonal, model of, 307f
interventions, 584
models, of health, 309
purpose of, 306
successful aging, 304–5, 417–18
- behavioral change
health, 310–11
models of, 306, 308–10
- behavioral intervention, for medication adherence, 252
- behavioral risk, 299–300, 516
- beliefs
about personal abilities, 390
personal dispositions and, 401–2
reconsidering, 364
- belonging process, in P-E transactions, 576, 580–2
- bereavement, 414–15
- Berlin Aging Study (BAS), 321, 328–9
- Berlin wisdom model, 357–8, 365
- Best Possible Medication History (BPMH), 244–5, 250
- bilingualism, 331
- bioavailability, 184
- bio-clinical perspective, on aging, 66
- bio-determinants, of atherosclerotic CVD, 74–6
- Bioecological Systems Theory, 576–7
- biographical experience, 444
- biological age, 265
- biomarker hypothesis, 71
- biomarkers, 270–1
- biomedical aspects, of aging, 2–3
- biomedical progress, in maximum longevity, 24–6
- bio-psycho-social components, of studies, 12–13
- blindness, 581–2
- blood pressure (BP), 131–2, 134–7, 139, 141, 143–4
- blood pressure regulation, 131–2
- BMI. *See* body mass index
- BMR. *See* basal metabolic rate
- body, 427
- body composition, in muscle function and mobility, 215–16
- body mass index (BMI), 216
- bone density, osteoporosis and, 171–2
- Bonelli, R., 439
- Bouma, Herman, 224
- BP. *See* blood pressure
- BPMH. *See* Best Possible Medication History

- brain health
 Omega-3 PUFA for, 183–4
 PA for, 173–4, 174t
 vitamins for, 181–3
- brain injury, 325
- brain plasticity. *See also* cognitive plasticity
 aging and, 113–17
 of animals, 115–17
 in cognitive aging, 325
 cognitive training for, 119–20
 compensation, 118
 as continuous, through life, 113–14
 defining, 110
 EE for, 276
 enhancing, improving, 117–22
 exercise for, 120–1
 in longevity, 514
 maintenance of, 117–18
 neurogenesis in, 112–13
 neuromodulators, in older brains, 114–15
 novelty, challenge for, 118–19
 in old age, 122
 PA for, 172
 pharmacologic interventions, 121–2
 plasticity-induced changes, as reversible,
 115–16
 remodeling physical brain, 111–12
 selection in, 118
 sleep, 113, 121
 synaptic strengthening, weakening, 110–11
- branched-chain amino acids, 211–12
- Bronfenbrenner, U., 576–8
- Buchanan, D., 9
- Buehler, Charlotte, 430
- bureaucratic barriers, to active aging, 563
- caffeine, 184
- calcium channels blockers (CCBs), 142–3
- caloric restriction, 275, 548
- calorie reduction (CR), 185–6
- cancer
 cellular senescence in, 48
 resistance to, 269
 skin, 92
 TL and, 69–70
- cancer/degenerative disease trade-off, 74–5
- capability approach
 adaptation in, 616
 agency, diversity in, 613–14
 capabilities, functionings in, 614, 621–2
 diversity of situations in, 617–19
 empirical use of, 623
 freedom, self-care in, 621–2
 QOL in, 616–17
 resources, conversion in, 614–15
 for successful aging, 619–22
- Capability indices for assessing the well-being
 of older people (ICECAP-O), 617, 620
- capacity
 functional, 281, 559, 560f
 intrinsic, 535
- Cardio-Ankle-Vascular-Index (CAVI), 139
- cardiorespiratory fitness, 172–3
- cardiovascular (CV)
 fibrosis, stiffness, 143
 health, 388, 407
 risk, 132, 134–5, 138–40
 system, 137
- cardiovascular disease (CVD), 70–1
 atherosclerotic, 74–7
 LTL and, 74–7
 mortality, 77
- Cardiovascular Health Study (CHS), 155
- care
 elder, 322
 function-focused, 338
 at home, 583
 nutrition in, 203
 person-centered, 254–6
 person-focused, 338
 preventive, 233
 self-care, 538–9, 543–4, 621–2
 spiritual, 441
- caregivers
 as cognitive trainers, 337–8
 family, 470
 stereotypes of aging held by, 394
- carotenoids, 183–4
- Carstensen, Laura, 434
- Carver, L., 9
- cataract, 47
- cathectic flexibility, 430
- CAVI. *See* Cardio-Ankle-Vascular-Index
- CBT. *See* cognitive behavioral therapy
- CCBs. *See* calcium channels blockers
- CCRCs. *See* Continuous Care Retirement
 Communities
- CDSSs. *See* Classic Clinical Decision
 Support Systems
- ceiling effect, of protein intake, 212–13
- cells
 endocrine, 266
 immune, 266, 271–2
 nervous, 266
 NK, 55–6, 271
 somatic, 41–2, 67
 stress on, 274
 T cells, 58–9
 young versus old, 41
- cellular senescence
 activating, 42–3
 age-related diseases and, 45–7
 in atherosclerosis, 46–7
 in cancer, 48
 at cell-autonomous level, 43–4
 in COPD, 47–8

- defining, 42
- longevity pathways and, 44
- in neurodegenerative diseases, 45–6
- in osteoporosis, 45
- phenotypic chances induced by, 43–4
- in respiratory diseases, 47–8
- of somatic cells, 41–2
- TL and, 66–7
- centenarians, 271, 492
- distinct constructs, in study of, 504–6
- Georgia Centenarian Study, Oporto Centenarian Study, 497
- as models, of successful aging, 32–3, 495
- scope review, on successful aging in, 495–507, 498t–503t
- screening process, for study inclusion, 496f
- subjectivity of success in, 506–7
- success of, 506–8
- central nervous system (CNS), 121, 267–8
- CGA. *See* comprehensive geriatric assessment
- children, 470
- Cho, J., 497
- Christianity, 440
- chronic fatigue, 390
- chronic hypertension, 132
- chronic illness, 386, 388, 390, 469, 559, 579
- chronic inflammation, 55
- chronic obstructive pulmonary disease (COPD), 47–8
- chronic pain, 413
- Chronic Pain Coping Inventory (CPCI), 409
- chronological age, 492, 537
- CHS. *See* Cardiovascular Health Study
- CI. *See* cognitive impairment
- CISS. *See* Coping Inventory for Stressful Situations
- Classic Clinical Decision Support Systems (CDSSs), 250
- classical model, of mental health, 436
- clinical pharmacy, 253
- cluster analysis, 223
- CMV, 59
- CNS. *See* central nervous system
- cognition
- impaired, 172–3
- nutrients in, 189–91, 189t–90t
- cognitive activity
- in plasticity, 332
- time of, 303–4
- cognitive aging
- brain plasticity in, 325
- degree of decline, 321
- successful, 117
- cognitive behavioral therapy (CBT), 417
- cognitive commitments, premature, 386
- cognitive decline, 100–1
- antioxidants and, 181
- diets for, 191
- MD for, 187–8
- nutritional status in, 180
- in QOL, 179
- vascular stiffening and, 133
- cognitive disorders, 173–4
- cognitive flexibility, 325–6
- cognitive function. *See also* brain health
- in community gerontology, 543–4, 544t
- cross-sectional studies of, 329–30
- Ginkgo biloba and, 184
- optimal, 515
- psychosocial programs for, 528
- social relationships in, 305
- cognitive health, physical exercise in, 330
- cognitive impairment (CI), 172–3, 322–3
- diagnosing, 333
- optimization of adherence, in older people with, 252–3
- OxS in, 544–5
- cognitive maintenance, 330–1
- cognitive plasticity
- age-related limits to, 333–4
- EE in, 331–2, 338–9
- maintaining, 332
- measuring, 326–8
- middle age activity in, 332
- neurobiological correlates of, 332–3
- cognitive reserve, 515
- cognitive skills, decline in, 321
- cognitive training, 332–3
- for brain plasticity, 119–20
- by caregivers, 337–8
- for cognitive reserve, 515
- computerized, 336–7
- EE in, 334–8
- long-term, 334–5
- PA in, 335
- process-based, 334
- programs, 334–8, 340
- transfers to daily life, 334–5, 337–43
- cognitive-affective ties, to socio-physical environment, 580
- coherence, 410
- Comfort, Alex, 28–9
- communication
- in MedRec, 244
- nervous-endocrine-immune, 269–70
- technologies, 252–3
- community, 364
- age friendly, 578–9
- intervention, 537, 544
- programs, 536
- retirement, 579–80
- community gerontology
- education in, 542
- for healthy aging programs, 539

