## TABLE OF CONTENTS

1	Nutrient Reference Values				
	Nutrient Re	ference Values (NRVs)	1		
	Nutrients		2		
	Table 1.1	NRVs for macronutrients and water-soluble vitamins	3		
	Table 1.2	NRVs for water-soluble vitamins and choline	4		
	Table 1.3	NRVs for fat-soluble vitamins	5		
	Table 1.4	NRVs for major minerals	6		
	Table 1.5	NRVs for minor minerals	7		
	Water Solu	ble Vitamins			
	Table 1.6	WSV: RDIs, functions, sources, stability and deficiency symptoms	8		
	Fat-soluble	Vitamins	11		
	Table 1.7	Fat-soluble vitamins: NRVs, functions, sources, stability and deficiency symptoms	11		
	Major Mine	rals	12		
	Table 1.8	Major Minerals: NRVs, functions, sources, deficiency symptoms and at-risk individuals	12		
	Minor Mine	rals	14		
	Table 1.9	Minor Minerals: NRVs, functions, sources, deficiency symptoms and at-risk individuals	14		
	National Di	etary Guidelines for Adults	17		
	Aboriginal	and Torres Strait Islander Guide to Healthy Eating	18		
	Australian Guide to Healthy Eating				
	Draft Australian Guidelines to Reduce Health Risks from Drinking Alcohol				
	References		20		
2	Energy	nd Magraputrianta			
۷	Energy and Macronutrients				
		Equations			
	, ,	ht			
	Peterson et al. Method for IBW (Adults)				
		eor Equations			
	Quick Estimation of Energy Requirements				
		Schofield Equations			
	Table 2.1	Energy Requirements Based on Schofield Equations Estimated energy requirements (kJ/day) for varying levels of activity (adults)			
	Harris-Benedict Equations				
	Energy Units				
	Calorimetry  Nutrient Reference Values for Energy				
	Table 2.2	NRVs estimated energy requirements (EERs) of infants & children up to 2 yrs (kJ/day)	25		
	Table 2.3	Estimated energy requirements for boys aged 3-18 years using BMR predicted from weight, height and age (MJ/day)	26		
	Table 2.4	Estimated energy requirements for girls aged 3-18 years			
	<b>T</b> 11 5 <b>-</b>	using BMR predicted from weight, height and age (MJ/day)	27		
	Table 2.5	Estimated energy requirements for adults using predicted BMR $\times$ PAL (BMI = 22 kg/m <sup>2</sup> )	28		
	Fibre Requirements				

Table 2.6	Recommended intake for fibre Australia and New Zealand (AI)/U.S.A.(DRI)	29		
Protein Requirements				
Table 2.7	Nutrient Reference Values for protein	29		
Energy and	Protein Requirements for Special States	30		
Table 2.8	Suggested protein and energy requirements for special states	30		
Fat Requirer	ments	32		
Table 2.9	Recommended dietary fat intake as percent of energy intake	32		
<b>Table 2.10</b>	Adequate intake (AI) and upper level of intake (UL) for dietary fats	32		
Fluid Requir	ements	33		
<b>Table 2.11</b>	Adequate intake (AI) and dietary reference ranges (DRI) for fluid	33		
<b>Table 2.12</b>	Water content per 100 mL of liquid/100 g of food	33		
	Fluid balance			
Quick Guide	s to Fluid Requirements	34		
<b>Table 2.13</b>	Intravenous (IV) fluid composition	34		
<b>Table 2.14</b>	Drug Reconstitution Systems (Baxter)	35		
Alcohol Rec	ommendations	35		
<b>Table 2.15</b>	Recommended alcohol intake	35		
References .		36		
Food Com	nposition Tables			
Table 3.1	Quick ready reckoner	37		
Macronutrie	nts in Common Foods	38		
Table 3.2	(= - 3, = - · · · )			
Carbohydra	te Exchanges	41		
Table 3.3	Food serves with 15 grams of available carbohydrate	41		
Renal Ready	/ Reckoners	42		
Table 3.4	Renal ready reckoner	42		
Table 3.5	Quick renal ready reckoner	43		
Fibre		44		
Table 3.6	Dietary fibre (g) per 100 g of food or fluid	44		
Calcium (Ca	)	46		
Table 3.7	Calcium (mg) per 100 g/mL of food or fluid	46		
Calcium Equ	iivalents	47		
lodine (I)		48		
Table 3.8	lodine (µg) per 100 g/mL of food or fluid	48		
Iron (Fe)		49		
Table 3.9	Iron (mg) per 100 g/mL of food or fluid	49		
Phosphorou	s (P)	50		
<b>Table 3.10</b>	Phosphorus (mg) per 100 g/mL of food or fluid	50		
Cholesterol		51		
Table 3.11	Cholesterol (mg) per 100 g/mL of food or fluid	51		
Potassium (	K)	52		
Table 3.12	Potassium (mg) per 100 g/mL of food or fluid	52		
Sodium (Na	)	56		
<b>Table 3.13</b>	Sodium (mg) per 100 g/mL of food or fluid	56		
Zinc (Zn)		58		

