

INDEX OF SUBJECTS

- acetoacetate as energy source in starvation 10–15
- acid base regulation 19–20
- adipose tissue
 - energy consumption 6–9, 14
 - glutamine release 23
- age effect on immune system 88–90
- alanine
 - inter-organ flux of nitrogen 14–16, 23–24
 - muscle metabolism 16
- alimentary tract
 - endogenous secretion of phosphorus 126
 - glutamine metabolism 19
 - phosphorus metabolism 125–140
- alkaloids
 - digestibility estimation 159
- amino acids
 - branched-chain, metabolism in peripheral tissues 24–26
 - metabolism in humans 26
 - use for gluconeogenesis 9, 12, 14
- ammonia excretion in starvation 19–20
- amylases
 - in vitro digestibility estimation 147–149, 153, 158–159
- amylglucosidase
 - in vitro starch digestibility estimation 147
- anencephalus *see* neural tube defects
- anti-convulsant drugs as folate antagonists 35–36
- antinutritional factors
 - effects on digestibility 144, 154, 155, 159
- appetite in patients with cystic fibrosis 55–56
- arterio-venous differences
 - measure of metabolite flux across tissues 4–16
- bacterial metabolism in ruminants
 - effect of phosphorus deficiency 133–134
- basal metabolic rate 8
 - effect of starvation 14
- beans *see* butter beans, haricot beans, soya beans
- blood flow techniques to measure metabolic flux across tissues 5
- brain
 - effects of starvation 10
 - energy consumption 6–9
- burns
 - effect on energy consumption in different tissues 8
 - lactate flux 15
- butter beans
 - nutritional value 99
- caecal fluid
 - in vitro digestibility estimation 153
- calcitonin and regulation of phosphorus homeostasis 131
- calcium
 - effect on epithelial transport of phosphorus 131
 - homeostasis, interaction with phosphorus 131–132
- carbohydrates in Cori cycle 15
- carbon dioxide production as indicator of energy 6
- casein, dietary
 - effect on glucagon secretion 117
 - effect on serum cholesterol 112
- cellulase
 - in vitro digestibility estimation 150
- Cellulast
 - in vitro digestibility estimation 150
- central nervous system *see* neural tube defects
- chick peas
 - effect on serum cholesterol 106
 - effect on steroid excretion 108
 - nutritional value 99
- cholesterol *see also* hypercholesterolaemia
 - biochemistry 100–104
 - distribution between serum lipoprotein fractions 107–108
 - effect of insulin on synthesis 116
- chymotrypsin
 - in vitro digestibility estimation 146–147
- cimetidine
 - effect on malabsorption in patients with cystic fibrosis 63
- colorimetric methods
 - in vitro digestibility estimation 147–148
- copper deficiency
 - effect on immune system 88
- Cori cycle 15
- cystic fibrosis and malnutrition 51–64
- diabetes
 - effect of dietary legume seeds 116–117
- dialysis cell method
 - in vitro digestibility estimation 145–146, 155
- digestion, single-stomach animals
 - in vitro estimation 141–159
 - factors affecting 153–155
 - methods 145–153
 - in vivo digestion 142–144
- 1,25-dihydroxycholecalciferol
 - phosphorus absorption in small intestine stimulated 126–128, 131
 - phosphorus homeostasis regulation 131
 - phosphorus intracellular transport mechanism 128
- duodenal fluid
 - in vitro digestibility estimation 149
- elderly people
 - effects of nutrition on immune system 91–93
 - energy in patients with cystic fibrosis
 - expenditure 57–59
 - intake 55–56

