Genetics likely determine who benefits from vitamins in the developed world

In 1911, Polish biochemist Casimir Funk discovered what was behind a then-mysterious neurological condition known as beriberi, common in regions where people's main source of calories came from de-husked, or 'polished,' rice.

He fed a group of ill pigeons a substance he had isolated from rice polishings, and within 12 hours, they had recovered. Funk went on to propose that a handful of puzzling ailments including beriberi and scurvy arose because of deficiencies in nutrients like the one he had found in the rice husks. He considered these chemicals vital amines, which he shortened to "vitamines."

Today, nobody doubts that vitamin B1 can prevent beriberi or that vitamin C prevents scurvy. But scientific opinion about the use of vitamin supplements by millions of seemingly healthy people has never been more divided. An important factor is genetic variability.

"Every person has about 50,000 variations in their genes," says Steven Zeisel, director of the University of North Carolina Nutrition Research Institute in Chapel Hill. Any number of them could be important in metabolism. Yet "very few geneticists are collecting diet information, and very few diet people collect genetic information".

Zeisel's work has uncovered, for example, that 44 percent of women have gene variants that significantly increase their dietary requirements for the nutrient choline. It is perhaps no wonder that trial results have been inconsistent.

Read the full, original story: Nutrition: Vitamins on trial