ISPM Institute of Social and Preventive Medicine
BIHAM Berner Institut für Hausarztmedizin
CTU Clinical Trials Unit

UNIVERSITÄT BERN

The Bern Lectures in Health Science

Dr. Marco Vinceti is a Medical Doctor who completed a Residency in Public Health at the University of Modena and Reggio Emilia and has a Doctorate in Public Health at the University of Milan. He is a Professor of Epidemiology and Public Health at the University of Modena and Reggio Emilia Medical School. He is also affiliated with the Department of Epidemiology of the Boston University School of Public Health. Dr. Vinceti is a Fellow of the Collegium Ramazzini, an independent Scientific Expert of the European Food Safety Authority – EFSA, where he also is the Chair of the Working Group on Sugars and a member of the Working Group on Epidemiologic Studies. He is the President of the Italian Association for Trace Element Research AISETOV and the deputy president of the European Society FESTEM.

His main research fields are nutritional and environmental epidemiology, with a focus on the health effects of selenium, cadmium and pesticides, on the epidemiology of childhood leukemia and neurodegenerative disease, and on systematic reviews and dose-response meta-analyses.

«Bridging epidemiology and basic science in risk assessment: lessons and uncertainties from the selenium example»

Selenium, a trace element naturally-occurring in several organic and inorganic forms, is ubiquitous in the environment. Its main source of exposure in the human is diet. Selenium has nutritional and toxicological properties, and it has an extremely narrow safe range of exposure, though it boundaries are still uncertain and controversial. Both selenium deficiency and overexposure have been associated with adverse health effects, based on laboratory observations and epidemiologic studies with experimental and nonexperimental design. However, recent reviews and dose-response meta-analysis of epidemiologic studies, particular large randomized trials carried out in the US, have shown that no beneficial effect of selenium on cancer risk exists, contrary to previous expectations. Conversely, adverse effects such as dermatological alterations and an increased risk of diabetes may follow selenium administration, even at unexpectedly low levels of intake. In particular, the relative increase in risk of diabetes is small but of possible public-health importance because of the high incidence of the disease. A natural experiment occurred in Italy has also suggested an association between overexposure to inorganic hexavalent selenium and two neurodegenerative diseases, amyotrophic lateral sclerosis and Parkinson's disease. Concerning laboratory studies, the most recent ones have highlighted some unexpected detrimental effects of selenoproteins, beside their already known antioxidant properties. Epidemiologic and laboratory studies have also generated evidence for a role of severe selenium deficiency in Keshan disease, a human cardiomyopathy. Overall, the most recent scientific advancements on selenium highlight the complexity of nutritional risk assessment, the pivotal role of epidemiologic research in it, and the need to bridge epidemiology and laboratory evidence when assessing the adequate intake and safe upper limit of dietary factors such as selenium having both nutritional and toxicological interest.

Join the seminar on Thursday, 9 January at 1:00 pm in room 220!