dehydration, boiled and raw peanuts were ground, defatted in acetone, agitated, centrifuged, and air dried for 24 hours. The resultant pellet was resolubilized in 5 volumes of phosphate-buffered solution, and both the peanut extract and the leachate-containing solubilized peanut proteins were sterilized and retained. SDS-PAGE, Western blot, two-dimensional electrophoresis, IgE-inhibition ELISA, mass spectrometry, and skin prick testing were used to characterize changes to peanut allergens and human IgE reactivity associated with progressive boiling. T cell responses to raw and boiled peanut extracts were determined by proliferation of CD4+/CD25+/CD134+ T cells in peanut-allergic and nonallergic patient blood samples.

RESULTS. Extended boiling caused increasing fragmentation of peanut proteins into lower molecular weight polypeptides, denaturing of conformational epitopes, and transference of proteins to the leachate. Compared with the raw peanut extract, eightfold more 2-hour boiled peanut extract and 19-fold more 12-hour boiled peanut extract were required to achieve 50% inhibition of IgE by inhibition ELISA. Boiling increased the number of unique allergen peptides apparent via mass spectrometry in the boiled peanuts by more than fivefold at 2 hours and by 42-fold at 12 hours. As compared with unboiled raw peanut extract, skin prick testing demonstrated a significant reduction in wheal size to 55% for the 2-hour boiled peanut extracts and to 36% for the 4-hour boiled peanut extracts. Raw peanuts and 2-hour and 12-hour boiled peanut extracts were equivalent in their ability to stimulate T cell activation and proliferation.

CONCLUSIONS. Progressive reduction in peanut allergenicity with extended boiling does not affect T cell reactivity. Boiled peanuts may be a candidate for future peanut oral immunotherapy.

REVIEWER COMMENTS. Oral immunotherapy using raw peanuts, roasted peanuts, or peanut oil is associated with high rates of adverse events and is therefore not currently recommended for routine clinical practice. A product able to initiate peanut desensitization with fewer adverse events is desirable. Previous investigations of boiled peanut products have studied peanuts boiled for no longer than 1 hour. The current study demonstrates that boiling peanuts for at least 2 hours is required to significantly reduce the allergenicity of Ara h 2, which is stabilized by the presence of 4 disulphide bonds. Extensively boiled peanuts may be an attractive option for future oral immunotherapy secondary to decreased IgE reactivity, with retained peptides capable of stimulating T cell activity.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2017–2475YY

Karla L. Davis, MD
Fort Eustis, VA

Oral Immunotherapy With Low Allergenic Hydrolyzed Egg in Egg Allergic Children

Giavi S, Vissers YM, Muraro A, et al. *Allergy*. 2016;71 (11):1575–1584

PURPOSE OF THE STUDY. Egg allergy is 1 of the most common food allergies in children. This study aims to investigate a method to desensitize egg-allergic patients so that they can develop long-lasting oral tolerance to egg proteins.

STUDY POPULATION. Twenty-nine egg-allergic patients (ages 1–5.5 years) from 3 study sites in Europe (Greece, Switzerland, and Italy). These patients had positive testing to egg via either in vitro or skin prick testing as well as had a reaction during an oral food challenge.

METHODS. This was a double-blind placebo-controlled randomized study using well-characterized, low-allergenic hydrolyzed egg for oral immunotherapy. Subjects were randomized 1:1 to receive 9 ± 1 g study product or placebo daily for 6 months. An oral food challenge was conducted at the end of the study. Immunologic parameters were assessed at baseline and at the end of the study.

RESULTS. Upon completion of the study, the rate of success in an oral food challenge to a boiled egg was no different between treatment groups (36% active vs 21% placebo, $P = .66$). There was no significant difference observed for egg-specific IgE levels, but a significant increase in egg-specific IgG_4 was seen in the study group.

CONCLUSIONS. The well-characterized, low-allergenic hydrolyzed egg product was found to be safe for use in children with egg allergy. A longer treatment duration and/or higher dose may be needed for clinical efficacy.

REVIEWER COMMENTS. This study offers a potentially safer product for use in oral immunotherapy to egg because there were no differences in type or severity of adverse effects between treatment groups. It is conceivable that with a longer study period and perhaps dosage adjustments, clinical improvement may be seen. Given the rate of food allergies and the burden of daily management on families, it will be important to see what continued investigation in this topic will bring to light because it may help treat the allergy and assuage parental fears.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2017–2475ZZ

Samata Kamireddy, MD
Ricardo Sorensen, MD
New Orleans, LA

Safety and Efficacy of Low-Dose Oral Immunotherapy for Hen's Egg Allergy in Children

Yanagida N, Sato S, Asaumi T, Nagakura K, Ogura K, Ebisawa M. *Int Arch Allergy Immunol*. 2016;171(3–4):265–268

PURPOSE OF THE STUDY. The ideal dose for safe and effective oral immunotherapy (OIT) is unknown. The goal of this

Oral Immunotherapy With Low Allergenic Hydrolyzed Egg in Egg Allergic Children

Samata Kamireddy and Ricardo Sorensen

Pediatrics 2017;140;S202
DOI: 10.1542/peds.2017-2475ZZ

PEDIATRICS®
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Oral Immunotherapy With Low Allergenic Hydrolyzed Egg in Egg Allergic Children

Samata Kamireddy and Ricardo Sorensen

Pediatrics 2017;140;S202
DOI: 10.1542/peds.2017-2475ZZ