

# TABLE OF CONTENTS

<b>1. PUBLIC HEALTH AND PREVENTIVE MEDICINE</b>	11
1.1 Health	12
1.1.1 Definition	12
1.1.2 Adaptation	12
1.3.3 Dimensions	14
1.3.4 Determinants	15
1.2 Assessment of population health status	16
1.2.1 Data resources for the assessment of population health status	16
1.3 Health preventive programs	17
<b>2. DIET AND POPULATION</b>	21
2.1 Dietary assessment, nutrition monitoring	22
2.1.1 National food supply	22
2.1.2 Food-frequency questionnaire	23
2.1.3 Dietary recall/records analysis	23
2.1.4 Household surveys	24
2.1.5 Chemical analysis of double portion	25
2.2 Factors influencing food consumption	25
2.3 Dietary recommendations	25
2.3.1 General dietary recommendations	25
2.3.2 Food-based dietary guidelines	26
2.3.3 Dietary reference intake	28
2.3.4 Alternative diets	30
2.3.4.1 Vegetarian diet	31
2.3.4.2 Macrobiotic diet	32
2.3.4.3 Alternative ecological bioproducts/organic products	33
<b>3. MAJOR DIETARY CONSTITUENTS</b>	34
3.1 Energy	34
3.1.1 Energy needs	34
3.1.2 Insufficient energy intake: Marasmus (protein-energy malnutrition)	37
3.1.3 Excessive energy intake: Obesity	37
3.2 Proteins	37
3.2.1 Insufficient intake	39
3.2.2 Excessive intake	39
3.3 Lipids	39
3.4 Carbohydrates	42
3.5 Dietary fiber	42

3.5.1 Components of fiber and their physiological parameters .....	43
3.5.2 Impact of dietary fiber on the gastrointestinal tract.....	45
3.5.3 Recommended dose of fiber .....	45
3.5.4 Diseases associated with lack of dietary fiber.....	46
3.6 Probiotics in diet.....	46
3.7 Dietary supplements .....	48
3.8 The most widespread micronutrients deficiencies .....	49
3.8.1 Vitamin A deficiency .....	49
3.8.2 Iron deficiency .....	50
3.8.3 Iodine deficiency .....	51
<b>4. NUTRITIONAL-STATUS ASSESSMENT .....</b>	<b>52</b>
4.1 Medical history .....	52
4.2 Somatometric measurements .....	53
4.3 Clinical examination.....	55
4.4 Laboratory tests .....	57
4.5 Food-intake information .....	59
<b>5. NUTRITIONAL NEEDS DURING THE LIFE CYCLE .....</b>	<b>61</b>
5.1 Nutrition in infancy .....	61
5.1.1 Nutrition in the first 6 months, breast-feeding.....	61
5.1.2 Nutritive features of breast milk .....	62
5.1.3 Basic principles of nutrition from the 7 <sup>th</sup> to 12 <sup>th</sup> month.....	66
5.2 Nutrition of toddlers .....	68
5.3 Nutrition of preschool and younger school children .....	69
5.4 Nutrition of older school children and adolescents .....	70
5.5 Nutrition of elderly people .....	71
5.5.1 Assessment of nutritional status .....	71
5.5.2 Malnutrition .....	73
5.5.3 Dietary recommendations .....	74
<b>6. FOOD AND NUTRITION POLICY .....</b>	<b>76</b>
6.1 Food supply in the context of sustainable development .....	76
6.2 Food safety .....	77
6.2.1 Alimentary infections .....	78
6.2.1.1 General symptoms of alimentary infections .....	78
6.2.1.2 Pathogenetic mechanisms of alimentary infections .....	78
6.2.1.3 The source .....	79
6.2.1.4 Transmission .....	79
6.2.1.5 Latency period.....	79
6.2.1.6 Diagnosis .....	79
6.2.1.7 An overview of bacterial alimentary diseases .....	79
6.2.1.8 An overview of viral alimentary diseases .....	79
6.2.1.9 An overview of parasitic alimentary diseases .....	80
6.2.1.10 Special alimentary diseases and infections of the gastrointestinal tract .....	80
6.2.1.11 Alimentary infections from the hygienic perspective .....	80
6.2.1.12 Transmission of alimentary diseases and epidemiological interventions .....	80
6.2.1.13 Anti-epidemic activities against alimentary infections .....	85
6.2.2 Chemical safety and xenobiotics in foods .....	88
6.2.2.1 Additives in foods .....	88
6.2.2.2 Contaminants in foods .....	89
6.2.3 Quality requirements for drinking water .....	89
6.2.3.1 Basic hazards from drinking water .....	91
6.3 Healthy nutrition for all .....	91

