Index

Page numbers in italic refer to Figures; those in bold to Tables; those underlined to Definitions.

absolute risk reduction (ARR) 124
ACEIs (angiotensin converting-enzyme inhibitors) 65, 89
achondroplastic dwarfism 17
acromegaly 5, 17–18, 18, 23, 25, 127, 128
ACTH (adrenocorticotrophic hormone) 14, 15, 53, 127
  Addison’s disease 44, 50
  Cushing’s syndrome 42, 42, 43–44
  feedback loops 41, 41–42
  hypopituitarism 20, 25
  syndrome 118
Action to Control Cardiovascular Disease in Diabetes (ACCORD) trial 63
acute pancreatitis 110
Addison’s disease 6, 7, 11, 44–45, 49–51, 53–54, 127
  polyendocrine disorders 116
  secondary 46
adenomas, paraneoplastic syndrome 42
ADH (antidiuretic hormone) 2, 2, 7, 15, 21–26, 127
adrenal cortex 40, 40, 41, 53
adrenal crisis/shock 45
adrenal endocrinology 1, 40, 40–42, 41, 49–51, 53–54
  congenital adrenal hyperplasia 45–47, 53
  incidentaloma 48, 48–49
  see also ACTH; Addison’s disease; Cushing’s syndrome
adrenal medulla 47–48
adrenarche (pubarche) 95, 105
adrenocortical carcinoma 47
adrenocorticotropic hormone. see ACTH
advanced glycation endproducts (AGEs) 63
adult-onset diabetes. see type 2 diabetes
AF (atypical femoral fractures) 86
alcohol consumption, and osteoporosis 84
aldosterone 2, 11, 40, 41, 46–47, 54, 127
aldosteronism, secondary 47, 47
alendronate 85–86, 86
alkalosis, metabolic 82. see also diabetic ketoacidosis
alpha-glucosidase inhibitors 71, 72
amenorrhea 19, 24, 100, 103, 104, 106, 127
amino acid hormones 2
amiodarone 29
amplification cascades 3, 3
amylin (human islet amyloid polypeptide) 55, 71
amylin agonists 72, 127
anabolic phase, energy metabolism 54, 127
anaplastic thyroid carcinoma 37, 40
androgen insensitivity syndrome. see testicular feminization
androgen to estrogen (A:E) ratios, gynecomastia 99–100
androgens 40, 105. see also dihydrotestosterone; steroid hormones; testosterone
androgegetic alopecia 95
android obesity 102
andropause 97
angiotensin II 46, 46, 47, 47, 54, 127
angiotensin converting-enzyme inhibitors (ACEIs) 65, 89
angiotensin receptor blockers (ARBs) 65
ANP (atrial natriuretic peptide) 1, 2, 47
antacids 82, 88, 89
anterior pituitary gland 1, 14, 14, 15
antibiotics 51, 70
antibody-mediated endocrine organ destruction. see autoimmune diseases
antidepressants, hyperprolactinemia 19
antidiuretic hormone (ADH) 2, 2, 7, 15, 21–26, 127
antihyperglycemic agents, diabetes mellitus therapy 69
antithyroid peroxidase (TPO) 38
apo-B-rich lipoproteins 107, 109, 110
apolipoproteins 107, 108, 127
Index

ARBs (angiotensin receptor blockers) 65
arginine vasopressin 2, 2, 7, 15, 21–26, 127
ARR (absolute risk reduction) 124
aspart 67, 67
astronauts, osteoporosis 84
atherosclerosis 27, 107, 109, 110, 112, 115
atorvastatin 111
atrial natriuretic peptide (ANP) 1, 2, 47
atypical femoral fractures (AF) 86
autoimmune atrophic thyroiditis 29
autoimmune diseases 29, 31, 44, 57–58, 127
diagnosis 10
hormone deficiency and excess syndromes 6, 7
polyendocrine disorders 116
thyroid endocrinology 33
see also Graves' disease; Hashimoto's thyroiditis; type 1 diabetes
autonomic neuropathy 64

bad cholesterol. see low-density lipoproteins
baldness, male pattern 95
Banting, Fred 66
bariatric surgery 60–61
Bayes' Theorem 121
becquerels 9, 127
beta-blockers 32, 33, 34, 38, 48
beta-hCG (human chorionic gonadotropin) 2, 30, 93, 97–98
beta lipoproteins. see low-density lipoproteins
beta particles 8, 28, 127
biguanides 70
bile acid sequestrants/resins 72, 111, 112, 116, 120, 127
bile acids 106
binding proteins. see carrier proteins
biomarkers of disease. see genetic markers of disease
bisphosphonates 83, 85–87, 86, 92, 118
blindness, diabetes mellitus 64
body mass index (BMI) 60
body proportions, abnormal 96–97, 97, 98, 104, 106
bone 15, 80, 81, 84, 85, 87, 91. see also osteoporosis
bone age (BA) studies 95–96, 105
boys, growth curves 16, 16
Brassicaceae (brassica family) vegetables 31–32
breast cancer 82, 86, 99
bromocriptine 19, 72
bruising, exogenous Cushing’s syndrome 43, 43, 53
buffalo hump 43
burn victims 5
cabbage family (Brassicaceae) 31–32
cabergoline 44
cachexia 42
CAH (congenital adrenal hyperplasia) 45–47, 53, 127
calcidiol 80
calcification, ectopic 8
calcitonin 80, 86, 118, 127
calcitriol 80
calcium metabolism 3, 79–80, 88–89, 91–92
bone 80, 84, 91
osteoporosis 84–87, 85, 86
regulation 79
serum calcium concentration vs. PTH levels 83–84, 84
transport 79
vitamin D deficiency 87
see also hypercalcemia; hypocalcemia
calcium-sensing receptor (CaSR) 80
canagliflozin 72
candidiasis, mucocutaneous 116
CAPD (continuous ambulatory peritoneal dialysis) 65
car fueling analogy, feedback inhibition 4
carbohydrate counting, diabetes mellitus 68
carbamazepine 22, 23
carcinoid tumors 117
cardiac hormones, sodium metabolism 47
cardiovascular disease 30, 109, 110, 115, 120
carrier proteins 3, 3
calcium 79, 79, 91
lipids 107
thyroid-binding globulin 34
thyroxine 28
catabolic phase, energy metabolism 55, 127
catecholamine hormones 2, 3, 4, 5, 47–48, 54, 127. see also dopamine; epinephrine; norepinephrine
cell membranes 106
cell surface receptors, hormones 3, 3
central diabetes insipidus 22, 23, 25–26
central obesity 43, 49, 53, 101
certified diabetes educators (CDEs) 69
CGM (continuous glucose monitoring) 69, 69
children
diabetes mellitus 10, 62, 63
gonadal axis 94
testosterone deficiency 98
chlorpropamide 22, 23
cholesterol 2, 40, 41, 106, 107, 112, 115, 127
carboxylic acid structure 2
clinical trials 120
exogenous and endogenous pathways 108, 108–109
hyperlipidemia 109, 110, 111
cholesterol absorption inhibitors 111, 112, 115–116
Cholesterol Lowering Atherosclerosis Study 120
cholestyramine 111, 120
Chvostek’s sign 83, 88
chylomicronemia syndrome 110
chylomicrons 107, 107, 108, 109, 111, 115, 127
cigarette smoking, calcium metabolism 84, 86, 89
cinacalcet 81
classical endocrine glands 1
clinical trials 119–120, 120, 125–26
number needed to treat 123–125, 124, 125
positive predictive value 121, 121, 121–122
sensitivity and specificity 120–121
statistical significance 122–123, 125, 126
type 1/2 errors 122–123, 123, 125, 125
colesevelam 72, 111, 112.
seealso bile acid sequestrants
colestipol 111, 120
colloids 127
colon-stimulating factors, cytokines 5
computed tomography (CT) 9, 10, 14, 48, 127
computer analog, thyrotoxicosis 30
confounding variables 42, 83, 88, 92, 123, 125–126
congenital adrenal hyperplasia (CAH) 45–47, 53, 127
congenital hypothyroidism 29
Conn’s syndrome 46
constitutional short stature 16–17, 17, 25
continuous ambulatory peritoneal dialysis (CAPD) 65
continuous glucose monitoring (CGM) 69, 69
corneal arcus, hyperlipidemia 110
coronary artery disease 30, 109, 110, 115, 120
corticosteroids, synthetic. see glucocorticoids
corticotropin (adrenocorticotropic hormone). see ACTH
corticotropin-releasing hormone (CRH) 15, 127
cortisol 5, 11, 53. see also Cushing’s syndrome;
  glucocorticoids; hydrocortisone
cortisone 24, 41–42, 41, 45, 127, 128
cosyntropin (synthetic ACTH) test 11
creatine clearance 65, 81
cretinism 29
CRH (corticotropin-releasing hormone) 15, 127
CT (computed tomography) 9, 10, 14, 48, 127
Curie, Marie 8–9
Cushing’s disease 7, 42, 44, 45, 49, 53, 118, 127
cytochrome P450 oxygenases 40
cytokines 1, 5, 127
dapagliflozin 72
de Vinci, Leonardo 96
delayed puberty 95, 95–96, 98
demeclocycline 23
denosumab 86, 86
deoxytocorticosterone (DOC) 45
demopressin 7, 22
destructive thyroiditis 33, 33–34, 38, 39
detemir 67
DEXA (dual-energy X-ray absorptiometry) 85, 88, 92
dexamethasone 45
dexamethasone suppression test 11, 43
DHA (docosahexaenoic acid) 112
DHT (dihydrotestosterone) 95, 103
Diabetes Control and Complications Trial (DCCT) 63, 77,
119, 120
diabetes insipidus (DI) 22, 26, 127
diabetes mellitus (DM) 6, 7, 11, 59, 69, 74–75, 77–78,
127
antiuretic hormone 22
clinical trials 119–120
complications 62, 63–66, 64, 66
diagnostic criteria/diagnosis 10, 57
epidemiology 58
estrogenic markers 10
gestations 56, 61–62, 77, 128
glucose metabolism 55–59, 56, 58, 59, 63
growth hormone 18
lipid disorders 111, 112–113, 115
monitoring 62, 62–63, 69, 69, 77
and obesity 61–62
prevention and cure 72–73
secondary 58, 61–62
team approaches 69
therapy 66–74, 68, 69, 72. see also insulin; type 1
diabetes; type 2 diabetes
diabetic ketoacidosis (DKA) 65–66, 66, 74–75, 78
dialysis 65
diet therapy
diabetes mellitus 67–68, 68, 78
lipid disorders 111, 115
osteoporosis 86, 86
see also nutritional deficiencies
differentiated epithelial thyroid cancers 36–37
dihydrotestosterone (DHT) 95, 103
dipeptidyl peptidase-4 (DPP-IV) inhibitors 71, 72, 78, 128
disorders of sexual differentiation (DSD) 45, 102–103, 103, 104, 128
DKA (diabetic ketoacidosis) 65–66, 66, 74–75, 78
DOC (deoxycorticosterone) 45
docosahexaenoic acid (DHA) 112
dopamine 15, 19, 128
dopamine agonists 19, 72
DPP-IV inhibitors 71, 72, 72, 78
drug therapies. see pharmacologic agents
dual-energy X-ray absorptiometry (DEXA) 85, 88, 92
dwarfism, achondroplastic 17
dwarfism, psychosocial 17
dyslipidemia. see hyperlipidemia
dyspareunia (painful intercourse) 100
ectopic syndrome. see paraneoplastic syndrome
ectopic calcification 8
eicosanoid prostaglandins 2
eicosapentaenoic acid (EPA) 112
endocrine disrupters 128
endocrine pancreas 1
endocrine system/endocrinology 1, 1, 1, 13–14
   disorders 4, 6–8. see also specific disorders
genetic markers of disease 10, 10
   imaging 8–10, 9, 14
   immune system interactions 5
   see also hormones
endogenous lipid pathways 108, 108–109, 115
endogenous thyrotoxicosis. see hyperthyroidism
energy supply and storage, hormone function 1–2
environmental triggers
   autoimmune diseases 6, 10
   diabetes mellitus 57, 59
EPA (eicosapentaenoic acid) 112
epidemiology
   diabetes mellitus 56, 58, 72
   number needed to treat 123–125, 124, 125
   osteoporosis 84
   primary hyperparathyroidism 80
epinephrine 128
epithelial thyroid cancers 36–37, 37, 40
epithelial thyroid carcinoma 10
eruptive xanthomas 110, 110
erythromycin 64
Eskimos, Greenland 112
estradiol 11, 92, 93, 93, 105, 128
estrogen agonists 102
estrogen deficiency 100–101, 106. see also menopause;
   osteoporosis
estrogen, male 90
estrogen therapy 21, 84–86, 86, 91–92, 99, 101
ethnic groups, osteoporosis 84
etomidate 40
eunuchoidal body proportions 96–97, 97, 98, 104, 106
euthyroid sick syndrome 5, 128
evidence-based medicine 119. see also clinical trials
evothyroxine 21
exocrine glands 1
exogenous Cushing’s syndrome 43
exogenous lipid pathways 108, 108–109, 115
exophthalmos 32, 32–33
ezetimibe 111, 112, 115–116
factitious hormone administration 7, 8
   hyperthyroidism 34, 38, 40
   insulin 73–74, 79
Familial Atherosclerosis Treatment Study (FATS) 120
familial combined hyperlipidemia (FCHL) 109, 115
familial hypercholesterolemia 115
familial hypertriglyceridemia 110
familial paraganglioma 48
familial pheochromocytoma 10
fasting hypoglycemia 73
fatty acid hormones 2
FCHL (familial combined hyperlipidemia) 109, 115
feedback inhibition 2, 4, 4, 128
   adrenal gland/hormones 41, 41–42, 42
   calcium metabolism 81
   lipid metabolism 108
   testicular function 92
   thyroid hormones 27
female by default hypothesis 93
femoral fractures, atypical (AF) 86
fibric acid derivatives (fibrates) 111, 112, 116, 128
fight or flight (stress) hormones 15, 40, 47, 53
fine needle aspiration (FNA) biopsy 9, 35, 38, 40, 50
first-pass phenomenon, deficiency syndromes 7
fish oils 112
fluorocortisone 45, 46, 128
follicular thyroid carcinoma 36–37, 37
follicle-stimulating hormone. see FSH
food pyramid, diet therapy 68
foot problems, diabetes mellitus 64, 64
football team analogy 1, 3
   adrenal gland/hormitis 40
   glucose metabolism 54
HPA axis 14, 25
thyroid gland/hormones 26, 27, 31
fragility fractures, bone health 81
Framingham study 120
Fredrickson classification, hyperlipidemia 109, 109
FSH (follicle-stimulating hormone) 2, 19, 128
hypogonadism 97–98
hypopituitarism 20–21
HPA axis 15
ovarian function 92–93, 93
puberty 94, 94
reproductive endocrinology 105

GAD (glutamic acid decarboxylase) 57
galactorrhea 25
gamma radiation 8, 9, 128
gastric pacing 64
gastrinoma, multiple endocrine neoplasia syndromes. 117
gastrointestinal system 1, 2
gastroparesis, diabetic 64
gemfibrozil 120
gender development. see disorders of sexual differentiation

genetic markers of disease 10, 10, 60
pheochromocytoma 48
thyroid cancer 40
thyroid nodules 36
type 1 diabetes 57–58

genetics
hypogonadism 97, 98
hypopituitarism 20
osteoporosis 84
polyendocrine disorders 116

gestational diabetes mellitus 56, 61–62, 77, 128
GHRH (growth hormone-releasing hormone) 15, 128

gigantism 5, 17–18, 18, 23, 25, 127, 128
girls, growth curves 16
glargine 67, 67
glomerular filtration rate (GFR), diabetic nephropathy 65
glucagon 1, 55, 128
glucagon-like peptide-1 (GLP-1) agonists 69, 71, 71, 72, 78, 128

glucocorticoids 40, 53. see also cortisol and see below

glucocorticoids, synthetic 7–8, 41, 46
Addison’s disease 45
burn victims 5
congenital adrenal hyperplasias 46
Cushing’s syndrome 43
exophthalmos 32–33

osteoporosis 85
secondary diabetes 61
short stature 17
vitamin D-dependent hypercalcemia 83
see also hydrocortisone
glucocorticoid-remediable aldosteronism (GRA) 46

glucose, chemical structure 54

hyperglycemia 5, 6, 7, 15, 18, 56
obesity 59–62, 60, 77
vitamin D 80
see also diabetes mellitus; hypoglycemia; insulin

glucose suppression test 5
glucose tolerance test 11, 18
glucose toxicity 59

glycogen 1–2, 54–55, 54, 128
glycoprotein hormones 2, 3, 4, 30, 93, 97–98, 128.
see also FSH; LH; TSH

