Discipline MCP5901
Hot topics in Nutrition Research in Cardiovascular Diseases

Concentration area: 5131

Creation: 09/05/2024

Activation: 09/05/2024

Credits: 2

Workload:

Theory (weekly)	Practice (weekly)	Study (weekly)	Duration	Total
6	2	2	3 weeks	30 hours

Professors:

Nágila Raquel Teixeira Damasceno

Livia de Almeida Alvarenga

Objectives:

To contribute to an updated and critical education on the role of diet as an essential and adjuvant strategy for primary and secondary prevention of cardiovascular diseases, their risk factors and comorbidities.

Rationale:

The incidence of cardiovascular disease is directly related to the prevention and appropriate management of modifiable risk factors (obesity, dyslipidemia, hypertension, diabetes mellitus, smoking, and sedentary lifestyle). Among these, diet in its dimensions (nutrients, bioactive compounds, foods, and eating patterns) has shown proven efficacy. Although metabolic studies confirm the potential of nutrients as modulating agents of cellular and molecular pathways directly related to cardiovascular diseases and observational studies show a reduction in cardiometabolic risk, randomized controlled trials with large sample size and often multicenter do not always raise this level of evidence. Given this scenario, the proposal of this discipline is justified in the interdisciplinary scientific training in cardiology.

Content:

The course will offer updated scientific content on diet, mechanisms modulated by nutrients and bioactive compounds, within a critical approach on analytical methods and based on randomized and controlled clinical trials, systematic reviews, meta-analysis and umbrella reviews on cardiovascular diseases. The main topics covered will be: Nutrition, lipid metabolism and HDL functionality Differential role of fructose, resistant starch, dietary fiber and sucrose in CVD. High-lipidic and ketogenic diets and their impact on CVD Diet, migrants and CVD Dietary patterns and CVD Omega-3: far beyond hypertriglyceridemia Diet and CVD in the Age of Broad Spectrum Gene Sequencing Diet, obesity and adipose tissue metabolism Dietary modulation of the Microbiota and systemic inflammation in the context of CVD Diet and LDL: Composition and functionality

Type of Assessment:

The learning evaluation will be done face-to-face. Two evaluation strategies will be adopted: Seminars/guiding questions in groups developed within the themes covered in class (35% of the final grade), individual work delivered at the end of the course (30% of the final grade) and participation in the discussions held in the forums throughout the course (35%).

Notes/Remarks:

The course will have a minimum number of 10 and a maximum number of 30 students. There is no need for students to have taken other courses. The course will be offered 100% face-to-face, with activities posted in USP's e-disciplines virtual learning environment and using the Google Meets platform. The course accepts students from other PG USP and HEIs in the country, the latter as special students. Approval is conditional on 75% class attendance and the completion of all the activities included in the schedule.

Bibliography:

