




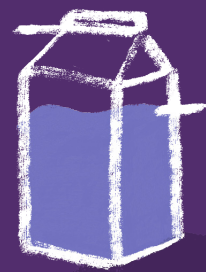
# How Well Do You Understand Your Milk Allergy?

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

-  **Help evaluate** potential reaction to baked goods, such as cookies or cakes.
-  **Help predict** if someone is likely to outgrow a milk allergy.
-  **Help guide** how someone manages his/her milk allergy.

Of children with milk allergy:<sup>1</sup>

25%  
react to  
baked milk



75%  
don't react  
to baked milk

## What proteins in milk are causing your symptoms?

Is it **α-lactalbumin**, **β-lactoglobulin**, **Casein**, or some combination? The answer can provide important information about your allergy.

### α-lactalbumin

- Susceptible to heat denaturation, meaning the protein will lose its shape when heated, making it difficult for the body to recognize it as an allergen.<sup>2</sup>
- **Higher risk** of reaction to fresh milk.<sup>1,3</sup>
- **Lower risk** of reaction to baked\* milk.<sup>1,3</sup>
- Person likely to outgrow milk allergy.<sup>4</sup>

### β-lactoglobulin

- Susceptible to heat denaturation.<sup>2</sup>
- **Higher risk** of reaction to fresh milk.<sup>1,3</sup>
- **Lower risk** of reaction to baked milk.<sup>1,3</sup>
- Person likely to outgrow milk allergy.<sup>4</sup>

### Casein

- Resistant to heat denaturation, meaning the body can still recognize the protein as an allergen after heating.<sup>1</sup>
- **Higher risk** of reaction to all forms of milk.<sup>1,3,5</sup>
- Person unlikely to outgrow milk allergy with high levels of specific IgE to casein.<sup>4</sup>

## What does your specific IgE sensitization mean?

Depending on which protein you're sensitized to, you may be able to tolerate baked milk or no milk at all. This handy chart breaks it down for you.<sup>1, 5-9</sup>

**KEY:** + Sensitized - Non-sensitized

α-lactalbumin    β-lactoglobulin    Casein

+	+	-
+	-	-
-	+	-
+/-	+/-	+

- Avoid fresh milk.
  - Likely to tolerate baked milk products.
  - Baked milk oral food challenge with a specialist may be appropriate.
  - Likely to outgrow allergy.
- 
- Avoid all forms of cow's milk.
  - Unlikely to become tolerant of cow's milk over time.
  - Avoid cow's milk and baked milk products (yogurt, cookies, cakes), as well as products processed with milk (chocolate, sausage, potato chips).

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, extensively baked muffin, waffle, and cheese pizza were heated to the point of protein denaturation, meaning that heat sensitive proteins should "fall apart" or lost their shape. Once denatured, the body often won't recognize heat sensitive proteins as an allergen. 1. Nowak-Węgrzyn A, Bloom KA, Sicherer SH, et al. Tolerance to extensively heated milk in children with cow's milk allergy. *J Allergy Clin Immunol*. 2008; 122(2):342-347. 2. Bu G, Luo Y, Chen F et al. Milk processing as a tool to reduce cow's milk allergenicity: a mini review. *Dairy Sci. & Technol*. 2013; 93:211-223. 3. Shek LP, Bardina L, Castro R, Sampson HA, Beyer K. Humoral and cellular responses to cow milk proteins in patients with milk-induced IgE-mediated and non-IgE-mediated disorders. *Allergy*. 2005;60(7):912-919. 4. Sicherer SH, Sampson HA. Cow's milk protein-specific IgE concentrations in two age groups of milk-allergic children and in children achieving clinical tolerance. *Clin Exp Allergy*. 1999;29(4):507-512. 5. Boyano-Martinez T, Garcia-Are C, Pedrosa M, Diaz-Pena JM, Quirce S. Accidental allergic reactions in children allergic to cow's milk proteins. *Allergy Clin Immunol*. 2009;123(4):883-888. 6. Caubet J, et al. Utility of casein-specific IgE levels in predicting reactivity to baked milk. *J Allergy Clin Immunol*. 2013;131(1):222-224. 7. CM Allergy Review. Diagnosis of cow's milk allergy in children: determining the gold standard? *Expert Rev. Clin. Immunol*. 2014;10(2):257-267. 8. Kim J, et al. Dietary baked milk accelerates the resolution of cow's milk allergy in children. *J Allergy Clin Immunol*. 2011;128(1):125-131. 9. Ito K, et al. The usefulness of casein-specific IgE and IgG4 antibodies in cow's milk allergic children. *Clinical and Molecular Allergy*. 2012;10:1:1-7.