Inflammation (Latin, *inflammatio*, a setting on fire) is the complex biological response of vascular tissues to harmful stimuli, such as pathogens, damaged cells, or irritants.[1] Inflammation is a protective attempt by the organism to remove the injurious stimuli as well as initiate the healing process for the tissue. Inflammation is not a synonym for infection. Even in cases where inflammation is caused by infection, the two are not synonymous: infection is caused by an exogenous pathogen, while inflammation is one of the responses of the organism to the pathogen.

In the absence of inflammation, wounds and infections would never heal and progressive destruction of the tissue would compromise the survival of the organism. However, chronic inflammation can also lead to a host of diseases, such as hay fever, atherosclerosis, and rheumatoid arthritis. It is for that reason that inflammation is normally closely regulated by the body.

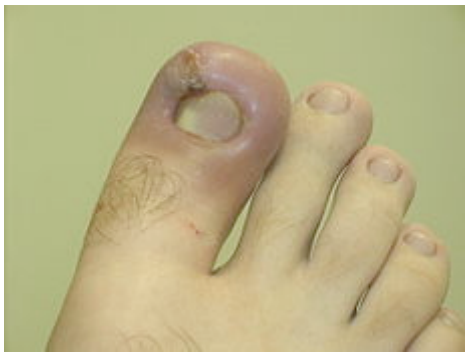
Inflammation can be classified as either *acute* or *chronic*. *Acute inflammation* is the initial response of the body to harmful stimuli and is achieved by the increased movement of plasma and leukocytes from the blood into the injured tissues. A cascade of biochemical events propagates and matures the inflammatory response, involving the local vascular system, the immune system, and various cells within the injured tissue. Prolonged inflammation, known as *chronic inflammation*, leads to a progressive shift in the type of cells which are present at the site of inflammation and is characterized by simultaneous destruction and healing of the tissue from the inflammatory process.

Types

Comparison between acute and chronic inflammation:

	Acute	Chronic
Causative agent	Pathogens, injured tissues	Persistent acute inflammation due to non-degradable pathogens, persistent foreign bodies, or autoimmune reactions
Major cells involved	Neutrophils, mononuclear cells (monocytes, macrophages)	Mononuclear cells (monocytes, macrophages, lymphocytes, plasma cells), fibroblasts
Primary mediators	Vasoactive amines, eicosanoids	IFN-γ and other cytokines, growth factors, reactive oxygen species, hydrolytic enzymes
Onset	Immediate	Delayed
Duration	Few days	Up to many months, or years
Outcomes	Resolution, abscess formation, chronic inflammation	Tissue destruction, fibrosis

[edit] Clinical signs



Infected ingrown toenail showing the characteristic redness and swelling associated with acute inflammation

Acute inflammation is a short-term process, usually appearing within a few minutes or hours and ceasing upon the removal of the injurious stimulus.[4]. It is characterized by five cardinal signs:[5]

- *rubor* (redness),
- *calor* (increased heat),
- *tumor* (swelling),
- *dolor* (pain), and
- *functio laesa* (loss of function).

The classic signs and symptoms of acute inflammation:

English	Latin
Redness	*Rubor**
Swelling	*Tumor*/*Turgor**
Heat	*Calor**
Pain	*Dolor**
Loss of function	*Functio laesa***

All the above signs may be observed in specific instances, but no single sign must, as a matter of course, be present.[2]

These are the original, so called, "cardinal signs" of inflammation.[2]*

Functio laesa is a bit of an apocryphal notion, as it is not really unique to inflammation and is a characteristic of many disease states.[3]**

The first four (classical signs) were described by Celsus (ca 30 BC–38 AD), while *loss of function* was added later by Galen[6] even though the attribution is disputed and the origination of the fifth sign has also been ascribed to Thomas Sydenham[7] and Virchow.[4][5]

Redness and heat are due to increased blood flow at body core temperature to the inflamed site; swelling is caused by accumulation of fluid; pain is due to release of chemicals that stimulate nerve endings. Loss of function has multiple causes.[5]

These five signs appear when acute inflammation occurs on the body's surface, whereas acute inflammation of internal organs may not result in the full set. Pain only happens where the appropriate sensory nerve endings exist in the inflamed area — e.g., acute inflammation of the lung (pneumonia) does not cause pain unless the inflammation involves the parietal pleura, which does have pain-sensitive nerve endings.[5]

http://en.wikipedia.org/wiki/Inflammation

An inflammation marker in the blood is associated with heart disease, strokes and deaths from lung conditions and cancer, research has shown.

Raised levels of C-reactive protein (CRP) indicate an increased risk of a wide range of diseases, scientists believe.

The protein itself is not thought to cause illness, but it may act as a signpost pointing to underlying health problems.

CRP is produced by the liver and known to be a sensitive indicator of body-wide inflammation that can damage tissues.

Earlier research had indicated that the protein might be as good an indicator of heart attack risk as cholesterol levels.

Researchers have now taken a closer look at CRP by combining information from 54 long-term studies involving more than 160,000 people in 18 countries.

Pooling together data from different studies, known as meta-analysis, can reveal trends which would otherwise remain hidden.

The analysis revealed that CRP concentration was associated with the future risk of numerous conditions, including heart and artery disease, stroke, chronic lung disease and various cancers.

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