

A

- accidents vs cancer risk statistics, 11–12
- activation process of compounds, 98–99, 108, 110, 133, 186
- alcohol, 19, 95, 206, 235. *See also* wine; wine, red
- algae, 220–23
- Allicin*, 109–11
- Allium cepa* bulb, 106
- Allium* family, 105, 106–7, 108
- Allium porrum* (leeks), 106
- Alzheimer’s disease, 139
- American Association for Cancer Research (AACR), 19
- American Cancer Society, 20, 233
- angiogenesis
 - berries and, 165–66, 168
 - chocolate and, 229
 - curcumin and, 141
 - described, 42, **43**
 - green tea and, 155
 - hallmark of cancer, 35
 - nutraceuticals and, **243**
 - olive oil and, 176
 - soy and, 122
 - treatment by, 51, 86
 - turmeric, 141
 - ursolic acid and, 143
- anthocyanidins in fruit, 163, 205
- anticancer molecules, 23
 - algae, 221–23
 - catechins in green tea, 151–57
 - combinations of, 142, 247–49
 - enhancing, 195–96
 - from foods, 24, 58, 63, 242, **247**
 - fucoxanthin, 222–23
 - garlic and derived compounds, 112
 - herbs, 143
 - hydroxycinnamic acids, 225
 - indole-3-carbinol, 102
 - list of foods with, 242
 - lycopene, 185–88
 - modes of actions of, 62, **243**, **247**
 - mushrooms, 218–20
 - natural vs synthetic, 63
 - olive oils, 177
 - phytochemical compounds and, 75, **77**
 - pomegranates, 223
 - resveratrol in wine, 203–10

Rosaceae fruits, 225
scientific procedure for finding, 67
spices containing, 136–37
stages of cancer development and, **86**
sulforaphane in vegetables, 98, 99–101
synthetic vs natural, 63
targets for, **243**
See also phytochemical compounds
anticoagulant properties of garlic, 106
antioxidants
 about, 83, 84, 85
 anthocyanidins and, 166
 chocolate, 228
 lycopene as, 187
 olive oil, 177
 pomegranate arils, 223
 proanthocyanidins and, 168
 properties vs biological effects, 85
 supplements, 84
apigenin, 143
apoptosis
 anthocyanidins and, 166
 broccoli causing, 100
 cell rule 2, 32
 curcumin causing, 141
 described, 34
 diet and, **66**
 fucoidan in algae and, 222
 garlic causing, 113
 mushrooms and, 219
 obesity and, **48**
 PEITC triggering, 101
 sulforaphane causing, 100
ATP (cellular energy), 29, 84
awareness of causes of cancer, 14, 234
Ayurvedic medicine, 138

B

berries, 159–69
 anthocyanidins, 166
 anticancer mechanisms, 165–66
 antioxidants, 168
 blueberries, 162–63
 cranberries, 163–64
 ellagic acid, 164–66
 history of, 159–64
 inflammation reduction, 68, 70

- nutrapreventive strawberries, 164
- proanthocyanidins, 167–68
- raspberries, 159–60
- strawberries, 161, 162
- bladder cancer, 45, 96, 154, 226
- blueberries, 162–63
- body fat. *See* obesity
- body weight. *See* obesity
- brain cancer, 225
- brain cancer and coffee, 226
- BRCA genes, 13, 14, 50
- breast cancer
 - alcohol and, 206–7, 235
 - algae, 221
 - animal fat intake, 122
 - blueberries and, 164
 - coffee consumption and, 226
 - composition of, 37–38
 - cruciferous vegetables, 96–97
 - curcumin and, 140
 - ER- tumors and coffee, 226–27
 - exercise, 234
 - fiber and, 214
 - fruit and risk reduction of, 80
 - garlic and inconclusive studies, 111
 - green tea and, 154, 155
 - hereditary risk, 13
 - I3C and, 102
 - incidence of African-Americans, 17–18
 - incidence of Japanese people, 16–17
 - mushrooms, 218, 219
 - obesity and incidence of, 47, **49**
 - omega-3s and, **178**
 - peaches, 225
 - PEITC and, 101
 - pomegranates, 223
 - red wine and alcohol, 206–7, 235
 - soy and, 123–25
 - strawberries and, 164
 - survivors and soy, 128–30
 - tomatoes and, 187–88
 - turmeric and, 141–42
 - vegetables to reduce tumors, 67, 69
 - vitamin D and, 238
- broccoli, 92–93, 100, 102
- bronchial cancer, 45
- Brussels sprouts, 93, 102

