

Minimally Invasive and Novel Therapeutics (M.I.N.T.) in Foregut Disease
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EoE: Counseling Patients on Dietary Management

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“3Ds” of Treatment



Dilation: treats 87% symptoms, but not address the cause



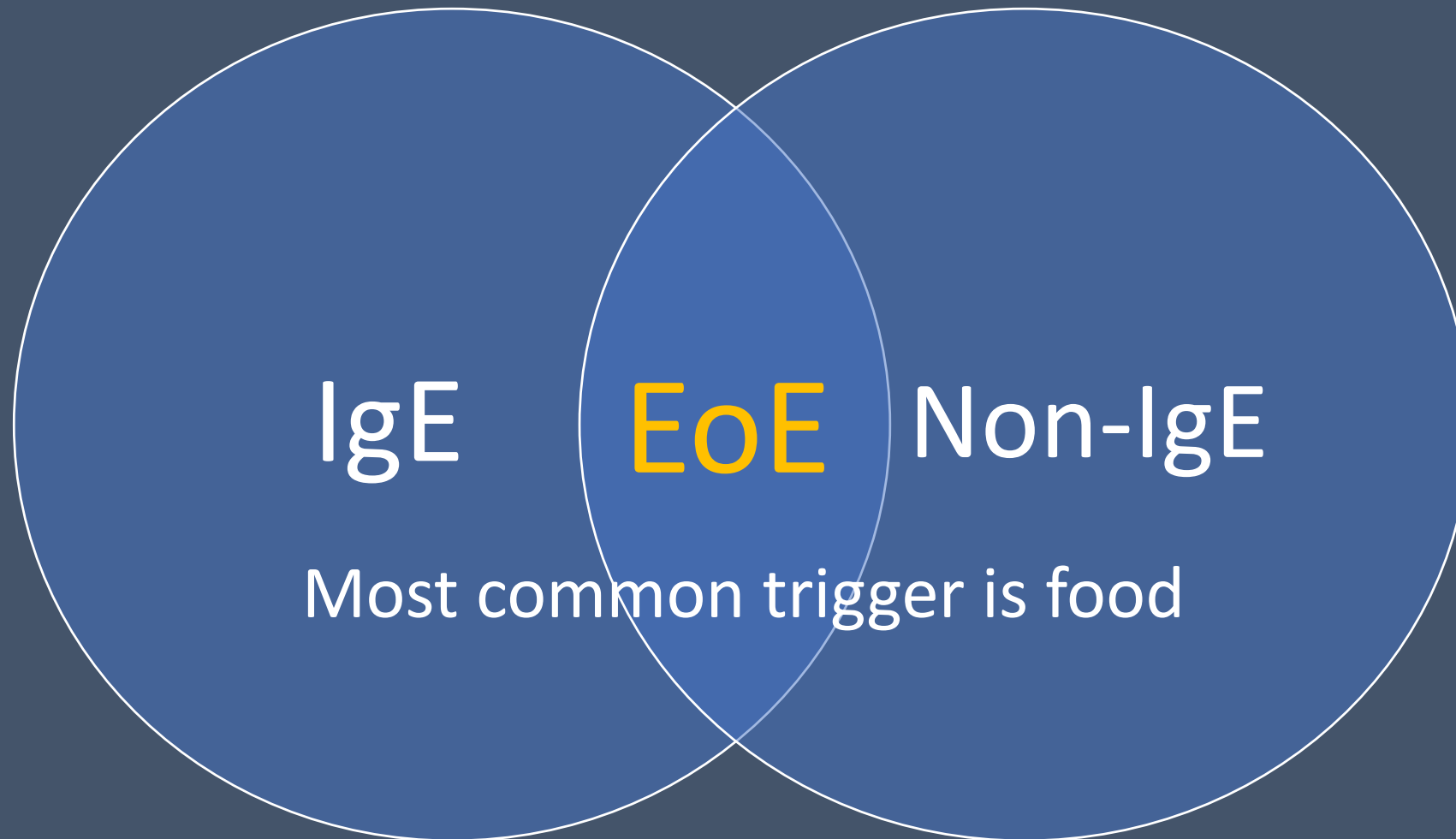
Drugs: 30-50% success rate; PPIs, topical corticosteroids



Diet: 40-93% success rate depending on diet; intensive



Is EoE a Food Allergy?