- community gerontology (*cont.*)
 Model of Community Gerontology for
 Community-Dwelling Older Adults,
 535, 538–41, 539f, 550
 mutual-help in, 538–40, 543
 OxS, cognitive function and, 543–4, 544t
 community-dwelling individuals
 biological mechanisms of, 537
 osteoporosis risk of, 547t
 compensation, 283, 292
 compensatory primary control, 285
 compensatory secondary control, 285
 competence, 439
 Competence-Environmental Press Model, 572,
 575
 compliance, with therapy, 241
 comprehensive alternative models, of success-
 ful aging, 497–504
 comprehensive geriatric assessment (CGA),
 155, 160, 249
 compression of morbidity, 299
 computer classes, 487
 computerized cognitive training programs,
 336–7
 conceptualization, outcomes, 12
 Conn, V. S., 309
 conscientiousness, in health-related outcomes,
 310–11
*Consensus on the Brain Training Industry from
 the Scientific Community*, 337
 context
 mindfulness of, 391–2
 social, 292, 323, 513–14, 537
 in socio-physical environment, 587–8
 Continuity Theory, 406
 Continuous Care Retirement Communities
 (CCRCs), 478–80, 481f, 482–3, 482t
 contradictory results, in studies on age-related
 changes, of homeostatic systems, 270
 contribution, to society, 395
 control, 13, 304
 alcohol, tobacco, 303
 defining, 384
 diabetes, 542–3
 illusion of, 384–5
 maintaining, in retirement, 290
 mindfulness and, 390–4
 personal, 385–9, 394–5
 primary, 284–5, 409–10
 reframing “old age” for, 392–3
 secondary, 284–5
 strategies, 577
 convoy model, 477
 COPD. *See* chronic obstructive pulmonary
 disease
 coping
 active, 412
 adaptation to stress, 411–12
 adaptive, 305, 406, 409–10, 416–17
 assimilative, accommodative, 286
 avoidance, 413, 415–16, 418
 dual-process model of, 285–6
 dyadic, 404
 emotion-focused, 411, 413
 health and, 407–8
 with health-related stressors, 412–13
 with interpersonal stressors, 414
 with life transitions, 405–7
 positive reappraisal strategies, 403, 405
 proactive, 404–5
 problem-focused, 388, 411, 416
 problem-solving strategies, 403
 process, 401–5
 psychological variables related to, 409–11
 religious, 413
 with retirement, 413–14
 with situational demands, 412
 strategies
 age differences in, 403–5
 for successful aging, 304–5, 417–18
 variability and measurement in, 408–9
 with stress, 402–8
 successful aging behaviors, 304–5, 417–18
 with trauma, 442
 with unexpected stressors, 415–16
 WCQ for, 408–9
 with work/occupational stressors, 413–14
 Coping Inventory for Stressful Situations
 (CISS), 408–9
 Coping Responses Inventory (CRI), 408–9
 Coping with Illness Inventory (CWI), 409
 Cosco, T., 493–4, 612
 CPCI. *See* Chronic Pain Coping Inventory
 CR. *See* calorie reduction
 CRI. *See* Coping Responses Inventory
 Crisis Theory, 406
 cross-sectional studies
 of cognitive function, 329–30
 most frequent outcomes in, 12–13
 predictors/determinants used in, 12–13
 crystallized skills, 324
 cultural barriers, to active aging, 563
 CV. *See* cardiovascular
 CVD. *See* cardiovascular disease
 CWI. *See* Coping with Illness Inventory
 Cyprus, 603
 cytokines, 266
 DA. *See* dopamine
 daily average energy requirements, for women
 60 and older, 205t–6t
 daily diary methodology, 409
 daily life
 cognitive training transfers to, 334–5, 337–43
 quantifying, 579
 damage, to DNA, 41–4, 46–7, 67, 271, 548–9

- Davies, Kelvin, 537
- DBP. *See* diastolic blood pressure
- DCs, 56–7
- D-dimer, 407
- DDIs. *See* drug–disease interactions
- DDR. *See* DNA-damage response
- decline model, of aging, 393
- decompensated heart, 132–3
- deficit paradigm, 1
- deficit perspective, on positivity in old age, 376–7
- degenerative diseases, TL and, 70–1
- dehydroepiandrosterone, 268–9
- dementia, 322, 326–7
 - capabilities with, 621–2
 - communities friendly to, 578–9
 - education level, in risk of, 330–1
 - risk factors for, 101, 179, 323, 328–9
- demographic aging, 322, 492, 534, 557–8
- demographics
 - future, 34–5
 - life span in, 179
 - of older adults in affordable housing and CCRCs, 482t
 - shifts in, 455–6
- Denmark, 32–4, 97, 99, 598
- Denney, N. W., 324–5
- dependent variables, 15
- Depp, C. A., 619–20
- deprescribing drugs, 249–50
- developmental psychology, 438
- developmental tasks, 285–6
- developmental theory, 373
- DHLI. *See* digital health literacy instrument
- DHRAs. *See* drug-related hospital admissions
- diabetes, 158
 - arterial stiffness in, 140
 - control, 542–3
- diabetes mellitus, 545–6
- diastolic blood pressure (DBP), 131, 134–5
- diets
 - in arterial stiffness, 141–2
 - for cognitive decline, 191
 - CR, 185–6
 - healthy, 302–3
 - KD, 186
 - MD, 187–8, 188t, 191
 - medical foods, 188–9
 - multi-component approach to, 187
 - RDA, 209–10
- differential age-related change, in wisdom, 360
- digital health literacy instrument (DHLI), 230–1
- digital life, 227–8
- disability, 7
 - ADL, IADL, 216
 - excluded from Rowe and Kahn model, 581, 619–20
 - frailty and, 155
 - human development model of, 619–20
 - probability of, 534
 - social engagement and, 516
 - socio-physical environment and, 581–2
 - success with, 476
- Disability and Health Household Survey (HSM survey), 621
- Disability and Time Use (DUST), 620
- disability-free life expectancy, 34
- discrepancies, in medication, 239, 242–3
- discrimination, age, 564
- diseases
 - of aging, 74–6
 - degenerative, 70–1
 - neurodegenerative, 45–6, 116–17, 181
 - respiratory, 47–8
- disengagement
 - goals and, 285–6, 418
 - from work, 290
- disuse, 324–5
- diversity, 613–14, 617–19
- DM2. *See* type 2 diabetes mellitus
- DNA
 - damage, 271
 - caloric restriction and, 548
 - tai chi against, 548–9
 - mutation, 41, 44
- DNA-damage response (DDR), 41–4, 46–7, 67
- dopamine (DA), 115
- DRP. *See* drug-related problems
- drug
 - cessation, judicious, 249–50
 - deprescribing, 249–50
 - inappropriate prescribing, 238, 240–1
 - therapy, 237, 254
 - treatment, for arterial stiffness, 142–3
 - use, optimization, 239b, 244–6
- drug–disease interactions (DDIs), 248
- drug-related hospital admissions (DHRAs), 238
- drug-related problems (DRPs), 237
 - detection, 247
 - medication non-adherence, 238, 241–2
 - PIP, 238, 240–1
 - screening for, 246
 - unintended medication discrepancies, 239
- dual-process model, of coping, 285–6
- DUST. *See* Disability and Time Use
- dyadic coping, 404
- EC. *See* European Commission
- ecological momentary assessment (EMA), 409
- economic resources, 469
- education
 - in active aging, 565
 - in cognitive maintenance, 330–1
 - in community gerontology, 542