- enzymes, *in vitro* digestibility estimation 145–159
 activity 154–155
 specificity 153–154
- faeces extract
in vitro digestibility estimation 149, 154
- families *see* households
- fat, brown
 energy consumption 8–9
- fatty acids
 essential, metabolism in patients with cystic fibrosis 61, 63
 non-esterified, energy source in starvation 10
- feed intake
 effect of phosphorus deficiency 133
- fenureek, dietary
 effect on serum cholesterol 106–108
- fibre effects on digestibility estimation 144, 154–155, 159
- filtration methods
in vitro digestibility estimation 148–153, 155
- folic acid
 deficiency, effect on immune system 87
 effect on neural tube defects 34–37, 40–45
- food, intra-household allocation *see* households
- gallstones
 effect of dietary legume seeds 108–109
- glucagon
 effect on lipid metabolism 117
- glucose
 effect of dietary legume seeds 116
 energy source in starvation 10
 muscle metabolism 15–18
- glucosinolates
 effects on digestibility estimation 159
- glutaminase activity in tissues 20–21
- glutamine
 catabolism in starvation 19–20
 inter-organ flux of nitrogen 17–24
 metabolic acidosis 20–21
 sodium-dependent transporter 18
- groundnuts
 nutritional value 99
- growth impairment in patients with cystic fibrosis 52–64
- guar gum *see* polysaccharides, legume
- haricot beans
 nutritional value 99
- heart
 energy consumption 6–9
 ketones as energy source in starvation 10
- heart disease, coronary
 effect of dietary soya-bean protein 111–112
- households, allocation of food to members 69–80
 children 78
 study methods 76
 terms and definitions 71–76
 women 77–78
- 3-hydroxybutyrate as energy source in starvation 10–15
- 25-hydroxycholecalciferol-1-hydroxylase
 factors affecting 131–132
- hypercholesterolaemia *see also* cholesterol types 103–104
- hypcholesterolaemia *see* legume seeds
- hypophosphataemia, effects 131–134
- ileal fluid
in vitro digestibility estimation 149, 154
- immune system
 effects of nutrition in the elderly 92–94
 summary 84–86
- insulin
 effect of dietary legume seeds on secretion 116–117
 effect on epithelial transport of phosphorus 131
- iron
 effects on immune system 88
 requirement of women 77
- Indian cluster bean (guar gum) *see* polysaccharides, legume
- jejunal fluid
in vitro digestibility estimation 149, 151
- ketone bodies as fuel in starvation 10–15
- kidney
 energy consumption 6–9
 glutamine metabolism 19
- lactic acid
 component of Cori cycle 15
 effect of burns 15
 glucose-alanine cycle 16
- lectins, effects on protein digestibility estimation 144, 159
- legume seeds, dietary
 effect on plasma lipids 97–118
 whole seed studies 104–109
 nutritional characteristics 98–99
- lentils
 nutritional value 99
- leucine
 muscle metabolism 17
- lipids
 biochemistry 100–104
 serum, effect of dietary legumes 97–118
- lipoproteins *see also* low density lipoproteins, very low density lipoproteins
 biochemistry 101–103
 plasma fractions 107–108
- liver consumption of energy 6–9
- locust bean gum *see* polysaccharides, legume
- low density lipoprotein receptors
 effect of dietary legume seeds 114–115
- low density lipoproteins
 biochemistry 100–102, 107–108, 110–116
- lucerne seeds, roasted
 dietary effect on serum cholesterol 105–106
- lungs
 amino acid metabolism 24
 effect of cystic fibrosis on function 54–56, 59, 61, 64
 energy consumption 6
- lysine
 estimation of availability 156–158