<b>7. SMOKING.....</b>	93
7.1 Introduction and epidemiology .....	93
7.2 Substances in tobacco mixture and tobacco smoke .....	94
7.3 Physiological mechanism of tobacco addiction .....	95
7.4 Classification and objectivization of tobacco addition .....	95
7.5 Health consequences of burning-tobacco use.....	96
7.5.1 Cardiovascular diseases – mechanisms and effects.....	96
7.5.2 Oncological diseases – mechanisms and effects .....	97
7.6 Therapy and brief intervention of patients (method 5 A's).....	97
7.7 Public health actions.....	98
<b>8. ALCOHOL OVERCONSUMPTION.....</b>	99
<b>9. PHYSICAL ACTIVITY .....</b>	102
9.1 Global and European strategies .....	102
9.2 Physical activity in primary prevention .....	103
9.3 Health-oriented physical fitness and physical activity .....	104
9.3.1 Physical-activity recommendations.....	104
9.3.2 The assessment of cardiorespiratory fitness .....	105
9.3.3 Neuromuscular fitness and postural-pattern assessment .....	107
<b>10. PREVENTION OF NONCOMMUNICABLE DISEASES.....</b>	111
10.1 Obesity .....	111
10.1.1 Epidemiology of obesity.....	112
10.1.2 Obesity prevention at population level.....	113
10.1.3 Obesity prevention – an individual approach.....	115
10.1.4 Diet therapy in the prevention and management of adult obesity .....	118
10.2 Cardiovascular diseases .....	119
10.2.1 Risk factors .....	120
10.2.2 Prevention.....	120
10.2.2.1 Lifestyle intervention focused on physical activity .....	124
10.2.2.2 Lifestyle intervention focused on diet .....	124
10.2.2.3 Mechanisms of cardioprotective effects of phytochemical substances .....	129
10.3 Oncological diseases and their primary prevention .....	131
10.3.1 Primary prevention of malignancies from the community point of view .....	132
10.3.2 Secondary prevention of malignancies from the community point of view .....	132
10.3.3 Primary and secondary prevention of tumors from the individual point of view .....	134
<b>11. CHILD AND ADOLESCENT HEALTH.....</b>	135
11.1 Introduction .....	135
11.2 Child growth and development .....	136
11.1.1 Assessment of selected anthropometric data .....	136
11.2.1.1 Construction and use of growth charts .....	136
11.2.1.2 Assessment of body length (height) and growth rate .....	137
12.2.1.3 Determinants of growth .....	137
11.2.1.4 Growth disorders .....	138
11.2.1.5 Nutritional-status assessment in children .....	138
11.2.2 Developmental characteristics of children and adolescents .....	139
11.2.2.1 Periodization of childhood and adolescence .....	139
11.2.2.2 Psychomotor and psychosocial development .....	140
11.3 Health risks of children, the level of stress .....	143
11.3.1 Fulfilling the basic needs of a child .....	143
11.3.2 Signs of disrespect for the basic needs of a child .....	144
11.3.2.1 Health risks in kindergartens .....	145

11.3.2.2 School and inappropriate school load.....	146
<b>11.1 Prevention of children's injuries and violence against children .....</b>	<b>148</b>
11.1.1 Prevention of children's injuries.....	148
11.1.2 Prevention of violence against children .....	149
11.1.2.1 Risk factors. Forms of violence: definition, consequences.....	150
<b>12. HEALTH AND ENVIRONMENT .....</b>	<b>154</b>
12.1 Water management.....	154
12.1.1 Protection of drinking-water sources .....	155
12.2 Noise and its reduction .....	155
12.3 Air pollution .....	157
12.4 Public-health view on waste.....	159
12.5 Maintaining a safe building environment.....	160
12.5.1 Indoor climatic conditions.....	160
12.5.2 Indoor air quality .....	161
12.5.3 Lighting .....	162
<b>13. OXIDATIVE STRESS.....</b>	<b>164</b>
13.1 Free radicals .....	164
13.2 Formation of free radicals .....	165
13.2.1 Endogenous causes.....	165
13.2.2 Exogenous causes.....	165
13.3 Antioxidant-defense system .....	166
13.3.1 Antioxidant enzymes .....	166
13.3.2 Non-enzymatic antioxidant proteins.....	167
13.3.3 Low-molecular antioxidant substrates .....	167
13.4 Total antioxidant capacity.....	168
13.5 Balance between free radicals and antioxidants .....	168
13.6 Beneficial effects of free radicals .....	168
13.7 Deleterious effects of free radicals on biomolecules .....	169
13.8 Quantification of oxidative stress .....	169
13.9 Oxidative-stress-related diseases .....	170
<b>References .....</b>	<b>171</b>