

Fact sheet - Exercise Induced Anaphylaxis

Exercise-induced anaphylaxis is an uncommon, potentially-serious condition in which anaphylaxis (a severe allergic reaction) occurs during or after physical activity. This fact sheet is written for people affected by this condition in order to provide them with a better understanding of it.

Throughout the text you will see brief medical references given in brackets. More complete references are published towards the end of this fact sheet.

What are the symptoms that could occur?

Mild symptoms that may occur include:

- Widespread flushing of the skin
- Nettle rash (otherwise known as hives or urticaria)
- Swelling of the skin (known as angioedema) anywhere on the body
- Swelling of the lips
- Abdominal pain, nausea and vomiting

Those mild symptoms can be present on their own, without more severe ones occurring. But you should watch carefully in case more severe ones begin to develop.

You could experience any of the following more severe symptoms:

- Swollen tongue
- Hoarse voice
- Difficulty swallowing
- Difficult or noisy breathing, wheeze, persistent cough
- Feeling faint or weak

There may also be a dramatic fall in blood pressure (anaphylactic shock). The person may become weak and floppy and may have a sense of something terrible happening. This may lead to collapse and unconsciousness.

What are the various kinds of exercise induced anaphylaxis?

You may come under any of the following categories. These are just examples:

Anaphylaxis during or following exercise.

There may be no additional factors.

Food plus exercise.

This is called food-dependent, exercise induced anaphylaxis (FDEIA). The symptoms occur when a particular food is eaten before exercise. Wheat is the culprit food for some people, although others including shellfish are sometimes implicated. It is our opinion, supported by the medical experts who reviewed this fact sheet, that anyone diagnosed with FDEIA should avoid exertion **on the day they eat their trigger food**. It would be safer to avoid the food altogether even if it is normally not a problem without exercise.

There have also been rare reports of symptoms occurring when the food is eaten immediately **after** exercise.

One study looked at two cases of FDEIA in patients with a diagnosis of pollen-food syndrome. This is where a person suffers hay fever triggered by birch or grass pollens and then suffers symptoms in the mouth when eating foods that have proteins structurally similar to those in the pollens. One patient in this study was allergic to fresh coriander and tomato; the other to fresh celery. The significance of this study is that the foods without exercise produced only local symptoms of itching around the mouth; but the foods in combination with exercise triggered anaphylaxis (Chen et al., 2013).

Aspirin plus exercise

The symptoms occur when aspirin is taken on the same day as exercise occurs.

Food plus exercise plus aspirin in any combination

A combination of aspirin, a food allergy that the patient is unaware of, and exercise can trigger severe symptoms. A research team examined a patient with a history of FDEIA related to eating wheat before exercise. They found that he also suffered a reaction when aspirin was taken before eating wheat – even without exercising. The combination of aspirin, wheat **and** exercise triggered symptoms that were even more severe. Wheat alone did not trigger symptoms (Harada et al., 2001). The same report describes the case of an 18-year-old man with FDEIA who suffered symptoms with a combination of aspirin, shrimp and subsequent exercise. In other cases ibuprofen and other non-steroidal anti-inflammatory drugs (NSAIDs) may act as the co-factor.

Exercise and exposure to cold

Researchers reported on a 16-year-old Japanese boy who had a four-year history of allergic reactions when he exercised in winter. Tests showed it was the combination of cold and strenuous exercise that triggered the symptoms. Food was not thought to be a factor in this case (Li et al., 2002).

Cereal mites with exercise

A 17-year-old boy suffered anaphylaxis while jogging after having eaten a Japanese pancake. The pancake mix, which had been stored for several months after the package had been opened, was examined under a microscope, and an abundant number of live mites were discovered. The researchers concluded that it was ingestion of mites associated with exercise that caused the

symptoms (Adachi et al., 2013). One of our medical advisers tells us he saw the case of a boy who exercised in the snow after eating a breakfast cereal from a packet which had been open for many months. The boy suffered a severe anaphylactic reaction.