- education (*cont.*)
 of GPs, 540
 health, programs, 157–8
 inequalities, in AAI, 603–4
 in social participation, 604
 EE. *See* environmental enrichment
 ego-integrity, 433–4
 ego-resiliency, 439–40
 EIP AHA (European Innovation Partnership
 of Active and Healthy Aging), 9
 elder care, 322
 elderly, as term, 386
 elderly mortality, 29
 ELEA. *See* Longitudinal Study on Active
 Ageing
 elective selection, 282
 EMA. *See* ecological momentary assessment
 emotion
 in affect, 372–3
 negative, 376–7
 positive, 372–3, 375–7, 515
 emotional balance, 373, 378–80
 emotional regulation, 372–3, 376
 emotion-focused coping strategies, 411, 413
 empathy, 432
 employment gap
 education in, 603–4
 gender in, 603
 empowerment, active aging and, 542
 ENABLE-AGE, 576
 end replication problem, 67
 endocrine cells, 266
 endocrine system, 268–9
 end-of-life trajectories, 33–4
 energy expenditure, in PA, 207t
 engagement
 goals in, 285–6, 418
 in health control strategies, 285
 environment. *See also* socio-physical
 environment
 home care, 583
 individuals and, 154, 535
 interventions in, 572
 as outcome, 585
 socio-physical, 570–2
 in successful aging, 570–2, 588
 technology in, 579
 in views of aging, 579
 in well-being, 571
 “Environment and Other Determinants of
 Well-being in Older People” (Lawton),
 577
 environmental enrichment (EE)
 for cognitive health, 322–3
 in cognitive maintenance, 330
 in cognitive plasticity, 331–2, 338–9
 cognitive training programs in, 334–8
 defining, 322
 lifelong, 328–30
 for psychoneuroimmune system, 276–7
 environmental gerontology
 control strategies in, 577
 models, 576–7
 on old age, in life course, 571
 on P-E, as people age, 572–7
 place attachment in, 575
 socio-physical environment in, 570–2
 environmental modification, 584
 environmental risk factors, 559
 epidemiology, 93–4, 159
 Erikson, Joan, 373–4, 432, 434–5, 438
 ESM. *See* experience sampling method
 estradiol, 268–9
 ethics
 of Aristotle, 438
 of gerontechnologies, 231–2
 spirituality and, 428
 ethnicity, 97–8
 e-tools, for prescribing optimization, 250–1
 EU. *See* European Union
 eudaimonia, 438
 Europe, 155, 457–9, 460t, 469–70, 558, 575
 European Commission (EC), 563
 European Health Literacy Survey, 311–12
 European Innovation Partnership of Active
 and Healthy Aging (EIP AHA), 9
 European Union (EU)
 on active and healthy aging, 562–3
 comparing countries, using AAI, 596
 EY2012, 595–6
 future older population, 221
 life expectancies, in member states, 564
 monitoring trends, with AAI, 604–6, 605f
 policy, 566
 ranking states, based on AAI, 598–9, 598f
 European Year for Active Ageing and
 Solidarity between Generations
 (EY2012), 595–6
 evolutionary perspective, on immunity, 59–60
 exercise, 158–60, 171. *See also* physical activity
 for brain plasticity, 120–1
 gardening, 487
 gymnasium, 170
 recommendations, 301–2
 existence psychology, 429
 experience sampling method (ESM), 409
 explicit tools, for prescribing data, 247–8
 extreme stress, 415
 EY2012. *See* European Year for Active Ageing
 and Solidarity between Generations
 face, 97–8
 FACIT-sp, 440
 failure of success, in aging, 299
 falls, 172
 falls technologies, 229–30

- family
- as caregiver, 470
 - children in, 470
 - generational research, 456
 - GPs orienting, 541
 - grandchildren in, 469–70
 - intergenerational relations in, 469
 - intergenerational solidarity in, 455–7
 - as social institution, 455
 - Strong Heart Family Study, 74–5
 - structures, 456
 - support of, 469–70
- FAO. *See* Food and Agriculture Organization of the United Nations
- Farvaque, Nicolas, 615
- feeling of enjoyment, in healthy behavior, 308–10
- Fernández-Ballesteros, R.
- on four domain model, 514
 - on social context, 513–14
- FI. *See* frailty index
- FINALEX. *See* Finnish Alzheimer Disease Exercise
- Finland, 101
- Finnish Alzheimer Disease Exercise (FINALEX), 173–4
- flavonoids, 183–4
- flexibility, 325–6
- fluid skills, 324
- Food and Agriculture Organization of the United Nations (FAO), 203
- Fort, J. G., 385
- Foster, J., 618–20
- four-domains model, of aging well, 16–18, 514, 528–9
- FOXO genes, 95–6
- fractures, 171–2
- FRAIL (Fatigue, Resistance, Ambulation, Illnesses, Loss of weight), 155
- frailty, 60, 98, 549–50
- CGA for, 160
 - defining, 154–5
 - disability and, 155
 - health education programs for, 157–8
 - healthcare access preventing, 157
 - healthy aging and, 156–7
 - inflamm-aging in, 60
 - interventions to prevent, 156–62, 157f
 - new models of care for, 160–1
 - nutritional interventions for, 159–60
 - pathogenesis of, 155–6
 - physical exercise against, 158–9
 - protein, in treating, 213–14
 - sarcopenia and, 170–1
 - screening for, 161
- frailty index (FI), 155
- France, 621
- life expectancy, 23
- Franceschi, Claudio, 54
- Frankl, Viktor, 429–30, 438
- Fredrickson, B. L., 376
- free radicals, 180–1, 271, 538
- freedom, 616, 621–2
- French National Institute of Statistics and Economic Studies (INSEE), 621
- Friedman, Susan, 233
- Fries, James, 7, 27–9
- on future demographics, 34–5
 - on ideal survival curve, 32
 - modifiable aging manifestation, 300t
- full life, 375
- functional ability, 535, 585
- functional capacity, 281, 559, 560f
- functional decline, preventing, 23–4
- functional foods, 274
- functional overlap of processes, 335, 341
- functionality, health and, 13
- function-focused care, 338
- functioning
- in capability approach, 614, 621–2
 - muscle, 210–16
 - physical and cognitive, 13
 - social, 305
- GDP. *See* gross domestic product
- gender, 68–9, 603
- gender inequalities, in AAI, 599–603, 600t–1t, 602f
- gene-environment interactions
- assessment, 92–4
 - longevity and, 92
 - measuring interaction, 93–4
 - sufficient-component cause model for, 93–4
- gene-lifestyle interaction, 93–5
- Generali Study, of very old age, 445–8, 447t
- generational research, 456
- generativity, 430–3
- genes
- age and, 98–100, 99f
 - FOXO, 95–6
 - telomeres, 66–7
 - TERT*, *TERC*, 69
- genetic diseases, telomeres and, 69
- genetic mutations, 41, 44, 69
- genome-wide association studies (GWAS), 95–6
- Georgia Centenarian Study, 497
- Germany, 586
- Gero-Health, 519t–20t, 523
- gerontechnologies, 233–4
- adoption, acceptance of, 226–31
 - applications matrix of, 228t
 - birth of, 224
 - categorization of, 227f
 - dangers of, 232
 - defining, 224

- gerontechnologies (*cont.*)
 domains of application, 225
 ethical issues with, 231–2
 falls technologies, 229–30
 health information in, 232
 healthcare, 224
 numerical revolution, 223–4
 rethinking traditional concepts, 229
 typology, 225–6, 226f
- gerontological promoters (GPs)
 orienting family members, 541
 training, 536, 539–40, 540t
- Gerontological Social Development (GSD), 541
- The Gerontologists Special Issue*, 15, 210
- gerontology. *See also* environmental gerontology
 models, of SOC, 406
 pathology and, 6–7
 positive, 6
 social, 6
 topics, for GPs, 536, 540t
- geroscience, 60–1
- gerotranscendence, 379–80, 434–6, 508
- Ginkgo biloba, 184
- Gitlin, L. N., 587
- global aging, 153–4, 179, 455
- Global North, 557, 564
- Global South, 557–8, 564
- Glück, 358
- goals
 in adaptation, 406
 cognitive representation of, 287–8
 continuity, 290
 disengagement, 285–6, 418
 engagement, 285–6, 418
 focus, 288
 orientation, 287–8
 present-oriented, 374
 readjustment, 405
 striving, 307–8
 work, 290
- God, 442
- Golant, S. M., 576, 580
- Goldstein, K., 429
- "the good life," 577–9, 615
- GPs. *See* gerontological promoters
- grandchildren, 469–70
- Great Britain, 586
- Greece, 598–9
- gross domestic product (GDP), 599
- Grossman, I., 358, 360–1, 363
- growth hormone, 268–9
- GSD. *See* Gerontological Social Development
- GWAS. *See* genome-wide association studies
- haplotypes, 97–8
- happiness, 375
- Havighurst, Robert, 222–3
- Hawking, Stephen, 476
- Hayflick, Leonard, 27, 536
- HCP, 255
- HDI. *See* Human Development Index
- health. *See also* brain health; mental health
 assistance and, 226
 behavior models, 309
 behavioral change, 310–11
 coping and, 407–8
 CV, 388, 407
 education programs, 157–8
 emotional regulation in, 372–3
 functionality and, 13
 information, in gerontechnologies, 232
 knowledge, 516
 literacy, 311–13
 perception, in Masterpiece Living experiment, 479
 personal resources in, 469
 physical, spirituality and transcendence in, 436–7
 span, 60–1
- Health Aging Mind Body Intervention, 520t
- Health Environmental Integration model, 576
- Health IT (HIT), 251
- healthcare
 access to, preventing frailty, 157
 gerontechnology and, 224
 inadequacy of traditional models, 154
 MedRec for improving, 244
 in old age, 541
 preventive care in, 233
 professionals, medication and, 252
 provider, 241, 441
- health-related stressors, 412–13
- healthy aging, 9
 active aging and, 562–3
 community gerontology, 539
 components of, 157f
 domains of, 16–17, 19
 frailty and, 156–7
 hormesis for, 274
 in Model of Community Gerontology, 535
 programs, 539, 550
 resilience in, 535
 successful aging and, 14, 233
 wellness for, 223
 WHO on, 562
- healthy habits, in aging well, 514–15
- healthy lifestyles, OxS and, 547–9
- healthy migrant effect, 331
- heart, 131
 attack, 388
 decompensated, 132–3
 disease, 100–1
- heart failure (HF), 132–3
- Henslin, James, 384–5