Effect of a traditional Mediterranean diet on apolipoproteins B, A-I, and their ratio: a randomized, controlled trial. Atherosclerosis. 2011 Sep;218(1):174-80. Electronegative low-density lipoprotein: origin and impact on health and disease. Atherosclerosis. 2011 Apr;215(2):257-65. Cardiovascular antioxidant therapy: a review of supplements, pharmacotherapies, and mechanisms. Cardiol Rev. 2012 Mar-Apr;20(2):77-83 Silva IT, Mello AP, Damasceno NR. Antioxidant and inflammatory aspects of lipoprotein-associated phospholipase A₂ (Lp-PLA₂): a review. Lipids Health Dis. 2011 28;10:170. Damasceno NR, Pérez-Heras A, Serra M, Cofán M, Sala-Vila A, Salas-Salvadó J, Ros E. Crossover study of diets enriched with virgin olive oil, walnuts or almonds. Effects on lipids and other cardiovascular risk markers. Nutr Metab Cardiovasc Dis. 2011;21 Suppl 1:S14-20. Epub 2011 Mar 21 Mello AP, da Silva IT, Abdalla DS, Damasceno NR.Electronegative low-density lipoprotein: origin and impact on health and disease. Atherosclerosis. 2011 Apr;215(2):257-65. Heneka MT, Kummer MP & Latz E (2014) Innate immune activation in neurodegenerative disease. Nat. Rev. Immunol. 14, 463–477. Nature Publishing Group. Freund Levi Y, Vedin I, Cederholm T, et al. (2014) Transfer of omega-3 fatty acids across the blood-brain barrier after dietary supplementation with a docosahexaenoic acid-rich omega-3 fatty acid preparation in patients with Alzheimer's disease: The OmegAD study. J. Intern. Med. 275, 428–436. Lee CH, Shih AZL, Woo YC, Fong CHY, Leung OY, Janus E, et al. Optimal Cut-Offs of Homeostasis Model Assessment of Insulin Resistance (HOMA-IR) to Identify Dysglycemia and Type 2 Diabetes Mellitus: A 15-Year Prospective Study in Chinese. PLoS ONE 2016; 11:e0163424. Antonio G. Laurinavicius, Itamar S. Santos, Raul D. Santos, Isabela M. Bensenor, Raquel D. Conceicao, Paulo A. Lotufo.Extremely elevated HDL-cholesterol levels are not associated with increased carotid intima-media thickness: data from ELSA Brasil. Journal of Clinical Lipidology (2016) 10, 898–904. Ros E. The PREDIMED study. Endocrinol Diabetes Nutr. 2017 Feb;64(2):63-66. Estruch R, Ros E, Salas-Salvadó J, Covas MI, Corella D, Arós F, Gómez-Gracia E, Ruiz- Gutiérrez V, Fiol M, Lapetra J, Lamuela-Raventos RM, Serra-Majem L, Pintó X, Basora J, Muñoz MA, Sorlí JV, Martínez JA, Martínez-González MA; PREDIMED Study Investigators.Primary prevention of cardiovascular disease with a Mediterranean diet. N Engl J Med. 2013 Apr 4;368(14):1279-90. Dehghan M, Mente A, Zhang X, Swaminathan S, Li W, Mohan V, Iqbal R, Kumar R, Wentzel-Viljoen E, Rosengren A, Amma LI, Avezum A, Chifamba J, Diaz R, Khatib R, Lear S, Lopez-Jaramillo P, Liu X, Gupta R, Mohammadifard N, Gao N, Oguz A, Ramli AS, Seron P, Sun Y, Szuba A, Tsolekile L, Wielgosz A, Yusuf R, Hussein Yusufali A, Teo KK, Rangarajan S, Dagenais G, Bangdiwala SI, Islam S, Anand SS, Yusuf S; Prospective Urban Rural Epidemiology (PURE) study investigators. Associations of fats and carbohydrate intake with cardiovascular disease and mortality in 18 countries from five continents (PURE): a prospective cohort study. Lancet. 2017 Nov 4;390(10107):2050-2062. Dehghan M, Mente A, Rangarajan S, Sheridan P, Mohan V, Iqbal R, Gupta R, Lear S, Wentzel-Viljoen E, Avezum A, Lopez-Jaramillo P, Mony P, Varma RP, Kumar R, Chifamba J, Alhabib KF, Mohammadifard N, Oguz A, Lanas F, Rozanska D, Bostrom KB, Yusoff K, Tsolkile LP, Dans A, Yusufali A, Orlandini A, Poirier P, Khatib R, Hu B, Wei L, Yin L, Deeraili A, Yeates K, Yusuf R, Ismail N, Mozaffarian D, Teo K, Anand SS, Yusuf S; Prospective Urban Rural Epidemiology (PURE) study investigators. Association of dairy intake with cardiovascular disease and mortality in 21 countries from five continents (PURE): a prospective cohort study. Lancet. 2018 Nov 24;392(10161):2288-2297. W H Wilson Tang, Fredrik Bäckhed, Ulf Landmesser, Stanley L Hazen . Intestinal Microbiota in Cardiovascular Health and Disease: JACC State-of-the-Art Review. J Am Coll Cardiol. 2019 Apr

30;73(16):2089-2105. The association between a vegetarian diet and cardiovascular disease (CVD) risk factors in India: the Indian Migration Study. Shridhar K, Dhillon PK, Bowen L, Kinra S, Bharathi AV, Prabhakaran D, Reddy KS, Ebrahim S; Indian Migration Study Group.PLoS One. 2014 Oct 24;9(10):e110586. Diet quality in an ethnically diverse population of older men in Australia. Stanaway FF, Ribeiro RV, Khalatbari-Soltani S, Cvejic E, Blyth FM, Naganathan V, Handelsman DJ, Le Couteur DG, Simpson SJ, Waite LM, Cumming RG, Hirani V.Eur J Clin Nutr. 2021 Dec;75(12):1792-1800. 19. Effects of red meat, white meat, and nonmeat protein sources on atherogenic lipoprotein measures in the context of low compared with high saturated fat intake: a randomized controlled trial. Bergeron N, Chiu S, Williams PT, M King S, Krauss RM.Am J Clin Nutr. 2019 Jul 1;110(1):24-33. Lipoprotein subfractions and subclinical vascular health in middle aged women: does menopause status matter? Qi M, Chen X, Krauss RM, Matthews K, Janssen I, Brooks MM, McConnell D, Crawford SL, El Khoudary SR.Menopause. 2022 Aug 1;29(8):911-919.

Languages taught:

Portuguese

Class type:

Presencial