GnRH (gonadotropin hormone releasing hormone) 15, 128
amenorrhea 100
hypogonadism 96, 97
ovarian function 92–93
puberty 94, 94, 96
testicular function 92
goiter 4, 6, 24, 29, 31, 34, 37, 128
gonadotropins 19, 20–21. see also FSH; GnRH; LH
gonads 1, 2, 40, 93–94, 94. see also ovarian function; puberty; testicular function

good cholesterol. see high-density lipoproteins

GRA (glucocorticoid-remediable aldosteronism) 46
Graves' disease 7, 31, 31, 34, 38, 39, 128
exophthalmos 32, 32–33
polyendocrine disorders 116
pretibial myxedema 33

Greenland Eskimos 112
growth, hypogonadal proportions 96–97, 97, 98, 104, 106
growth curves 16, 16–18, 17, 18
growth hormone (GH) 11, 14–18, 17, 18, 23, 25, 128
hormone measurement 5

hypopituitarism 21
pituitary tumors 20
growth hormone (GH) (continued)
treatment of deficiency syndromes 7
type 2 diabetes mellitus 59
growth hormone-releasing hormone (GHRH) 15, 128
growth velocity curves 16, 16
gynecomastia 99–100, 128

hamburger thyrotoxicosis 34
Hashimoto’s thyroiditis 11, 29, 38, 39, 128
diagnosis 10

Helsinki Heart Study 120
hemochromatosis 6–7
hermaphrodisim 128. see also disorders of sexual
differentiation
HHM. see humoral hypercalcemia of malignancy
high-density lipoprotein (HDL) 107, 107, 115, 128
exogenous and endogenous pathways 108, 108, 109
hyperlipidemia 109–110, 112
clinical trials 120

hormone(s) 1, 1, 13–14

deficiency and excess 4, 6–8, 11, 13–14, 17–18.
see also specific conditions
function 1–2
measurement 5, 5–6
mechanism of action 3, 3–4
regulation 4, 4
structure and composition 2, 2–3
‘hot’ thyroid nodules 35, 35
HPA (hypothalamic-pituitary) axis 2, 14–15, 25
adrenal gland/hormones 41, 42
puberty 94, 94, 96
thyroid gland/hormones 28, 39
see also hypothalamus endocrinology; pituitary
endocrinology
human islet amyloid polypeptide 55, 71
human chorionic gonadotropin (beta-hCG) 2, 30, 93,
97–98
humoral hypercalcemia of malignancy (HHM) 82, 83, 89,
117
hydrocortisone 24, 41–42, 41, 45, 127, 128. see also cortisol
hyperaldosteronism 7, 46–47, 48, 54
hypercalcemia 80–884, 84, 89, 91, 116–118
hypercholesterolemia 116. see also hyperlipidemia
hyperfunction (hormone excess) 4, 6, 7–8, 11, 13–14,
17–18. see also specific conditions
hyperfunctioning (hot) thyroid nodules 35, 35
hyperglycemia 5, 6, 7, 15, 18, 56. see also glucose
metabolism
hypergonadotropic hypogonadism 98–99
hyperinsulinemia (insulin resistance) 6, 7, 59, 59, 102, 109
hyperkalemia 22, 45, 46, 47
hyperlipidemia 109–110, 112