- Herman Bouma Fund for Gerontechnology Foundation, 224
- heterogeneity, in aging, 265, 403
- HF. *See* heart failure
- high protein intake, 210–13
- hippocampal neurogenesis, 185–6
- HIT. *See* Health IT
- Hobbs, N., 309
- Hodgson, N., 587
- holistic approach, 26, 253
- home care services, 583
- home modifications, 584–6
- home safety, 582
- homeodynamic, 265
- homeostasis, 265–7, 269, 274, 537
- homeostatic systems, 270–6
- homosexuality, 440
- hormesis, 274, 537–8
- hormones, 24–5
- hospital admissions, drug-related, 238
- hospitalization, 238, 240–1
- housing
 - affordable, 482t
 - international trends in, 585–7
- HPA. *See* hypothalamic-pituitary-adrenal axis
- HSM survey. *See* Disability and Health Household Survey
- human aging
 - environmental factors in, 559
 - old age and, 536–7
- “Human Aging: Usual versus Successful” (Rowe and Kahn), 27, 578
- Human Development Index (HDI), 596
- human development model, 619–20
- human strength, 355, 365, 375
- human-computer interaction, 228–9
- humanism, 430, 437–8
- hypertension, 132, 158
- hypothalamic-pituitary-adrenal (HPA) axis, 267, 269, 275
- HYVET study, 135
- I Am Active, 520t
- IADL. *See* instrumental activities of daily living
- ICECAP-O. *See* Capability indices for assessing the well-being of older people
- ICF. *See* International Classification of Functioning, Disability, and Health
- ideal survival curve, 30–2
- identification, in MedRec, 244
- identity
 - formation, 438
 - narrative, 428, 448
- ideological barriers, to active aging, 563
- idiopathic pulmonary fibrosis (IPF), 48
- IGOs. *See* international governmental organizations
- illusion of control, 384–5
- immigration, 331
- immune cells, 266, 271–2
- immune memory, 55, 57–8
- immune system. *See also* psychoneuroimmune system
 - in aging, 53–4
 - changes in, with aging, 269
 - evolutionary perspective on, 59–60
 - inflammation and, 55
 - as marker, of health and rate of aging, 270–1, 277–8
 - of organism, 61
- immunosenescence, 270–1
 - inflamm-aging and, 53–4, 58–60
 - stress and, 407
- impairment
 - cognitive, 172–3, 252–3, 322–3, 333, 544–5
 - MCI, 326–7, 334
 - mobility, 571, 581–2
 - physiological, 154–5
 - vision, 581–2, 584
- implicit tools, for prescribing, 248–9
- in vitro*, 41, 45–6, 48, 58
- in vivo*, 67, 71–4
- inappropriate prescribing, of drugs, 238, 240–1
- independent variables, 15
- individual
 - behavior, 300, 313
 - community-dwelling, 537, 547t
 - environment and, 154, 535
 - intrinsic capacity of, 535
 - life span, 30–2
 - perspective, 9
 - “various others” and, 445
- individualism, 611, 613, 623
- inequalities
 - educational, 603–4
 - gender, 599–603, 600t–1t, 602f
 - in life expectancy, 564
- infant mortality, 23, 29
- inflamm-aging
 - anti-inflammaging and, 538
 - defining, 54–6
 - in frailty, 60
 - immunosenescence and, 53–4, 58–60
- inflammation, 538
 - in homeostatic system, 271–2
 - immune system and, 55
 - OxS and, 548
- inflammatory stress, 271, 275–6
- informatics, 228–9
- information technology (IT), 245–6, 250
- inner desire, in generativity, 432
- innervation, of immune organs, 269
- INSEE. *See* French National Institute of Statistics and Economic Studies

- instrumental activities of daily living (IADL),
 170, 216, 410, 543
 Integrated Health Management Program, 520t
 intense preoccupation, 445–6
 interactive mind, 366
 intergenerational family relationships, 469–70
 intergenerational solidarity, 432, 455–7, 469
 intergenerational tensions, 294
 International Classification of Functioning,
 Disability, and Health (ICF), 581
 international governmental organizations
 (IGOs), 557
 International Society for Gerontechnology,
 224
 Internet, 313, 579
 interpersonal behavior, model of, 307f
 interpersonal stressors, 414
 interventions, 309, 327
 behavior, 584
 community, 537, 544
 environmental, 572
 for frailty, 156–62, 157f
 home modifications in, 584–6
 multidimensional, 523t, 524, 527
 naturally occurring, 585–7
 P-E, 583–4, 587
 to promote adaptive coping, 416–17
 psychosocial programs, 516–18, 521–8, 523t,
 525t–6t
 in socio-physical environment, 582–7
 intrinsic capacity, of individuals, 535
 involvement with life
 model, of successful aging, 457, 458f,
 463t–4t, 465, 468–9
 by geographical region, 467t–8t
 supporting others in, 470
 IPF. *See* idiopathic pulmonary fibrosis
 Islamic Spiritual Program, 520t
 isolation
 from digital life, 227–8
 social, as stressor, 273
 Israel, 457–8, 469–70
 IT. *See* information technology
- James, William, 426–8, 448
 Japan, 32–5, 377, 558
 Jeste, D. V., 619–20
 juvenile mortality, 29
- Kahn, Robert L., 480. *See also* Rowe,
 John W., and Kahn, Robert L.
 ketogenic diets (KD), 186
 knockout (KO), 68
 knowledge
 health, 516
 wisdom-related, 357, 359–66
 KO. *See* knockout
 Koenig, H. G., 438
- Langer, E. J., 384–5, 387–9
 Lawton, M. Powell, 577–8
 learned dependency, 293
 learning
 cognitive, 334–5, 337–43
 emotional balance, 378–80
 lifelong, 330–1
 learning potential (LP) assessment,
 326–7, 333
 left ventricular (LV), 132
 leisure
 as life domain, 290–1
 PA, 159
 in retirement, 289–90
 less advantaged population, 478, 617–18
 leukocyte TL (LTL), 67–71
 in adult life, 73–4
 attrition, 72–3
 at birth, 73
 in cancer/degenerative disease
 trade-off, 74–5
 CVD and, 74–7
 determinants of, 72f
 heritability of, 72
 short, 74–5
 SNPs, 74
 leukocytes, 266
 Levinson, Daniel, 444–5
 Lexis, Wilhelm, 29
 LIFE. *See* Lifestyle Interventions and
 Independence for Elders
 life course
 on functional terms, 559, 560f
 old age in, 571
 segmentation, 563–4
The Life Cycle Completed (Erikson), 434
 life domains
 age-related motivational changes
 in, 288–9, 289t
 leisure, 290–1
 wisdom-related knowledge in, 363
 work, 289–90
 life expectancy
 average, 550
 at birth, 33–4
 continuing increase in, 28
 in Denmark, 32–4
 disability-free, 34
 distribution of, 29–30
 in France, 23–4
 increases in, 221, 386, 594
 inequalities in, 564
 in Japan, 32–4
 life issues, 444–8, 447t
 life span, 102
 adult, 355
 ApoE in, 97–8
 in demographics, 179

