Now, though, some of Britain's top scientists have created a ground-breaking, mass-produced, sliced "Superloaf" that they claim can actually help support the immune system.

They say the technology behind the loaf represents a major breakthrough for the food industry and could revolutionise the way staple foods are made in the future, while one supermarket involved in a bidding war to stock the loaf has gone so far as to say it "could change the health of the nation".

The seeded, wrapped wholemeal bread, made by Oxford-based Modern Baker, contains a "unique" blend of fibres and plant chemicals aimed at optimising gut health and slowing the absorption of glucose in the small intestine, both of which help immunity. It is also lower in calories than other equivalent mass-produced loaves – although this was incidental rather than a primary aim, according to Modern Baker's founder Melissa Sharp.
Eleven years ago, then aged 36, Sharp endured the most harrowing episode of her life. She underwent chemotherapy to treat breast cancer. What made it worse was that when the snacks trolley came by, it was laden with sugary foods and drinks she suspected would not only fail to heal her but might well make her iller still.

"I was just learning about the connections between sugar and cancer, so was shocked to see things like Coca-Cola, custard creams and KitKats being sold in hospital," she says. "It seemed to me that these were directly fuelling the very conditions that keep hospitals full."

Sharp felt the best way to fully recover was to eat unrefined, plant-based foods. After making sourdoughs that friends seemed to love, she set up (with Lindsay Stark, a graduate of the School of Artisan Food in Nottingham) a healthy bakery-café in Oxford producing long-fermented sourdough breads from unrefined stone-ground grains.
In 2014, Modern Baker was born and was a huge success, spawning a book and contracts with Wholefoods, Ocado and Selfridges.

Sharp was moved to create long-fermented breads after noticing the sweet offering on trolleys during her stay in hospital CREDIT: Heathcliff O'Malley
But Sharp was not content to stand still. Despite her lack of a scientific background, or even any A-levels (due to family pressures), she set herself a challenge: to find out the science of exactly how the human body digests bread. She secured a £25,000

government grant and hooked up with scientists at Newcastle University's Biosciences Institute who had built a Model Gut System, mimicking the human gut. Subsequent grant funding of £950,000 plus substantial investor funds meant the team could take their investigations to another level, soon joined by scientists from food technology giant Campden BRI and the Oxford Brookes Centre for Nutrition and Health, and after five years they have succeeded in making the everyday bread Sharp had always dreamed of.
Superloaf's plant chemicals (or "phytonutrients") are derived from seaweeds and seeds including linseed, sunflower and pumpkin, while fibre comes from ingredients such as psyllium husks, and grain husks in the loaf's wheat and barley flours. Its sole raising agent is yeast, and the process from raw ingredients to finished loaf takes 27 hours.

All this makes it a very different beast from other mass-produced breads made using the Chorleywood Bread Process, developed in 1961, which slashed the time it took to make a loaf to less than four hours. By using high-speed mixing and adding hard fats, emulsifiers, enzymes, extra yeast, preservatives and other additives (many of which don't have to be declared on the pack) this industrialised process creates an ultra-processed loaf that's soft and fluffy, and has a long shelf life. Around 80 per cent of the UK's bread is produced this way.

The launch of the Superloaf comes at a time when consumer interest in the role of immunity in diet is at an all-time high, prompting a growing number of brands to sell their products on the basis of immunity-supporting claims.

The Netherlands-based Innova database named "In Tune with Immune" one of its Top Ten Trends for 2021, and a survey by Innova last year found that six out of 10 consumers globally were looking for foods and drinks that would support their immune systems. These foods include bread.
As one UK supermarket bread buyer puts it: "Our consumers have long understood calories and five-a-day. Covid has brought a new word to their lips: immunity."

Sharp's researchers confirmed what nutritionists have long known, that immunity is supported not through a single ingredient, but through the interaction of a range of different ingredients in a healthy diet. "Building a stronger immune system isn't about one-off miracle foods, it's about eating the right foods every day: hence our focus on the UK's staple food," says Professor Jeff Pearson, who led the team at Newcastle.

The tag line on the loaf's (recyclable) packaging claims it is the "best thing since veg", but it's more than just a marketing gimmick. Pearson's team developed a blend of natural fibres and phytonutrients that echoed the effects of fruits and vegetables on the metabolism.

One of the key roles of vegetables in our diet is as a source of health-boosting fibre, a key component of Superloaf. What distinguishes it from other breads, however – even the multi-seed, wholegrain ones – is that it includes a spectrum of fibres. Other loaves generally include insoluble fibre (often wheat bran) which is useful in helping to keep things moving in the gut.

But Superloaf also includes soluble fibre to help slow down glucose absorption in the small intestine, and fermentable fibre to provide a good environment for the friendly bugs in the large intestine.

Slow absorption of glucose is important as this helps avoid harmful sugar spikes which trigger inflammation, which in turn impairs the body's immune system and devastates its natural protection from diseases. Healthy gut bacteria – gained by eating a wide range of natural foods, particularly fibrous and fermented ones – play a crucial role in protecting the body against "bad" bacteria, invading viruses (such as Covid) and a range of non-communicable diseases such as diabetes and heart disease.

