Title: The Role of the Portfolio Diet in the Prevention of Heart Disease and Diabetes: Insights from Clinical and Population Studies using Markers of Metabolism and Genetics

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Research area: Type 2 diabetes

Award: End Diabetes 100 Award, 2021-2024

Summary:

People living with diabetes take many medications to help manage their blood sugar and decrease their risk of heart disease, and some medications have unwanted side effects. Healthy diets remain the cornerstone of heart disease and diabetes prevention and management. These diets typically have no unwanted side effects and can improve many important risk factors for diabetes and heart disease at the same time. However, the research to support specific diet strategies for diabetes and heart disease is limited. Innovative nutrition research is needed that will strengthen the evidence for clinical and public health policy decision-making. Metabolomics is an emerging field in nutrition and chronic disease epidemiology. This approach uses overall metabolism products to develop an objective metabolic signature for a dietary pattern, which is not prone to the same measurement and reporting errors of traditional self-report diet tools. This approach can also be used to produce a genetic signature that will allow for the assessment of causal relationships, thereby providing important evidence for the role of diet in the prevention of diabetes and heart disease.

We now plan to expand our work with the Portfolio Diet, a plant-based dietary portfolio of cholesterol-lowering foods (nuts, plant protein, sticky fibre, plant sterols, and healthy oils), to include this new transformative approach. We will: (1)Determine a metabolic signature of the Portfolio Diet from a trial and, (2)Apply and compare this metabolic signature to three large U.S. cohorts and assess the relation of the Portfolio Diet, its metabolic signature, and inferred genetic signature with heart disease and type 2 diabetes.

The majority of individuals with type 2 diabetes will die prematurely of heart disease in Canada and worldwide, and so research like ours aims to identify dietary patterns to prevent and manage these chronic diseases that could impact millions of people.