

The National

Designer genes

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Healthy eating doesn't get much healthier than this: in the UK, a new breed of GM tomato has been developed that contains anthocyanin, an antioxidant that can help protect your body from age-related degenerative diseases and slow the growth of colon-cancer cells, as well as aiding eyesight and helping to stave off obesity.

That's on top of the naturally occurring lycopene, an antioxidant that helps to fight cancer and can protect your skin from sunburn, if taken as a supplement.

This miraculous tomato, which was created by incorporating genes from a snapdragon flower, is one part of a much larger trend in food and nutrition towards nutraceuticals – food extracts that have a medicinal effect on the body, often taken as supplements – and functional foods – everyday foods that are strengthened with fortified ingredients.

Suddenly, an apple a day to keep the doctor away isn't quite enough. Back in the tomato development lab at the John Innes Centre in the English town of Norwich, Norfolk, the scientists are busy coming up with other ways to make vegetables super healthy, from adding other types of antioxidants to tomatoes to developing potatoes with added health benefits, potentially leading to a plate of chips that is actually good for you.

The global trend started in Japan, where consumers can buy all manner of food-medicine hybrids, including Asahi Blood Thinning Water, Coca Cola Plus Royal Jelly, PMS Support Food and sweets and cookies from the likes of the cosmetics manufacturer Shiseido with added ingredients including vitamin E, collagen and enzyme CoQ10 for beautiful skin – and even more voluptuous curves.

Elsewhere in the world, you can find orange juice with added cod liver oil, bread strengthened with folic acid for the benefit of pregnant women and Swiss chocolate formulated with isomaltulose, an alternative to sugar that doesn't rot your teeth. Willy Wonka would be proud.

Rebecca Robins is the global marketing director of the brand consultancy Interbrand Health and co-author of the leading book *Brand Medicine*. She has worked with the world's largest pharmaceutical brands.

"The rise of functional foods bears direct correlation to the rise in incidence of a number of diseases and conditions," she said. "They include, most notably, arthritis, osteoporosis, high cholesterol, blood pressure, heart disease, and diabetes and obesity." Cholesterol-reducing margarine arrived on our shelves at around the same time that many people started to become aware of how important a healthy heart and unfurred arteries are, she adds. And along with that, the internet has given us access to health information from all over the world, making us aware of potential treatments for these conditions.

"At the touch of a BlackBerry, we are able to search medical conditions, access branded websites and log on to blogs propounding the pros and cons of various treatments," she says. "Consumers have become more health-aware than ever before and companies are responding to that."

There's clearly a huge market for these functional food brands, which respond directly to consumer concerns and seem to offer a magic-bullet solution for almost any condition under the sun.

But of course, it's not as simple as that. While the pharmaceuticals industry is strongly regulated worldwide, food is regulated in a different way – and, depending on what part of the world you are in, not always as stringently as it is in other nations. The concern with this is that while some products may simply fail to live up to their promises, others may still have unexplored side effects.

For example, folic acid-fortified bread is on sale in the USA, but in the United Kingdom, where food regulations are tighter, it is still undergoing tests because of a possible link to an increased incidence of colon cancer.

Kate Neil, the managing director of the Centre for Nutrition Education in the UK, certainly has her reservations.

"The difficulty with 'functional food' is that the food chain has been manipulated – and that's the same with refined food, pesticides and soil depletion," she says.

"This does things to food that meant that they no longer have the nutritional composition that nature intended. It all gets very confusing – and there is particular concern about how different products will interact with each other. We don't know what the outcomes will be and there is a complicated time ahead."

With mood, learning ability, cognitive decline and obesity all affected by what we eat, it is vital that we know exactly what is going into our bodies, and what effect those substances will have on us, she adds.

"The public is already confused about labels, and it's important to be clear about these things," Neil continues. "Adding vitamins and minerals to food can still be dangerous. They are part of the body's chemistry but they can be toxic in the wrong amounts."



Even the humble tomato has undergone a laboratory-based revamp. Now varieties exist that, it is claimed, can hold obesity at bay, protect against cancer and stop sunburn. Courtesy Corbis

Robins also sees a problem with keeping the public informed about what they're eating.

"As the market expands and becomes more cluttered," she says. "Consumers are being bombarded with an abundance of messages. In the long term, this will all contribute to a greater awareness and understanding of a healthy lifestyle and a balanced diet. However, in the short term, companies are going to have to engage with the confusion and misunderstanding that may arise."

Kate Neil has a suggestion that involves no gimmicks, fancy packaging and no engineered foods: concentrating on eating healthily, thus avoiding the need for these supplements in the first place. And as part of that, improving the quality of fruit, vegetables and meat has got to take priority.

"We need to make the food we grow as nutritionally rich as possible, from treating the soil and feeding our animals well, so that we get nutritionally balanced food," she says. "But we've moved a long way from that. It's a multimillion pound industry. Functional foods are here and they're here to stay."

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