

THE ROAD TO HEALTH & WELLNESS



News and advice
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ELITE
PERSONAL TRAINING
AND FITNESS
SOLUTIONS

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Fighting Inflammation

Welcome to part 4 of our inflammation series. This month's topic is inflammation and allergic responses. More than 50 million Americans are allergic to something that is normally harmless. Exposure to triggers can result in a wave of misery. Let's look at what happens when your body rebels against its environment.

Inflammation Series

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Background

The term allergy comes from the Greek word for "other." It was coined in 1906 by Austrian pediatrician Clemens von Pirquet. He used the word to describe a hypersensitivity response triggered by a foreign substance that he termed an allergen.

Hypersensitivity disorders include allergic rhinitis (hay fever), allergic asthma, anaphylaxis, atopic dermatitis (eczema), and food allergies. Allergies, asthma, and eczema often occur together.

Elite Personal Training and Fitness Solutions does not provide medical treatment or intervention. We acknowledge scientific evidence that appropriately intensive exercise and sustainable nutritional intervention can have significant impact on chronic health disorders and obesity, dramatically improving symptoms when recommendations are followed. Please visit us at Eliteptf.com for more information and to schedule your evaluation.

Allergies

In certain people, the immune system responds to harmless substances like pollen or animal dander as though they were infections. Genes are partly responsible. But as the incidence of allergies has risen in the developed world, the hygiene hypothesis has gained traction.

Proposed by immunologist David Strachan in the 1980s, this hypothesis holds that exposure to germs early in life “trains” a child’s fledgling immune system to identify disease-causing pathogens. Without exposure to the true “bad guys” in early childhood, certain components of the immune system don’t develop properly. Instead, what does develop is an allergy. The cells of the immune system that normally fend off invading viruses and bacteria become overactive and target non-infectious substances.

Eating, inhaling, or touching certain substances can trigger allergic reactions in people who are sensitive to the substance. The most common allergens are:

- grass and tree pollen
- animal dander (shed pieces of skin and fur)
- dust mites
- latex
- foods such as peanuts, tree nuts, fish, shellfish, eggs, and milk
- insect venom



To become allergic to one of these substances, the body goes through a process called sensitization. When allergens enter the body, immune cells called antigen-presenting cells capture them, and, as the name implies, present them to other immune cells.



A single exposure to the offending substance provokes an early-phase reaction, but no symptoms. However, the single exposure readies the immune system to watch for that allergen in the future.



Our newsletters present overviews of highly complex topics. For more in-depth discussion of vitamins, minerals, supplements, weight loss or ANY health-related topic, please contact our office.

The next time that person is exposed to the same allergen a complex sequence of events occurs which involves the release of histamine, prostaglandins, and leukotrienes. These chemicals produce inflammation and the following allergic reactions:

- widening of the blood vessels, which produces reddened skin or eyes, or both
- leaking of the blood vessels, causing swelling of the tissues and tearing of the eyes
- contraction of muscles in the lungs, causing wheezing and difficulty breathing
- increased mucus secretion, producing a runny nose
- stimulation of sensory nerves, causing sneezing, coughing, and itching

Repeated or continuous exposure to the allergen causes persistent inflammation.

Asthma

Asthma is a disease of the lungs that involves a complex relationship between allergens and irritants in the environment, overreactive bronchial tubes, and inflammation.



Asthma used to be understood strictly based on its physical effects on the lungs. Muscles surrounding the bronchial tubes contracted, narrowing these tubes and restricting air flow—or so it was believed. Now, doctors and researchers recognize that asthma is a disease of inflammation that involves the actions of inflammatory cells and the release of inflammatory chemicals such as histamines and a variety of cytokines.

Inflammation, plus constriction of the surrounding muscles, is what causes the narrowing of the bronchial tubes. The narrowing leaves less space for air to flow into the lungs. This constriction of airflow leads to the telltale symptoms of asthma—shortness of breath, wheezing, and chest tightness.

What triggers this inflammatory process is unique to each person. Even when people with asthma are not exposed to offending substances and they seem to be breathing well, low-level inflammation persists in their bronchial tubes. What causes this constant state of inflammation is not yet clear, but it makes the bronchial tubes hyper-responsive or “twitchy”—that is, prone to spasm in response to allergens or irritants in the air that wouldn’t normally cause a problem.

Persistent inflammation produces long-term, structural changes in the airway, which exacerbates the cycle. The airways thicken and scar. Muscle cells enlarge. Cells of the airways release inflammatory chemicals and sticky mucus. In tandem, these changes make the airway walls swell, narrowing the airways even more.

