Elimination Diets—Lessons Learned

by Michael C. Young, MD

Eliminating the food you are allergic to has always been the obvious “gold standard” treatment plan for food allergy. But what about avoiding foods you’re not allergic to, such as avoiding all tree nuts if you’re allergic only to peanuts, “just to be safe”? Or, non-allergic infants and young children avoiding peanuts, nuts, shellfish to prevent the possibility of sensitization to these highly allergenic foods associated with risk of anaphylaxis? Are these good practices? Do elimination diets prevent food allergies from developing? Is there any possible harm in elimination diets?

There are recent studies indicating that delayed introduction of peanut in children is associated with higher risk of developing peanut allergy. The landmark LEAP (Learning Early About Peanut) trial from the UK showed that delaying introduction of peanut in children at risk for peanut allergy (children with severe eczema and/or egg allergy) significantly increased the risk of peanut allergy at age 5 years. Similar risk for development of egg allergy has been shown in some but not all studies for delayed introduction of egg. There are other studies in the medical literature associating higher risk of milk and wheat allergy with later introduction of milk and wheat in infant diets. These studies seem to indicate that early dietary exposure to food proteins is required for the immune system to develop tolerance, whereas delayed exposure results in missing this window of opportunity, leading to the development of allergy.

Is there any harm in eliminating foods that have been well tolerated with no immediate type reactions such as hives, swelling or anaphylaxis? There are multiple studies over the past 3 decades, showing that in some children with eczema whose eczema treatment included elimination diets based on allergy tests, allergic reactions and anaphylaxis subsequently developed to those eliminated foods that were previously well tolerated, with eczema as the only pre-existing medical problem. There are 3 recent reports of milk allergy and anaphylaxis developing after patients with eosinophilic esophagitis (a chronic gastrointestinal disorder commonly treated with empiric food elimination diets) eliminated milk from their diets. There is also an interesting report of an adult woman who had eaten peanut her entire life with no problems, who was then tested to peanut for unknown reasons and found to be positive to peanut. She was advised by her physician to stop eating peanut despite her history of tolerance. After 3 years of peanut elimination, she underwent a food challenge to peanut (continued on page 2)
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and failed, experiencing wheezing, demonstrating that peanut allergy can develop in a previously non-allergic individual purely as a result of a peanut elimination diet. These reports seem to indicate that in order to maintain tolerance, continued dietary exposure to the food is necessary.

What about peanut allergic patients who have never eaten tree nuts, should they eat or avoid tree nuts? What about subjects allergic to one tree nut, should they avoid all tree nuts?

A recent study retrospectively examined all tree nut food challenges performed from 2007-2015 at University of Michigan. For their peanut allergic patients with tree nut sensitization only, 91% passed tree nut challenges; 100% passed almond challenges. For tree nut allergic patients, 76% passed food challenges to another tree nut they were sensitized to, but had never eaten. Another study showed 88% tree nut sensitization in peanut allergy, but clinical tree nut allergy occurred in only 34%.

These studies show that children (continued on page 3)
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with multiple tree nut allergies are tolerant of selected tree nuts and can eat those tree nuts, suggesting a different approach from the past, where those patients would be restricted from all tree nuts regardless of test results. Combined with the other data shown above, perhaps eliminating all tree nuts from the diet of a peanut allergic child with no history of tree nut allergy may actually increase the risk of tree nut allergy developing in that child. A more proactive approach for reducing the risk of developing tree nut allergy might be to do food challenges to the tree nuts with low risk (low or negative test results) and start consumption of those tree nuts from passed food challenges.

Similarly, a study just published in October showed that 29% of fish allergic patients were able to pass food challenges to 1 or 2 other fish species; the authors recommended identifying “partially tolerant patients to avoid unnecessary food restrictions”.

