

# Is aspirin necessary and well-tolerated?

**Aspirin is a useful drug prescribed for patients who have had heart attacks.** Taking aspirin after a heart attack reduces the possibility of a renewed attack, of a stroke or associated deaths.



Aspirin inhibits “the aggregation of blood platelets”. What does this mean? When a blood vessel is injured, the “platelets” (or “thrombocytes”) circulating in the blood are stimulated to dock at the point of injury and clump together to seal the defect. This process of “platelet aggregation” is the origin of a blood clot or “thrombosis” in an injured artery.

Aspirin blocks a certain enzyme in the platelets and inhibits “platelet aggregation”. **Less blood clotting and at the same time fewer heart attacks**, these two effects of aspirin could help to save the honor of the classical concept on heart attacks. Thus, thromboses in the coronary arteries would appear to be primary, triggering events, if their hindrance provides protection against heart attacks.

**Here again, the case is not as simple as it appears to be.** Early on, it was discovered that aspirin, apart from inhibiting platelet aggregation, has other effects on the heart. In a study published in 1972, the influence of aspirin on coronary thrombosis was studied in an animal experiment. **In this study, aspirin was not able to prevent thrombosis in the coronaries. Whereas, it was striking that animals treated with aspirin were far less frequently subject to life-threatening heart rhythm disorders**, due to blockage of the coronaries, than the animals in the control group (59). This suggested that aspirin has a protective influence on the heart independent of its inhibition of blood coagulation.

All patients that take aspirin and who plan to undergo surgery know that aspirin intake should be discontinued 1 week before the operation. Otherwise, they will suffer from bad bleeding during and after the operation. Aspirin “thins” the blood and has, nevertheless, little influence on the development of thrombosis, as confirmed by later studies (60).

## Less protection against thrombosis than against oxidative stress

**The protective effect of aspirin on the heart has, in the meantime, been more precisely defined:** aspirin stimulates the production of “NO” in the vessel walls and thereby the production of “cGMP” in the blood vessel. As “NO” can pass through the vessel walls at the speed of an arrow, the production of “cGMP” in the heart muscle is also stimulated. At the same time, aspirin protects the cells of the heart muscle against the oxidative attacks of “free radicals” (61,62). Aspirin therefore strengthens the “NO/cGMP axis” (61,62). The protection of the heart muscle, resulting from the strengthening of this axis, is discussed in detail in the Section 7: “What is the connection between oxidative stress and heart attacks?” It is therefore, to a lesser extent the inhibition of platelets or “blood thinning” effect of aspirin that is important, than the protective effect it has on the heart muscle itself that shows the preventive effects of aspirin in a different light.

## Many “side-effects”

Aspirin began its triumphal march as an excellent pain killer about 100 years ago. **It has an innumerable range of effects on the human body.** It has very diverse effects on the liver, kidneys, lungs, heart and brain. Its effects at cell level are not all as favorable as the stimulation of “NO” synthesis. **Aspirin is also a poison for the cells,** as it decouples cell respiration, obstructing the production of phosphates, the body’s energy compounds.

Just to name a figure: according to a large survey, taking aspirin on a regular basis after a heart attack saves the life of one in 150 patients per year (63). This slight protective effect is achieved by taking a substance on a daily basis that undoubtedly has a wealth of side-effects. **Just take a look at the package insert!**



The protective effect of aspirin caused by strengthening the “NO-cGMP-axis” can surely be achieved, or even improved on, with a diet that provides protection against oxidation, such as the Mediterranean or Asian diet. **However, I cannot advise you to generally forgo taking aspirin. Aspirin is a beneficial prophylaxis for stroke prevention.** One should not carelessly rob oneself of the protective benefits of aspirin, particularly in the case of high blood pressure.