- malabsorption *see* nutrition
- metabolite flux across tissues 3–26
- microbes *see* bacteria
- misoprostol
effect on malabsorption in patients with cystic fibrosis 63
- muscle
amino acid metabolism 24–26
energy consumption 6–9
energy source in starvation 10
- myelomeningocele *see* neural tube defects
- neural tube defects
effects of nutrition 33–45
factors affecting recurrence 37–41
social deprivation 34, 37
- nucleic acids
nitrogen for synthesis from glutamine 21
- nutrients *see also* food
exchange between tissues 3–26
deficiencies in elderly 90–92
effects on immune system in elderly 92–93
patients with cystic fibrosis 51–64
evaluation 61–63
malabsorption 56–57, 63
- nylon bag, mobile
digestibility estimation 153, 155, 159
- obesity
effect on energy consumption 10–15
- old people *see* elderly people
- oxygen uptake as indicator of energy expenditure 6
- pancreatic function in patients with cystic fibrosis 56, 64
- pancreatin
in vitro digestibility estimation 145–146, 149–151, 153, 159
- pantothenic acid
effect of deficiency on neural tube defects 34
- papain
in vitro digestibility estimation 148
- parathyroid hormone
effect on 25-hydroxycholecalciferol-1-hydroxylase 131–132
regulation of phosphorus homeostasis 130–131
- parotid gland
secretion of inorganic phosphorus 126
- particle size
in vitro digestibility estimation 155
- peanuts *see* groundnuts
- peas
nutritional value 99
- pepsin, in vitro digestibility estimation
dialysis cell method 145–146
filtration method 148–154, 158
pH-drop and pH-stat method 147
preincubation for starch 148
- peptidase
in vitro digestibility estimation 146–147
- pH-drop and pH-stat method
in vitro digestibility estimation 146–147, 155, 159
- phosphorus metabolism
absorption sites, non-ruminants 126–128
ruminants 129–130
alimentary tract 125–135
deficiency, effect on microbial metabolism in ruminants 133–134
endogenous secretion 126
epithelial transport 131
homeostasis, interaction with calcium 131–132
hormonal regulation 131–132
intracellular transport 128
phytate effect on protein digestibility 154
plethysmography for measurement of blood flow 5
polysaccharides, legume
effect on plasma cholesterol 109–111
effect on steroid excretion 115
- potatoes
effect of ingestion on neural tube defects 39
- pronase
in vitro digestibility estimation 148, 151
- propionic acid
effect on cholesterol synthesis 115
- protein–energy malnutrition
effects on immune system 86–87
- proteinase from *Streptomyces griseus*
in vitro digestibility estimation 146–147
- proteins
catabolism during starvation 8, 12, 14
in vitro digestibility estimation
dialysis cell method 145–146
pH-drop and pH-stat method 146–147
metabolism in patients with cystic fibrosis 60–61, 63
- pullulanase
in vitro starch digestibility estimation 148
- pyridoxine deficiency
effect on immune system 87
- pyruvate
alanine metabolism in muscle 16
- pyruvate dehydrogenase complex
muscle metabolism 15
- rennin
in vitro digestibility estimation 148
- rumen fluid
in vitro digestibility estimation 149–151, 153
- salt requirement of patients with cystic fibrosis 57, 63
- sample size
in vitro digestibility estimation 155
- saponins
cholesterol binding 105
- selenium
effect of supplement in the elderly 93
- separation technique
in vitro digestibility estimation 155
- Smith, Roy H.
obituary 1
- sodium
intestinal absorption of inorganic phosphorus 127–128
- sodium chloride *see* salt
- soya beans *see also* polysaccharides, legume
effect on glucagon secretion 117

- effect on serum cholesterol 111–114
 - nutritional value 99
- spectrophotometry, near infrared reflectance
 - in vitro digestibility estimation 158
- spina bifida *see* neural tube defects
- sputum
 - nitrogen loss in patients with cystic fibrosis 57
- starch
 - in vitro digestibility estimation 147–148
- starvation
 - varying tissue losses 8–9
- steroids
 - effect of dietary legume seeds on excretion 108, 111, 113–115
- sweat glands
 - electrolyte losses in patients with cystic fibrosis 57
- tannins
 - effect on protein digestibility estimations 144, 159
- tissue loss during starvation 8–9
- trace element deficiencies
 - effects on immune system 87–88
- transcobalamins in amniotic fluid
 - effect of previous neural tube defect in fetus 43
- triiodothyronine
 - effect on epithelial transport of phosphorus 131
- trypsin
 - in vitro digestibility estimation 146–148
 - inhibitors, effect on digestibility estimation 144, 159
- urea secretion during starvation 19–20
- very low density lipoproteins
 - biochemistry 100–104, 107–108, 110–111, 113–114, 116
- Viscozyme
 - in vitro digestibility estimation 150–151
- vitamin A
 - effect of excess on neural tube defects 34, 44
 - effect of supplement in the elderly 93
 - effect on immune system 87–88
 - requirement of women 77
- vitamin B₆
 - effect of deficiency on neural tube defects 34
- vitamin B₁₂
 - effect of deficiency on neural tube defects 34–35
- vitamin C
 - effect of deficiency on immune system 87–88
 - effect of deficiency on neural tube defects 35–36
 - effect of supplement in the elderly 93
- vitamin D *see* 1,25-dihydrocholecalciferol, 25-hydroxycholecalciferol-1-hydroxylase
- vitamin E
 - effect of deficiency on immune system 87–88
 - effect of deficiency on neural tube defects 34
 - effect of supplement in the elderly 93
- vitamins
 - effects of deficiencies on immune system 87–88
 - effects of supplements in pregnancy on neural tube defects 33–45
- xenon, radioactive
 - blood flow measurement 5
- zinc
 - effect of deficiency on immune system 87–88
 - effect of deficiency on neural tube defects 34–35
 - effect of supplement in the elderly 92–93