Elimination diets without any basis other than concern for “potential allergic reactions,” may potentially increase the risk of developing allergies to those avoided foods; lack of dietary exposure may result in the missed opportunity to develop tolerance in early childhood. Without having these tolerance pathways, subsequent food sensitization can occur in those genetically primed individuals, with the development of food allergy. Many have observed that in countries with pediatric policies for restrictive diets for milk, egg and nuts, the prevalence for these food allergies greatly increased following these restrictive policies. As a result of these studies, guidelines for infant diets now recommend introduction of solid foods at age 4 to 6 months with no restrictions for any food or food groups. The US food allergy guidelines from the National Institutes of Health (NIH) were amended in 2016 following the LEAP trial, to specifically encourage the introduction of peanut at this early age to prevent peanut allergy. The only infants requiring testing for peanut prior to introduction of peanut, are those infants with severe eczema and/or egg allergy.

In conclusion, an evidenced based approach to food allergy elimination diets is the avoidance of only the food(s) that caused allergic reactions, and documented by allergy tests (skin tests and specific IgE blood tests) and/or failed food challenges. If there is only food sensitization based on testing alone with no reaction history, proof of clinical food allergy with food challenges should be considered, based on the positive and negative predictive values of the allergy tests. Avoiding a food for no specific indication may have unintended consequences; the decision for any elimination diet should be evidence based and thoughtful, with consideration for both benefit and potential risks as discussed in this article. Consulting your allergist for guidance is key; the fast pace of clinical studies will continue to give additional insight into how food allergies develop and provide the evidence for the best practice of food allergy management and prevention.

References
KNOW YOUR EPINEPHRINE AUTO-INJECTOR

Many people have not been trained in how to use their particular epinephrine auto-injector. Get to know your auto-injector because it may save your life (or the life of a loved one).

Epinephrine is the only medication that can reverse the symptoms of anaphylaxis. In the last 12 months two (2) new auto-injectors have become available. All devices are FDA approved and have the same medication (epinephrine) and the same doses (0.15 mg or 0.3 mg) but each operates somewhat differently.

The current list of options on the market are:

- EpiPen® by Mylan
- Generic Epinephrine Auto-Injector (authorized generic of EpiPen®)
- AUVI-Q® by kaléo
- Impax epinephrine auto-injector (authorized generic of Adrenaclick®)

How do I get to know my auto-injector?

1. When your doctor is prescribing an epinephrine auto-injector, ask him/her to demonstrate how to use it with a practice device (“trainer”). Ask to hold the practice device and use it on yourself in front of the physician to make sure you really understand how it works.

2. At the pharmacy, look at the box and open it while at the desk with the pharmacist. Make sure the device that you are getting looks like the one your doctor showed you how to use at the doctor’s office. It is easier to remedy a concern before you have paid and left the pharmacy. Ask your pharmacist to check with your physician or you can call your doctor’s office if you have questions. If you are unable to get the device you were originally trained on, ask the pharmacist to demonstrate how to use the injector you will be taking home – ask for a practice device to take home so you can show others how to use. NOTE: It is possible that there may be instances where a certain epinephrine device is on “back order” at one pharmacy but readily available at another pharmacy, if you want to get a particular device you can ask to transfer your prescription to a pharmacy that carries the particular device you want. Also, make sure you consult with your insurance company to answer any questions you have about copayments and cost coverage.

3. PRACTICE!! Make sure to use the trainer that comes with the AUVI-Q®, EpiPen®, or authorized EpiPen® generic. If you receive the Impax Epinephrine Auto-Injector (authorized generic of Adrenaclick®) you will need to go to the company website and request a demonstration device be sent to your home. Don’t be afraid to use the trainer! Parents should require anyone who is taking care of their child to show you that they know how to and when to use the epinephrine device by demonstrating with the trainer.

4. Always make sure to check the expiration dates of your devices. When your devices expire, get an orange or a grapefruit and use the expired injector in the fruit - they can feel very different than the trainers! You should also correctly dispose of an epinephrine auto-injector. There are several reasons for disposal of the device: it has been used to treat an allergic reaction, the expiration date on the device has passed, or the device needs to be replaced due to exposure to extreme temperatures, etc. The FDA requires that epinephrine auto-injectors of all types must be disposed of in the same manner as all other medical sharps and should not be simply thrown away in the trash can!

