

Human Variability & Personalized Nutrition - State of the Science

Abstract:

Since each individual person differs in multiple ways, it is a beguiling idea that the nutritional needs of each person are also different. In support of this idea, findings from well-conducted nutritional intervention studies have provided ample evidence demonstrating a considerable inter-individual variation in response to the same dietary exposure. To date, we have limited understanding of the physiological mechanisms responsible for this variation but, following sequencing of the human genome, there has been much excitement about the role of genes in explaining inter-individual differences.

Eating patterns play a major influence on health. Over the years, there have been various public health advices given to improve our diet with the aim of reducing the risk of common complex diseases. However, most dietary interventions are relatively ineffective. As such, personalized approaches which tailor the intervention to the individual may offer a more acceptable and effective route to dietary behavioral change. This idea was tested in the pan-European Food4Me Study in which adults from 7 countries were randomized to one of four treatment groups in an internet-delivered dietary intervention. Compared with the control (standardized healthy eating advice), subjects who were randomized to a personalized nutrition intervention has bigger, sustained changes in eating behavior after 6 months. However, more complex phenotypic and/or genotypic information in developing personalized nutrition advice did not contribute to added benefits.

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Biography:

Prof. John Mathers is Professor of Human Nutrition and Director of the Human Nutrition Research Centre in the Institute of Cellular Medicine at Newcastle University, United Kingdom. He was also a founding member, and Chair of the European Nutrigenomics Organisation (NuGO). His research includes the use of genomic and epigenomics tools to understand the mechanisms through which nutrition influences cell function and, ultimately, health. In addition, in collaboration with colleagues in the University of Aberystwyth and Imperial College London, he has developed novel metabolomics-based methods for assessing dietary intake. Prior to his current position, Prof. Mathers was previously the President of the Nutrition Society and former Scientific Director of the Institute for Ageing and Health, Newcastle University. He was a Postdoc in Cambridge University and a Research Fellow in Edinburgh University before being appointed to Newcastle University. His major research interests are in understanding how eating patterns influence risks of common age-related diseases such as heart disease, diabetes, dementia and bowel cancer. He completed his undergraduate studies in Newcastle University and received his Ph.D. in Nutrition at Cambridge University.