## **INDEX OF SUBJECTS**

acetate, absorption and utilization, ruminants	calcium (cont.) requirement during childhood 55-57
acid butanol assay for tannins 216	supplementation studies 62-63
acid-base balance, factors affecting after trauma,	calcium: phosphorus ratio, growing child 55, 59
105–106	carbohydrates
acidosis, glutamine requirement 101	effects on postprandial lipaemia 169
adipose tissue, effect of location on health hazards	interactions with dietary tannins 222
138 153	cassava, aetiology of kwashiorkor 121–133
albumin, plasma, effect of dietary cassava 125-127,	cereals, tannin content 213
133	children in developing countries, bone growth
alimentary tract, mucosa, effect of dietary tannins	51–69
224 225	Chittenden, R. H., self-experimentation on protein
amino acids	requirement 4 5
effect of dietary tannins on absorption 224	cholesterol
gut mucosal metabolism 196-199	digestion and absorption 163-164
interorgan flux, ruminants 198	relation to atherogenesis 173–179
liver metabolism, ruminants 198	reverse transport 166-168
plasma, effect of dietary cassava 125-127, 133	chromium, radioactive, as faecal marker 83
requirements under clinical stress 98-106	chylomicron remnants
ruminant nutrition studies 196-199	clearance 165–166
ammonia, nitrogen recycling, ruminants 199-200	effects of dietary fats 169-171
anaemia, megaloblastic, self-experimentation of	effects of exercise 171 172
Herbert 7–9	relation to atherogenesis 167-168, 173-179
anthocyanidins see tannins	chylomicrons
anthropometry and growth standards 19-50	formation 163–164
arginine, requirement under clinical stress 103 104	metabolism 164 168
arterio-venous see venous-arterial	circulation, effect of dietary cassava 130-131
arteriosclerosis see also coronary artery disease	colorimetric assays for tannins 215-216
effects of postprandial lipaemia 173-179	copper
	absorption 84
baboon, effects of low calcium diet 58, 59	determination by thermal ionization mass
beans see faba beans	spectrometry 76
birds, palatability of seeds, effect of tannin content	faecal monitoring 84
215	coronary artery disease, effects of postprandial
Black, D. A. K., self-experimentation	lipaemia 173–179
potassium depletion 10-11	coronary heart disease, effects of obesity
water depletion 11	137–153
blood flow, measurement 188	Crandon, J., self-experimentation on scurvy 7
bone growth	Crohn's disease, effect of fatty acids 111
children in developing countries 51-69	cyanide, aetiology of kwashiorkor 125 133
effect of dietary cassava 128	
butyrate, effects in colon 111	diabetes
	effects of fat deposits 139-140
calcium	non-insulin dependent 169
absorption 77, 78	diet, effects on obesity 146-148, 152-153
simultaneous oral and i.v. administration	dog, experimental model for kwashiorkor research
86–87	123
use of two isotopic tracers 86-87	
bioavailability 54–55	electron impact mass spectrometry for measuring
body content 55-57	stable isotopes 77
deficiency effects 58 - 59	endogenous excretion of minerals 83
excretion, self-experimentation of McCance &	energy metabolism, ruminant studies 191-193
Widdowson 12	enzymes, digestive, effect of dietary tannins
intake in developing countries 52-54, 64	222 - 223
levels in breast milk 53-54	Eskimo diet 13–15
losses from the body 57	ethics of research 15 16

exercise	inductively coupled mass spectrometry for measuring
effects on obesity 148-153	stable isotopes 77
effects on postprandial lipaemia 171-172	insulin, effect of dietary cassava on secretion 131
	insulin resistance, effects of fat deposits 139-140,
faba beans, tannin content 214	149–150
faecal markers 83-84	intestinal transit times of minerals 82
faecal monitoring in absorption studies 80–84	intestines see gut
fast atom bombardment mass spectrometry for	iron
measuring stable isotopes 76	absorption 78–81
fats	use of two isotopic tracers 86
digestion and absorption 162-164	determination by thermal ionization mass
effects on postprandial lipaemia 169–173	spectrometry 76
fatty acids	effect of dietary tannins 223-224
polyunsaturated, self-experimentation of Sinclair 13-15	excretion, self-experimentation of McCance & Widdowson 12
