

Researchers discover two treatments that induce peanut allergy remission in children

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Researchers have discovered two peanut allergy treatments for children that are both highly effective at inducing remission. Credit: Kamran Aydinov

Researchers have discovered two peanut allergy treatments for children that are both highly effective at inducing remission.

The research, led by the Murdoch Children's Research Institute (MCRI), found the treatments—a combination of a probiotic together with oral [immunotherapy](#) (the gradual introduction of the allergenic food) and oral immunotherapy alone—significantly induced [remission](#) and desensitization. About half of the [children](#) achieved remission, allowing them to stop treatment and safely eat peanut freely. Both treatments also provided substantial improvement in [quality of life](#) compared with current standard care.

The randomized controlled trial conducted at The Royal Children's Hospital in Melbourne, Perth Children's Hospital, and the Women's and Children's Hospital in Adelaide involved 201 children aged between 1-10 years. The trial was staged over four years, with participants followed up to 12-months post-treatment.

The team led by MCRI Professor Mimi Tang had previously shown that the combination treatment resulted in 74 percent achieving remission after 18 months of treatment, and 70 percent of those initial responders remained in remission and were eating peanut safely four years later. The next step was to test whether adding a probiotic gave a benefit over and above oral immunotherapy on its own and to compare long-term outcomes following treatment.

The new research, published in *The Lancet Child & Adolescent Health*, found after 18 months of treatment, 46 percent and 51 percent of children who received the combination treatment or the oral immunotherapy alone, respectively, were in clinical remission compared to 5 percent in the placebo group. The children who reached clinical remission were able to stop treatment and eat around a standard serve of peanut freely. Both treatments also led to a significant improvement in quality of life, with those children who achieved clinical remission experiencing the biggest improvement, greater than those who only achieved desensitization.

"The results show that high dose peanut oral immunotherapy provides meaningful benefit to treated children," Professor Tang said. After 18 months of treatment, 74 percent of children who received the oral immunotherapy tolerated roughly a standard serve of peanut, equal to a snack pack of peanut M&Ms, 51 percent achieved clinical remission and were able to stop treatment altogether, while the remaining 24 percent were desensitized to this amount of peanut."

"Addition of a probiotic did not significantly improve effectiveness compared to oral immunotherapy, however it appeared to enhance tolerability of the treatment, with fewer gastrointestinal symptoms, especially in children between one and five years of age."

The results also showed that treatment with oral immunotherapy, with or without a probiotic for childhood peanut [allergy](#), provides a significant and substantial improvement in quality of life compared with current standard care, which is peanut avoidance.

MCRI Dr. Paxton Loke said remarkably 99 percent of children who achieved remission and ceased treatment were eating peanut as frequently as they liked in the 12 months after stopping treatment.

"Children who were in clinical remission had fewer reactions to peanut compared with those who were just desensitized," he said.

"Being desensitized still requires continued daily treatment and allergen avoidance so remission appears to be a better outcome for children. Importantly, children in remission had a significantly improved quality of life compared with allergic children, suggesting that no longer having to avoid peanut provides greater benefit than continued allergen avoidance despite the risk of a possible reaction."

The peanut [oral immunotherapy](#) approach used in the trial applies a

proprietary high dose, rapid escalation regimen that is being developed by Prota Therapeutics as a lead candidate for the treatment of peanut allergy, PRT120. Prota Therapeutics is an Australian biotech company, focused on bringing its allergy immunotherapy treatment for children with life-threatening peanut allergies to market.

Melbourne's Kate Lawlor's son Declan, 9, who took part in the trial, is now in clinical remission and eats peanuts weekly. Declan was diagnosed with a peanut allergy at age four after having a reaction to peanut butter.

Kate said it was a huge relief that her son could now eat peanut freely without fear of a reaction or having to avoid the nut for the rest of his life.

"Having a child with a food allergy is quite stressful," she said. In the home you can control the environment around food but school, play dates and birthday parties are largely out of your hands."

"With Declan now in remission a lot of anxiety has been lifted and he is enjoying eating peanut chocolate M&Ms. He sees this as a real treat and looks forward to eating them every week."

Peanut allergies are the most common cause of severe allergic reactions, called anaphylaxis, and one of the most frequent causes of death from food allergy. About 3 percent of babies have a peanut allergy.

"As there is currently no cure, patients must adhere to strict allergen avoidance, which leads to psychological distress and reduced quality of life," Professor Tang said.

"There is a need for disease modifying therapies that improve health and well-being and both the combination and standalone immunotherapy treatments provided a meaningful benefit. The combination therapy in

particular could offer a safe and well tolerated approach to inducing clinical remission in young pre-school children with [peanut](#) allergies. Starting treatment early seems to increase the chances of achieving remission and pre-school children are especially vulnerable, so a treatment that causes fewer side effects brings an important advantage."

Researchers from The Royal Children's Hospital, Monash Children's Hospital, University of Melbourne, University of Adelaide, Women's and Children's Hospital in Adelaide, Perth Children's Hospital, The University of Western Australia, Telethon Kids Institute, Monash University and University College Cork in Ireland also contributed to the study.

More information: Probiotic peanut oral immunotherapy versus oral immunotherapy and placebo in children with peanut allergy in Australia (PPOIT-003): a multicentre, randomised, phase 2b trial, *The Lancet Child & Adolescent Health*, [DOI: 10.1016/S2352-4642\(22\)00006-2](https://doi.org/10.1016/S2352-4642(22)00006-2)

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