- development, socio-physical
 environment in, 578–80
 distribution of individual, 30–2
 genetic mutations in, 44
 maximum, 265–6
 Motivational Theory of Life-span
 Development, 577, 580
 social relationships of, 305
 theory, 323–4, 337–8
- life time, universal time versus, 435
- life transitions
 coping with, 405–7
 retirement as, 401
 vulnerability in, 406
- lifelong EE, 328–30
- lifelong learning, 330–1
- lifestyle, 516. *See also* promoting healthy
 behavior and lifestyles; successful aging
 behaviors and lifestyles
 active, 569
 genes interacting with, 93–5
 healthy, 547–9
 longevity and, 97, 100–1
- Lifestyle Coordinator staff, 478–9,
 486–7
- Lifestyle Interventions and Independence for
 Elders (LIFE), 169, 173
- lipids, 214
- literacy, health, 311–13
- loneliness, 273
- longevity, 277f
 brain plasticity in, 514
 epidemiological study of, 94
 gene-environment interactions and, 92
 gene-lifestyle interaction in, 93–5
 genetic factors associated with, 95–7
 lifestyle and, 97, 100–1
 lifestyle factors associated with, 97
 maximum, 23–6, 265–6
 pathways, 44
 perceived personal control in, 388–9
 smoking and, 97–8
 successful aging and, 91, 379
 telomeres and, 68
 very old age, 506–8
- Longitudinal Study on Active Ageing
 (ELEA), 504
- Losada, A., 376
- loss, paradigm of, 610–11, 613
- loss-based selection, 282–3
- LP. *See* learning potential assessment
- LTL. *See* leukocyte TL
- LV. *See* left ventricular
- MacArthur Foundation Research Network on
 Successful Aging, 7, 513
- MacArthur Foundation's How Housing
 Matters initiative, 480
- MacHouse Affordable Housing Intervention
 Study, 493
 CCRC residents and, 480, 481f, 482–3
 computer classes, 487
 exercise, gardens and, 487
 MacArthur Foundation, 480
 meals, 486–7
 social engagement in, 482–3, 484t–5t, 488–9
 social relations in, 489
 van outings, 487
 well-being, 483
 well-being changes in, 488–9
- macro level perspective, 1
- macro-/micronutrients
 basic requirements, 203–10
 for muscle strength and function, 210–15
- macrophages, 56
- MAI. *See* Medication Appropriateness Index
- maintenance of control, in retirement, 290
- Malta, 603
- MAP. *See* Model of Action Phases
- Masterpiece Living CCRC, successful aging
 experiment, 478–80
- maximum life span, 265–6
- maximum longevity, 23–6, 265–6
- Mayo Clinic, 478–9
- McDonough, Carol, 229
- MCI. *See* Mild cognitive impairment
- MD. *See* Mediterranean diet
- Mead, George Herbert, 433
- medical foods, 188–9
- medical literacy, 311
- medication
 adherence, 242, 251–3
 deprescribing, 249–50
 discrepancies, 239, 242–3
 non-adherence, 238, 241–2
 potentially inappropriate, 241, 248
 underprescribing, 240
- Medication Appropriateness Index (MAI),
 248
- medication reconciliation (MedRec), 244,
 250
- medication review (MedRev)
 CDSS, 250
 defining, 246
 four-step process, 246
 reliable, 247
 when to, 246–7
- medicines reconciliation, 243
- Mediterranean diet (MD), 187–8, 188t, 191
- MedRec. *See* medication reconciliation
- MedRev. *See* medication review
- memory, 116
 immune, 55, 57–8
- Memory Club, 523
- memory disorders, 172–3
- Mental Fitness for Life Program, 519t

- mental health
 classical model of, 436
 physical exercise for, 301
 spirituality, transcendence in, 437–9
- Merzenich, M. M., 115
- metabolic syndrome (MetS), 140
- metabolism, 41, 140–1, 159
- MetS. *See* metabolic syndrome (MetS)
- Mexico, 534, 542–3
- Mexico City, 543, 545
- Mickler and Staudinger, 358
- micro level perspective, 1
- microbiota, 270, 275
- microorganisms, 270
- midlife, 172, 332, 579
- Mild Cognitive Impairment (MCI), 326–7, 334
- military veterans, 441–2
- mind/body unity theory, 387
- mindfulness
 of context, 391–2
 control and, 390–4
 to encourage perceived control, 394–5
 successful aging and, 389–95
 in well-being, 391
- mindlessness, 389, 391
- minerals, 209
- MIP. *See* Model of Interpersonal Behavior
- Mitra, S., 619–21
- Miyako, Chiyo, 23
- mobility, 159
 impairment, 571, 581–2
 muscle, 215–16
- Model of Action Phases (MAP), 308
- Model of Community Gerontology for
 Community-Dwelling Older Adults,
 535–6, 538–41, 539f, 550
- Model of Interpersonal Behavior (MIP), 307
- modifiability hypothesis, 299
- modifiable aging manifestation, 300t
- molecules, 41, 55, 57–8, 111–12
- monocytes, 56
- mortality
 CVD, 77
 elderly, 29
 infant, 23, 29
 juvenile, 29
 reduction in, 28–9
- motivational models, of adaptation
 assimilative and accommodative coping, 286
 dual-process model of coping, 285–6
 OPS, 284
 primary, secondary control, 284–5
 SOC, 282–4
- Motivational Theory of Life-span
 Development, 577, 580
- multicellular organisms, 41
- multidimensional assessment, 26
- multidimensional interventions, 523t, 524, 527
- multidimensional view, of wisdom, 373
- multidimensionality, 9
 of active aging, 456–7
 of aging, 513–14
 of successful aging, 19, 372, 505
- multidisciplinary interventions, 250, 253,
 535–6, 538–41, 539f, 550
- multi-factorial model, 222–3
- multimorbidity, 240, 249, 255
- muscle
 function, 210–16
 mass, 170
 metabolism, 159
 mobility, 215–16
 strength, 170–2, 210–15
- muscle-protein synthesis, 212–13
- mutation, of DNA, 41, 44
- mutual-help, 538–40, 543
- Myers, J. L., 385
- mythos, 428
- NA. *See* noradrenaline
- narrative identity, 428, 448
- National Autonomous University of
 Mexico, 535–6
- National Health and Nutrition Examination
 Survey, 542–3
- natural killer cell (NK), 55–6, 271
- Nature*, 28
- nature of the domains, 14
- NCD. *See* non-communicable diseases
- negative emotions, 376–7
- neoliberalism, 563
- nervous cells, 266
- nervous system, 268
- nervous-endocrine-immune communication,
 with aging, 269–70
- neural network activation, 330
- neurobiology
 of aging, 268
 of cognitive plasticity, 332–3
 social context for, 323
- neurodegenerative diseases, 45–6, 116–17, 181
- neurogenesis, 112–13, 185–6, 268
- neuromodulators, in older brains, 114–15
- neuronal plasticity, 325
- neurons, 112. *See also* brain plasticity
- neurotransmitters, 267–8
- neutrophils, 56
- new aging, 456–7
- New England Journal of Medicine*, 27
- Nicomachean Ethics* (Aristotle), 438
- NK. *See* natural killer
- Nogo-A, 121
- non-adherence, to medication, 238, 241–2
- non-communicable diseases (NCD), 169
- nonpathological aging, 6–7
- non-successful agers, 504–5

