

## 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 Factsheet 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 Factsheet.

### What are the symptoms that could occur?

Mild symptoms may 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.

A severe allergic reaction requires emergency treatment. See below: 'How is anaphylaxis treated?'

### 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 whereas the same food can be eaten without adverse effect when no exertion follows. 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 Factsheet, that anyone diagnosed with FDEIA should avoid exertion **on the day they eat their trigger food**.

Sometimes symptoms occur when the food is eaten **just after** exercise.

People with a history of FDEIA should never exercise alone. They should carry an adrenaline auto-injector (see below – 'How is anaphylaxis treated?') and should wear a medical alert bracelet or talisman informing medical services of their condition.

The use of certain anti-inflammatory pain-killers also need to be considered as these may act as an alternative or additional co-factor in triggering a reaction in certain cases. People with a history of exercise-induced anaphylaxis may need to avoid taking aspirin or a non-steroidal anti-inflammatory painkiller (NSAID) such as diclofenac (Voltarol®), ibuprofen (Nurofen®) or naproxen for twelve hours before intended exercise and people with a history of FDEIA may need to avoid taking aspirin or an NSAID **on the day they eat their trigger food**.

### **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.

### **Lipid-transfer protein (LTP) Dependent Exercise Induced Anaphylaxis.**

Lipid Transfer Proteins (LTPs) are found in foods which come from plants. Lipid Transfer Protein Syndrome is an allergy affecting people who have become sensitised to LTPs. In this condition patients may find that they react to one or more foods in the following groups: vegetables, fruits, nuts or cereals. In many cases, a reaction only occurs in conjunction with an additional factor such as exercise.

Please [click here](#) to read more about LTP allergy.

### **'Co-factor enhanced food allergy'**

Apart from exercise, additional factors have now been identified that can combine with hidden food allergy to cause anaphylaxis. The commonest of these are pain-killing drugs. Aspirin, ibuprofen (Nurofen), diclofenac (Voltarol), naproxen or other non-steroidal anti-inflammatory drugs (NSAIDs), if taken within a few hours of a food allergen such as wheat, can result in an attack of anaphylaxis even though the food or drug is tolerated when taken alone.

Exercise and NSAIDs are referred to as co-factors and the resulting condition is called co-factor enhanced food allergy.

Other examples of co-factors include eating a large amount of the food, stress or anxiety, extreme cold, consumption of alcohol with the food, and the monthly period (premenstrual/menstrual). One or more of these co-factors may combine, in any combination, with a food allergen and result in anaphylaxis.

FDEIA was the first kind of co-factor enhanced food allergy to be identified, and it remains the commonest to be diagnosed.

### **Getting the best advice**

If you suspect you may fall into any of the above categories, **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 adrenaline auto-injectors (AAIs) 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
- Read our Factsheets on [anaphylaxis](#) and [adrenaline](#). These offer further vital information.

## References

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## Reviewers

The content of this Factsheet has been peer reviewed by Dr Michael Radcliffe, Consultant in the Allergy Service at University College, London Hospitals; 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. They report no conflicts of interest with regard to their review of this fact sheet.

**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](http://www.anaphylaxis.org.uk) and follow us on twitter [@anaphylaxiscoms](https://twitter.com/anaphylaxiscoms).