EoE vs Food Allergy: Diet Approach

Table 3
Differences Between EoE and Other Dietary Approaches

Dietary phase	EoE	Other food allergies (IgE Mediated or FPIES)
Diagnostic	<p>Clinical history of less relevance Temporal relationship can be days or weeks</p> <p>Dietary avoidance is crucial to make a diagnosis of food allergy</p>	<p>Clinical history very important Temporal relationship: IgE-mediated food allergies: minutes to hours FPIES (acute): 2–4 hours FPIES (chronic): hours to days</p> <p>In many cases, a diagnosis of food allergy can be made on the basis of: IgE-mediated food allergies: a good clinical history and supporting tests FPIES: a good clinical history</p>
Reintroduction	<p>Food reintroduction needs to be conducted for a specified period (days, weeks, or months) and occurs outside the clinical setting Little or no concern of severe IgE-mediated reactions after a period of avoidance</p>	<p>Food reintroduction needs to be performed in a period of hours and conducted in the clinical setting Some concern of severe IgE-mediated reactions after a period of avoidance</p>
Management	<p>Little or no evidence about threshold levels No good quality data on nutritional intake Unintentional exposure does not lead to life-threatening reactions, but it may lead to esophageal inflammation Very high prevalence of feeding dysfunction and maladaptive behavior</p> <p>Patients likely to avoid a number of foods Feeding gastrostomies often required</p>	<p>Some evidence about threshold levels A number of reports on nutritional intake in children, a few in adults Unintentional exposure can lead to life-threatening reactions, but these reactions resolve once the allergen is removed and treatment is given Moderate to high prevalence of feeding dysfunction and maladaptive feeding behavior Patients unlikely to avoid a large number of foods in the long term Feeding gastrostomies almost never required</p>

Abbreviations: EoE, eosinophilic esophagitis; FPIES, food protein–induced enterocolitis syndrome.

Venter C and Fleischer DM, Annals of Allergy, Asthma & Immunology, 2016



Diet Treatment Options

Elemental Diet

- Histologic remission → 93% of patients
- Costly, inconvenient & may require feeding tube
- Concerns with de novo development of IgE mediated food allergies

Empiric Food Elimination

- Histologic remission → 60-75% of patients
- Six-Food (70%) | Four Food (55%) | Two-Food (42%) | One-Food (60+%)

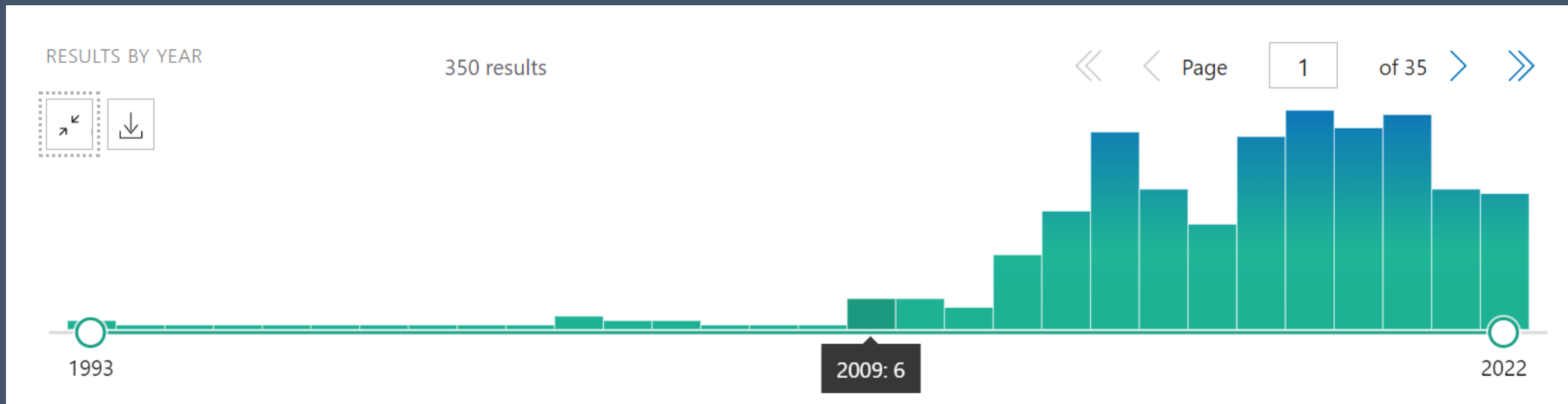
Allergy Test-Directed Food Elimination

- Histologic remission → 50% of patients
- Poor positive predictive values (44% range)

Food Elimination Diets

- Diet therapy for EoE was first introduced in the early 1990s (elemental diet only)
- Elimination diets for EoE are new - only in the past decade!