		Zinc (mg) per 100 g/mL of food or fluid	
		Folate (natural) and folic acid (µg) per 100 g/mL of food or fluid	
		Vitamin K (µg) in common foods (descending order of nutrient content)	
		(4333)	
		Alcoholic beverages ready reckoner	
	Multivitamii	n Supplements	62
	Table 3.18	Nutrient content per tablet/capsule of popular multivitamin supplements	62
	Fibre Suppl	ements	64
	<b>Table 3.19</b>	Commercial fibre supplements	64
	Glycaemic I	ndex (GI) and Glycaemic Load (GL)	65
	Table 3.20	Glycaemic index (GI) and glycaemic load (GL) of common foods	65
	Low (55 or	less), Moderate (56–69) and High (70 or more) GI Foods	67
	Abbreviatio	ns for Food Composition Tables	68
	References		68
/1	Anthropo	ometry	
7		opometry	60
		Weight	
	Table 4.1	Weights for height for males and females ≥18 yrs, BMI in 20–25 kg/m² range	
		ght From Ulna Length	
	Table 4.2	Estimating height from ulna length	
		Ulna length measurement	
		Height and weight averages	
		Body Composition	
		Index (BMI)	
	Table 4.3	BMI classification and health risk	
	Table 4.4	Adult BMI ready reckoner	
	BMI from M	id-upper-arm Circumference (MUAC)	
	Figure 4.3	Position for measuring MUAC	74
	Table 4.5	Estimated BMI for males and females derived from MUAC	74
	Waist Circu	mference (WC)	75
	Figure 4.4	Position for measuring WC	75
	Table 4.6	Waist circumference cut-off points and health risk	75
	Waist-to-hi	p Ratio (WHR)	76
	Figure 4.5	Male and female body types with WC and HC	76
	Figure 4.6	Body types	77
	Adjustment	s to Body Weight for Amputation	77
	Table 4.7	Per cent weight of body parts	77
	Figure 4.7	Per cent weight of body parts	77
	Percentiles	Tables	78
	Table 4.8	Percentiles of arm-muscle circumference (mm)	78
	Table 4.9	Triceps skinfold percentiles (mm²)	79
	Pafarancas		80

## 5 Biochemical Data and Medical Tests

Table 5.1 Blood tests	81
Table 5.2 Reference ranges for red blood cells	83
Table 5.3 Reference ranges for white cells	84
Table 5.4 Iron studies	84
Table 5.5 Blood pressure ranges	84
Table 5.6   Blood pressure treatment targets in adults	84
Table 5.7 Laboratory tests	85
References	
Medications and Interactions	
1. Allergy Treatments	93
2. Analgesics and NSAIDs	
3. Antibacterial Agents	
4. Anticonvulsant Agents	
5. Antifungal Agents	
6. Antigout Agents	
7. Antiviral Agents	
8. Cancer Treatment Drugs	
9. Cardiovascular Agents	
10. Diabetes	
Type 2 Diabetes — Oral Hypoglycaemic Agents Quick Overview	
Type 2 Diabetes — Oral Hypoglycaemic Agents	
Insulin Delivery	
Figure 6.1 Possible sites for insulin injection	
Insulins for Diabetes	
11. Gastrointestinal Agents	
12. Renal Medication	
Table 6.2 Adverse reactions of drugs commonly used in comorbid conditions in people with renal failure	
13. Sedatives and Antidepressants	
14. Vitamin and Mineral Supplements	
15. Weight Control Agents	
References	
The Nutrition Care Process	101
The Nutrition Care Process	
Nutrition Care Process and Terminology	
Figure 7.1 The Nutrition Care Process	
1. Nutrition Assessment	
2. Nutrition Diagnosis	
3. Nutrition Intervention	
4. Nutrition Monitoring and Evaluation	
Patient Assessment	
The Consultation Process	
Clinical Mind Maps	
Gathering Patient Data for Assessment	124