Addison’s disease 45
glucose metabolism 55, 73–74, 75, 78–79
monitoring 62
unawareness 64
hypogonadal body proportions 96–97, 97, 98, 104, 106
hypogonadism 11, 21, 85, 96–100, 97, 106, 128
hypogonadotropic hypogonadism 97–98
hypokalemia 46, 47, 48, 50, 54, 118
hypopituitarism 22, 23
hypoparathyroidism 11, 21, 29, 83, 84, 88, 116, 128
hypophosphatemia 87
hypopituitarism 4, 7, 10, 11, 20–21, 25
hypothalamus endocrinology 6, 14–15, 25
ADH 21–23
amenorrhea 100
GnRH 92–93
<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tertiary hormone deficiency</td>
<td>20</td>
</tr>
<tr>
<td>hypothyroidism</td>
<td>4, 6, 11, 24, 28–30, 34, 38, 39, 128</td>
</tr>
<tr>
<td>atherosclerosis</td>
<td>27</td>
</tr>
<tr>
<td>epithelial thyroid cancers</td>
<td>37</td>
</tr>
<tr>
<td>hyperprolactinemia</td>
<td>19</td>
</tr>
<tr>
<td>hypopituitarism</td>
<td>21</td>
</tr>
<tr>
<td>lipid disorders</td>
<td>109, 115</td>
</tr>
<tr>
<td>IAPP (human islet amyloid polypeptide)</td>
<td>55, 71</td>
</tr>
<tr>
<td>ibandronate</td>
<td>86</td>
</tr>
<tr>
<td>IDDM (insulin-dependent diabetes)</td>
<td>57</td>
</tr>
<tr>
<td>interleukins</td>
<td>1, 5, 63</td>
</tr>
<tr>
<td>intermediate-density lipoproteins (IDL)</td>
<td>107, 108</td>
</tr>
<tr>
<td>IGF (insulin-like growth factor)</td>
<td>15, 18, 23, 25</td>
</tr>
<tr>
<td>ILA (islet cell antibodies)</td>
<td>57</td>
</tr>
<tr>
<td>imaging, endocrinology</td>
<td>8–10, 9, 14</td>
</tr>
<tr>
<td>immobilization, osteoporosis</td>
<td>84</td>
</tr>
<tr>
<td>immune–endocrine system interactions</td>
<td>5</td>
</tr>
<tr>
<td>immunoenocrine syndromes</td>
<td>116</td>
</tr>
<tr>
<td>immunosuppressive regimens</td>
<td>7–8</td>
</tr>
<tr>
<td>insulinoma</td>
<td>48–49</td>
</tr>
<tr>
<td>incretin mimetics</td>
<td>69, 71, 71, 72, 78, 128</td>
</tr>
<tr>
<td>inflammatory responses</td>
<td>2, 6. see also cytokines</td>
</tr>
<tr>
<td>inhibitory hormones</td>
<td>4</td>
</tr>
<tr>
<td>inhibitory tests</td>
<td>11</td>
</tr>
<tr>
<td>diabetes mellitus therapy</td>
<td>66–69, 68, 69, 71, 72, 75, 78</td>
</tr>
<tr>
<td>factitious administration</td>
<td>73–74, 79</td>
</tr>
<tr>
<td>glucose metabolism</td>
<td>55, 55</td>
</tr>
<tr>
<td>pharmokinetics</td>
<td>67</td>
</tr>
<tr>
<td>pumps</td>
<td>68, 68–69, 73, 78</td>
</tr>
<tr>
<td>resistance</td>
<td>6, 7, 59, 59, 102, 109</td>
</tr>
<tr>
<td>secretagogues</td>
<td>72</td>
</tr>
<tr>
<td>insulin-dependent diabetes. see type 1 diabetes</td>
<td></td>
</tr>
<tr>
<td>insulin-like growth factor I (IGF-I)</td>
<td>15, 18, 23, 25</td>
</tr>
<tr>
<td>insulinoma</td>
<td>117</td>
</tr>
<tr>
<td>interferons</td>
<td>5</td>
</tr>
<tr>
<td>interleukins</td>
<td>1, 5, 63</td>
</tr>
<tr>
<td>intermediate-density lipoproteins (IDL)</td>
<td>107, 108</td>
</tr>
<tr>
<td>intersexuality. see disorders of sexual differentiation</td>
<td></td>
</tr>
<tr>
<td>intravenousin receptor antagonists</td>
<td>23</td>
</tr>
<tr>
<td>iodine atome</td>
<td>26–27</td>
</tr>
<tr>
<td>iodine deficiency</td>
<td>29</td>
</tr>
<tr>
<td>iodine, radioactive. see radioactive iodine</td>
<td></td>
</tr>
<tr>
<td>iodothyronine hormones</td>
<td>3, 39, 128</td>
</tr>
<tr>
<td>ionized (unbound) calcium</td>
<td>79, 79, 91</td>
</tr>
<tr>
<td>ionizing radiation</td>
<td>9, 10, 14</td>
</tr>
<tr>
<td>IQ, and diabetes mellitus</td>
<td>62, 63</td>
</tr>
<tr>
<td>iron deficiency anemia</td>
<td>63</td>
</tr>
<tr>
<td>islet cell antibodies (ILA)</td>
<td>57</td>
</tr>
<tr>
<td>juvenile diabetes. see type 1 diabetes</td>
<td></td>
</tr>
<tr>
<td>Kallmann syndrome</td>
<td>10, 97, 129</td>
</tr>
<tr>
<td>Kennedy, President John F.</td>
<td>44</td>
</tr>
<tr>
<td>ketoacidosis, diabetic (DKA)</td>
<td>65–66, 66, 74–75, 78</td>
</tr>
<tr>
<td>ketoconazole</td>
<td>40</td>
</tr>
<tr>
<td>kidney, endocrine function. see also nephropathy; renovascular hypertension</td>
<td></td>
</tr>
<tr>
<td>Klinefelter syndrome</td>
<td>98, 100, 104, 129</td>
</tr>
<tr>
<td>lanreotide</td>
<td>18</td>
</tr>
<tr>
<td>latent autoimmune diabetes in adults (LADA)</td>
<td>57</td>
</tr>
<tr>
<td>LDL. see low-density lipoproteins</td>
<td></td>
</tr>
<tr>
<td>lecithin-cholesterol acyltransferase (LCAT)</td>
<td>108</td>
</tr>
<tr>
<td>leukotrienes</td>
<td>2</td>
</tr>
<tr>
<td>levothyroxine</td>
<td>21, 24, 29, 30, 38</td>
</tr>
<tr>
<td>Leydig cells</td>
<td>25, 92, 92, 105, 129</td>
</tr>
<tr>
<td>LH (luteinizing hormone)</td>
<td>2, 19, 25, 129</td>
</tr>
<tr>
<td>hypogonadism</td>
<td>97–98</td>
</tr>
<tr>
<td>hypopituitarism</td>
<td>21</td>
</tr>
<tr>
<td>HPA axis</td>
<td>14, 15</td>
</tr>
<tr>
<td>puberty</td>
<td>94, 94</td>
</tr>
<tr>
<td>reproductive endocrinology</td>
<td>92–93, 93, 105</td>
</tr>
<tr>
<td>licorice</td>
<td>47, 50</td>
</tr>
<tr>
<td>lipemia retinalis</td>
<td>110</td>
</tr>
<tr>
<td>lipid metabolism/lipids</td>
<td>1–2, 106–107, 112–113, 115–116, 120</td>
</tr>
<tr>
<td>exogenous and endogenous pathways</td>
<td>108, 109, 115</td>
</tr>
<tr>
<td>lipoproteins</td>
<td>107, 107–108</td>
</tr>
<tr>
<td>primary disorders</td>
<td>109, 109–110</td>
</tr>
<tr>
<td>secondary disorders</td>
<td>109–110, 115</td>
</tr>
<tr>
<td>see also hyperlipidemia</td>
<td></td>
</tr>
<tr>
<td>Lipid Research Clinics—Coronary Primary Prevention Trial (LRC-CPPT)</td>
<td></td>
</tr>
<tr>
<td>lipoprotein lipase</td>
<td>107, 108, 108</td>
</tr>
<tr>
<td>lipoproteins</td>
<td>107, 107–108, 115, 129</td>
</tr>
<tr>
<td>local osteolytic hypercalcemia (LOH)</td>
<td>82, 117, 118</td>
</tr>
<tr>
<td>lomitapide</td>
<td>110</td>
</tr>
<tr>
<td>lorcaniserin</td>
<td>60</td>
</tr>
<tr>
<td>lovastatin</td>
<td>111, 120</td>
</tr>
<tr>
<td>low-dose dexamethasone suppression test</td>
<td>43</td>
</tr>
<tr>
<td>lung cancer</td>
<td>82, 89, 117–118</td>
</tr>
</tbody>
</table>
luteinizing hormone. see LH
lymphocytes, endocrine function 1
lymphocytic hypophysitis 21

