



The **Anaphylaxis** campaign

Helping people with severe allergies live their lives

Establishing a threshold dose for peanut allergy

An international research team has moved a step closer towards establishing a threshold dose for peanut that regulatory bodies can accept and food companies can work to.

The work suggests the possibility that 95% of people with peanut allergy can tolerate 2mg or more of peanut protein without reaction, while the few reacting to smaller amounts experience generally mild reactions at their threshold doses.

However, further research looking at a larger study population will be needed to confirm the findings and lead to regulatory thresholds for peanut.

The researchers undertook a thorough screening of existing publications in order to establish lowest adverse effect levels (LOAELs) and no-observed adverse effect levels (NOAELs) obtained from blinded, low-dose oral challenges.

Put in laymen's terms, they want to establish whether there is a dose level beneath which the vast majority of people with peanut allergy will **not** react.

The team concluded that the information they found and the risk assessment models they applied will provide the type of information that is necessary to establish regulatory thresholds for peanut.

The research was carried out by Prof Steve Taylor and his team at the Food Allergy Research & Resource Program (FARRP) in Nebraska, together with scientists at Unilever.

The researchers, working through the International Life Sciences Institute (ILSI), found 12 publications containing data from which individual thresholds could be identified for 185 peanut-allergic individuals. These publications described studies of three different types: diagnostic series, low-dose threshold studies, and immunotherapy trials.

Using mathematical analyses, three probability distribution models were fitted to the published data to estimate the ED (10) – the dose below which only 10% of the tested population would be expected to react..

The three models provided ED (10) s in close agreement: 17.6, 17.0, and 14.6 mg of whole peanut. The 95% lower confidence intervals for the ED (10) s were 9.2, 8.1, and 6.0 mg of whole peanut.

From this modelling approach, it is also possible to work out that 95% of the peanut-allergic population would react to about 6mg of whole peanut, equivalent to about 2mg of peanut protein. Because food challenges are stopped as soon as an objective symptom is observed, it is also the case that most reactions to such small amounts will be fairly mild.

Reference: Taylor et al 2009. Food and Chemical Toxicology 47, 1198-1204.