- noradrenaline (NA), 115, 269–70
normalization, 111
Norway, 101
numerical revolution, 223–4
nurses, 253–4, 394
Nussbaum, Martha, 610, 615
nutrients
 antioxidants, 180–1, 274–5
 arterial stiffness and, 141–2
 in cognition, 189–91, 189t–90t
 macro/micro, 203–15
 vitamin B, 181–2
 vitamin C, 182
 vitamin D, 182
 vitamin E, 182–3
nutrition
 caloric restriction, 275
 in care of older persons, 203
 deficiencies, 274
 for homeostatic system, 274
 of MD, 187–8, 188t
 National Health and Nutrition Examination Survey, 542–3
 in psychoneuroimmune system, 274–5
nutritional interventions, for frailty, 159–60
nutritional status
 in cognitive decline, 180
 screening, assessing of, 179–80
nutritional supplements, 159–60
Oberauer, K., 340–3
obesity, 140–1
occupational stressors, 413–14
older brains, 114–15, 122. *See also* brain plasticity
Olivera, J., 617–20
Omega-3 Polyunsaturated Fatty Acids (Omega-3 PUFA), 183–4
OPERAM clinical trials, 247
Oporto Centenarian Study, 497
OPS. *See* optimization in primary and secondary control
optimal aging, 321
Optimal Aging Program, 519t, 522, 524
optimal cognitive function, 515
optimization. *See also* selection, optimization, and compensation
 of adherence, to medication, 251–3
 of drug use, 239b, 244–6
 minimizing loss, 283
 prescribing, 246–51, 256
 in social context, 292
optimization in primary and secondary control (OPS), 284–5, 290
oral health, 159
orchestration, of regulatory strategies, 293
organism
 immune system of, 61
 metabolism, 41
 microorganism, 270
 multicellular, 41
 oxi-inflamm-aging of, 272
osteoporosis
 bone density and, 171–2
 cellular senescence in, 45
 OxS and, 546–7, 547t
Oswald, F., 581–2
outcomes
 of active aging, 15
 environments as, 585
 focus on, 288
 most frequent, in cross-sectional and longitudinal studies, 12–13
 predictors/determinants versus, 14–15
 in psychosocial programs, 524, 525t–6t, 527–8
Ovid Medline (Carver and Buchanan), 9
oxidation, 271–2
oxidative stress (OxS), 180–1, 536, 538, 550
 biological markers of, 545t
 in CI risk, 544–5
 community gerontology and, 543–4, 544t
 diabetes mellitus and, 545–6
 healthy lifestyles and, 547–9
 inflammation and, 548
 osteoporosis and, 546–7, 547t
 PA and, 275–6, 548
 tai chi and, 548–9, 549t
oxi-inflamm-aging, 271–4
OxS. *See* oxidative stress
PA. *See* physical activity
PACE program, 524
PAL. *See* physical activity level
Panel Study of Income Dynamics (PSID), 620
Park, C. L., 436, 442
participation and engagement, 13
pathogenesis, of frailty, 155–6
pathological aging, 6–7
pathology, 6–7
patient participation, in clinical decision-making, 255
patient-related interventions, for medication adherence, 251
PCC. *See* person-centered care
P-E. *See* person-environment transaction
perceived personal control, 387–9, 394–5
performance, potential and, 324
personal abilities, beliefs about, 390
personal characteristics, 535
personal control
 perceived, 387–9, 394–5
 social stereotypes and, 385–7, 393–4
personal disposition, 401–2
personal resources, 469

- personal wisdom, 358
- personality
 affect and, 528
 in aging, 515
 health behavioral change and, 310–11
 spiritual self, as core of, 426–8
 structure, 444
 wisdom and, 356
- personality growth orientation, 355–6, 365, 367
- person-centered care (PCC), 254–6
- person-environment fit, 572, 575, 579, 581, 585, 587
- person-environment transaction (P-E)
 agency, 576, 580
 belonging process, 576, 580–2
 fit in, 572, 575, 579, 581, 585, 587
 interventions, 583–4, 587
 mismatches, 581
 model/theories addressing, 573t–4t
 as people age, 572–7
 place attachment in, 585
 plasticity of, 572
 regulation, 579
 in successful aging, 582
- person-focused care, 338
- Peru, 618–19
- pharmacology, 121–2
- pharmacotherapy
 adherence to, 242
 discrepancies in, 243
 holistic approach to, 253
- Pharmanurse, 253–4
- phenotypic changes, induced by cellular senescence, 43–4
- phylogeny, 1
- physical activity (PA), 160
 activating, 174, 176
 in ADL, 169–70
 arterial stiffness and, 142
 in bone density, 171–2
 in cognitive training, 335
 in conditions common in older people, 175t
 energy expenditure and, 207t
 gymnasium exercise, 170
 leisure, 159
 mental, social dimensions of, 174
 midlife, 172
 OaS and, 275–6, 548
 preventing falls, fractures, 172
 in prevention and rehabilitation, of clinical cognitive disorders, 173–4
 promoting, 308–10
 for psychoneuroimmune system, 275–6
- physical activity level (PAL), 204
- physical exercise, 160, 170–1
 in cognitive health, 330
 against frailty, 158–9
 for mental health, 301
 recommendations, 301–2
- physiological impairment, 154–5
- pills, 242. *See also* drug-related problems; medication
- PIM. *See* potentially inappropriate medication
- PIP. *See* potentially inappropriate prescribing
- place attachment, 575, 585
- plasticity. *See also* brain plasticity; cognitive plasticity
 in cognitive activity, 332
 neuronal, 325
 of socio-physical environment, 572
- Plato, 6
- Poetics* (Aristotle), 428
- political barriers, to active aging, 562–3
- polypharmacy, 249, 252, 254–6
- polyphenols, 183
- polyunsaturated fatty acids (PUFAs), 214
- population aging, 534
- population perspective, 9
- positive affect, 13
- positive emotion, 372–3, 375–7, 515
- positive expectations, of aging, 1–2, 281–2
- positive gerontology, 6
- positive psychology, on affectivity, 375–6
- positive reappraisal coping strategies, 403, 405
- positive relationships, maintaining, 414
- positivity, in old age, 376–8
- post-traumatic growth, 410
- post-traumatic stress disorder (PTSD), 441–2
- posture, 171
- potential, performance and, 324
- potentially inappropriate medication (PIM), 241, 248
- potentially inappropriate prescribing (PIP), 238, 240–1, 247
- poverty, 617–18
- PP. *See* pulse pressure
- PPA. *See* Pulse Pressure Amplification
- pragmatism, 426
- predictors/determinants
 in cross-sectional and longitudinal studies, 12–13
 outcomes versus, 14–15
- premature aging, 272–3
- premature cognitive commitments, 386
- prescriber-related interventions, for medication adherence, 252
- prescribing
 explicit tools for, 247–8
 holistic evaluation of, 240
 implicit tools for, 248–9
 optimization, 246–51, 256
 potentially inappropriate, 238, 240–1, 247
- present-oriented goals, 374
- pressure waveforms, 136

- prevention
- active aging for, 565
 - of falls, fractures, 172
 - frailty, 156–62, 157f
 - of functional decline, 23–4
 - PA in, 172–4
 - primary, primordial and secondary, 299
 - in successful aging, 610
- preventive care, 233
- Primary and Secondary Control, 406
- primary care, 161
- primary control, 284–5, 409–10
- primary prevention, 299
- primordial prevention, 299
- proactive coping, 404–5
- problem-behavior theory, 310
- problem-focused coping strategies, 388, 411, 416
- problem-solving coping strategies, 403
- process focus, 288
- process-based cognitive training, 334
- productive aging, 14, 19
- promoting healthy behavior and lifestyles, 305
- awareness of benefits, 308–10
 - empirical support for, 308
 - feeling of enjoyment, 308–10
 - goal striving, self-regulation and, 307–8
 - health literacy in, 311–13
 - MIP, 307
 - models of behavioral change, 306
 - personality and, 310–11
 - protection motivation theory, 307
 - TPB, 306
- promoting successful aging. *See* psychosocial programs, for successful aging
- protection motivation theory, 307
- protective factors, 301
- protein, 208, 208t
- amino acids and, 210–12
 - ceiling effect, of intake, 212–13
 - for frailty, sarcopenia treatments, 213–14
 - high intake, 210–13
 - optimal intake, 210–11, 211f
 - recommended, 204
 - synthesis with muscle, 212–13
- PSID. *See* Panel Study of Income Dynamics
- psychology
- of aging, 430–6
 - developmental, 438
 - existence, 429
 - positive, 375–6
- psychoneuroimmune system, 266, 436
- age-related changes in, 268
 - alterations, in premature aging, 272–3
 - EE for, 276–7
 - hormesis, 274
 - modifying, with environmental and lifestyle factors, 272–7
 - nutrition, 274–5
 - PA for, 275–6
 - social isolation, as stressor to, 273
 - strategies to improve, 273–4
 - stress response in, 267–8
- psychosocial factors, in aging, 3
- psychosocial programs, for successful aging, 519t–20t
- for cognitive function, 528
 - interventions, 516–18, 521–8, 523t, 525t–6t
 - methodological characteristics in, 521–2, 522t, 527
 - multidimensional interventions, 523t, 524, 527
 - outcomes and indicators of successful aging in, 524, 525t–6t, 527–8
 - social relationships in, 529
 - terminology and discipline in, 521t
 - unidimensional interventions, 522–3, 523t, 527
- PTSD. *See* post-traumatic stress disorder
- public action, 616
- public health, 242
- public policy, 394–5, 558–9, 566, 606
- PUFAs. *See* polyunsaturated fatty acids
- pulse pressure (PP), 131, 136–8
- Pulse Pressure Amplification (PPA), 136–7
- pulse wave velocity (PWV), 136–9, 141
- purpose, of behavior, 306
- PWV. *See* pulse wave velocity
- quality-of-life (QOL), 539, 578
- in AAI, 599
 - in capability approach, 616–17
 - cognitive decline in, 179
 - spirituality in, 441–2
- quantifying daily life, 579
- Quételet, Adolphe, 30
- RDA. *See* recommended dietary allowances
- reality-principle, 364
- recommended dietary allowances (RDAs), 209–10
- reconciliation, in MedRec, 244
- reconsidering beliefs, 364
- rectangularization, of survival curve, 28–9
- redox balance, 274–5
- reductionism, 611, 613, 623
- regulation
- emotional, 372–3, 376
 - P-E, 579
 - TL, 71–4
- regulatory strategies, 289–91, 289t, 293–4
- regulatory systems, 266–7, 270–1, 273–4
- relationships
- being in, 433
 - family, 455

