



## What is inflammation?

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## Abstract

Inflammation is a fundamental aspect of the body's response to injury or infection. Acute inflammation is a beneficial and self-resolving part of the body's healing mechanism, chronic inflammation represents a persistent immune response without danger or damage. Chronic inflammation can lead to the immune system attacking the body, resulting in conditions like Rheumatoid arthritis or asthma. Detecting chronic inflammation may be challenging, and understanding the distinction between acute and chronic inflammation is crucial. Acute inflammation is often a natural and helpful process, while chronic inflammation indicates an underlying health condition.

## Introduction

**H**ave you ever had a trip and fall, where you ended up scraping your knee, and the area around the wound was painful and red after? In the simplest terms, this response is called inflammation; in more specific terms, inflammation results from the accumulation of your body's white blood cells and the substances they release. These immune cells and what they release are our body's first responders to damage and infection.

After an injury such as a scrape the body's outermost barrier, the skin is not only damaged but also exposed to the external environment where pathogens (or germs) such as bacteria, viruses, or fungi exist. Inflammation is the body's response to damaged tissues and these

foreign pathogens, and inflammatory cells such as neutrophils are recruited from the bloodstream into the tissues where there is tissue damage or infection. In these tissues, your cells produce substances (more specifically known as cytokines, antibodies and complement) that work together to clear any invading pathogens, and begin the process that helps heal damaged tissue.

Inflammation doesn't solely occur after injury to the skin it can also occur in places of the body we cannot see, such as the lungs. Inhalation of foreign pathogens, dust, and other irritants, such as Salton Sea air, can trigger an immune response and inflammation in the lungs!



## Types of Inflammation

These examples of inflammation are what we consider to be acute inflammation. Signs of acute inflammation include redness, heat, swelling, pain, or even loss of function. Inflammation doesn't always cause all of these symptoms, however, and sometimes it can occur "silently" where it doesn't initially cause any of these symptoms. There are other types of inflammation as well, for example, what we would call chronic inflammation.

Chronic inflammation can occur when the immune system continues to recruit inflammatory cells even in situations when there is no pathogen or damage present. It is sending out its responders even when there is no danger present. Chronic inflammation often results in

one's immune system fighting its own body by mistake, causing harm or tissue damage. Examples of chronic inflammation include diseases such as Rheumatoid arthritis or autoimmune disease. Another type of chronic inflammation can occur from repeated exposure to allergens, and in the lung this can contribute to the progression of asthma. Signs of chronic inflammation are sometimes harder to detect, and they include symptoms such as abdominal pain, chest pain, fever, joint pain, skin changes, and frequent asthma exacerbations (asthma attacks). The important distinguishing factor is that chronic inflammation persists for long periods, where acute inflammation will resolve relatively quickly.

## Does it need to be treated?

Inflammation is an essential part of the body's healing process and might not always need to be addressed or treated. In the case of acute inflammation, it can be beneficial for getting rid of viruses or bacteria that try to infect us. However, in the case of chronic inflammation, where the inflammatory cells stay and persist, this inflammation is a symptom of another

health condition. Since chronic inflammation is harmful, your healthcare provider may recommend medications or at home-managements.

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