C

- cabbage, 91–103
- caffeine, 75
- Camellia sinensis*, 149
- Canadian Cancer Society, 20, 233, 238
- cancer, about, 26–39, 65
- cancerogenesis process, **243**
- carcinogenic potential reduction, 243
 - berries, 165
 - citrus fruit, 193
 - cruciferous vegetables, 243
 - garlic and onions, 110, 112, 113
 - turmeric, 142
- carcinogenic substance and garlic, 113
- cardiovascular diseases, 201, 202, 205, 228
- Cato, Marcus Porcius, 94–95
- cauliflower, 93
- causes of cancer
 - cell protein production errors, 29
 - cellular ancestral survival instincts, 32
 - communication about, 14
 - Helicobacter pylori*, 45
 - hereditary vs lifestyle, 12–24
 - lifestyle aspects as, 19–20
 - obesity and, **48**
 - perceived, 12, 13, 14
- cells, 27–35
 - ancestral, 30–32
 - ancestral survival instincts, 32
 - apoptosis, 34, 35 (*See also* apoptosis)
 - autonomous behavior of, 30
 - characteristics of cancer, 35
 - clones of, 37
 - components, 28–30
 - differentiation, 31, 32
 - disruption of function, 32–35
 - free radicals, 29, 34, 84
 - history of, 30–32
 - inflammatory, 43–50
 - mitochondria, 29
 - multicellular organisms, 30–32
 - mutations, 29, 30, 32, 34
 - nucleus, 28, 29, **29**, 30, 32
 - plasma membrane, 29–30
 - proteins, 28–29, 34
 - rules, 32

- seed growth comparison, 41
- specialization of, 31, 32
- suicide of, 34
- See also* genes
- cellular energy (ATP), 29
- cervical cancer and I3C, 102
- chemotherapy drugs, 36
 - curcumin and improving, 142
 - lentinan with, 219
 - omega-3s and improving, 179
 - plant sources for, 62, 63
 - preventive with food, 63–64
 - residual cells and diet, 65
 - resistance to, 37, 113
 - See also* drugs
- chives, 107
- chocolate, 167–68, 227–29
- chronic vs fatal disease, 52
- citrus fruits, 190–97
- clementines, 193
- Codex Ebers*, 108
- coffee, 225–27
- colon cancer
 - berries and, 167
 - cabbage and, **96**
 - coffee consumption and, 226
 - curcumin and, 140
 - exercise and, 234
 - fiber and, 214
 - garlic and, 110
 - green tea and, 154, 155
 - incidence of African-Americans, 17–18
 - incidence of Japanese people, 16–17
 - microbiomes, 77
 - mushrooms, 219
 - obesity and incidence of, 47, **49**
 - olive oil and, 177
 - omega-3s and, **178**
 - PEITC and, 101
 - pomegranates, 223
 - proanthocyanidins and, 168
 - red wine and alcohol, 206–7
 - rosemary and, 143
 - turmeric and, 141–42
 - vitamin D and, 238
- colorectal cancer
 - algae consumption and, 221
 - chocolate and, 229

- fiber and, 214
- inflammation as cause of, 45
- processed meats, 239
- synthetic molecules and, 215

communication about causes of cancer, 14, 234

compounds, nutritional origin vs synthetic molecules, 85–86

cost of cancer treatment, 12

COX-2 (cyclooxygenase-2)

- anti-inflammatory drugs and, 51
- curcumin and reduction of, 141
- NF- κ B and, 46
- omega-3 and, 178
- plant foods and, 68
- ursolic acid and, 143

cranberries, 163–64

cruciferous vegetables

- anticancer effects of, 96–97, **242**, 243
- cooking effects, 99
- described, 94, 97
- genetic disorder mitigation, 64
- glucosinolate content in, 97, 98
- nutraceuticals, **243**
- phytochemical compounds in, 97
- studies and, 81

See also cabbage

curcumin, 139–42

curry described, 139

cyclooxygenase-2 (COX-2). *See* COX-2 (cyclooxygenase-2)