Macleod, J.J.R. 66
macroadenomas 19–20, 20
macroprolactinemia 19
macrovascular diseases 63–66
magnetic resonance imaging (MRI) 9–10, 14, 20, 129
male pattern baldness 95
malignancy-related hypercalcemia 82
MARS (Monitored Atherosclerosis Regression Study) 120
maturity-onset diabetes of the young (MODY) 10
medication. see pharmacologic agents
medullary thyroid carcinoma (MTC) 37, 40
meglitinides 70, 70, 72, 78, 129
melanocyte-stimulating hormone (MSH) 44
membranes, cell 106
MEN (multiple endocrine neoplasia) 10, 10, 48, 116–118
menopause 11, 21, 84–85, 97, 100–101, 106. see also osteoporosis
menstrual cycle 93
metabolic alkalosis 82. see also diabetic ketoacidosis
metabolic syndrome 59, 59, 77, 107
metanephrines 48
metformin 70, 70, 71, 72, 78, 129
methimazole 31–32, 33, 38
metoclopramid 64
microadenomas 19–20
microvascular diseases 63–66, 119
MIF (müllerian inhibitory factor) 93
mifepristone (RU-486) 44
milk-alkali syndrome 82, 89
mineralocorticoid hormones 4, 45, 46, 46, 53–54. see also aldosterone
mipomersin 110
MODY (maturity-onset diabetes of the young) 10
Monitored Atherosclerosis Regression Study (MARS) 120
monoclonal antibodies 86, 86
moon face 43, 53
MRI (magnetic resonance imaging) 9–10, 14, 20, 129
MSH (melanocyte-stimulating hormone) 44
MTC (medullary thyroid carcinoma) 37, 40
mucoctaneous candidiasis 116
müllerian agenesis, primary amenorrhea 100
müllerian inhibitory factor (MIF) 93
multinodular goiter 31, 31, 34, 38, 39, 129
multiple endocrine neoplasia (MEN) 10, 10, 48, 116–118
multiple myeloma 82
nateglinide 70, 70
negative predictive value (NPV), clinical trials 121, 121, 121–122
neoplasms, gynecomastia 100
nephrogenic diabetes insipidus 22
nephropathy, diabetic 65, 78
neuroendocrinology 1
neurofibromatosis (NF) 48
neurogenic diabetes insipidus 22, 25–26
neuropathy, diabetic 63–64, 75, 78
nicotinic acid (niacin) 111–112, 116, 120, 129
NIDDM (noninsulin dependent diabetes). see type 2 diabetes
nodules, thyroid 3, 14, 15, 34–36, 35, 38, 40
nomenclature, endocrine disorders 6–7
nonclassical endocrine organs 1
noninsulin dependent diabetes. see type 2 diabetes
noninsulinoma pancreatogenous hypoglycemia syndrome (NIPHS) 73
nonpolar (non-charged) hormones 3
norepinephrine 2, 47, 50, 129
normal distributions
bone density 85
hormone measurement 5, 5–6
NPH (N) insulin 66, 67
NPV. see negative predictive value
nuclear imaging 8–9, 14
nuclear medicine 129
null hypothesis, clinical trials 122
number needed to treat (NNT), clinical trials 123–125, 124, 125
nutritional deficiencies
bariatric surgery 61
diabetes mellitus 63
hypocalcemia 83, 88
see also diet therapy
obesity
classification 60
glucose metabolism 54–55, 59–62, 77
osteoporosis 84
polycystic ovary syndrome 102, 106
and secondary diabetes 61–62
octreotide 18, 34
omega-3 fatty acids 112, 112
oral contraceptives 101
oral hypoglycemic agents, diabetes mellitus therapy 69, 78
orchidectomy 11
orlistat 60
osteomalacia 87, 129
osteonecrosis of the jaw 86
osteopenia (low bone mass) 85, 87
osteoporosis 43, 81–83, 84, 88–89, 91–92, 129
   calcium metabolism 84–87
   DEXA scans 85, 88, 92
   therapy 85–87, 86, 91–92
ovarian function 92–93, 93, 102, 105
oxytocin 15, 21–23, 23, 25
Paget’s disease, bone 87
pancreas 1, 55, 72, 78
pancreatectomy, secondary diabetes 58
pancreatic islet tumors 116–117
pancreatitis 6, 61
panhypopituitarism 20–21, 25, 129
parafollicular (C) cells, thyroid gland 80
paraganglioma syndromes 10
paraneoplastic syndrome 7, 42, 45, 116–118, 129
parathyroid hormone (PTH) 79–80, 81, 83–84, 84, 87, 129.
   see also PTH-rP
parathyroid tumors 80–81, 116–117
patient expected event rate (PEER), clinical trials 124
PCOS (polycystic ovary syndrome) 61, 100, 102, 106
peptide hormones 3, 4, 7, 47
PET (positron emission tomography) 10
perturbation studies, hormone measurement 5
PGA (polyglandular syndrome) 116
pharmacologic agents
   mineralocorticoids 45, 46
   PTH 83
   statins 112, 112, 115–116, 128
   steroids 7–8, 51
   thyroxine 39
   see also glucocorticoids; hydrocortisone
phenetermine 60
phenylthiocarbamide (PTC) 31–32
pheochromocytoma 10, 47–48, 50–51, 54
phospholipids 106, 107, 108, 109
pigmentation, skin 44, 49–50
pituitary adenomas 117
pituitary apoplexy 21, 24
pituitary endocrinology 1, 14, 14, 15, 25
   ADH 2, 2, 15, 21–24, 25–6, 127
   hormone measurement 5
   hormone resistance 34
   hypogonadism 97
   hypopituitarism 4, 7, 10, 11, 20–1, 25
   prolactin 14, 15, 18–19
   see also ACTH; growth hormone; HPA axis; TSH
pituitary tumors 19–20, 20, 23–24, 25
   Cushing’s syndrome 42, 43–44, 53
   hyperprolactinemia 19, 25
   multiple endocrine neoplasia syndromes 116–117
   secondary hyperthyroidism 34
polycystic ovary syndrome (PCOS) 61, 100, 102, 106
polyendocrine disorders 116–118
polyglandular syndrome (PGA) 116
polypeptide hormones 3, 4, 7, 47
positive predictive value (PPV), clinical trials 121, 121–122
positrone emission tomography (PET) 10
posterior lobe, pituitary gland 14, 14, 21–23
postmenopausal women. see menopause
postpartum thyroiditis 33, 38
posturgical hypoparathyroidism 88
potassium metabolism 22, 45, 46, 47, 48, 50, 54, 118
pramlintide 71
precocious puberty (PP) 96, 96, 105
prediabetes 56
prednisone 45, 51
pregnancy 5, 6, 19, 24, 42
   diabetes mellitus 56, 61–62, 77, 128
   hyperthyroidism 32
   hypothyroidism 29–30
pregnenolone 40
pretest probability, clinical trials 122
pretibial myxedema 33
primary hormone deficiency syndromes 6, 11, 44.
   see also specific conditions
progesterone 93, 93, 105
proinsulin 55, 55
prolactin 14, 15, 18–19, 20, 21, 25
proptosis (protrusion of the eyes) 32, 32–33
propylthiouracil (PTU) 31–32
prostacyclins 2
prostaglandins 2, 112
protein hormones 2, 2
proteins, binding. see carrier proteins
pseudohermaphroditism. see disorders of sexual differentiation
pseudohypoparathyroidism 83, 84, 88
psychogenic polydipsia 22, 26
psychosocial dwarfism 17
PTC (phenylthiocarbamide) 31–32
PTH (parathyroid hormone) 79–80, 81, 83–84, 84, 87, 129
Index