PubMed Results for “EoE + Diet”



Top Food Allergens



66% Milk



24% Egg



27% Wheat



2% Fish/Seafood



12% Soy/Legumes



4% Tree Nuts/Peanuts



6 -FED (Food Elimination Diet)

- Most studied and frequently used
- Removes the top 6 allergens, systematically reintroduces
- Food reintroduction successful if:
 - no symptoms were reported
 - and post-peak eosinophil count/HPF was < 15
- Histologic remission seen in up to 70% of patients

4 - FED (Milk, Egg, Wheat, Soy)

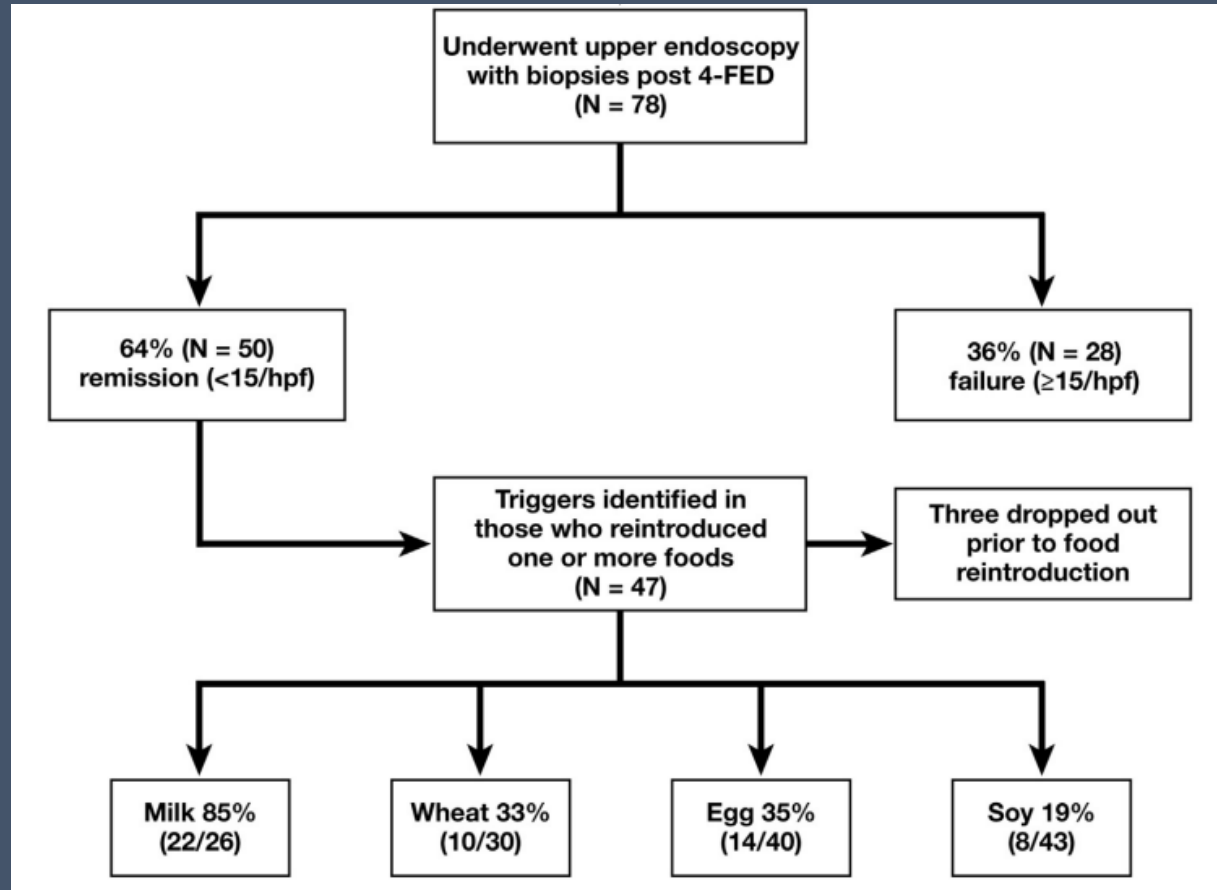
Clinical Gastroenterology and Hepatology 2017;15:1698-1707