D

DADS (diallyl disulfide), 111–12

DAS (diallyl sulfide), 111–12

De agri cultura (Cato the Elder), 95

development of cancer

- blood vessels and, 42–43, 51
- cellular environment, 50
- healing process and, 44, 46
- inflammatory cells, 43–50
- inhibitors in garlic and onions, 113–14
- macrophages and growth factors, 44
- procarcinogenic factors in cells, 42–43
- slowness, 33, 38

See also chemotherapy drugs; stages in cancer development

diallyl disulfide (DADS), 111–12

diallyl sulfide (DAS), 111–12

diet

- balancing, 233

- calorie intake reduction, 238–39
- cause of cancer, 20, 22–24
- diversity of, 243–44, 243–45
- first humans and, 175
- globalization, 24
- incidence of cancer, 23
- industrialization and, 55
- intervention at promotion stage, 34
- previous generations vs today, 22–23, 175
- reduction of cancer risk, 80–83
- synergy of compounds, 247–49
- digestive system cancers and alcohol, 22
- diseases, fatal vs chronic, 52
- diseases with link to cancer, **45**
- DNA
 - antioxidants and, 84–85
 - chemotherapy drugs and, 36
 - ellagic acid, 165
 - garlic and mutation prevention, 113
 - mutations, 33–34
 - nucleus, 28, 29
 - resveratrol and repair of, 209
 - rule 2 and, 32
 - UV rays and, 235
- drugs
 - citrus fruit and, 195–96
 - imitation of enzymes, 61
 - synthetic or natural, 59–60, 62, 207
 - See also* chemotherapy drugs; treatments for cancer

- E
- EGCG. *See* epigallocatechin gallate (EGCG)
- ellagic acid in berries, 164–66
- emigration and incidence, 16–17. *See also* incidence
- emotions, 12
- emulsifiers and microbiome balance, 215
- endame, 118
- endometrium cancer, 102, 122
- environment (stroma), 41–42, 50, 75
- epigallocatechin gallate (EGCG)
 - anticancer agent actions, 86
 - anticancer potential in green tea, 153, 155
 - content in teas, **153**
 - curcumin and green tea, 246, **248**
 - structural diagram, 152
- esophageal cancer
 - alcohol and, 22, 235

- Barrett's metaplasia as cause of, 45
- berries and, 165, 167
- citrus fruits, 194
- coffee consumption and, 226
- garlic and, 110, 112
- green tea and, 155
- obesity and incidence of, 47, **49**
- PEITC and, 101
- estrogen
 - algae and levels of, 221
 - cell structures, **121**
 - flaxseeds and, 179
 - lignans and, 130–32
 - metabolism and I3C, 102
 - obesity and, 122
 - phytoestrogens and, 61
 - soy products and, 121–23
 - as tissue growth stimulator, 122
- exercise, benefits of, 234–35

- F
- fatal vs chronic disease, 52
- fats, 171–81
 - anticancer properties, 176, 177, 179–80
 - anti-inflammatory properties, 178
 - definitions, 174
 - olive oil, 176, 177, 186, 238
 - omega-3, 171, 173, 176, 179, 220
 - omega-6, 171, 175, **176**
 - polyunsaturated fatty acids, 171
 - structural diagrams of, 175
 - types, **172**
- fear of cancer, 12
- fiber consumption and cancer, 214–17, 220
- first-line preventive agents, 113
- fish, 173, 176, 178, 179, 180
- flaxseeds, 131, 132, 173, 179, 180
- food, 55–56, 56–58, 73, 74
- free radicals
 - about, 84
 - antioxidants and, 84, 85
 - formation in cells, 29
 - lycopene and skin, 188
 - mitochondria formation of, 29
 - mutations, 29, 34
- fruits
 - anticancer properties, **80**

myths about, 240
organic, 240
polyphenols in, 78
selection during evolution, **57**
See also specific fruit names

