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Using nutritional genomics in nutrition practice: Current evidence and future directions

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Since the human genome has been sequenced there has been a revolution in our understanding of how genetic variation can considerably influence medical outcomes and responses to therapeutic interventions. Advancements in this field have been particularly prominent in the field of oncology, where developing tailored drug-based interventions for specific genetic alterations has led to remarkable therapeutic outcomes. The genomic revolution represents the next shift in how we treat people for various diseases by specifically tailoring their treatment based on their genetic background, including how diet affects our health. Not all people respond in the same way to different food and food patterns. This is influenced by an individual's genetic make-up. Personalized nutrition recommendations by health professionals, which take genetic differences into account, will therefore become necessary to prevent and treat nutrition-related diseases, in contrast to conventional one-size-fits all recommendations. The ability to provide a person dietary advice, specific to their genetic make-up, is also complicated by other factors. This includes how environmental factors modify genes (epigenetics), the composition of good and bad bacteria (microbiome) in the gut and the levels of different metabolites in the blood. These factors together describe nutritional genomics and all must be taken into consideration when identifying genetic sub-groups who would benefit from particular dietary recommendations. The ultimate goal in this field is to integrate all of this information to ensure that health-care professionals, including nutritionist's and dietitians, know enough about nutritional genomics to decide on the most appropriate level of care to achieve personalized nutrition. This presentation will discuss the adoption of nutritional genomics technologies in nutrition practice, focusing on current evidence, barriers and future directions.

Biography

Jessica Danaher has completed her PhD at Victoria University in Human Obesity Genetics and Skeletal Muscle Metabolism using nutrition and exercise stressors. She also pursued Masters of Dietetics at Deakin University and is now an Accredited Practicing Dietitian. Her previous roles include Clinical Dietitian at St Vincent's Hospital, Casual Research Fellow at Deakin University, Sessional Academic at Victoria University and Victorian Clinical Director of Health Promotion for Special Olympics Australia. She is currently a Lecturer/Early Career Development Fellow in Nutrition at RMIT University.

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