7

	Nutrition Diagnosis	127
	Anatomy of a PES Statement	127
	Table 7.1    Example PES Statements: Potential causes and indicators	127
	Intervention/Counselling	128
	Monitoring and Evaluation	129
	Case Example, Lillie	130
	Web Links	131
	References	131
8	Medical Nutrition Therapy	
	Medical Nutrition Therapy	133
	Figure 8.1 Medical Nutrition Therapy and the NCP(T)	133
	Section 1—Cardiac and Pulmonary Diseases	
	Chronic Obstructive Pulmonary Disease (COPD)	134
	Nutrition Assessment — Chronic Obstructive Pulmonary Disease	134
	Figure 8.2 Effects of COPD	
	Nutrition Diagnosis — Chronic Obstructive Pulmonary Disease	136
	Nutrition Intervention — Chronic Obstructive Pulmonary Disease	
	Table 8.1    High-energy, high-protein food suggestions	
	Nutrition Monitoring and Evaluation — Chronic Obstructive Pulmonary Disease	
	References — Chronic Obstructive Pulmonary Disease	
	Hypertension	
	Figure 8.3 Effects of hypertension	
	Table 8.2   Blood pressure classifications, ≥18 years	
	Table 8.3 Target of end-organ damage from hypertension	
	Nutrition Assessment — Hypertension	
	Nutrition Diagnosis — Hypertension	
	Nutrition Intervention — Hypertension	
	Table 8.4 Daily servings of food groups in the DASH plan for various energy intakes	
	Nutrition Monitoring and Evaluation — Hypertension	
	References — Hypertension	
	Lipid Management	
	Table 8.5 Recommendations for lipid management in adults	
	Physical Activity Recommendations for People with Cardiovascular Disease (CVD)	
	References — Lipid Management	140
	Section 2—Obesity, Eating Disorders and Refeeding Syndrome	147
	Obesity  Measures for BMI Classification and Health Risks	
	Nutrition Assessment — Obesity	
	Nutrition Diagnosis — Obesity	
	Nutrition Intervention — Obesity	
	Figure 8.4 Energy balance	
	Table 8.6 Nestlé Health Science – Optifast VLCD nutrient profile	
	Nutrition Monitoring and Evaluation — Obesity	
	Poforoncos — Obosity	

CONTENTS

Eating Disorders	154
Prevalence	154
Definitions	155
Psychiatric Comorbidities	155
Nutrition Assessment — Eating Disorders	156
Eating Disorder Behaviours	157
Screening for Eating Disorders	160
Figure 8.5 Screening questions	160
Nutrition Diagnosis — Eating Disorders	162
Figure 8.6 Types of inpatient admissions	162
Nutrition Intervention — Eating Disorders	163
Table 8.7 Indicators for acute medical admission in adults with an eating disorder	163
Table 8.8 Guidelines for safe discharge	164
The Real Food Guide	
Nutrition Monitoring and Evaluation — Eating Disorders	166
References — Eating Disorders	167
Refeeding Syndrome	169
Table 8.9 Determining risk of RFS	
Nutrition Assessment — Refeeding Syndrome	170
Nutrition Diagnosis — Refeeding Syndrome	172
Figure 8.7 Refeeding syndrome cascade	
Nutrition Intervention — Refeeding Syndrome	173
Nutrition Monitoring and Evaluation — Refeeding Syndrome	175
References — Refeeding Syndrome	175
Section 3—Food Hypersensitivity	
Figure 8.8 Nomenclature for food hypersensitivity	177
Coeliac Disease	
Conditions Associated with Coeliac Disease	
Oat Controversy	
Nutrition Assessment — Coeliac Disease	
Genetic Alleles	
Gold Standard for Diagnosing Coeliac Disease	
Table 8.10 Three reporting methods for villous damage	
Figure 8.9 Progression of villous atrophy	
Nutrition Diagnosis — Coeliac Disease	
Nutrition Intervention — Coeliac Disease	
Table 8.11 Nutrients requiring attention on a GFD	
Table 8.12 Gluten content of foods	
Table 8.13 Theoretical gluten intakes from foods with differing amounts of residual gluten	
Coeliac Organisations	
Nutrition Monitoring and Evaluation — Coeliac Disease	
Table 8.14 Responses to GFD.	
Peferences - Coeliac Disease	101

