Peanut allergies affected by exercise and sleep deprivation, new study finds

Sleep deprivation and exercise can make people with peanut allergies more sensitive, a study at Addenbrooke's Hospital has found.

Published in The Journal of Allergy and Clinical Immunology, the team found that exercise and sleep deprivation each significantly reduce the threshold of reactivity (the amount of peanut needed to trigger a reaction) in people with peanut allergy, putting them at greater risk of a reaction.

Led by the allergy research team at Addenbrooke's, and funded by The Food Standards Agency (FSA), the TRACE study is hugely significant, as one in every 100 adults and one in every 50 children, have peanut allergies - the most common cause of fatal allergic reactions.

Allergies remains an under-researched subject and the FSA has targeted support for projects which aim to progress our knowledge in this area. These findings will pave the way for better food labelling and greater understanding of the factors that can lead to allergic reactions.

Dr Shelley Dua, lead investigator at Addenbrooke's, said:

> "Precautionary allergen labels on food such as the commonly used 'May contain traces of...' are currently quite vague and not very helpful. This is partly because until now we simply haven't known enough about the amount of allergen which causes a reaction and how day to day factors like tiredness and exercise affect allergic reactions.
>
> This study takes us a long way towards building that knowledge and changing the way we label allergens making life easier and safer for allergic individuals."

The Food Standards Agency Chair, Heather Hancock said:

> "The FSA commissioned and funded this ground-breaking research because we want to significantly improve the understanding of everyday impacts that can contribute to an allergic reaction.
>
> "This is vital work and can help us redefine how foods are labelled in future, so that people can manage their allergies more safely.

> “It’s impossible to remove the allergy risk for people, but these findings give us essential evidence. In future, it could support precautionary allergen labelling so people will know exactly when a food poses a real risk to them which can increase the trust they have in their food.”

The work, which could be applied to other foods, reveals that exercise, sleep deprivation or stress significantly reduce the amount of peanut required to cause an allergic reaction.

It provides cut-off levels appropriate for the UK population which longer-term could help regulators and the food industry develop accurate evidence-based food labelling – keeping consumers safe and enabling greater variety of diet.

Patient Lynsey Brown, who participated in the research, said:

> “The TRACE study really helped me to understand how much peanut I can eat before I develop a reaction. I’m so glad that this important research is being done to help address the issue of food labelling which is real day-to-day problem for me.”

More than 126 peanut allergic individuals took part in the trial. Participants were given a peanut challenge where they were given increasing amounts of peanut flour to eat until they developed an allergic reaction which was treated quickly. This challenge was repeated when they were exercising and when they were sleep-deprived.

Dr Andrew Clark, of the CUH allergy support team and chief investigator, described the TRACE study as a “team effort” with the National Institute for Health Research/Welcome Trust Cambridge Clinical Research Facility (Cambridge UK), Royal Brompton& Harefield NHS Foundation Trust Clinical Research Facility (London) and the University of Manchester all contributing.

> He said: “I would like to thank all those who have supported this significant piece of research, including our peanut allergic participants and sponsors.
>
> “While the development of new labelling will likely take some time, the immediate benefit is that we can raise awareness among sufferers the consequence of stress, sleep deprivation and exercise can have on tolerance of peanut.”

Notes

FSA Research - The effect of extrinsic factors on food allergy

Since 2013 The FSA has funded more than £5.7 million of research projects into allergens.

This has included groundbreaking work on role of the skin barrier, timing and introduction of allergens in the infant diet, how older children are affected by food allergy and linkages between early life nutrition and development of allergic diseases.

About Cambridge University Hospitals (CUH)

Cambridge University Hospitals NHS Foundation Trust (CUH) is one of the largest and best known trusts in the country, delivering high-quality patient care through Addenbrooke's and the Rosie Hospitals. CUH is a leading national centre for specialist treatment for rare or complex conditions and a university teaching hospital with a worldwide reputation.