Getting the best advice

If you suspect you may fall into any of the above categories, the best course of action is to ask your GP to refer you to an NHS allergy clinic. Exercise-induced allergy is a complex condition that needs an expert diagnosis and clear advice. A specialist will be able to consider what treatment is necessary.

How is anaphylaxis treated?

Pre-loaded auto-injectors (sometimes referred to as 'pens') containing adrenaline are prescribed for people believed to be at risk.

Because severe allergic reactions can occur rapidly, the prescribed adrenaline auto-injector must be readily available at all times. The injection must be given as soon as a severe reaction is suspected to be occurring.

An ambulance must be called immediately following the use of the first device, even if there is immediate improvement or if further devices are available. The emergency service operator must be told the person is suffering from anaphylaxis and needs to be attended by paramedics.

Is exercise-induced anaphylaxis a life-long condition?

Exercise-induced anaphylaxis has only been recognised in the past 30 years or so. It is not yet known how many people – if any – outgrow it. Relevant studies following up a large number of such persons to explain its natural history have not yet been reported. For this reason it is safest at present to regard it as being a life-long condition.

Exercise-induced anaphylaxis during childbirth or surgery

Very rare cases of exercise-induced anaphylaxis have been reported involving women going into labour (Smith, 1985). Although this is unlikely to happen, people who suffer from exercise-induced anaphylaxis need to make medical staff aware of this condition before going through labour or having surgery.

Key points

- Make sure you get medical advice. See your GP and ask for a referral to an allergy clinic
- Once diagnosed, always carry your prescribed treatment
- If any symptoms occur, stop your exercising and rest. Do not drive
- Use your prescribed adrenaline as soon as a severe reaction is suspected to be occurring. An ambulance must be called immediately

- If you are unsure what triggers your allergy, it is preferable not to exercise alone. Inform your companions about your prescribed treatment
- Read our fact sheets on [anaphylaxis](#) and [adrenaline](#). These offer further vital information

References

- Adachi, Y.S., Itazawa, T., Okabe, Y., Higuchi, O., Ito, Y. & Adachi, Y. (2013). A case of mite-ingestion-associated exercise-induced anaphylaxis mimicking wheat-dependent exercise-induced anaphylaxis. *International archives of allergy and immunology*. [Online]. 162 (2). p.pp. 181–3. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23921625>. [Accessed: 25 May 2016].
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- Smith, H.S. (1985). Delivery as a Cause of Exercise-Induced Anaphylactoid Reaction: A Case Report. *British Journal of Obstetrics and Gynaecology*. [Online]. 95. p.pp. 1196–8. Available from: http://journals.lww.com/obstetricanesthesia/Citation/1986/06000/Delivery_as_a_Cause_of_Exercise_Induced.29.aspx. [Accessed: 25 May 2016].

Reviewers

The content of this fact sheet has been peer-reviewed by Dr Paul Williams, Consultant Clinical Immunologist, Department of Immunology, University Hospital of Wales; and Dr Matt Doyle, a full-time GP in Jersey and a member of the Primary Care Group of the British Society for Allergy and Clinical Immunology.

Disclosure

Dr Doyle is working with Meda, distributor of the EpiPen in the UK, to produce a webinar on allergic rhinitis.

Disclaimer – The information provided in this Factsheet is given in good faith. Every effort has been taken to ensure accuracy. All patients are different, and specific cases need specific advice. There is no substitute for good medical advice provided by a medical professional.

About the Anaphylaxis Campaign: Supporting people at risk of severe allergies

The Anaphylaxis Campaign is the only UK wide charity to exclusively meet the needs of the growing numbers of people at risk from severe allergic reactions (anaphylaxis) by providing information and support relating to foods and other triggers such as latex, drugs and insect stings. Our focus is on medical facts, food labelling, risk reduction and allergen management. The Campaign offers tailored services for individual, clinical professional and corporate members. Find out more at www.anaphylaxis.org.uk and follow us on twitter [@anaphylaxiscoms](https://twitter.com/anaphylaxiscoms).