

## Protocols

### Study Protocol Abstract: Effects of White Potato Consumption on Measures of Cardiometabolic Health in Individuals With Type 2 Diabetes Mellitus

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**Objectives:** The incidence of type 2 diabetes mellitus (T2D) continues to increase in the United States, and the treatment of T2D and associated cardiovascular complications creates a large economic burden. Diet plays an important role in the prevention and treatment of T2D, and studies have suggested high glycemic index (GI) foods, in moderate amounts, may be safely incorporated in the diets of individuals with T2D. Potatoes (*Solanum tuberosum*) are nutrient-dense vegetables, containing vitamins, minerals (e.g., potassium), essential amino acids, fiber, and phytochemicals. Therefore, the hypothesis of this study is that daily consumption of white potatoes will contribute to improvements in cardiometabolic health and diet quality in individuals with T2D. We will address this hypothesis with a cross-sectional examination of epidemiological data (NHANES, 2010–2018), as well as with a randomized crossover intervention.

**Methods:** For the cross-sectional examination, NHANES 2010–2018 data will be used to: 1) compare total white potato intake and white potato intake by preparation method in individuals with T2D, prediabetes, and no diabetes; and 2) explore the relationship between total white potato consumption, potato preparation methods, and diet quality in adults with T2D. For the randomized cross-over study, participants with non-insulin-dependent type 2 diabetes (45–80 y, BMI 25–40 kg/m<sup>2</sup>) will be randomly assigned to receive baked white potato (100g cooked with skin; 100kcal) or a calorie-matched refined grain (75g cooked long-grain white rice; control) daily for each of two 12-week treatment period, separated by a 2-week washout. Outcome variables will include indices of glycemic control, blood pressure, lipid profile, endothelial function, inflammation, and body composition.

**Results:** Study is currently ongoing.

**Conclusions:** This is the first study, to our knowledge, to 1) investigate the effects of white potato consumption on markers of cardiometabolic health in individuals with T2D, and 2) examine associations between white potato consumption, diet quality, and markers of cardiometabolic health in adults with T2D using the NHANES database.

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