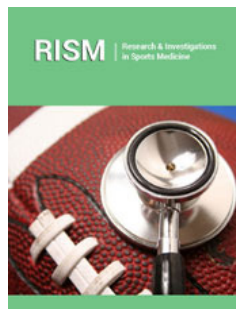


# Reactions Of the Body, Which Occur Only During Sports

ISSN: 2577-1914



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## Introduction

By logic, sport should improve well-being - but this is not always the case. The first mention of the relationship between allergies and exercise appeared in 1979, when the first recorded case occurred. One hour before the start of the long-distance race, one of the athletes ate oysters, triggering an attack shortly after the race began.

It all started with redness of the face, then there was swelling, urticarial and itching, and then there was airway obstruction. It is known that doctors then gave the runner adrenaline and recommended not to eat oysters before and after training. Since then, science has begun to study this phenomenon, but has not made much progress in studying the issue. Meanwhile, such incidents occur a lot - about 5-15% of cases of acute allergic reactions are caused by exercise. Let us try to understand why this happens.

## How is an Allergy Related to Sports?

Allergy to sports does exist, but the cause of an allergic reaction is physical activity itself, and its interaction with the allergen - food or any other (pollen, household). That is, these conditions alone are harmless, but their tandem is perceived by the body as hostile and can cause anaphylaxis - an acute and instantaneous allergic reaction.

“Sports” allergies are of two types:

1. Dietary Anaphylaxis Induced by Exercise (DAIE),
2. Exercise-Induced Anaphylaxis (EIA).

In the first case, allergies occur when using a certain product for 2-3 hours before or after exercise. Allergenic products such as peanuts, shellfish, soy, milk, and alcohol are “provocateurs” (the full list can be found here) - even if they are usually not allergic. That is, they cause damage only if their use is accompanied by exercise. Studies show that portion sizes can also affect this. Among the food triggers and sports nutrition - protein supplements, isotonic drinks, carbohydrate bars. These products contain nuts, cereals, animal or vegetable protein - all of which can cause allergies before or after exercise. At the same time, it is impossible to predict which product will provoke an attack - the body’s reaction is unpredictable.

In the second case, allergies arise, for example, from plant pollen. Rising body temperature, dust, humid or dry air, hormonal background, critical days, stress, and heredity - all this can also provoke allergies. The body may “rebel” in response to anti-inflammatory drugs such as aspirin. This type of allergy most often occurs in people with diseases such as seasonal rhinitis, eczema, asthma, cold and cholinergic urticarial.

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**Submission:**  June 10, 2022

**Published:**  June 21, 2022

Volume 8 - Issue 5

**How to cite this article:** Grinko V, Kudelko V. Reactions Of the Body, Which Occur Only During Sports. Res Inves Sports Med. 8(5), RISM.000698. 2022. DOI: [10.31031/RISM.2022.08.000698](https://doi.org/10.31031/RISM.2022.08.000698)

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“Athletes are often exposed to adverse environmental factors. Intense physical and emotional stress can be a trigger. For example, in winter sports, the reaction can be provoked by prolonged inhalation of frosty air. The presence of allergies to household, epidermal (wool, animal saliva), pollen and food allergens can worsen the course of the disease. Allergic reactions can be caused by various preservatives, stabilizers, fillers and excipients in protein supplements, carbohydrate bars” - explains allergist-immunologist, PhD, Irina Isakova.

### What Kind of Sport Affects This? In Addition, What About the Symptoms?

In both cases, the allergic reaction may occur within minutes after the start of training or within hours. In 90% of cases, the symptoms appear within 30 minutes after the start of training - sometimes the attack can begin immediately, but this is rare. It is usually manifested by itching, urticarial, shortness of breath, dizziness, low blood pressure, headache, chest weight, Quinckes edema, hoarse breathing, nausea, bloating [1-4].

Moreover, anaphylaxis (acute allergic reaction) can be both professional athletes and amateurs. The intensity of physical activity is not particularly affected - in some the cause of the reaction may be strength training, in others - a normal walk. Among the most common causes of the attack, researchers identify jogging, aerobics, walking, tennis, squash, dancing and gardening.

Athlete's hyperactivity of the respiratory tract (narrowing of the bronchi in response to stimuli) are also common in athletes, adds allergist Irina Isakova: “It develops against the background of cyclical sports, which are based on repeated repetition of the same type of exercise. For example, cycling, swimming, running, some pentathlons, skating [2-5]. Symptoms include shortness of breath, wheezing, itching, dizziness, nausea, and vomiting”.

The causes of “sports” allergies are not yet fully understood. Some studies show that the reaction occurs due to the release of the hormone histamine from mast cells (a type of leukocyte) into the blood. Others suggest that physical activity increases the permeability of the gastrointestinal tract, and therefore enzymes “more willingly” interact with allergens. It is known that the risk group includes people aged 25 to 35 years and those who have food allergies, asthma, mastocytosis (diseases of the blood system) and cardiovascular disease [3]. Moreover, allergies in women are twice as common as in men.

According to the allergist, lung ventilation increases during training - in this case, the allergen is easier to get into the airways: “Among them, for example, pollutants, chlorine derivatives, cold air. At rest, pollen allergens are usually retained in the nose and can only cause allergic rhinitis. However, during hyperventilation, when a person goes from nasal breathing to mouth breathing, everything is different. The number of allergens that enter the lower respiratory tract is increasing”.

### With Such an Allergy Will Have to Give Up Sports Forever or Is It Treatable?

This problem is solved. If you have symptoms, you should first consult an allergist - he will assess the general state of health, study the history of the disease, and make a series of tests for allergens. Once the trigger is found, it will be enough to turn it off 4-6 hours before and after training - but this is as prescribed by your doctor.

“After a thorough examination, the doctor will select adequate drug therapy. This may be ASIT - Allergen-Specific Immunotherapy. The goal of treatment is to achieve intolerance to a substance to which the body responds to excessive immune responses. The method is that the patient is given medication with the allergen that caused the disease. In response, the body produces antibodies that block the allergic reaction. This method is effective, for example, in the treatment of allergic rhinitis and asthma. As a preventive measure, the patient may be recommended to exercise, swim, and walk in the fresh air - and, of course, will need to avoid factors that provoke allergies” - concludes the allergist.

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