Lactose Intolerance	193
Nutrition Assessment — Lactose Intolerance	193
Nutrition Diagnosis — Lactose Intolerance	195
Nutrition Intervention — Lactose Intolerance	195
Table 8.15 Recommended daily intakes for calcium (mg/day)	196
Table 8.16 Lactose content of calcium sources	197
Table 8.17 Lactose in foods	197
Table 8.18 Ingredients with lactose	198
Nutrition Monitoring and Evaluation — Lactose Intolerance	199
References — Lactose Intolerance	199
Section 4—Gastrointestinal Tract Disorders	
Figure 8.10 Abdominal quadrants	200
Constipation	201
Figure 8.11 Bristol Stool Chart	202
Nutrition Assessment — Constipation	203
Nutrition Diagnosis — Constipation	203
Nutrition Intervention — Constipation	203
Nutrition Monitoring and Evaluation — Constipation	
Table 8.19 Common laxatives	205
Diverticular Disease	206
Figure 8.12 Diagram of a diverticulum	
Table 8.20 Stages of diverticular disease	
Nutrition Assessment — Diverticular Disease	
Nutrition Diagnosis — Diverticular Disease	
Nutrition Intervention — Diverticular Disease	
Nutrition Monitoring and Evaluation — Diverticular Disease	
References — Diverticular Disease	
Gastroesophageal Reflux Disease	
Figure 8.13 Diagram of GORD	
Nutrition Assessment — Gastroesophageal Reflux Disease	
Nutrition Diagnosis — Gastroesophageal Reflux Disease	
Nutrition Intervention — Gastroesophageal Reflux Disease	
Nutrition Monitoring and Evaluation — Gastroesophageal Reflux Disease	
Table 8.21 Food and drinks that can affect GORD	
References — Gastroesophageal Reflux Disease	216
Section 5—Kidney Disease	
Chronic Kidney Disease	
Table 8.22 Prognosis of CKD by GFR and albuminuria category	
Table 8.23 Stages of kidney disease	
Nutrition Assessment — Chronic Kidney Disease	
Figure 8.14 Kidney anatomy	
Nutrition Diagnosis — Chronic Kidney Disease	
Nutrition Intervention — Chronic Kidney Disease	
Nutrition Monitoring and Evaluation — Chronic Kidney Disease	
References — Chronic Kidney Disease	227