- relativism, 379–80
value, 360–1
- religion, spirituality and, 431, 436–41, 443–4, 448–9
- religious coping behavior, 413
- replicative senescence, 42–3
- Residential Normalcy model, 576
- resilience, 410
age-related brain impairment and, 116–17
in healthy aging model, 535
positive emotions in, 372–3
spirituality, transcendence and, 439–4
- resistance training, 173
- respiratory diseases, 47–8
- restricted activity, 492
- retirement
adaptation to, 289–90
communities, 579–80
coping with, 413–14
as enriching, 321–2
as life transition, 401
maintenance of control, 290
planning, 290
SHARE on, 155, 457–9, 468–71
transition to, 289–90
- Ricouer, Paul, 428
- Riley, Matilda, 476
- risk, 301
behavioral, 299–300, 516
of CI, 544–5
CV, 132, 134–5, 138–40
for dementia, 101, 179, 323, 328–9
environmental, 559
osteoporosis, 547t
- Robeyns, Ingrid, 615, 622
- Rodin, J., 388
- Roosevelt, Franklin, 476
- Rowe, John W., and Kahn, Robert L., 6–7
criteria for assessment, promotion of successful aging, 513
critical analysis, 611–13
criticisms of, 476–7, 611
defining successful aging, 493, 534
disability excluded by model, 581, 619–20
“Human Aging: Usual versus Successful”
by, 27, 578
legacy, 497, 504
model, of successful aging, 33, 222, 456, 475, 489–90, 578, 582, 594, 611
- Rutter, Michael, 439
- safety, 582
- sarcopenia, 170–1, 213–14
- SARS. *See* Severe Acute Respiratory Syndrome
- SASP. *See* senescent-associated secreting phenotype
- SAVI. *See* Strength and Vulnerability Integration
- SBP. *See* systolic blood pressure
- Schopenhauer, Arthur, 430
- Science*, 6–7, 27, 475, 578
- screening
centenarians, for study inclusion, 496f
for DRPs, 246
for frailty, 161
nutritional status, 179–80
STOPP/START, 248
- SDM. *See* shared decision-making
- Seattle Longitudinal Study, 328
- Second World Assembly on Ageing, of WHO, 595–6
- secondary control, 284–5
- secondary prevention, 299
- selection, 282–3, 292
- selection, optimization, and compensation (SOC), 290–2
on adaptation, 283–4, 401, 405
Baltes, M., and Baltes, P., on, 12, 324, 513
gerontological models of, 406
as motivational model, of adaptation, 282–4
- “Selective Optimization with Compensation” (Baltes, M., and Baltes, P.), 12
- selective primary control, 285
- selective secondary control, 285
- self
material, body as, 427
spiritual, 426–8
theory of, 427–8
world and, 428, 438, 448
- self-actualization, 429–30, 448
- self-care, 538–9, 543–4, 621–2
- self-esteem, 515
- self-management procedure, 514
- self-perception, 364, 416
- self-promotion, 538
- self-recognition, in old age, 430
- self-reflection, 430
- self-regulation, 293, 307–8, 436–7
- self-understanding, narrative perspective on, 428–9
- semantic network, of aging well
technical terms of, 16
testing, through SEM, 16–19
- semantic network, of successful aging, 8–12, 15–19
- Sen, Amartya, 610, 616
- SENATOR clinical trials, 247
- senescence. *See also* cellular senescence
replicative, 42–4
- senescent astrocytes, 45–6
- senescent messaging secretome (SMS), 43
- senescent-associated secreting phenotype (SASP), 43, 48, 55, 59

- Severe Acute Respiratory Syndrome (SARS), 415
- sexual hormones, 268–9
- sexual orientation, 440
- SHARE. *See* Survey of Health, Ageing, and Retirement in Europe
- shared decision-making (SDM), 246, 249, 254–6
- short TL, 67, 74–6
- single nucleotide polymorphism (SNPs), 74
- Sirtuin 1 (SIRT1), 47
- skills, 323
- skin cancer, 92
- sleep, 113, 121
- sleep deprivation, 113
- smartphone technology, 313–14
- smoking, 97–8, 100, 301
- SMS. *See* senescent messaging secretome
- SNPs. *See* single nucleotide polymorphism
- SNS. *See* sympathetic nervous system
- SOC. *See* selection, optimization, and compensation
- social animals, 273
- social context
 - of aging, 513–14
 - of neurobiology, 323
 - of old age, 537
 - optimization in, 292
- social engagement, 508
 - disability and, 516
 - in MacHouse study, 482–3, 484t–5t, 488–9
 - as successful aging behavior, 305
- social functioning, 305
- social gerontology, 6
- Social Gerontology*, 13–14
- social institution, family as, 455
- social isolation, 273
- social networks, 292, 477, 542–3
- social participation, 292
 - education in, 604
 - gender in, 603
- social relationships, 276–7, 373
 - cognitive function and, 305
 - convoy model of, 477
 - in MacHouse Affordable Housing Intervention Study, 489
 - over life span, 305
 - in psychosocial programs, 529
 - in successful aging, 291–3
- social stereotypes, of aging, 385–7, 393–5
- social structure opportunities, 15
- social support networks, 542–3
- social-network size, 292
- societal barriers, to active aging, 563–4
- society, in active aging, 566
- socio-demographic issues, with aging, 4
- socioemotional selectivity theory (SST), 374–5
- socio-physical environment
 - for aging, disabilities, 581–2
 - cognitive-affective ties, 580
 - context in, 587–8
 - in environmental gerontology, 570–2
 - implementation of, 587–8
 - interventions in, 582–7
 - in life span development, 578–80
 - plasticity of, 572
 - successful aging and, 577–80, 582–9
- solidarity
 - intergenerational, 432, 455–7, 469
 - in mutual-help, 539–40
- somatic cells
 - end replication problem of, 67
 - senescence, 41–2
- somatic tissue, 72–3
- spiritual self, as core of personality, 426–8
- spirituality
 - in care, 441
 - ethics and, 428
 - Islamic Spiritual Program, 520t
 - PTSD and, 441–2
 - in QOL, 441–2
 - religion and, 431, 436–41, 443–4, 448–9
 - transcendence and, 448
 - ego-integrity, 433–4
 - Generali Study on, 445–8, 447t
 - generativity, 432–3
 - gerotranscendence, 434–6
 - life issues, 444–8
 - in physical health, 436–7
 - in psychological well-being, 437–9, 443
 - in psychology of aging, 430–6
 - resilience, 439–4
- SST. *See* socioemotional selectivity theory
- stereotypes, of aging
 - caregivers holding, 394
 - environment in, 579
 - personal control and, 385–7, 393–4
 - social, 385–7, 393–5
- STOPP/START (Screening Tool of Older Persons' Prescriptions and Screening Tool to Alert doctors to Right – appropriate, indicated – Treatment), 248
- Strength and Vulnerability Integration (SAVI), 377, 405
- stress. *See also* oxidative stress
 - adaptation to, 411–12
 - affect and, 304
 - bereavement, 414–15
 - on cells, 274
 - CISS for, 408–9
 - coping with, 402–8
 - extreme, 415
 - health-related, 412–13
 - heterogeneity, in coping with, 403
 - immunosenscence and, 407
 - inadequate response to, 272–3

