

Fasting and probiotics may help prevent diabetes

May 11 2016

Very low calorie diets and probiotics may both help prevent Type2 diabetes and a scientific trial to investigate this will be underway in Auckland this year.

University of Auckland [diabetes](#) researcher, Dr Rinki Murphy has received a Health Research Council NZ grant for \$149,000 to study probiotics for pre-diabetes.

Preventing the progression from prediabetes to Type2 diabetes is a health priority for New Zealand, and lifestyle interventions have been difficult to implement in real world settings," says Dr Murphy from the University's Faculty of Medical and Health Sciences.

"The effects of certain strains of probiotics in the prevention of Type2 diabetes are strongly encouraging with reduction in [gestational diabetes](#), improvements in insulin sensitivity and weight loss seen with Lactobacillus supplements," she says.

"In this study we will test the effectiveness of a specific strain of Lactobacillus rhamnosus (HN001) given at different doses to patients with pre-diabetes, in terms of lowering blood glucose, and the distribution of body fat (specifically within the liver and pancreas) assessed by MRI scans."

"We are specifically recruiting patients of different ethnicities in Auckland who have pre-diabetes for this study to see how well this

probiotic treatment may work," says Dr Murphy.

"We want to find out whether the intermittent fasting approach to prevent Type2 diabetes is amplified by probiotic supplementation."

Dr Murphy says about 10 percent of people with pre-diabetes develop Type2 diabetes each year and are at increased risk for cardiovascular disease and death even before the development of diabetes.

The estimated prevalence of pre-diabetes in New Zealand is 25 percent and for diabetes it is seven percent with the highest rates seen in Pacific, Indian and Māori individuals.

"These groups are disproportionately affected by diabetes-related complications including renal failure, amputations, heart disease, stroke and premature death," she says.

"It has been estimated that nearly 500,000 New Zealanders will have Type2 diabetes by 2021 with a likely cost of \$1 billion a year to the country."

Dr Murphy says lifestyle changes to combat pre-diabetes are difficult to sustain and widespread strategies to support them are often too costly for health-care systems to implement successfully.

"While certain prescription drugs such as metformin, acarbose and orlistat are effective, their side effects and costs make them unsuitable for widespread, long-term clinical use in the prevention of Type2 diabetes," she says.

"Probiotics may offer an additional, safe, approach."

Dr Murphy says there is increasing evidence that gut microbiota may be

important in the pathogenesis of Type2 diabetes by influencing energy extraction from the diet, hunger, inflammation and glucose metabolism.

"Probiotics may be able to shift gut microbiota and the resulting alteration in microbial fermentation products may produce favourable metabolic benefits," she says.

"Once we have established whether the Lactobacillus probiotic supplement works to improve pre-diabetes and determined which dose is best, we hope to test this in a larger study.

"That larger study will test whether combining probiotic supplementation with intermittent fasting produces even greater benefits than intermittent fasting alone," she says.

"Studies in mice have shown that short periods of fasting (24 hours) rapidly shift gut microbiota to induce favourable metabolic changes," says Dr Murphy.

One recent study in overweight people demonstrated that short-term severe caloric restriction rapidly altered [gut microbiota](#) towards that seen in healthy populations with lower abundance of species associated with inflammation.

"Both intermittent fasting and [probiotics](#) are popular and promoted in the media indicating potential for uptake and acceptability, but they require randomised clinical trial evidence for efficacy," says Dr Murphy.

"Overall reduced caloric intake through fasting on two out of seven days a week (such as in the 5:2 diet) may be more achievable and sustainable than continuous modest daily restriction," she says. "A fasting day is below 650kcal per day for men and below 600kcal per day for women."

Provided by University of Auckland

Citation: Fasting and probiotics may help prevent diabetes (2016, May 11) retrieved 25 April 2024 from <https://medicalxpress.com/news/2016-05-fasting-probiotics-diabetes.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.