Popular science summary

A growing number of people are adapting to a sedentary lifestyle and eating highly processed foods (excess sugar and oil) in modern life. Obesity is associated with these habits and is becoming a global health issue leading to diabetes, which is among the top ten causes of death, according to the World Health Organization. Studies suggest that diet is an effective way to regulate glycemia, thereby reducing the risk of diabetes and cardiovascular diseases related to it. Besides conventional products for diabetes patients, such as non-starchy vegetables and whole grains, more recent research focuses on products containing healthy oils to regulate postprandial glycemic responses. An extract of lipids from plants has been shown to have a lowering effect on glycemia in healthy individuals. This study focused on a special type of plant lipid - polar lipids. There were two parameters investigated in this study, postprandial blood glucose and insulin concentrations. The results of this study may be useful for the development of foods containing polar lipids that prevent diabetes.

For the purposes of this investigation, 17 healthy subjects were enrolled in a clinical meal study. For all subjects, three different breakfasts with different concentrations of polar lipids and two reference breakfasts, white wheat bread and rapeseed oil, were prepared. It took around ten weeks to complete the experiments.

In this study, participants were required to arrive at the clinical site at 8 am after they had fasted overnight. Blood samples were collected from participants after they consumed breakfasts during the three-hour trail experiment to measure blood glucose and insulin concentrations. A statistical analysis program was used to analyze the data.

According to the results, plant polar lipids do not have a statistically significant effect on after-meal blood glucose or insulin concentration. However, a clear trend can be seen that plant polar lipids can decrease insulin response following breakfast consumption. In order to improve the study, more studies could be conducted with some changes to the experiment design in an effort to understand the function of plant polar lipids.

Moreover, following the results from this research, it can be inferred that supplementing the diet with certain amounts of plant polar lipids may have the potential to stabilize insulin concentration in healthy individuals, thereby reducing the risk of obesity, cardiovascular disease, and other complications associated with them.