short chain, metabolic effects in colon 111	faecal monitoring 84
requirements under clinical stress 110-111	plasma level as measure of absorption 85-86
volatile, ruminant studies 193-198	tissue retention 84
feed intake, effect of dietary tannins 221	isotopes, radioactive, mineral absorption studies 73
flavonoids see tannins	isotopes, stable
folic acid, deficiency, cause of megaloblastic anaemia	availability 73–75
7-9	costs 74–75
Folin Denis assay for tannins 216	dosage 77-81
Fourman, P., self-experimentation on potassium	mineral absorption studies 73-88
depletion 10-11	quantification methods 75 77
free radicals, aetiology of kwashiorkor 132	
	kidney, dietary effects
gari see cassava	tannins 225
gas chromatography mass spectrometry for	cassava 130
measuring stable isotopes 77 gastrointestinal tract see gut	kwashiorkor, effect of dietary cassava 121-133
glucose	logumo goods, tomain content. 212, 215
absorption in gut, ruminants 200–202	legume seeds, tannin content 213-215
effect of dietary tannins on absorption 224	linamarin, aetiology of kwashiorkor 122–133
synthesis from amino acids, ruminants 198	lipaemia, postprandial 161–179
glucosides, cyanogenic, aetiology of kwashiorkor	lipoprotein lipase factors affecting 172
122~133	
glutamine	hydrolysis of chylomicrons 164–165 lipoproteins
interorgan flow 102 103	metabolism after meals 161-179
requirement under clinical stress 99 103	plasma, effects of fat deposits 140–142, 146,
Goldberger, J., self-experimentation on pellagra 6	149–152
growth, requirement for nucleotides 107 108	relation to atherogenesis 173-179
growth hormone secretion	liver
effect of arginine 104	effect of dietary tannins 225
effect of ornithine α-ketoglutarate 104-105	glutamine metabolism 102
growth standards	metabolism, nutrition studies, ruminants 185-202
anthropometry 19 -50 construction 36-50	regeneration, effect of nucleotides 109
use 19–36	magnesium
guar gum, effects on postprandial lipaemia 169	absorption 84
gut, metabolism, nutrition studies, ruminants	simultaneous oral and i.v. administration 88
185–202	bioavailability 55
	body content 56
Herbert, V., self-experimentation on megaloblastic	deficiency effects 59
anaemia 7–9	determination by electron impact mass
horse, young, effect of low Ca:P ratio 59	spectrometry 77
hypercholesterolaemia, familial 165	excretion, self-experimentation of McCance &
hypertension, effects of fat deposits 142 143	Widdowson 12
hypo-α-lipoproteinaemia 178-179	faecal monitoring 84
immune responsiveness	intake in developing countries 53
effect of arginine 104	levels in breast milk 53
effect of glutamine 100	losses from the body 57
effect of nucleotides 107-108	requirement during childhood 55-57

Martin, C. J., self-experimentation on biological	phytate, effects on mineral absorption 54
value of proteins 5-6	pig, effect of dietary tannins 221
mass spectrometry see electron impact, fast atom	polyethylene glycol as faecal marker 83
bombardment, gas chromatography, inductively	polyphenols see tannins
coupled, thermal ionization	polysaccharides, non-starch, effects on postprandial
McCance, R. A., self-experimentation	lipaemia 169
calcium and magnesium excretion 12	potassium
iron excretion 12	depletion, self-experimentation of Black & Milne
salt deficiency 9-10	10-11
strontium excretion 13	self-experimentation of Fourman 10–11
water depletion 11 membrane vesicles, nutrient absorption studies 186	plasma, effect of dietary cassava 129-130,
Milne, M. D., self-experimentation on potassium	133
depletion 10-11	poultry, effect of dietary tannins 220 proline-rich proteins, effect of dietary tannins
minerals see also calcium, magnesium, phosphorus,	226–227
zinc	proteins
absorption studies, use of stable isotopes 71-88	binding assays for tannins 216-217
effect of dietary tannins 223–224	biological value 5-6
metabolism studies with stable isotopes 88	interactions with tannins 221–222
monkey, rhesus, effects of zinc deficiency 60	requirement of man 4-6
monkey, ringtail	Prussian blue assay for tannins 216