ALIMENTARY TRACT

Efficacy of a 4-Food Elimination Diet for Children With Eosinophilic Esophagitis



Amir F. Kagalwalla,^{*,†,§} Joshua B. Wechsler,^{*,†} Katie Amsden,[‡] Sally Schwartz,[‡] Melanie Makhija,^{*,||} Anthony Olive,^{||} Carla M. Davis,[#] Maria Manuel-Rubio,[‡] Seth Marcus,^{**} Ronda Shaykin,^{***} Maureen Sulkowski,[‡] Kristen Johnson,[‡] Jessica N. Ross,[‡] Mary Ellen Riffle,^{‡‡} Marion Groetch,^{‡‡} Hector Melin-Aldana,^{*,§§} Deborah Schady,^{||||} Hannah Palac,^{|||} Kwan-Youn A. Kim,^{|||} Barry K. Wershil,^{*,†} Margaret H. Collins,^{##} and Mira Chehade^{‡‡}



1- FED (Milk Only)

- ❑ 30% of patients are estimated to have only **1** food trigger
- ❑ Milk is the most common EoE trigger (60%)

1- FED (Milk Only)

- 41 children (76% male; 88% white)
- 1- FED for 8 weeks followed by EGD with biopsies
- Histologic remission in **51%**
 - 50 eos/hpf → 1 eos/hpf , median numbers
- Symptom improvement in **61%**
- Parents perceived worse QOL, while children perceived improved QOL

Clinical Gastroenterology and Hepatology 2022;20:1748–1756

A Single-Food Milk Elimination Diet Is Effective for Treatment of Eosinophilic Esophagitis in Children

Joshua B. Wechsler,^{*,†} Sally Schwartz,[‡] Nicoleta C. Arva,^{*,§} Kwang-Youn A. Kim,^{*,||} Liqi Chen,^{*,||} Melanie Makhija,^{*,||} Katie Amsden,[‡] Kaitlin Keeley,[‡] Saeed Mohammed,^{*} Evan S. Dellon,[#] and Amir F. Kagalwalla^{*,†,***}



Nutrients of Concern

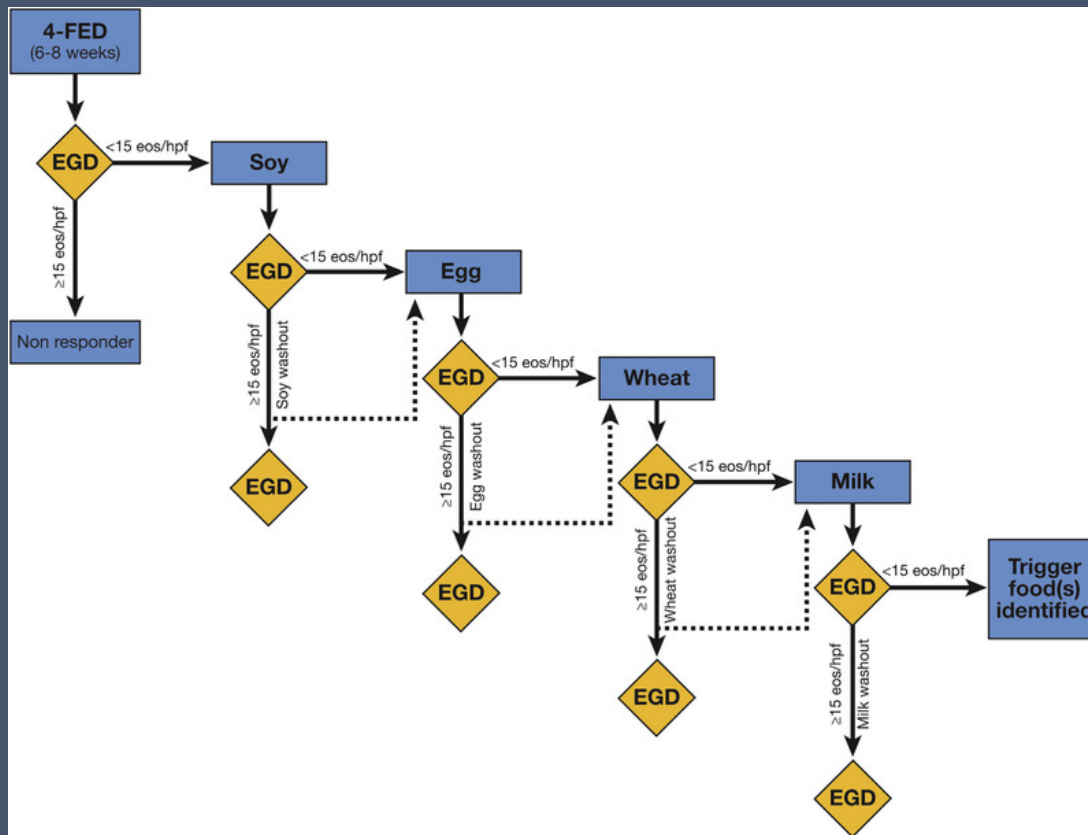
Table 2
Major Allergens and Their Nutrients^a