G

garlic, 108–13
 about, 105, 106, 108, **111**
 allicin benefits, 109
 alliinase activity, 108–9
 antibacterial effects, 108
 anticancer potential, 110
 apoptosis caused by, 113
 cancer prevention, 110
 chemical changes to, 108, 109
 chopping and crushing effect on, 108
 compounds derived from, 112
 medicinal properties of, 111–12
 preparation effect on, 108
 protective effect, 113
 quercetin in, 113
 supplements, 109
genes
 BRCA, 13, 14, 50
 cell differentiation, 30–31
 damage to, 206
 defense against toxins and, 64
 development process of cancer, 33–35
 mitigation of disorders in, 64
 mutations, 30, 32, 142, 215, 235
 nucleus and, 28, **29**
 predisposition to cancer, 12–14, 42, 187
 preventive therapy and, 64
genetically modified organisms (GMO), 240
genistein, anticancer function, 123
glucosinolates in vegetables, 97–99, 100–102
grapefruits, 192
green tea. *See* tea

H

hangover cure, 95
hazelnuts, 164, 167
head cancers, 225
heart disease prevention, 178, 236

Helicobacter pylori, 45, 100–101
herbs, 78, 135–45
heredity vs lifestyle as cause of cancer, 12–24, 50–51
hesperidin, 193
history of food selection, 56–58
hormone-dependent cancers, 122, 123, 129, 227
human papilloma virus (HPV) and I3C, 102

I

I3C (indole-3-carbinol), 102
immune system
 omega-3 fats, 178
 turmeric, 141
incidence
 East vs West, 15–17, 123
 emigration and, 16–19
 India vs other countries, **139, 140**
 lifestyle, 51
 low rates and foods, 83
 map of world, 15
 obesity and, 46–49
indole-3-carbinol in broccoli, 102
indoles, 97–98
industrially produced foods, 237, 238
inflammation, 43–50
 cause of cancer, 43–46
 citrus fruit and, 193–94
 curcumin, 141
 exercise and, 234
 fats and, 175
 flaxseed, 132
 foods to reduce, 67–68, 132, 141, 143, 156–57
 herbs, 143
 intestinal bacterial flora, 75, 77, 214–15
 olive oil and, 177
 omega-6 and, 175
 processed vs plant-based food, 51
 studies with anti-inflammatories, 51, 141
 synthetic vs natural, 141–42
 See also obesity
initiation stages in cancer development, 33–34
intervention at promotion stage, 34
intestinal bacteria and fiber, 214. *See also* microbiomes
intestinal cancer, curcumin and, 140
isoflavones, 120–23. *See also* soy
isothiocyanates, 87, 97–99, 101–2

J

junk food, cause of cancer, 23–24, 233

K

Kaposi sarcoma, 45

kidney cancer, 47, **49**, 155, 187–88

L

larynx, cancer of, 17–18, 235

leeks, 106

legume family, properties, 117

lemons, 193

leukemia, 101, 140, 155, 194

lifestyle vs heredity as cause of cancer, 12–24, 50–51

lignans, 130–32

liver cancer

alcohol and, 206–7, 235

coffee consumption and, 226

curcumin and, 140

fiber and, 214

green tea and, 154

hepatitis as cause of, 45

red wine and alcohol, 206–7

lung cancer

apple and pear consumption, 225

cabbage and, **96**

garlic and NNK, 113

green tea and, 154, 155

incidence of, 15

incidence of African-Americans, 17–18

incidence of Japanese people, 16–17

PEITC and, 101

pomegranates, 223

soy consumption and, 125–26

tobacco as cause of, 22

luteolin, 143

lycopene, 185–89

lymphomas and vitamin D, 238

M

macrophages, about, 44

macular degeneration protection, 185

MALT lymphoma, *H. pylori* as cause of, 45
mandarins, 193
maps worldwide incidence, 15
meat consumption, 19, 239
medicine and links to diet, 58
melanoma, 141–42, 188, 235
menopause, 126–27, 132
mesothelioma, 45
metastases, 35
microbiomes
 fiber, 214–15
 phytochemical compounds, 205
 phytochemicals, 77
 sweeteners, 215
 Western diet and, 215
micronutrients and macronutrients in food, 73
miso, source of soy, 118
morphine as insecticide, 75
mouth cancer
 alcohol and, 206–7, 235
 citrus fruits, 194
 coffee consumption and, 226
 green tea and, 154, 155
 red wine and alcohol, 206–7
mushrooms, 217–20
myths about fruits and vegetables, 240

