

Heading

Can lecithin make bread release sugar more slowly?

Introduction

White bread often causes a rapid rise in blood sugar because the starch is digested quickly. This project investigated whether lecithins from eggs, soybeans, and sunflower seeds could slow starch digestion and make bread metabolically healthier.

Main text

Bread is a staple food for millions of people. However, white bread often produces a rapid increase in blood glucose after eating. Frequent sharp rises in blood sugar are linked to diseases such as type 2 diabetes and cardiovascular disease. Researchers therefore want to develop foods that release glucose more slowly.

Starch is the main carbohydrate in bread. The rate of starch digestion strongly influences how quickly glucose enters the bloodstream. Some studies have suggested that polar lipids may slow this process. Polar lipids are special fat molecules found in foods such as egg yolk and sunflower seeds. Lecithin is one common type of polar lipid.

This project investigated whether lecithins from different sources influence starch digestion in bread. Five breads were prepared: white bread, bread with sunflower oil, bread with sunflower lecithin, bread with soy lecithin, and bread with egg lecithin.

The study used a laboratory method that simulated chewing and enzymatic digestion in the human body. The experiments measured how much starch was broken down over time. The study then estimated how quickly glucose would likely be released after eating the bread.

The results showed clear differences between the breads. All breads with added lipids showed slower starch digestion than white bread. Breads with lecithins generally showed a greater reduction than bread with sunflower oil alone. Egg lecithin and sunflower lecithin produced the strongest effects.

The results suggest that lecithins interact with starch and make it more difficult for digestive enzymes to break it down. Lecithins may also change the internal structure of bread and reduce enzyme access to starch.

Interestingly, the source of the lecithin appeared to matter. Egg lecithin produced strong effects even though it contained less polar lipid than the plant lecithins. This finding suggests that lipid composition may be important, not only the amount of fat added.

The study shows that small changes in bread ingredients can influence starch digestion. In the future, this knowledge may help researchers and food companies develop bread products with a lower glycaemic impact and a slower release of glucose after meals.