Allergens	Main nutrients
Cow's milk	Protein , fat Calcium , magnesium, phosphorus, iodine Vitamin A, B ₆ , B ₁₂ , and D, riboflavin, pantothenic acid
Wheat	Carbohydrate Magnesium, phosphorus, potassium, zinc Frequently in enriched cereal products: iron , thiamine, niacin, riboflavin, folate
Soy	Protein , fat Calcium, phosphorus, magnesium, iron, zinc Thiamine, riboflavin, vitamin B ₆ , folate
Egg	Protein , fat Iron , selenium, choline Biotin, vitamin B ₁₂ , pantothenic acid, folate, riboflavin
Fish or shellfish	Protein, fat, Ω3 fatty acids Iodine, Choline Vitamins A and vitamin D
Peanut or tree nuts	Protein, fat Vitamin E, niacin, magnesium, chromium

^aThe main nutrients are indicated in bold.



Top-Down or Step-Up?



Kagalwalla AF et al., 2017

“Top Down” approach is most common



Achieve remission faster



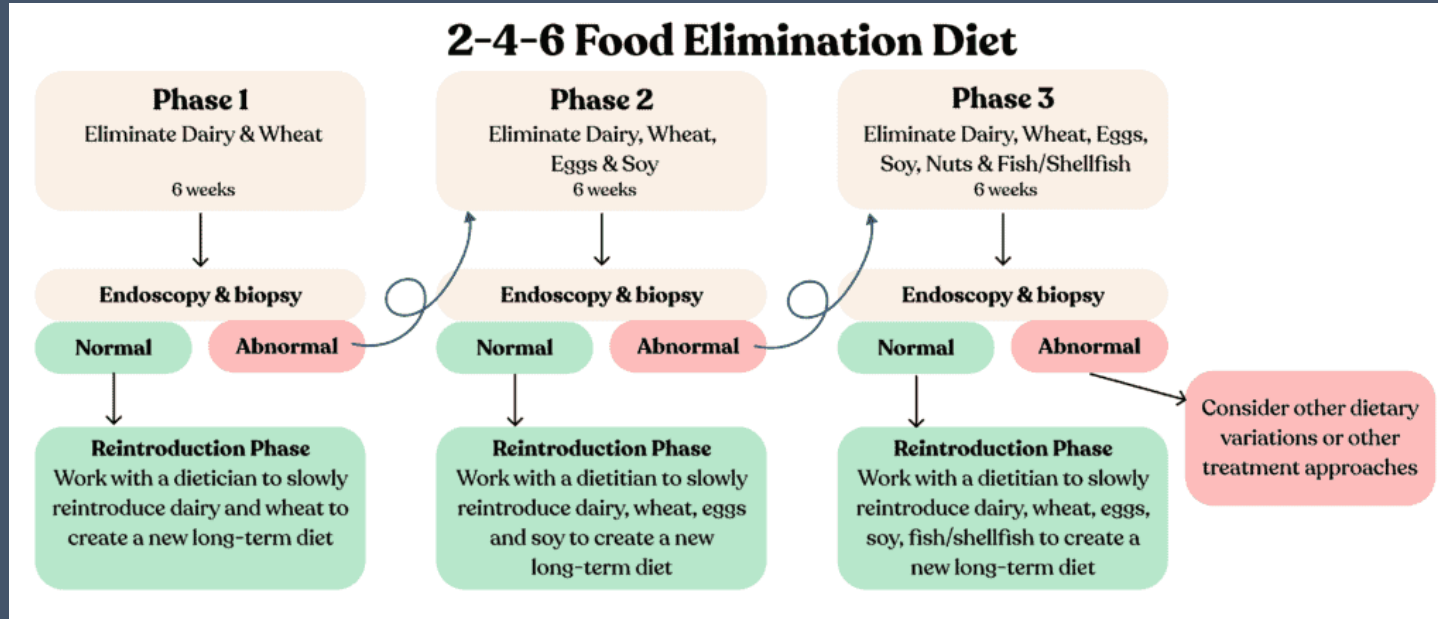
Requires 5+ EGDs



More restrictive diet initially



Top-Down or Step-Up?



Rachel Dyckman, Foodisgood.com

“Step Up” approach is efficient



Avoid unnecessary restrictions



Reduce number of EGDs



Remission may take longer



Important Questions

- 1) What is the period for reintroducing each food?
 - Typically 6-8 weeks
- 2) Should each food be reintroduced separately or could groups of foods be introduced?
 - Currently, groups of foods (e.g. all shellfish, followed by all tree nuts)
- 3) Which foods should be introduced first?
 - Based on diet recall/patient history
 - Commonly: fish/seafood + peanuts/tree → soy + eggs → wheat → milk



Key Points

- ❖ EoE is a chronic, progressive disease. Maintenance therapy is the goal.
- ❖ There is no accepted first line therapy for EoE and no therapy is 100% effective
- ❖ Remains to be understood which patients will best respond to any given EoE targeted therapy
- ❖ Food elimination diets provide histologic remission and symptom improvement in up to 70% patients
- ❖ Top Down approach is most common, but Step Up approach may offer better QOL & fewer EGDs.