PTH-rP (parathyroid hormone-related peptide) 82, 89, 91, 82, 89, 91, 117, 118, 129
PTU (propylthiouracil) 31–32
pubarche 95, 105
puberty 94, 94–96, 95, 98, 105
pumps, insulin 68, 68–69, 73, 78
radioactive iodine 8, 9, 14, 30, 38
anaplastic thyroid carcinoma 37
destructive thyroiditis 33
follicular thyroid carcinoma 37
hyperthyroidism 31, 32
remnant ablation 36
thyroid cancer 40
thyroid scans 28, 35, 35, 36, 37, 38
radionuclides 8–9, 35
raloxifene 86, 86, 99
relative risk reduction (RRR) 124
renin–angiotensin system 46, 46
renovascular hypertension 47, 47, 54
reproductive endocrinology 2, 92, 93, 104, 105–106
amenorrhea 100, 106
disorders of sexual differentiation 102–103, 103
estrogen deficiency 100–101
gonadal axis, childhood and adulthood 94
gonadal differentiation 93–94, 94
gynecomastia 99–100
hirsutism 101
hirsutism 101
hirsutism 101–102, 106
hypogonadism 11, 21, 85, 96–100, 97, 106, 128
ovarian function 92–93, 93, 105
polycystic ovary syndrome 61, 100, 102, 102, 106
puberty 94, 94–96, 105
testicular function 92, 92, 105
testosterone deficiency 98
respiratory system 2
retinopathy, diabetic 64, 78, 119
retrospective studies
risedronate 85–86, 86
RRR (relative risk reduction) 124
St Thomas Atherosclerosis Regression Study (STARS) 120
saline infusion test 11
salivary cortisol levels, Cushing’s syndrome 43
salmon calcitonin 86, 118
Scandinavian Simvastatin Survival Study 120
Schmidt’s syndrome 116
secondary hormone deficiency and excess 4, 6–8, 11, 13–14, 17–18. see also specific conditions
secretagogues