Hopefully, you will never need to use your epinephrine auto-injector in an emergency situation. But, if you do, the most important thing is that you know how your auto-injector works and how to use it. In an emergency, you will be nervous and anxious; don’t add the anxiety of being unsure how to use your device to the things you are worried about.

Deborah Pedersen, MD and Donald Accetta, MD are both board certified in Allergy & Immunology and Pediatrics. They work together at Allergy & Asthma Care in Taunton, MA taking care of children and adults with allergy, asthma and immune deficiency diseases. Dr. Pedersen has published articles on latex allergy, the treatment of severe allergic reactions (anaphylaxis) by physicians in training, and immune deficiency disease in children. She also speaks fluent Spanish. Dr. Accetta is a past president of both the Massachusetts Allergy and Asthma Society and the New England Society of Allergy, and is a coauthor of a chapter on occupational allergy in a textbook on occupational medicine.
The newly created AAFA New England Speaker Series is one of the ways AAFA New England helps educate people in the community. By offering informational talks by experts in the field on various topics, we are able to provide our membership and the community up to date information and asthma and allergy management tools. Funded by grants and donations, AAFA New England is able to offer free programs like this to the people of all six New England states who live with asthma and allergies - helping them to live fuller, healthier lives.

Do you have an interest in hearing someone speak? What topics are you interested in? Are there locations you would travel to? Let us know!! Contact: events@aafane.org

Our first two events will take place in November and are open to the public without charge.

November 6th, 5:30 pm at Shipley Auditorium, Newton-Wellesley Hospital
Michael Pistiner, MD, MMSc
- Massachusetts General Hospital, Food Allergy Center
Presentation: “Food Allergy Management at School”

Who should attend? Parents of children with allergies, parents of children without food allergies, school teachers, coaches, principals, school nurses and anyone who provides care for school age children.

November 14th, 5:30 pm at Alumni Auditorium, Lahey Hospital & Medical Center
Carla Lamb, MD – Pulmonology Specialist at Lahey Hospital & Medical Center
Presentation: “Is Asthma Impacting Your Life?” Bronchial Thermoplasty as a treatment option for adults suffering from severe asthma.

Who should attend? Patients and physicians and anyone interested in learning more about bronchial thermoplasty.

AAFA New England around town

Recently, Karen Calton, AAFA New England Executive Director and her family enjoyed an afternoon outing at NECN with meteorologist Michael Page. The Caltons won the afternoon as an auction item at AAFA New England’s Breath of Spring 2017 Gala in May.

AAFA New England will soon start planning Breath of Spring 2018. Please email events@aafane.org if you would like to help with this fun evening in support and celebration of AAFA New England and its programs.
On July 18, 2017, a joint hearing of the Massachusetts House and Senate Education Committees was held on Beacon Hill. Dr. Michael Pistiner, MD, MMSc, a member of the AAFA New England Medical Advisory Committee and Jan Hanson, MA, President of AAFA New England’s Board of Directors, testified in support of SB 228 – an Act to Establish Food Allergy Plans. Karen Calton, Executive Director of AAFA New England testified in support of HB 291 – an Act to establish a Commission of School Nursing.

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The Asthma and Allergy Foundation of America, New England Chapter, is dedicated to helping people with asthma and allergic diseases, and those who care for them, through education, support for research and an array of services.

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Membership in AAFA New England helps you and others with asthma and allergies to enjoy fuller lives.

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☐ Professional (MD & RN) $100
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MEMBERSHIP INCLUDES

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Dues can be paid via check made payable to: AAFA New England or credit card on our website www.asthmaandallergies.org

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Honor your friends and relatives by making a donation to AAFA New England. Please include the name of the person being honored or memorialized, and who you want us to notify of your donation. All donations are tax-deductible.

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Did you pick up this newsletter in your doctor’s office?
To receive future issues at home, become a member of AAFA New England. (See page 7 for details.)

FAMILY CONCERT AND FOOD ALLERGY EXPO
featuring singer-songwriter Kyle Dine
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Kyle Dine is a performer and educator who writes songs that empower, support and educate children with food allergies and their friends.

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