

NSAIDs inhibit prostaglandin (PG) synthesis through their action on the enzyme cyclo-oxygenase (COX). PGs are synthesised in various tissues and have several physiological actions which include their role in inflammation.

It is this role that is targeted when using NSAIDs.

There are 2 iso-forms of COX : COX-1 and COX-2.

The traditional NSAIDs such as ibuprofen are non-specific and affect both subtypes, whereas the newer drugs such as celebrex are specific COX-2 inhibitors.

COX-1 is particularly involved in the gut but is also expressed in most tissues; it is involved in the synthesis of PGs in response to physiological stimuli.

It helps to protect the stomach and kidneys and it is thought that this is the reason why non-selective NSAIDs have serious adverse effects on these organs.(see Adverse Effects below)

COX-2 inhibitors were developed with this in mind and have been successful in reducing the risks somewhat but not entirely.