effect of Ca: P ratio 59	purines and pyrimidines, metabolism 106-108
effect of low calcium diet 58	parameter and pyrimiamot, metabolism 100 100
mouse, effect of low calcium diet 58	rat
mucosa, intestinal	effect of dietary tannins 219
glutamine requirement 100-101	effect of low calcium diet 58
nucleotide supplementation 109	Robison, R., self-experimentation on biological value
muscle	of proteins 5-6
effect of dietary cassava 128, 132	
glutamine efflux 99-100	salt deficiency, self-experimentation of McCance 9-10
neutron activation analysis for measuring stable isotopes 75-76	Sanctorius, S. S., self-experimentation on body weight 2-3
nicotinic acid, deficiency, cause of pellagra 6	scurvy, self-experimentation
nitric oxide, metabolism 104	Crandon 7
nucleic acids, requirement under clinical stress	Stark 3-4
107- 109	selenium
nutrients, conditionally-essential 97-112	absorption 77
nutrition, self-experimentation 1-17	simultaneous oral and i.v. administration 88 use of two isotopic tracers 89
obesity	faecal monitoring 84
effects on coronary heart disease 137 153	plasma level as measure of absorption 89
treatment 146-152	tissue retention 86
olive oil, effect on chylomicron clearance 171	sepsis, need for additional nutrients 97 112
ornithine α-ketoglutarate, requirement under clinical stress 104–106	Sinclair, H., self-experimentation on Eskimo diet 13-15
	Sivén, V. O., self-experimentation on protein
pancreas, effect of dietary cassava 131-132	requirement 4-5
parotid glands, effect of dietary tannins 226-227	sodium chloride see salt
pellagra, self-experimentation of Goldberger 6	sodium-glucose cotransporter 186
pellets, plastic, as faecal markers 84	splanchnic vasculature, nutrition studies, ruminants
peptide-bound amino acids, metabolism, ruminants	188-191 starch, gut metabolism, ruminants 200 201
peptides, transport across gut barrier, ruminants 199	Stark, W., self-experimentation on scurvy 3 4
phosphorus	Stefansson, V., self-experimentation on Eskimo diet
bioavailability 54	14
body content 55	steroids, sex, effects on obesity 143-145
deficiency effects 59	stress, clinical, need for additional nutrients
intake in developing countries 52, 59	97-112
levels in breast milk 53-54	strontium, excretion, self-experimentation of
losses from the body 57	McCance & Widdowson 13
requirement during childhood 55-57	stunting see bone growth
supplementation studies 62	surgery, need for additional nutrients 97-112

tannins in feedstuffs for simple-stomached animals vitamin C, deficiency, cause of scurvy 7 analysis 215-218 vitamins see thiamin, vitamin A, vitamin B<sub>12</sub> chemistry 210 212 occurrence 211-215 water, depletion, self-experimentation of Black & nutritional effects 219-227 McCance 11 reduction treatments 227-228 water transport, intestinal, effects of fatty acids 110 thermal ionization mass spectrometry for measuring weight, body, effects of food intake and excretion 3 stable isotopes 76 Widdowson, E. M., self-experimentation thiamin, effect of dietary tannins 223 calcium and magnesium excretion 12 thiocyanate, serum, effect of dietary cassava iron excretion 12 128-129 strontium excretion 13 thyroid activity, effect of dietary cassava 128 129 tissue retention of minerals 85-86 zinc trauma, need for additional nutrients 97-112 absorption 78-81 triacylglycerols simultaneous oral and i.v. administration metabolism after meals 161-179 87-88 relation to atherogenesis 173-179 bioavailability 54-55 body content 55 urea deficiency effects 60 liver production, ruminants 198 determination by thermal ionization mass nitrogen recycling, ruminants 199-200 spectrometry 76 supplementary, relation to glutamine requirement faecal monitoring 83 intake in developing countries 52-54, 62 levels in breast milk 53-54 vanillin assay for tannins 215-216 losses from the body 57 venous-arterial differences, nutrient metabolism plasma level as measure of absorption 89 studies 188-189 requirement during childhood 55-57 vitamin A, effect of dietary tannins 223 supplementation studies 60 62 vitamin B<sub>12</sub>, effect of dietary tannins 223 tissue retention 86