- stress (*cont.*)
 inflammatory, 271, 275–6
 interpersonal, 414
 in premature aging, 273
 PTSD, 441–2
 resistance, EE conferring, 276
 response, in psychoneuroimmune system,
 267–8
 social isolation as, 273
 unexpected, 415–16
 vulnerability to, in old age, 404
 work/occupational, 413–14
- stress-related growth, 410
- Strong Heart Family Study, 74–5
- structural function, of work, 289
- subjective representations, of aging, 612
- subjective well-being, 355, 612
 by geographical region, 465t–6t
 grandchildren in, 470
 model, of successful aging, 457, 457f,
 461t–2t, 462–3, 468–9
- subjectivity, of success, in very old age, 506–7
- successful agers, 493, 504–6
- successful aging, 7, 20. *See also specific topics*
 active aging and, 560–2
 capability approach for, 619–22
 centenarians
 as models of, 32–3, 495
 scope review of studies on, 495–507,
 498t–503t
 challenges facing, 529
 cognate terms for, 562
 common problematic issues, 13–15
 comprehensive alternative models of,
 497–504
 conceptual definitions of, 13
 constructing meaning of, 15–16
 criticisms of, 611–12
 domains of, 16–17
 emotional balance in, 373, 378–80
 environment in, 570–2, 588
 health literacy and, 311–13
 healthy aging and, 14, 233
 homeostasis in, 265
 human strength in, 375
 individual behavior in, 300, 313
 individualism, reductionism in, 611, 613, 623
 intergenerational family relations in, 469
 less advantaged population and, 478
 longevity and, 91, 379
 mindfulness and, 389–95
 model, as elitist, 477, 489–90
 as multidimensional, 19, 372, 505
 multi-factorial model of, 222–3
 P-E in, 582
 predictors of, 617–18
 preventing functional decline, 23–4
 prevention in, 610
 roots, complexity of concept, 493–5
 routes toward, 373–5
 Rowe and Kahn model of, 222, 456, 475,
 489–90, 578, 582, 594, 611
 social relationships in, 291–3
 socio-physical environment and, 577–80,
 582–9
 tablets in, 230
 usual aging versus, 610–13
 variability in, 612
 in very old age, 506–8
 wisdom in, 355, 363–8
- successful aging behaviors and lifestyles, 300
 affect, stress and, 304
 alcohol, tobacco control, 303
 cognitive activity, 303–4
 control in, 304
 coping strategies, 304–5, 417–18
 healthy diet, 302–3
 physical exercise in, 301–2
 social engagement, 305
- successful cognitive aging, 117
- sufficient-component cause model, 93–4
- Sulmasy, D. P., 428–9
- supplements, nutritional, 159–60
- Survey of Health, Ageing, and Retirement in
 Europe (SHARE), 155, 457–9, 468–71
- survival curve
 ideal, 30–2
 rectangularization of, 28–9
- Sweden, 598
- sympathetic nervous system (SNS), 267, 275
- synaptic strengthening, weakening, 110–11
- synaptogenesis, 111–12
- systolic blood pressure (SBP), 131–2, 136–8,
 142–3
- T cells, 58–9
- T2D. *See* type 2 diabetes
- tablets, 230
- tai chi, 548–9, 549t
- TAM. *See* Technology Acceptance Model
- target of rapamycin (TOR), 44
- Taylor, Charles, 428–9
- technology, 571, 579. *See also*
 gerontechnologies
 aging, 222
 communication, 252–3
 falls, 229–30
 smartphone, 313–14
- Technology Acceptance Model (TAM), 231
- TEE. *See* total energy expenditure
- telomerase
 KO of, 68
 in somatic tissues, 72–3
- telomere
 attrition, 72–3
 as determinant, in aging diseases, 74–6

- gender effect, 68–9
genetic disease and, 69
for genetic integrity, 66–7
longevity and, 68
- telomere length (TL). *See also* leukocyte TL
during adult life, 73–4
biomarker hypothesis, 71
at birth, 71–2
cancer and, 69–70
cellular senescence and, 66–7
degenerative diseases and, 70–1
in early life, 72–3
regulation, *in vivo*, 71–4
short, 67, 74–6
- TERC* genes, 69
TERT genes, 69
- testing-in-the-limits, 325–6
- testosterone, 268–9
- Theory of Disuse, 324–5
- Theory of Planned Behavior (TPB), 306, 306f
- Theory of Reasoned Action (TRA), 306
- Theory of the Self* (James), 427–8
- thinking aloud, 357–8
- Thomae, Hans, 438, 444
- three-dimensional wisdom paradigm, 356–7
- tissue aging, 76
- TL. *See* telomere length
- tobacco, 303
- TOR. *See* target of rapamycin
- Tornstam, L., 434–5, 508
- total energy expenditure (TEE), 203–4
- Tournier, L., 617–20
- TPB. *See* Theory of Planned Behavior
- TRA. *See* Theory of Reasoned Action
- training, 324. *See also* cognitive training
in gerontological topics, 536
GPs, 536, 539–40, 540t
resistance, 173
- transcendence. *See* gerotranscendence;
spirituality
- transfers, of cognitive learning to daily life,
334–5, 337–43
- trauma, coping with, 442
- two-factor theory, 324
- type 2 diabetes (T2D), 47, 560
- type 2 diabetes mellitus (DM2), 542–3
- typology, 225–6, 226f
- underprescribing medication, 240
- unequal aging, 564
- unexpected stressors, 415–16
- unidimensional interventions, 522–3, 523t,
527
- Unified Theory of Acceptance and Use of
Technology (UTAUT), 231
- unintended medication discrepancies, 239
- unintentional discrepancies, in medication, 243
- United Kingdom, 300, 598
- United Kingdom New Dynamics of ageing
Programme, 559
- United Nations University (UNU), 203
- United States, 377, 586–7
- universal time, 435
- UNU. *See* United Nations University
- usual aging, successful aging versus, 610–13
- UTAUT. *See* Unified Theory of Acceptance
and Use of Technology
- VA. *See* Veterans Affairs hospitals
- vaccines, 60
- Valle del Mezquital, 542
- value relativism, 360–1
- values, 429–30
- vascular stiffening, 133
- verification, in MedRec, 244
- very old age, 445–8, 447t, 506–8
- veterans, 442
- Veterans Affairs (VA) hospitals, 254
- vision impairment, 581–2, 584
- Vital Aging program, 416, 517–18, 519t, 524
- vitamin B, 181–2
- vitamin C, 182, 547
- vitamin D, 182, 209–10, 214–15
- vitamin E, 182–3, 547
- vitamins
for brain health, 181–3
minerals and, 209
- vulnerability
in life transitions, 406
SAVI on, 377, 405
to stress, in old age, 404
- Wahl, H.-W., 581–2
- Ways of Coping Questionnaire (WCQ), 408–9
- welfare, 471
- well-being. *See also* subjective well-being
domains of, 535
environment in, 571
individualized conceptualization of, 477
in MacHouse Affordable Housing
Intervention Study, 483, 488–9
mindfulness in, 391
psychological, spirituality in, 437–9, 443
spiritual, 440
stability and, 488–9
- wellness, 223
- WHAS. *See* Women's Health and Aging
Studies
- WHO. *See* World Health Organization
- widowhood, 292
- William Lexis, 29
- wisdom
age in, 359–63, 366
definitions, models of, 356–9
differential age-related change in, 360
as human strength, 355, 365

- wisdom (*cont.*)
 multidimensional view of, 373
 multidirectional age differences, in forms of,
 360–2
 personal, 358
 personality and, 356
 in psychological research, 356–9
 successful aging and, 363–8
 wisdom-related knowledge, 357, 359–66
 Women's Health and Aging Studies (WHAS),
 155
 work, transition to retirement, 289–90
 work stressors, 413–14
 working memory, 337, 340–3
 world, self and, 428, 438, 448
 World Health Organization (WHO)
 Active Ageing Initiative, 312, 534, 562,
 565–6
 on active aging, 9, 457
 on adherence, to medication, 241
 constitution, 19
 on functional ability, 585
 on global aging, 179
 on healthy aging, 562
 protein recommendation, 204
 Second World Assembly on Ageing, 595–6
 vitamin, mineral requirements, 209
 World Report on Ageing and Health, 535
 World War II, 28, 30
 younger selves, 393