	Table 8.24	List of foods containing potassium (mmol per serve)	228
	MNT for Ot	ner Kidney Conditions	229
	Nutrition P	rescription — Acute Kidney Injury (AKI), Gout, Nephrotic Syndrome	229
	Nutrition P	rescription — Kidney Stones and Single Kidney (Acquired)	230
9	Texture !	<b>1</b> odification	
	Internationa	Il Dysphagia Diet Standardisation Initiative (IDDSI)	231
	New IDDSI	Levels	231
	IDDSI Flow	Test Instructions	232
	Food Textu	re Modification Grading Scale for the Clinical Management of Dysphagia	233
	Level 0 − T	nin Fluids	233
	Level 1 − S	ightly Thick Fluids	233
	Level 2 — M	ildly Thick Fluids	233
	Level 3 — L	quidised Foods/ Moderately Thick Fluids	234
	Level 4 — P	ureed Foods/Extremely Thick Fluids	235
	Level 5 — M	inced and Moist Foods	236
	Level 6 — S	oft and Bite-sized Foods	237
	Level 7 — E	asy-to-chew Foods	238
	Level 7 — R	egular Foods	239
	Transitional	Foods	240
	Table 9.1	High-energy, high-protein pudding examples	241
	Table 9.2	Product example: Nestlé Australia — Resource ThickenUp Clear	242
	Table 9.3	Product example: Nutricia — Nutilis Powder	242
	Table 9.4	Product example: Precise — Thick-N Instant	243
	Table 9.5	Product example: Precise — Juice, Orange	243
	Table 9.6	Product example: Flavour Creations — Real Fruit Juices, Sun Juice	244
	Table 9.7	Product example: Flavour Creations — Thickened Supplements, Iced Coffee	244
	Food Textu	res that Pose a Choking Risk	245
	References		246
10	Nutrition	Support	
	Nutrition Su	pport	247
	Figure 10.1	Routes of parenteral and enteral feeding	247
	Company C	ontact Details	247
	Section 1-	Oral Nutrition Support	
	Oral Nutriti	on Support	248
	Table 10.1	Powdered oral supplements	248
	Table 10.2	Liquid oral supplements: 1.00 kcal (4.20 kJ) per mL (standard serve)	249
	Table 10.3	Liquid oral supplements: 1.50 kcal (6.30 kJ) per mL (standard serve)	249
	Table 10.4	Liquid oral supplements: 2.00 kcal (8.40 kJ) per mL (standard serve)	250
	Section 2—Enteral Nutrition Support		
		rition Support	
		Standard adult enteral formula: 1.00 kcal (4.20 kJ) per mL	
	Table 10.6	Standard adult enteral formula: 1.50 kcal (6.30 kJ) per mL	
	Table 10.7	Standard adult enteral formula: 2.00 kcal (8.40 k.l) per ml	252

## Section 3—Total Parenteral Nutrition

	Indications	253
	Table 10.8 Parenteral nutrition access sites, indications and requirements	
	Table 10.9         Suggestions for establishing a parenteral-nutrition regimen	254
	Table 10.10 Parenteral nutrition: complications, possible causes and treatments	
	All-in-One Products	256
	Table 10.11 Kabiven® G19% (Fresenius Kabi) solutions	256
	Table 10.12 Olimel® (Baxter) solutions	257
	Lipids	257
	Table 10.13 Lipid solutions per 1 litre	257
	Glucose Solutions	258
	Table 10.14 Glucose solutions	258
	Amino Acid Solutions	258
	Table 10.15 Amino acids	258
	Table 10.16 Amino acids/bottle	258
	TPN Additives	259
	Table 10.17 TPN vitamins	259
	Table 10.18 Trace element solutions	259
	References	260
11	Paediatric Essentials	
	Paediatric Anthropometry	261
	Growth	261
	Growth Charts	261
	Anthropometric Measures	262
	Timing of Measurements	262
	Table 11.1         Recommended timing of measurements for healthy infants and children	262
	Weight	263
	Table 11.2 Average weight gain using 50th percentile for age (g/week)	263
	Figure 11.1 Measuring weight of infant using scales	263
	Figure 11.2 Measuring weight using standing scales	263
	Length/Height/Stature	263
	Figure 11.3 Technique for measuring recumbent length for 0-2 yrs (infantometer)	263
	Figure 11.4 Technique for measuring standing height for 2–18 yrs (stadiometer)	264
	Height Predication Equations	264
	Predication of Current Height for Typically Developing Children	264
	Table 11.3 Predicting stature in children, 6–18 yrs	264
	Predication of Height Using Segmental Measures	264
	Table 11.4 Prediction of height for typically developing children using segmental measures, 5–19 yrs	264
	Table 11.5         Prediction equations for height estimation in the Asian subgroup, 5-19 yrs	
	Prediction of Height at 18 Years Using Mid-parental Height	
	Techniques for Measuring Tibial Length, Upper-Arm Length and Knee Height	
	Tibial Length (T)	
	Upper-arm Limit (UAL)	266

