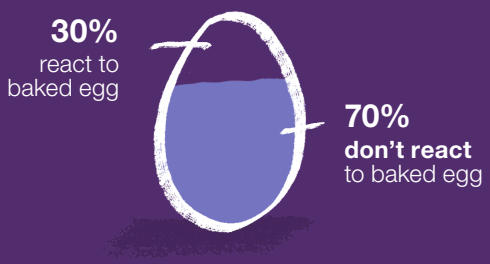
How Well Do You Understand **Your Egg Allergy?**

To truly understand your allergy, it helps to understand the egg proteins that your body is reacting to. A blood or skin prick test for egg white is usually the first step in discovering an allergy. But understanding the specific component proteins your body may be reacting to can provide you with the following information:

- **Help evaluate** potential reaction to baked egg products, such as muffins or cookies.
- **Help predict** how likely it is for someone to outgrow their egg allergy.
- **Help guide** how someone manages his/her egg allergy.

Of children with egg allergy:[1]



What proteins in egg white may be causing your symptoms?

Is it **ovalbumin**, **ovomucoid**, or both? The answer can provide important information about your allergy.

Ovalbumin

- Susceptible to heat denaturation, meaning the protein will lose its shape when heated extensively, making it difficult for the body to recognize it as an allergen.[2]
- **Higher risk** of reaction to uncooked egg.[3,4]
- **Lower risk** of reaction to baked* egg.[3,4]
- Individuals only allergic to Ovalbumin are likely to outgrow their allergy.[5,6]

Ovomucoid

- Resistant to heat denaturation, meaning the body can still recognize the protein as an allergen after heating.[2]
- **Higher risk of reaction to all forms of egg.**[3]
- Individuals are unlikely to outgrow their egg allergy with high levels of specific IgE to ovomucoid.[6-8]

What does your specific IgE sensitization mean?

Depending on which protein you're sensitized to, you may be able to tolerate baked egg or no egg at all. This handy chart breaks it down for you.[1-3,9,10]

KEY: + Sensitized - Non-sensitized

Ovalbumin	Ovomucoid	
+	-	• Avoid uncooked eggs. • Likely to tolerate baked* egg. • Baked egg oral food challenge with a specialist may be appropriate. • Consider repeating IgE component testing every 1-2 years during childhood to determine potential tolerance. • May be transferred via breast milk, so mothers of infants with egg allergy should take caution when breast-feeding.
+/-	+	• Avoid all forms of egg. • Consider repeating IgE component testing every 1-2 years during childhood to determine potential tolerance. • People sensitized to ovalbumin with low levels of IgE to ovomucoid may react to egg that is not fully baked.

As in all diagnostic testing, any diagnosis or treatment plan must be made by the clinician based on test results, individual patient history, the clinician's knowledge of the patient, as well as their clinical judgment.

*In clinical studies, an extensively baked muffin and waffle were heated to the point of protein denaturation, meaning that proteins that are heat sensitive, like ovalbumin, should fall apart or lose their shape. Once ovalbumin is denatured, the body can't recognize it as an allergen anymore because it "looks different."

1. Lemon-Mulé H, Sampson HA, Sicherer SH, Shreffler WG, Noone S, Nowak-Wegrzyn A. Immunologic changes in children with egg allergy ingesting extensively heated egg. *J Allergy Clin Immunol.* 2008;122(5):977-983. 2. Benhamou AH, Caubet JC, Eigenmann PA, et al. State of the art and new horizons in the diagnosis and management of egg allergy. *Allergy.* 2010;65(3): 283-289. 3. Ando H, Movérare R, Kondo Y, et al. Utility of ovomucoid-specific IgE concentrations in predicting symptomatic egg allergy. *J Allergy Clin Immunol.* 2008;122(3):583-588. 4. Shin M, Han Y, Ahn K. The influence of the time and temperature of heat treatment on the allergenicity of egg white proteins. *Allergy Asthma Immunol Res.* 2013;5(2):96-101. 5. Tomicic S, Norrman G, Fälth-Magnusson K, Jenmalm MC, Devenney I, Böttcher MF. High levels of IgG4 antibodies to foods during infancy are associated with tolerance to corresponding foods later in life. *Pediatr Allergy Immunol.* 2009;20(1):35-41. 6. Järvinen KM, Beyer K, Vila L, Bardina L, Mishoe M, Sampson HA. Specificity of IgE antibodies to sequential epitopes of hen's egg ovomucoid as a marker for persistence of egg allergy. *Allergy.* 2007;62(7):758-765. 7. Urisu A, Yamada K, Tokuda R, et al. Clinical significance of IgE-binding activity to enzymatic digests of ovomucoid in the diagnosis and the prediction of the outgrowing of egg white hypersensitivity. *Int Arch Allergy Immunol.* 1999;120(3):192-198. 8. Bernhisel-Broadbent J, Dintzis HM, Dintzis RZ, Sampson HA. Allergenicity and antigenicity of chicken egg ovomucoid (Gal d III) compared with ovalbumin (Gal d I) in children with egg allergy and in mice. *J Allergy Clin Immunol.* 1994;93(6):1047-1059. 9. Boyano Martínez, T, et al. Validity of specific IgE antibodies in children with egg allergy. *Clinical and Experimental Allergy.* 2001;13:1464-1469. 10. LaHood NA, Patil SU. Food Allergy Testing. *Clinics in Laboratory Medicine.* 2019; 39(4): 625-642.

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