N

narcotics as cause of cancer, 19
nasopharyngeal cancer, 236
Natural History (Pliny the Elder), 108
neck cancers, 225
neovascularization of tumors, 51
NF- κ B (nuclear factor- κ B), 46
nicotine as insecticide, 75
nitrosamines, carcinogenic potential of, 112
nuclear factor- κ B (NF- κ B), 46
nucleus of cells, 28, 29
nutraceuticals
 defined, 7, 79
 free radical neutralizers, 85
 gastronomic enjoyment of, 164, 251
 pharmaceuticals compared to, **144**
 targets of, **243**
nuts, 164, 167, 178–79, 204–5

O

- obesity, 47–50
 - cause of cancer, 19, 22, 47, 49
 - cells and, 47
 - estrogen levels and, 122
 - exercise, 234
 - inflammation and, 47–50
 - intestinal bacterial flora, 77
 - microbiomes, 215
 - plants and reduction of, 75
- olive oil. *See* fats
- omega-3, 171, 173, **176**, 179, 220
- omega-3 fatty acids, 171–81, 179
- omega-6, 171, 175, **176**
- onions
 - about, 105, 106, 108
 - anticancer properties, 113
 - enzyme production when cut, 110
 - preparation of, 110
 - quantity required for decrease in risk, 110–11
 - smell when cutting, 110
 - stomach cancer, 113
 - sulfenic acids production, 110
 - tears when cutting, 106
- oranges, 192
- organic fruits and vegetables, 240
- ovarian cancer
 - curcumin and, 140
 - hereditary risk, 13
 - incidence of Japanese people, 16–17
 - inflammation as cause of, 45
 - mushrooms, 220
- overweight. *See* obesity

P

- pancreatic cancer, 17–18, 141–42, 179, 194
- papillary thyroid cancer, 45
- Pasteur, Louis, 108
- peaches, 224–25
- PEITC (phenethyl isothiocyanate), 101–2
- pesticides in fruits and vegetables, 240
- phenethyl isothiocyanate (PEITC), 101–2
- physical inactivity and cancer, 19, 22
- phytochemical compounds, 73–87
 - anthocyanidins, 166–67
 - antioxidants and, 83, 85

- berries, 164–68
- Brussels sprouts, 93
- cabbage, 97–99
- chocolate, 227, 229
- citrus fruits, 193–94
- coffee, 226
- combinations of, 142
- described, 73, 74
- ellagic acid, 164–66
- enhancing effects of, 195–96
- in foods, **82**
- garlic, 108
- groups, **78**
- identification methods in foods, 77–78
- intestinal bacterial flora, 77, 205
- isothiocyanates, 85
- onions, 106
- polyphenols, 78, **79**
- proanthocyanidins, 167–68
- resveratrol, 203–10
- soy, 118
- structural diagrams of, **82**, 164
- wine, 202–10
- phytoestrogens and estrogens, 61
 - algae, 221
 - classes of, **130**
 - flaxseeds and, 179
 - lignans, 130–32
 - metabolism I3C, 102
 - obesity, 122
 - in soy products, 121–23
- piceatannol and cancer, 208
- plants, benefits of, 59, 62, 76, 241–43
- polyphenols. *See* phytochemical compounds
- polysaccharides, 219
- polyunsaturated fatty acids, 171–72
- pomegranates, 223–24
- powerlessness, 12
- preparation to activate compounds, 98–99, 108, 110, 133, 153, 186
- preservatives in foods, 21, 22, 112, 239
- prevention, recommendations for, 21, 232–51
- proanthocyanidins and chocolate, 167–68
- procarcinogenic environment, 41
- processed foods, 22, 23–24, 239
- progression stage in cancer development, 35
- promotion stage in cancer development, 34
- prostate cancer
 - algae and, 222–23

- cabbage and, **96**
- citrus fruit and, 194
- fucoxanthin, 222–23
- garlic and, 110
- genetics vs aging, 187
- green tea and, 154, 155
- incidence of African-Americans, 17–18
- lycopene and, 186–87
- omega-3s and, **178**, 179
- PEITC and, 101
- pomegranates, 223
- proanthocyanidins and, 168
- prostatitis as cause of, 45
- soy and, 122, 125
- vegetables to reduce tumors, 67, 69
- vitamin D and, 238

psychoactive properties of foods, 75

public health problem, 12

Q

quercetin in garlic family, 113

R

raspberries, 159–60

rates of cancer. *See* incidence

recommendations from cancer organizations, 21

rectum cancer, 16–17, 17–18

red meat, harmful effects of, 239

research

- anticancer molecules in plants, 58–59
- berries anticancer mechanisms, 165–66
- berries effect on inflammation, 68
- garlic anticancer properties, 112
- garlic supplements and allicin, 109
- I3C chemopreventive role, 102
- lycopene and cancer, 188
- promotion stage, 34
- turmeric effectiveness in fighting cancers, 141–42
- wine and cell lifespan, 208–9