Total Parenteral Nutrition \_\_\_\_\_\_\_253

Knee Heigr	nt	266
Standard D	eviation Scores (or Z Scores)	267
Table 11.6	Classification of malnutrition for weight-for-height, height-for-age, and weight-for-age based on Z-scores	267
Body Mass	Index (BMI)	
	International cut off points for BMI for overweight and obesity by sex between 2 and 18 years, defined to pass through BMI of 25 and 30 kg/m² at age 18 (ave. of data from Brazil, Great Britain, Hong Kong, Netherlands, Singapore,	
	and United States)	
	mference for Age	
	5 Position for measuring head circumference	
	Growth velocity, average head circumference (cm/week)	
	Food and Nutrition History	
	dolescent Eating Patterns	
	Eating skills and behaviours, birth to 12 months	
	Eating skills and behaviours, toddlers to adolescents	
	and Breastfeeding Guidelines	
	Abdominal depth in pregnancy	
	Dietary Guidelines—Children	
	L Food group recommendations for children 2-18 years	
	ided Food Intake Patterns	
	2 Breastmilk and infant formula recommendations, from birth	
	3 Solid food recommendations, 6–24 months	
	Follow-on Formulae	
	Nutritionally complete, polymeric standard bottle feeds (unless specified)	
	5 Standard infant formula examples	
	5 Standard infant follow-on formula examples	
	7 Specialised feeds (Nutritionally complete unless specified)	
	3 Specialised infant formula examples	
References		280
Sports N	utrition	
		283
Table 12.1	Estimated protein requirements for athletes	283
	Muscle Mass	
	dations for Muscle Growth	
Table 12.2	Protein content of high-protein bars and shakes	284
Table 12.3	Food serves with 10 grams of protein	285
	ite	
	Guidelines for carbohydrate intake (g/kg of athlete's body mass/day)	
	Guidelines for acute carbohydrate (CHO) fuelling	
Carbohydra	ite Intake During Prolonged and High-intensity Sessions	286
Adjusting C	arbohydrate Intakes for Training Days	286
Competitio	n Carbohydrate Loading	287
Table 12.6	Food sorves with 30 grams of available carbohydrate	207

Fats and Oils		288
Fibre		288
Table 12.7 Fibre intake recomm	mendations (g/day)	288
Fluid		288
Table 12.8 Fluid retention from	n commonly consumed beverages when taken without food	289
Alcohol Guidelines		289
Sports Drinks		289
Table 12.9 Australian sports dr	rinks and sports waters nutrient per serve	289
Table 12.10 U.S.A. sports drinks	s nutrients per serve	290
Iron Status in Athletes		290
Table 12.11 Cut-off points for ha	aematological indicators for iron status evaluation in athletes	290
Caffeine Guidelines		291
Table 12.12 Caffeine (mg) in foo	ods and fluids	291
AIS Sports Supplement Framewo	ork (2019) Classification System	292
Sports Nutrition Contacts		293
References		294
Appendices and Index		
• •		
Appendix 1—Abbreviations		005
· ·		
	S	
		230
Appendix 2—Contacts and Res		
Australian Dietitian Resources		300
Appendix 3—Glossary		
Glossary		301
Appendix 4—Diets and Religio	us Influences	
		304
=	no Acids	
World Religions, Dietary Practice	es and Rationale	305
	dical Chart Letters and Entries	706
·	al and Allied Health Practitioners tive/Assessment/Plan (SOAP)	
	SOAP)	
- · · · · · · · · · · · · · · · · · · ·	ometry/Biochemistry/Clinical/Diet (ABCD)	
	ppometry/Biochemistry/Clinical/Diet (ABCD)	
	ate	
	ry Checklist	
	· y ==	

## Appendix 6—Screening Tools

Subjective Global Assessment (SGA) Overview	313
Malnutrition Universal Screening Tool (MUST) Overview	313
Patient-generated Subjective Global Assessment (PG-SGA)	314
Malnutrition Universal Screening Tool (MUST)	317
Appendix 7—Therapeutic Diet Menus, Additives and Allergens	
Sample Food Service Therapeutic Diet Extras Menu	318
Diet Menus	319
Food Additives	324
Allergens	328
Food RAST Allergen List	328
Skin Allergen List	328
Index	
Index	329