DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES AT VILNIUS UNIVERSITY

Scientific Area/eas, Field/ds of Science	Medical and Health Sciences (M 000): Medicine (M 001); Public Health (M 004); Nursing (M 005); Odontology (M 002) Natural Sciences (N 000): Biology (N 010) Social Sciences (S 000): Educology (S 007)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Clinical Medicine Clinic of Internal Diseases, Family Medicine and Oncology			
Course unit title (ECTS credits, hours)	**Clinical Dietology** 5 Credits (135 hours)			
Study method	**Lectures**	**Seminars**	**Consultations**	**Self-study**
Number of ECTS credits	-	-	1	4
Method of the assessment (in 10 point system)	Oral exam. Three questions are asked: about the components of nutrients in general and their metabolism in the body, and about dietary characteristics and strategies depending on the nature of the disease. Before answering, the doctoral student is given time to think, write down the necessary facts and information. Evaluation criteria (minimum total reading score is 5 points) are obtained by evaluating: 1) the student demonstrates excellent and up-to-date knowledge about the prevention, diagnosis and management of dietary changes related to chronic diseases and disorders, is able to freely discuss, interpret examples of real-life clinical situations - 4 maximum points; 2) perfectly answers additional questions, is able to identify and evaluate pathological health processes, raise problems, choose a strategy, draw conclusions, motivate for change - 4 maximum points; 3) when discussing current issues, the doctoral student is able to summarize his / her knowledge and possible connections with the future dissertation in a concise, reasoned and concrete manner - 2 maximum points			

PURPOSE OF THE COURSE UNIT

Understand the importance and relevance of nutrition in health and disease, the influence of physiological, sociological, psychological and environmental factors on food choice. To provide knowledge about human digestive physiology, nutrient absorption and energy metabolism in the body, metabolic aspects of human physical activity, growth, aging, catabolic processes, obesity, some chronic diseases. To recognize diseases and conditions caused by malnutrition, to know the principles of nutrition in the case of the most common diseases. To be able to give scientifically based advice on nutrition issues, to promote healthy eating. To be able to use information sources, to evaluate published knowledge on nutrition issues.

THE MAIN TOPICS OF COURSE UNIT

1. General. Diet history, nutritional interview techniques. A Food Guide Pyramid, servings per food group, portion size. Cultural, religion, ethnic influence on food choice. Assessment of nutritional status (tools, screenings, anthropometrics).

Assessment of energy balance: guidelines for calculating body metabolic rate in rest state, physical activity and under metabolic (pathological) stress, in sports people. Additional energy demand. Aerobic and anaerobic metabolism.
2. Digestion, absorption, metabolism, storage: carbohydrate, protein, fat. Vitamins and minerals: function, metabolism, best sources in food, consequences of deficiency and excess. Function of flavonoids, phytoestrogens, antioxidants in the body, sources in food. Types and significance of dietary fibres. Probiotics, prebiotics, symbiotics, sporabiotics, their benefits to the body. The role of microbiota in the developing of disease.
3. Mediterranean diet characteristic. DASH diet. Nutritional prevention and diet therapy for metabolic syndrome, obesity, diabetes, cardiovascular disease (atherosclerosis, hypertension, myocardial infarction) and cardio-cerebral pathology.
4. Types of vegetarianism, nutritional features, disadvantages, vegetarian nutrition pyramid. Macrobiotic diet. Functional food. Food supplements. Vegetarianism and pregnancy. Aberrant nutrition-related behaviours: anorexia nervosa, bulimia, compulsive overeating disorder, picacism. Anaemia, dietary treatment.
5. Physical signs and symptoms of malnutrition, tests for malnutrition. The concept of marasmus, Kwashiorkor, feeding tactics. Physiological changes in the digestive system in old age, food pyramid in the elderly. Causes of involuntary weight loss in old age. Principles of nutrition in the elderly.
6. Dietary characteristics of some diseases of the gastrointestinal tract: esophageal hernia, gastroesophageal reflux disease, gastritis, ulcers, steatohepatitis, cirrhosis of the liver, gallstones, celiac disease, hypolactasia. Food intolerance and food allergy, antiallergic diet.
7. Osteopenia, osteoporosis, nutritional features. Principles of nutrition in patients with kidney disease (kidney failure, stone disease). Chronic obstructive pulmonary disease, neurodegenerative diseases (multiple sclerosis, epilepsy) and dietary disorders.
8. Nutrition and cancer. Protective, anticarcinogens in food. Dietary supplements in oncology. Tactics for assessing the nutritional status of terminal patients. Palliative nutritional care of terminal patients.

RECOMMENDED LITERATURE SOURCES

1. Mahan LK, Raymond Jl. Krause and Mahan ‘s Food and the Nutrition Care process. Elsevier Health Science, 2020. 15th ed, E-book available: https://books.google.lt/books?id=rSfRDwAAQBAJ&printsec=frontcover&hl=lt#v=onepage&q&f=false
2. Champagne, C.M. Nutritional Status: An Overview of Methods for Assessment. In: Wilson, T., Temple, N.J., Bray, G.A. (eds) Nutrition Guide for Physicians and Related Healthcare Professions. Nutrition and Health. 2022. Humana, Cham. https://link.springer.com/chapter/10.1007/978-3-030-82515-7_38
3. Tada H, Takamura M, Kawashiri M-a. The Effect of Diet on Cardiovascular Disease, Heart Disease, and Blood Vessels. *Nutrients*. 2022; 14(2):246: https://www.mdpi.com/2072-6643/14/2/246/htm
4. Chiavaroli L, Viguiliouk E, Nishi SK, et al. DASH dietary pattern and cardiometabolic outcomes: an umbrella review of systematic reviews and meta-analyses. Nutrients. 2019;11(2): E338. https://www.mdpi.com/2072-6643/11/2/338
5. Neufingerl N, Eilander A. Nutrient Intake and Status in Adults Consuming Plant-Based Diets Compared to Meat-Eaters: A Systematic Review. Nutrients.2021;14(1):29. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8746448/
6. Bhutta ZA, Berkley JA, Bandsma RHJ, Kerac M, Trehan I, Briend A. Severe childhood malnutrition. Nat Rev Dis Primers. 2017 Sep 21; 3:17067. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7004825/

7. Ding, Rui-xue, et al. Revisit gut microbiota and its impact on human health and disease. Journal of food and drug analysis, 2019, 27.3: 623-631. https://www.sciencedirect.com/science/article/pii/S1021949819300122
8. Trakman, G. L., Fehily, S., Basnayake, C., Hamilton, A. L., Russell, E., Wilson-O'Brien, A., and Kamm, M. A. Diet and gut microbiome in gastrointestinal disease. Journal of Gastroenterology and Hepatology, 2022, 37: 237– 245. https://onlinelibrary.wiley.com/doi/10.1111/jgh.15728
9. Kamal N, et al. Genesis and Mechanism of Some Cancer Types and an Overview on the Role of Diet and Nutrition in Cancer Prevention. *Molecules*. 2022; 27(6):1794. https://www.mdpi.com/1420-3049/27/6/1794/htm
10. Scoditti E, Massaro M, Garbarino S, Toraldo DM. Role of Diet in Chronic Obstructive Pulmonary Disease Prevention and Treatment. *Nutrients*. 2019; 11(6):1357. https://www.mdpi.com/2072-6643/11/6/1357/htm

CONSULTING LECTURERS

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2. Sonata Varvuolytė (Assist. prof. Dr.).
3. Virginija Gaigalaitė (Assoc. prof. Dr.).
4. Staigis Rimgaudas (Assist. prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University: 29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė