

Patient information

Egg Allergy

Background, symptoms and tolerance

- Egg allergy is an abnormal response of the body's immune system to the proteins in egg.
- Egg allergy is common in children under five, affecting about 1-2% of the population.
- Most children have their first reaction before a year of age with their first egg contact.
- Symptoms at first exposure are commonly quite severe and may include widespread urticaria (hives), facial and lip angioedema (swelling) and vomiting.
- The nature of this presentation is naturally worrying, but within months after this reaction, children with egg allergy may start to outgrow their allergy.
- Many children will grow out of their egg allergy (we call this tolerance to eggs). These children lose their allergy symptoms to eggs from an early age up until their teenage years.
- However, a small group of children can stay severely allergic to eggs throughout life, with any contact potentially causing life threatening anaphylactic reactions.
- The amount of egg allergen is reduced with heating; therefore a food containing small amounts of egg that has been baked is often the first to be tolerated. When egg in baked products is fully tolerated, small amounts of scrambled egg, hard boiled egg or quiche may be tried. Undercooked or raw egg are last to be tolerated (not in all). See the reintroduction guidance on whether your child can reintroduce egg.
- So, a child may be able to eat cakes or biscuits without symptoms but not scrambled egg, or be able to eat scrambled egg but not fresh mayonnaise made

with raw egg, or be able to eat cooked eggs but not handle raw eggs when helping with cooking.

Diagnosis

- Symptoms or history **MUST** be confirmed by an allergy test to make the diagnosis.
- Tests are skin prick test, blood test for IgE antibodies or dietary challenge if needed.
- The skin prick test can remain positive in children even after they have developed tolerance, and it can be used as a guide to developing tolerance if the size becomes smaller with repeated testing.

Treatment

- When a child is diagnosed with egg allergy, avoiding eggs is the recommended treatment until the child's tolerance improves. The dietitian will give you further information on avoiding eggs and on egg replacements.
- Home or hospital dietary challenges to foods containing eggs or cooked whole egg may be offered to see how much egg your child can eat ie how much tolerance has developed. (*See below*).
- In some children where tolerance does not occur by school age (about 6 years), avoidance may not need to be continued life long as we can treat them to help them develop tolerance – called oral immunotherapy (OI) (*see separate information*).
- Emergency treatment for accidental contact:
 - Most symptoms are not life-threatening and can be treated with an antihistamine such as Cetirizine®. They do not require an adrenaline auto-injector.
 - Dangerous symptoms (breathing or circulation) need to be treated with adrenaline injection (EpiPen or Jext). Children at risk of such symptoms will be identified beforehand.

Vaccinations and egg allergy

- The MMR is cultured on chick embryos and not on eggs, and so is safe in egg allergic children. MMR vaccinations can be given in GP surgeries.

- Vaccines cultured on egg are 'flu vaccine, rabies and yellow fever. However, as the 'flu vaccines (both injectable and intranasal) contain very small amounts of egg protein, they have been shown to be safe in egg allergic children.

Guidance for reintroducing egg in children with egg allergy

Can I reintroduce egg into my child's diet?

- You will be advised by the dietitian when to start to try a small amount of egg in foods.
- The following children will need a supervised challenge in hospital (day care):
 - Previous egg allergy symptoms that affected breathing (cough, wheeze or swelling of the throat eg choking) or the circulation (faintness, floppiness or shock).
 - Children on regular asthma preventer inhaler treatment.
 - Children with moderate to severe eczema.
 - Children with other known severe food allergy.
- We are also happy to carry out a supervised challenge if you feel particularly anxious about giving your child egg.

Procedure for home challenge

Recipe for sponge cakes - makes 8 fairy cakes

4oz (100g) self-raising flour

4oz (100g) margarine

4oz (100g) caster sugar

1 medium egg

Increase the 'dose' of egg as follows:

1. Cut fairy cake into 16 and give 1 piece (1/16) and wait 24 hours
2. Give 2 pieces or 1/8 of fairy cake and wait 24 hours
3. Give 4 pieces or 1/4 of fairy cake and wait 24 hours
4. Give half a fairy cake and wait 24 hours
5. Give whole fairy cake

Now give one fairy cake using a **2 egg recipe**.

NB: Fairy cakes can be frozen so that they remain fresh whilst trying reintroduction.

What next?

A If your child has eaten a 2 egg recipe fairy cake with no symptoms then continue to allow foods such as cakes or biscuits with egg, trifle sponge, Yorkshire pudding, batter, pancakes etc for the next 3 months.

BUT continue to avoid:

- Whole egg products such as boiled/scrambled egg, quiche, omelette, egg sandwich.
- Raw egg and raw egg products e.g. mayonnaise, some mousses, ice-creams and uncooked desserts containing egg and contact with raw egg e.g. cake mixture.
- Total egg white products eg meringue, marshmallow, some cake icing.

Your dietitian will discuss with you when these can be introduced.

B If your child has reacted to the sponge cake, continue to allow an amount **that does not cause symptoms**. For example, if your child had tummy ache after ½ a fairy cake, allow smaller amounts less frequently and increase this amount every 3 months. Avoid all other egg foods as above.

Other egg products

- **Cooked egg:** Yorkshire pudding, cake (not icing as this may contain egg white), baked products with non-main ingredient of egg eg biscuits.
- **Whole egg:** Boiled egg, quiche, omelette, egg sandwich.
- **Raw egg:** Mayonnaise, some mousse / ice-cream / other uncooked dessert containing egg. Contact with raw egg / cake mixture.
- **Egg white:** Meringue, marshmallow, some sweets, some cake icing

With thanks to the Children's Allergy Clinic, University Hospitals of Leicester NHS Trust, for permission to reproduce this information.

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