- ❖ For diet therapy, goal is to avoid the lowest number of triggering foods while ensuring adequate nutrition



References

1. Aceves SS. Food allergy testing in eosinophilic esophagitis: what the gastroenterologist needs to know. *Clinical gastroenterology and hepatology: the official clinical practice Journal of the American Gastroenterological Association*. 2014; 12:1216–23.
2. Chehade M, Aceves SS. Treatment of Eosinophilic Esophagitis: Diet or Medication? *J Allergy Clin Immunol Pract* 2021 Sep;9(9):3249-3256
3. Kagalwalla AF et al. Efficacy of a 4-Food Elimination Diet for Children With Eosinophilic Esophagitis. *Clinical Gastroenterology and Hepatology* 2017;15:1698–1707
4. Kliewer K et al. Efficacy of 1-food and 4-food elimination diets for pediatric eosinophilic esophagitis in a randomized multisite study. *Gastroenterology*. 2019. 1156(6):S-172
5. Krause, AJ et al. Outcomes of the six-food elimination diet and food reintroduction in a large cohort of adults with eosinophilic esophagitis. *Am Journal of Gastroenterology* 2022
6. Muir A and Falk GW. Eosinophilic Esophagitis: A Review *JAMA*. 2021 October 05; 326(13): 1310–1318
7. Rank MA et al. Technical Review on the Management of Eosinophilic Esophagitis: A Report From the AGA Institute and the Joint Task Force on AllergyImmunology Practice Parameters. *Gastroenterology*. 2020;158(6):1789–1810
8. Spergel J and Aceves SS. Allergic components of eosinophilic esophagitis. *J Allergy Clin Immunol*. 2018 Jul; 142(1): 1–8.
9. Venter C and Fleischer DM. Diets for diagnosis and management of food allergy: the role of the dietitian in eosinophilic esophagitis in adults and children. *Annals of Allergy, Asthma & Immunology*, 2016 November 117(5) 451
10. Wechsler JB et al. A Single-Food Milk Elimination Diet Is Effective for Treatment of Eosinophilic Esophagitis in Children. *Clinical Gastroenterology and Hepatology* 2022; 20:1748–1756



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