Eczema

Eczema is an inflammatory skin disease that produces patches of red, intensely itchy skin. It often begins in infancy and can last into adolescence and adulthood. Although the condition is generally considered more annoying than dangerous, it may increase the risk of heart disease and stroke, possibly because of increased inflammation. Eczema can also lead to skin infections, since the skin's barrier function is impaired. Both genetics and the environment play roles in the development of eczema.

The telltale red, itchy rash is the obvious symptom of eczema, but under the skin's surface, much more is occurring. The skin manifestation is the result of an abnormal immune reaction that produces inflammation inside the body.

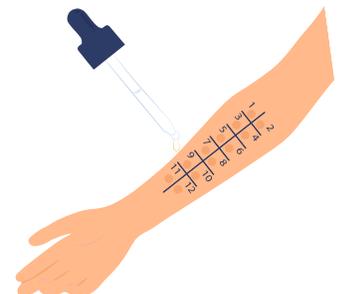
Eczema is sometimes referred to as “the itch that rashes,” and for good reason. It starts with an itch, when chemical mediators in the skin stimulate nerve endings in the skin's outer layer (epidermis). Most people can't help scratching. But when you scratch that itch in an attempt to find relief, more inflammatory substances are released, leading to a truly miserable “itch-scratch” cycle.

Every time you scratch your skin, you break down skin cells. Normally, the skin's outer layer serves as a barrier to prevent allergens, irritants, bacteria, and other unwelcome substances from getting inside. With eczema, this barrier is weaker and more porous than usual, making it more prone to damage and inflammation. Microbes, pet dander, dust mites, and other foreign substances can more easily slip into those damaged areas, compounding the immune reaction.



Bringing Down Inflammation to Treat Asthma and Allergies

There are two fundamental ways to manage asthma, eczema, and allergies. One is to avoid exposure to triggers like pollen or mold. Allergy testing can identify your unique triggers. The other is to take medicines that suppress inflammation and its complications by targeting the processes that underlie the symptoms. The main drug treatments for allergies, asthma, and eczema work by dampening inflammation either locally or throughout the body.



- **Antihistamines** block the release of histamine, which causes symptoms like itching, a runny nose, sneezing, and hives. Examples include diphenhydramine (Benadryl) and loratadine (Alavert, Claritin).



- **Corticosteroids** are manufactured drugs that are designed to mimic the effects of cortisol, a powerful natural anti-inflammatory hormone the adrenal glands produce. Corticosteroids are different from the anabolic steroids weightlifters sometimes take to increase their strength and muscle mass. Corticosteroids act directly on inflammatory cells.

- **Bronchodilators** relax tightened muscles around the airways to allow more air to flow into the lungs. These drugs work in one of two ways: short-acting bronchodilators (or “rescue” inhalers) work quickly to stop an asthma attack, while long-acting bronchodilators are taken daily to prevent asthma symptoms.



- **Immunotherapy**—typically in the form of “allergy shots” but sometimes given orally—is another approach to allergies that exposes the body to gradually increasing doses of an allergen. Over a period of weeks or months, the immune system slowly becomes desensitized to the substance.

- **Immunosuppressants** are drugs used to suppress or dampen the immune system.

- **Biologics** are a newer class of drugs made from living organisms. They are genetically engineered to target specific cells or proteins that control the inflammatory process.





Health Tip of the Month

Weight loss is a booming business in America. According to The U.S. Weight Loss Market's 2022 Status Report, published in March of this year, 2021 saw a 24% increase from \$58 billion in 2020 to \$72.6 billion in 2021. Weight loss marketing segments included in the report were diet soft drinks, artificial sweeteners, low-calorie dinner entrees, meal replacements, diet supplements, prescription drugs, fitness apps, health clubs, commercial weight loss chains, weight loss surgeries and medical programs run by doctors, hospitals and clinics. Many weight loss products and procedures are bogus. Some are moderately helpful. Others can be quite harmful. There is no quick fix for weight loss or good health. To maintain good health and an ideal weight, exercise and eating well absolutely MUST become a lifestyle. Run from anyone or any claim that tells you otherwise.



Research Shows

Research confirms what many of us have already discovered. When it comes to losing weight and body fat, diet and exercise are most effective when done together as compared to either strategy alone. In addition, this two-pronged approach improves longevity, mitigates inflammatory diseases and promotes overall health.



Did You Know...

At any given time, approximately 50% of Americans are on some sort of diet, but 95% will fail to lose weight and maintain their weight loss!



Medication & Food

Milk can make it more difficult for your body to process certain antibiotics. Minerals in milk like calcium and magnesium are part of the reason, along with the protein casein. If you are taking antibiotics, reduce or eliminate milk.



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