insulin 70, 78
perturbation studies 5
selective estrogen receptor modulators (SERM) 86, 86, 99
self-blood glucose monitors 62, 69, 77
sensitivity, clinical trials 120, 120–121, 121
Sertoli cells 92, 93, 105, 129
sex-hormone binding globulin (SHBG) 3, 97, 98–99
sex steroids 15, 93–99, 94, 97, 105–106. see also reproductive endocrinology
sexual differentiation disorders. see disorders of sexual differentiation
SGLT2 (sodium-glucose transport protein) 72
Sheehan’s syndrome 21
short stature, growth hormone deficiency 16–17
SIADH. see syndrome of inappropriate antidiuretic hormone
signaling molecules, lipids 106–107
silent thyroiditis 33
simvastatin 111, 120
single-photon emission computed tomography (SPECT) 9
sitagliptin 71
skin pigmentation 44, 49–50
small cell lung carcinoma 22, 117–118
smell, sense of 97
smooth muscle contraction 2
sodium metabolism 2, 22, 23, 45, 46, 47
somatomedin C (insulin-like growth factor) 15, 18, 23, 25
somatostatin 15, 18
specificity, clinical trials 120, 120–121, 121
SPECT (single-photon emission computed tomography) 9
squamous cell lung carcinoma 82, 89
STARS (St Thomas Atherosclerosis Regression Study) 120
statins. see HMG-CoA reductase inhibitors
statistical significance, clinical studies 122–123, 125, 126
steroid hormones 2, 3, 40, 106. see also sex steroids
steroid medication 7–8, 51
steroidogenic acute regulatory protein (StAR) 40
stimulatory hormones 4, 6, 130
stress hormones 15, 40, 47, 53
striae (stretch marks), Cushing’s syndrome 43, 43, 53
subacute thyroiditis 33
sulfonylureas 70, 70, 71, 78
suppressive tests 11
syndrome of inappropriate antidiuretic hormone (SIADH) 22–23, 26, 117, 118
syndrome X 58, 130
synthetic agents. see pharmacologic agents
T3. see triiodothyronine
T4. see thyroxine
tall stature 17–18, 18, 23. see also acromegaly
Tanner stages, puberty 95
TBG (thyroid-binding globulin) 3, 34, 130
team approaches, diabetes mellitus therapy 69
technetium 8, 14, 130
tendon xanthomas 110
teriparatide 86
tertiary endocrine disorders 6, 20, 130. see also specific conditions
testicular function, reproductive endocrinology 92, 92, 105
testosterone 25, 40, 130
deficiency syndromes 7, 98, 98–99
gonadal differentiation 93–94
hypogonadism 96, 97
hypopituitarism 21
ovarian function 92
puberty 94, 95
thiazolidinediones (TZDs) 70–71, 72, 78, 102, 130
thioureas 31–32
thromboxanes 2
thyroglobulin 27, 34, 36, 37, 130
thyroid-binding globulin (TBG) 3, 34, 130
thyroid cancer survey 36
thyroid follicle 26, 27
thyroid endocrinology 1, 26–27, 37–38
epithelial thyroid cancers 36–37
factitious hormone administration 8
hormone synthesis 27
hypopituitarism 20
medullary thyroid carcinoma 37
nodules 34–36, 35, 38
regulation 27–28, 28
release of preformed thyroid hormone 33
thyroid follicle structure 26, 27
thyrotoxicosis 30–34, 31, 32, 33
see also Hashimoto’s thyroiditis; hyperthyroidism; hypothyroidism; thyroxine; triiodothyronine
thyroid peroxidase (TPO) 27
thyroid scan 28, 35, 35, 36, 37, 38, 39
thyroid storm 34
thyroid-stimulating hormone. see TSH
thyroid-stimulating immunoglobulin (TSIg) 31
thyroidectomy 4, 11, 29
thyroiditis, subacute 33
thyrotoxicosis 30, 30–34, 39–40, 130
thyrotropin. see TSH
thyrotropin-releasing hormone. see TRH
thyroxine (T4) 2, 11, 26–30, 31, 38, 130
chemical structure 26
destructive thyroiditis 33, 33–34, 38, 39
hormone measurement 6
mechanism of action 3
secondary hyperthyroidism 34
synthetic 39
toxic multinodular goiter 31, 31, 31, 38, 39
TPO (thyroid peroxidase) 27
troglitazone 71
trophic hormones 4, 6, 130
Trousseau’s sign 83
TSH (thyroid-stimulating hormone) 6, 7, 25, 38, 39, 130
epithelial thyroid cancers 37
hyperprolactinemia 19
hyperthyroidism 30, 31
hypopituitarism 20, 21
hypothalamic–pituitary axis 14, 15
secondary hyperthyroidism 34
and thyroid gland/hormones 26, 27–28, 28, 29, 30
tumor necrosis factor 5, 63
tumors, hormone deficiency and excess syndromes 7
Turner syndrome 98, 99, 100, 104, 106, 130
twin studies
autoimmune diseases 10
diabetes mellitus 57–58, 59
two-cell concept of ovarian steroidogenesis 93, 102, 105
type 1 diabetes (insulin-dependent diabetes) 6, 11, 59, 77, 78
clinical trials 119
epidemiology 56
glucose metabolism 55, 56, 56–58, 57
polyendocrine disorders 116
type 1 diabetes (insulin-dependent diabetes) (continued)
  prevention and cure 72, 73
  therapy 7, 66–67

type 1/2 errors, clinical studies 122–123, 123, 125

type 2 diabetes 4, 7, 11, 58–59, 59, 72, 77
  clinical trials 119
  epidemiology 56
  glucose metabolism 55, 56
  lipid disorders 107, 109, 110
  monitoring 63

tyrosine 2, 2, 27, 47, 130

tyrosine kinase inhibitors 130

TZDs (thiazolidinediones) 70–71, 72, 78, 102, 130

ultrasound imaging 9, 9, 14, 130
  thyroid nodules 28, 35, 35, 36

United Kingdom Prospective Diabetes Study (UKPDS) 63, 77, 119

United States, diabetes mellitus 56

urine tests
  diabetes mellitus monitoring 62
  hormone measurement 5, 43, 48

vanillylmandelic acid (VMA) 48

vasopressin. see arginine vasopressin

very low-density lipoproteins (VLDL) 107–111, 107, 108, 115, 130

virilization disorders 45, 101, 101

vitamin B (niacin) 111–112, 112, 116, 120, 129

vitamin D 80, 81, 86, 87, 91, 130

vitamin D-dependent hypercalcemia 82

von Hippel–Lindau disease (VHL) 48

Wadlow, Robert 17

xanthelasma 110

X-linked hypophosphatemic rickets 10

X-rays (roentgenograms) 8, 14, 85, 130

zoledronic acid 86, 86, 118

Zollinger–Ellison syndrome 117

zona fasciculata 40, 40, 46

zona glomerulosa 40, 40, 46

zona reticulata 41