

To Eat or Not to Eat? Introduction of Food After Negative Oral Food Challenge



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Oral food challenge (OFC) is the gold standard for the diagnosis of food allergy.^{1,2} However, OFCs are also frequently conducted to explore resolution of food allergy among children who have prior diagnosis of food allergy.³

It is recommended that children who have a negative OFC should introduce the food into their diet to improve dietary management, and consequently to improve quality of life, which is impaired among food-allergic children and their families.^{4,5} Reintroduction of food after negative OFC is also very important because continued avoidance of food may be associated with a recurrence of food allergy. The concept of food allergy recurrence following negative OFC was initially reported in 3 children who had a history of peanut allergy; these children then underwent peanut OFCs that were negative, but reintroduced only infrequent, small amounts of peanut after the challenge and eventually had a peanut allergy reaction.⁶ A subsequent study revealed that infrequent peanut consumption after a negative peanut challenge is a significant risk factor for a peanut allergy recurrence.⁷ It has been suggested that an intermittent consumption of peanut in these children would result in sensitization, as opposed to a more regular consumption of meaningful amounts of peanut that should maintain the oral tolerance.^{6,7} Although this concept of food allergy recurrence has been reported among peanut-allergic patients, there is an analogous mechanistic rationale to believe that the same concept is likely to be true for other food allergies.

In this issue of the journal, Gau and Wang⁸ report the results of a small single-center study that has investigated the rate of food introduction after a negative OFC, and the barriers for complete introduction of foods. Research data were obtained by anonymous questionnaires that were sent to the investigators' clinic patient population. The research questions and study design are straightforward; nevertheless, the study provides important insight on this topic, which is very relevant to patient

care. Responses were obtained from 50 families (34%) who reported on 109 OFCs, 82 (75%) of which were negative. A large range of food reintroduction patterns was noted after a negative OFC. Following 7% of negative OFCs, the food was not introduced at all. The other negative OFCs were followed by some consumption of the food: approximately 2 of 3 were followed by a regular consumption (at least weekly), while approximately a third of the OFCs were followed by an infrequent consumption (not more than monthly).⁸

How should we interpret these results? If one appreciates the half full glass, one may say that only 7% of the negative OFCs were not followed by food consumption. However, the more realistic interpretation is that a third of the negative OFCs are not followed by food consumption in a meaningful frequency. This is a worrisome finding because this practice may be associated with food allergy recurrence.^{6,7}

The main limitation of Gau and Wang's study⁸ is the relatively small sample size because the data on these 82 negative OFCs originated from only 50 parents. Hence, the results are subject to sampling bias. Nevertheless, the rate of a frequent food introduction after negative OFCs detected in Gau and Wang's study⁸ is comparable to the rate detected in 2 previous reports from Europe: 33%⁹ and 25%.¹⁰ Peanut and tree nut OFCs dominate Gau and Wang's cohort (50% of the negative OFCs). This distribution of tested foods may affect the external validity of the study results because patients with a peanut allergy are less likely to reintroduce the food compared with patients with other food allergies.¹⁰ Therefore, it is still unknown how likely patients will reintroduce the food into the diet after a negative challenge to other foods such as egg, milk, wheat, and soy, which together account for many more cases of food allergy compared with tree nut and peanut allergy.³ Finally, and as acknowledged by the authors, some factors that were previously reported to be associated with continued food avoidance after a negative OFC, such as the duration of the elimination diet and the symptomatology during the previous reaction,⁹ were not investigated in this study.

How should we use the results of this study to advance patient care? The most common reasons for an infrequent consumption were "fear of reaction" and "child disliking the food." To avoid a fear of future reaction, negative graded OFCs should be immediately followed by consumption of a serving size of the food to assure the family that the food could be consumed without a reaction. It is not clear whether this approach has been applied by the investigators. Moreover, any negative OFC should be followed by a clear recommendation that the food should, rather than could, be introduced into the diet and should be consumed regularly. A thorough discussion should be conducted with the families and the risk of recurrence associated with an infrequent consumption should be clearly discussed. The recent results of

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Conflicts of interest: A. Beigelman is employed by the Washington University School of Medicine and has received 1 or more grants from the National Institutes of Health.

Received for publication August 24, 2016; revised August 27, 2016; accepted for publication September 2, 2016.

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J Allergy Clin Immunol Pract 2017;5:477-8.
2213-2198

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<http://dx.doi.org/10.1016/j.jaip.2016.09.005>

the Learning Early About Peanut Allergy (LEAP)¹¹ and Enquiring About Tolerance (EAT)¹² trials could be presented, especially in young infants, to demonstrate the concept that oral ingestion of food is associated with oral tolerance, while food avoidance may result in impaired tolerance, and hence in a clinical food allergy. How often should the food be introduced? This is not fully known; in our clinics, we recommend that the food should be ingested at least weekly, but it is clear that more research is required on this topic. The other most common reason for lack of food introduction was “child dislikes the food.” This is an expected barrier because food-allergic children who avoided the food for a long time may not be comfortable with the taste and/or texture of the food. Although creative approaches for food preparations may overcome the taste/texture issue in many children, more severe cases of food aversion may need to be handled by a dietician and/or occupational therapist.

Because reintroduction of the allergenic food is the main goal of an OFC conducted in children with documented food allergy, the goal of frequent food consumption after a negative OFC should be discussed with the families before the challenge. Then, and as highlighted by the authors, children should be followed after a negative OFC. For those who chose not to reintroduce the food with sufficient regularity, it should be considered, on the basis of clinical situation, whether they need to continue to carry an epinephrine autoinjector due to the risk of a food allergy recurrence.

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