

Peanut allergy cured in children using immunotherapy

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A potentially life-threatening peanut allergy has been essentially cured in nine out of 10 recipients of a new treatment which gradually escalates the amount of peanut protein the body can tolerate.

Other treatments such as vaccines and antibodies are also under development, but the new oral immunotherapy is claimed to be the first to successfully allow people to tolerate such a food allergy.

"We've shown fantastic results, with 80 to 90 per cent of children being able to tolerate eating peanuts regularly after treatment," says Andrew Clark of Addenbrooke's Hospital in Cambridge, UK, who co-led the team that developed the treatment.

"Before the treatment, children and their parents had to check every food label, but now they can go out anywhere without fear of accidentally swallowing and reacting to traces of peanuts," he says.

Killer nut

Affecting two in every 100 children, peanut allergy kills around 50 people in the US each year – mainly through suffocating throat swellings – and results in 15,000 emergency hospital visits. "The only current 'treatments' are avoidance of peanut-containing food and shots of adrenaline to treat reactions," says co-leader of the team, Pamela Ewan, also at Addenbrooke's.

The trial, involving 99 children with peanut allergy aged between 7 and 16, is the largest ever to test an oral immunotherapy.

In the first part of the trial, 49 children received the oral immunotherapy. At their first visit to the hospital, with medical facilities standing by in case of bad reactions, the children received a tiny dose of peanut flour – around 2 milligrams – in their meal. The same amount was then added to their meals at home for two weeks. Then, every two weeks for a six-month period, the peanut flour dose was gradually boosted until it reached 800 milligrams. This is the equivalent of five whole peanuts, and 25 times the average amount of peanut that the children could tolerate beforehand.

Peanut challenge

A control group of 50 children received no therapy, and continued to avoid exposure to peanuts throughout the six-month period.

At the end of the trial period, the researchers tested all of the children's ability to safely consume gradually increasing amounts of peanut, under strict medical supervision. The researchers found that 41 of the 49 therapy recipients – 84 per cent – could handle the equivalent of five peanuts. None of the children in the control group could handle any more peanut than they could to begin with.

Next, 39 of those who could already handle five peanuts daily then faced an even sterner challenge: to try eating the equivalent of 10 peanuts, or 1400 milligrams, in one go. Twenty-four of the children, or 62 per cent, succeeded.

Finally, the 50 children in the control group underwent six months of the therapy. Of those, 91 per cent were able at the end to eat the equivalent of five peanuts a day, validating the original result in the process. "It's almost like we got two trial results for the price of one," says Ewan. Absolutely huge

The researchers found that treatment led to a reduction in the activation of basophils, the white blood cells that trigger acute inflammation and swelling on exposure to peanut protein.

Other allergy specialists welcomed news of the therapy. "It's huge, absolutely huge," says Maureen Jenkins, director of clinical services at Allergy UK. "There hasn't been any way of treating this before."

Jenkins says that the effects of all previous attempts at treatment quickly wear off, but some children receiving the Addenbrooke's regimen have remained tolerant for five years, provided they regularly take small doses of peanut protein.

"We still need studies to see what happens if treatment stops totally, but this therapy will make a huge difference," she told New Scientist. Don't try this at home

The research matters most for the children involved in the study. "After the trial, I felt as though a huge burden had been lifted off my shoulders," says one recipient of the treatment, 14-year-old Chris Poll of Perth, Australia. "I don't have to worry about going to parties any more, don't have to stress about going to school camps, and don't have to worry about eating in restaurants."

"A year after the trial I could eat five whole peanuts with no reaction at all," says Lena Barden, 11, from Histon in Cambridgeshire, UK. "But I still hate peanuts."

Ewan stresses that the Addenbrooke's regime should not be attempted beyond the controlled environment of a hospital until it has been developed further, such are the acute risks of peanut exposure in those with the allergy. "We must be absolutely clear to say: 'Don't try this at home'," she says.

"We're in the process of working towards being able to offer it as a specialised unit, and hope ultimately that a network of specialised units elsewhere in the UK can be set up to offer it safely," says Ewan. The team is also hoping to obtain a product license for the regime, possibly in collaboration with the pharmaceutical industry.