See also studies

resveratrol

- Asian medicine and, 205
- cardiovascular disease, 205
- concentrations in foods, 204–5
- concentrations in red wine, 204

- grape juice and, 204, 205
- processing effects on concentrations, 205
- raisins and, 204
- red wine, 203–10

risk reduction behaviors, 20–22, 233–43

S

- salt, harmful effects of, 236–37
- scientific procedure and anticancer molecules, 67, 77–78
- scurvy, 168, 193
- seafood. *See* algae; fish
- seed and cancer comparison, 41–42, **50**
- Setsubun* festival in Japan, 119
- shallots, 107
- skin cancer
 - coffee consumption and, 226
 - curcumin and, 140
 - green tea and, 155
 - UV rays as cause of, 21, 22, 235–36
- smoking, harmful effects of, 19, 233–34
- soy, 117–32
 - anticancer compounds in, 83, 118, 123
 - breast cancer and, 125
 - consumption age, 125
 - consumption statistics, 119–20
 - controversy, 126–30
 - drug treatments and, 129
 - festival in Japan, 118–19
 - food sources of, 118–19
 - history, 117, 120
 - isoflavones and, 120–23
 - prostate cancer and, 125
 - receptor blocking, 122, 123
 - sauce, 118
 - second generation vs whole foods, 121
- spices, 78, 135–45
- stages in cancer development, **33**, 33–35, **86**. *See also* development of cancer
- statistics about cancer, 11–12, 15
- stomach cancer
 - alcohol, 22
 - cabbage and, **96**
 - citrus fruits, 194
 - curcumin and, 140
 - garlic and, 110, 112
 - green tea and, 154, 155
 - H. Pylori* as cause of, 45
 - mushrooms and, 218

- onions and lowering, 113
- PEITC and, 101
- proanthocyanidins and, 168
- salt consumption, 236
- sulforaphane and, 100–101
- strawberries, 161, 162
- stroma (environment), 41–42, 50, 75
- studies
 - algae and estrogen levels, 221
 - anti-inflammatories and cancer risk, 51
 - antioxidants vs supplements, 75
 - apples and pears with lung cancers, 225
 - breast cancer reduction through fruit, 80
 - breast cancer survivors and soy, 129–30
 - children, adopted, 13–14
 - chocolate and cancer, 229
 - citrus fruit and digestive tract cancers, 194
 - coffee and cancer, 226
 - colon polyps and broccoli, 102
 - cruciferous vegetables and cancer, 96
 - curcumin's anticancer effect, 140
 - foods and reduction of risk, **81**
 - garlic and cancer, 110–11
 - green tea beneficial actions, 154
 - heart disease prevention, 178
 - herbs and cancer prevention, 143–44
 - intestinal bacteria and colon cancer, 215
 - lifestyle vs heredity as cause of cancer, 15–18, 19
 - list of, **81**
 - Mediterranean diet, 245, **246**
 - microbiome and Western diet, 215
 - migrant populations and incidence, 16–19
 - missing enzymes and lung cancer, 64
 - mushrooms and cancer, 218
 - omega-3 benefits, 178, 179
 - onions and cancer, 110–11
 - orange juice and leukemia, 194
 - PEITC and cancer stem cells, 101–2
 - PEITC and toxic substances, 101
 - phytochemical compounds, 75
 - polysaccharides and lentinan, 219
 - pomegranates, turmeric, green tea and broccoli extract, 223–24
 - proanthocyanidins anticancer potential, 168
 - soy consumption and cancer, 123–26
 - sulforaphane as anticancer molecules, 100
 - tomatoes and cancer, 187
 - twins, 13–14
 - vitamin supplements effectiveness, 74, 84

wine and cardiovascular diseases, 201, 202
See also research
sulforaphane, 98, 100–101
sulfur in phytochemicals, 108
summaries
 chapter 1, 25
 chapter 2, 39
 chapter 3, 53
 chapter 4, 71
 chapter 5, 87
 chapter 6, 103
 chapter 7, 115
 chapter 8, 133
 chapter 9, 145
 chapter 10, 157
 chapter 11, 169
 chapter 12, 181
 chapter 13, 189
 chapter 14, 197
 chapter 15, 211
sun exposure, effects of, 235–36
sunscreen, 236
supplements. *See* vitamin supplements
sweeteners, microbiome balance, 215
synergy of compounds, 247–49

