Contents

Ab	brevi	ations	& acronyms	vi	
Fo	rewor	d		vii	
1.	Sun	1			
	1.1		ent intakes	1	
	1.2	Food-	based dietary guidelines	3	
	1.3	Phytochemicals		4	
	1.4	Water	4		
	1.5	Exercise and physical activity		4	
		1.5.1	Aerobic exercise	5	
		1.5.2	Strength training	5	
2.	Epidemiological and social aspects of ageing			6	
	2.1	Demo	graphy	6	
	2.2	Reaso	7		
	2.3	Improvements in biological age			
	2.4	Health status of older persons			
	2.5	Functioning and disability		9	
		2.5.1	Coronary heart disease and stroke	10	
		2.5,2	Cancer	10	
		2.5.3	Osteoporosis and bone fractures	10	
	2.6	6 Nutrition problems in low-income countries		11	
	2.7	Malnutrition and food security			
	2.8	Government response to ageing populations		12	
	2.9	Prevention of chronic disease at every stage of life			
	2.10	Nutrit	tional components in chronic diseases	14	
		2.10.1	Coronary heart disease	14	
		2.10.2	Cancer	14	
		2.10.3	Stroke	15	
		2.10.4	Non-insulin-dependent diabetes mellitus	15	
		2.10.5	Osteoporosis	15	
		2.10.6	Other chronic conditions	16	

3.	Hea	alth and	d functional changes with ageing	18	
	3.1	Physic	cal changes	18	
		3.1.1	Body weight	18	
		3.1.2	Protein and muscle	18	
		3.1.3	Decline in body cell mass	19	
		3.1.4	Sarcopenia	19	
		3.1.5	Fat mass	20	
		3.1.6	Changes in bone	20	
	3.2	Changes in energy regulation with age			
		3.2.1	Low dietary energy intake	22	
		3.2.2	Taste sensitivity and energy regulation	23	
	3.3	Water metabolism and dehydration			
		3.3.1	Etiology of dehydration in older persons	24	
		3.3.2	Clinical evaluation	25	
		3.3.3	Treating dehydration	26	
	3.4		Immune function		
		3.4.1	Polyunsaturated fatty acids	29	
			Vitamin B6	30	
		3.4.3	Vitamin E	30	
		3.4.4	Selenium	32	
		3.4.5	Zinc	32	
		3.4.6	Multivitamin/mineral supplementation	33	
	3.5	Neurological and cognitive function		34	
		3.5.1	Effect of nutrients on brain function	35	
		3.5.2	Prevention and treatment of degenerative brain disease	38	
			Zinc's role in dementia	39	
		3.5.4	Nutrients, cognitive function and mood	39	
4.	Impact of physical activity				
	4.1		ct of endurance training	41	
	4.2		ct of aerobic exercise	41	
			Changes in glucose tolerance	41	
		4.2.2	Exercise in the treatment of glucose intolerance		
			and NIDDM	43	
	4.3	Stren	gth training to reduce loss of muscle mass	45	
	4.4	Interaction between exercise and supplementation		46	
	4.5		Recommendations		
		4.5.1	Aerobic exercise	48	
		4.5.2	Strength training	48	
5.	Ass		the nutritional status of older persons	49	
	5.1				
	5.2		weight	49	

	5.3	Body c	omposition	50	
	5.4	Physical function			
	5.5	Immu	ne function	52	
	5.6	Other	laboratory indices	52	
	5.7	Community variables			
	5.8	Summ	ary of assessment techniques	53	
5.	Nut	ritiona	l guidelines for healthy ageing	54	
	6.1	Food-l	pased dietary guidelines	54	
	6.2	Nutrient intake recommendations for older persons			
		6.2.1	Energy	54	
		6.2.2	Calcium	55	
		6.2.3	Copper	55	
		6.2.4	Chromium	55	
		6.2.5	Fat	56	
		6.2.6	Folate	56	
		6.2.7	Iron	56	
		6.2.8	Magnesium	57	
		6.2.9	Protein	57	
		6.2.10	Riboflavin	57	
		6.2.11	Selenium	58	
		6.2.12	Vitamin B12	58	
		6.2.13	Vitamin A	59	
		6.2.14	Vitamin C	59	
		6.2.15	Vitamin D	59	
		6.2.16	Vitamin E	60	
		6.2.17	Vitamin K	60	
		6.2.18	Zinc	61	
		6.2.19	Phytochemicals	61	
		6.2.20	Other dietary considerations	61	
Re	eferei	nces		62	
A	nnex	1. Agei	ng and health: report by the WHO Secretariat to		
			ifty-fifth World Health Assembly, May 2002	76	
A	nnex	2. Partic	cipants in the World Health Organization/Tufts		
		Univ	ersity consultation on nutritional guidelines for the		
		elder	ly (Boston, MA, 26–29 May 1998)	79	
A	nnex		-based dietary guidelines for older adults: healthy		
		ageir	ng and prevention of chronic noncommunicable diseases	81	
A	nnex	4. The l	Heidelberg guidelines for promoting physical activity		
		amoi	ng older persons	112	