A survey from Innova revealed six out of 10 consumers look for foods that support their immune systems, including bread CREDIT: Getty Images

The 800g Superloaf retails at £2.80 and is currently sold through Amazon Fresh. It remains to be seen which supermarket stocks it first, as Modern Baker is seeing a frenzy of interest. David Atherton, the winner of 2019's The Great British Bake Off who now, as well as baking and book-writing, works as a health adviser for VSO, is one fan.

"The most surprising thing is how they've managed to mimic the sliced loaf that everyone loves," he says. "Once toasted and slathered with peanut butter (my favourite spread, but each to their own) you wouldn't tell the difference between Superloaf and your standard sliced loaf; but your microbiome certainly will. For too long bread has been seen as the villain, but the real problem is the type of bread people eat."

Meanwhile Tim Spector, Professor of Genetic Epidemiology at King's College, London, wrote on Twitter, "Could this be the future of more healthy foods?" Spector has been vocal in linking poor diet and obesity to the UK's high mortality rates from Covid. "Obesity and poor diet are emerging as two of the biggest risks factors for a severe response to Covid-19 infection: that can no longer be ignored," he said recently.

The loaf also gets the thumbs-up from Raymond Blanc, whose Manoir aux Quat'Saisons restaurant is near the Modern Baker's bakery-cum-laboratory. The work it is doing to improve the nutrition of staple foods "is exciting and important," he says. "Who knows, maybe the bread will start being called 'the second Oxford vaccine."

In light of the current pandemic, Sharp believes the need for immune-supporting staples that are accessible to all has never been greater. "Covid has been a wake-up call that immunity against disease, through what we eat, is critical," she says. "Good diet is as necessary to good health as good hospitals."

She and the team are working on around 20 other “smart” bakery products that will contain the same special blend of fibres and phytonutrients. These products include appropriately-named digestive biscuits, as well as bagels, wraps, biscuits and cakes.

Sharp believes this will kick-start a new category of baking that’s actively good for human digestion, that she calls Active Health Bakery. “We believe this is the biggest revolution in baking since Hovis was founded 135 years ago to re-set the nutritional profile of bread,” she says.

The Superloaf team is also hoping to apply the same technology to other staple food groups such as pasta and cereal, and eventually to all carbohydrate-based processed foods.

Newcastle’s Professor Pearson is upbeat: “The science behind Superloaf may well prove a breakthrough for the carb-based food industry – and hopefully for our immunity as a nation too.”

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What's in the bread

No single ingredient will support immunity on its own; it’s the interaction of a range of different ingredients that helps protect the body against disease. Here are some highlights of Superloaf’s 16 natural ingredients:

***⇢ Kelp***
A seaweed wild-harvested in the Hebrides and a rich source of plant micronutrients. Its key role in boosting immunity is reducing blood sugar release, as well as being a natural source of iodine.

***⇢ Barley flour***
Contains valuable soluble fibre that is known to improve blood sugar control as well as providing the specific prebiotic fibre that feeds the billions of microbes/bugs in our gut that are important to our immunity.

***⇢ Flaxseed***
Also known as linseed, this has been shown to regulate blood sugar, which is closely linked to immunity. Its readily fermentable qualities are appreciated by our gut microbes.

***⇢ Psyllium husk***
Harvested from a plant that belongs to the plantain family, this is known as one of the most effective fibres for maintaining digestive health because its gel-forming properties slow down glucose absorption, helping in elimination.

***⇢ Sunflower seeds***
A source of vitamins and minerals including vitamin E, which has anti-inflammatory properties, and selenium, an antioxidant that protects against cell damage and enhances the immune response.

Keep your gut happy to boost your immune system

Your gut microbiome is a complex community of microbes that live in your gut, and it can be tricky to keep it balanced CREDIT: Getty Images

Tim Spector, Professor of Genetic Epidemiology at King's College, London, and lead scientist of ZOE and the ZOE Covid Study, stresses the connection between the bacteria in your gut (your gut microbiome) and the functioning of your immune system.

Your gut microbiome is a complex community of microbes that live in your gut. Spector describes it as a thriving city, in which the inhabitants come and go over time. The bugs that live in the gut have been found to influence the overall health of an immune system. The healthier the gut microbiome, the healthier the immune system.

Spector maintains that the wider the variety of plant fibre you eat, the healthier and "more diverse" the bacteria in your gut will be. He suggests eating 30 different types of fruit and vegetables per week, including nuts, seeds and herbs.

Vegetables are a type of prebiotic, a group of fibre-containing foods that "fertilise" existing bacteria and encourage microbe development. Other prebiotics include wholegrain foods, such as brown bread, rice, pasta, beans and pulses.

Eating probiotics, such as live yogurt, unpasteurised artisan cheese and fermented foods, also encourages the growth of microbes. But it hasn't been proven that they reach the gut. The advice in Spector's book, Spoon-Fed, is to limit ultra-processed foods, sugars, sweeteners and preservatives, as they have been found to "reduce the diversity of bacteria" in your gut.

*ZOE is a health science company, co-founded by Prof Spector, that is running the largest in-depth nutrition study in the world. It is also the company behind the ZOE Covid Study, the largest Covid science project with over 4.5m participants, which has been tracking and researching Covid-19 since March 2020.*

***Would you eat the Superloaf? Let us know your thoughts in the comments***