T

tangerines, 193
targets of nutraceuticals, **243**
tea, 146–57
 anticancer compounds in, 83, 151, 152, 153
 chemical structural diagrams, 152
 composition of black and green, 150, 151
 concentration of EGCG, 155
 consumer statistics, 151
 EGCG content of, **153**
 flavanols in green tea, 151
 green, 151–56
 herbal, 168
 history, 147, 149, 150–51
 infusion process, 153, 154
 medicinal, 146
 oxidation, 150
 phytochemicals in, 73, 78, 151, 154, 227
 preference in East vs West, 150
 production processes, 148
 source of, 149

- statistics, 149–50
- terpenes in herbs, 142
- thyroiditis, 45
- tissue growth stimulators, 122
- tobacco, 19, 101, 113, 233–34
- tofu, 119. *See also* soy
- tomatoes, **182**, 182–89
- treatments for cancer, 35–38
 - cost of, 12
 - enzyme inhibition, 60
 - heterogeneity of tumors, **37**, 37–38
 - immunomodulators, 220
 - lentinan with chemotherapy, 219
 - phytochemical compounds, 75
 - plant based, 62
 - preventive, 63–67
 - PSK with chemotherapy, 219
 - resistance mechanisms, 36–37
 - side effects, 36
 - soy interaction with, 129
 - synergy of compounds, 247–49
 - See also* chemotherapy drugs; drugs
- tumor cell growth inhibition
 - berries, 165
 - chocolate, 228
 - citrus fruit, 194
 - cruciferous vegetables, 96
 - garlic and onions, 112
 - omega-3, 179
 - soy, 122
 - tomatoes, 187
 - turmeric, 140
- tumor death
 - cruciferous vegetables, 100
 - garlic and onions, 113
 - turmeric, 141
- tumors
 - algae effect on, 222
 - formation in body, 64–65
 - generic terms and distinct diseases, 37–38
 - growth, 33–35, 38, 43, 50, 246
 - protective foods and, 66, 130, 155, 165–66
 - size and effectiveness of treatment, 67, 142
 - treatment of, 35, 37, 67–68
 - turmeric, 141
 - See also* angiogenesis; inflammation; stages in cancer development
- tumors, death of
 - berries, 166

turmeric, 137–42
absorption by body, 142
anticancer compounds in, 83, 140, 141–42
Ayurvedic medicine and, 138
bioavailability of, 142
curcumin, 139–42
curry vs, 139
history, 137–38
medicinal properties, 138–39, 139–41
names for, 138–39
polyps development and, 141, 142
tumor progression stages and, 141
uses of, 137–38
types of cancer, 15. *See also specific names of cancer*

U

ucchin. *See* turmeric
United States Department of Agriculture (USDA), 85
uterine cancer
coffee consumption and, 226
incidence of African-Americans, 17–18
incidence of Japanese people, 16–17
obesity and incidence of, 47, **49**
soy consumption and, 125–26
UV rays, 22, 188, 235–36

V

vampires and garlic, 106
vegetables, **57**, 78, 240. *See also specific names of vegetables*
VEGF and tumoral angiogenesis, 42–43
vitamins, 185, 193, 235, 238
vitamin supplements
antioxidants and, 83, 84
chronic disease protection, 74
effects of, 237–38
garlic, 109
omega-3 whole foods vs, 181
soy, 127–28

W

Wales and leeks, 106–7
walnuts, **173**
weight. *See* obesity
white blood cells, 44

wine, 199–210

wine, red

absorption rates of, 208

alcohol vs, 207

anticancer properties, 206–7, 208

cell lifespan, 209

consumption and mortality, 201–2

history of wine, 199–201

inflammation reduction, 67–68

phytochemicals in, 73, 78, 227

process vs white wine, 203

resveratrol, 203–10

World Cancer Research Fund, 20, 233

World Health Organization (WHO) statistics, 15, 49, 239