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Anti-inflammatory Painkillers

Anti-inflammatory painkillers are used to treat arthritis, sprains, painful periods and other painful conditions. Most people have no trouble taking these tablets. However, some people develop side-effects which can sometimes be serious. In particular - if you have any cardiovascular (heart, stroke or blood vessel) condition or certain gut conditions, or are elderly, these medicines are prescribed with caution and only where there are no alternatives and at the lowest doses and durations necessary.

Note: if you develop upper tummy (abdominal) pains, pass blood or black stools (faeces), or bring up (vomit) blood, stop taking the tablets. Then, see your doctor as soon as possible or go to the nearest casualty department.

What are anti-inflammatory painkillers?

Anti-inflammatory painkillers are sometimes called non-steroidal anti-inflammatory drugs (NSAIDs), or just 'anti-inflammatories'. Anti-inflammatory painkillers include: [aceclofenac](#), [acemetacin](#), [aspirin](#) (see also below), [celecoxib](#), [dexibuprofen](#), [dexketoprofen](#), [diclofenac](#), [etodolac](#), [etoricoxib](#), [fenoprofen](#), [flurbiprofen](#), [ibuprofen](#), [indometacin](#), [ketoprofen](#), [mefenamic acid](#), [meloxicam](#), [nabumetone](#), [naproxen](#), [sulindac](#), [tenoxicam](#), and [tiaprofenic acid](#). Each of these also comes as different brand names.

You need a prescription to obtain anti-inflammatories, apart from ibuprofen and aspirin, which you can also buy from pharmacies.

When are anti-inflammatory painkillers used?

Anti-inflammatory painkillers have two main uses:

- **As painkillers.** Anti-inflammatories are used to ease pain in various conditions, including:
 - Joint pain.
 - Muscle and ligament pain (sprains and strains).
 - Period pain.
 - Pain after operations.
 - Headache, migraine.
 - Some other types of pain.

After a single dose, they work at least as well as [paracetamol](#) to ease pain. A short course of an anti-inflammatory medicine is an option to ease short bouts of painful conditions.

- **To reduce inflammation.** With repeated regular doses, they also reduce inflammation. This can further reduce pain and stiffness that occurs with [inflammatory conditions such as rheumatoid arthritis](#). When used to reduce inflammation, you might not notice the maximum effect for up to 1-3 weeks after starting a course of tablets.

Ibuprofen and aspirin are also used to [bring down a high temperature](#). Low-dose aspirin is also used to help prevent blood clots that can cause a heart attack or stroke. (See separate leaflet called [Aspirin and Other Antiplatelet Medicines](#).)

How do anti-inflammatory painkillers work?

They work by blocking (inhibiting) the effect of chemicals (enzymes) called cyclo-oxygenase (COX) enzymes. COX enzymes help to make other chemicals called prostaglandins. Some prostaglandins are involved in the production of pain and inflammation at sites of injury or damage. A reduction in prostaglandin production reduces pain and inflammation.

There are two types of COX enzymes - COX-1 and COX-2. It is the COX-2 enzyme that is mainly involved in making the prostaglandins that are involved with pain and inflammation. Anti-inflammatory painkillers are sometimes classified into two main groups:

- Non-selective or standard NSAIDs. Most fall into this group, including diclofenac, ibuprofen, indometacin and naproxen. These block both COX-1 and COX-2 enzymes.
- Coxibs. For example, celecoxib and etoricoxib. These mainly (selectively) block just the COX-2 enzyme.

Some general points about taking anti-inflammatory painkillers

It is often worth trying paracetamol before taking an anti-inflammatory. Paracetamol is a good painkiller, and is less likely to cause side-effects. Although paracetamol does not reduce inflammation, it is often the preferred painkiller for muscle and joint conditions that cause pain but have little inflammation. For example, [osteoarthritis](#). See [separate leaflet called Painkillers](#).

If you take an anti-inflammatory painkiller, as a rule you should take the lowest dose that is effective, for the shortest length of time that is possible. The aim is to ease pain and inflammation but with the least risk of developing side-effects. However, some people take one long-term - for example, some people who have an inflammatory arthritis where an anti-inflammatory gives great relief of symptoms. In this situation, the need for long-term treatment should be reviewed by a doctor from time to time.

Before starting a course of an anti-inflammatory painkiller, your risk of developing serious cardiovascular (heart, stroke or blood vessel) and gut side-effects should be taken into account (see below).

Anti-inflammatories do not alter the course of painful conditions such as arthritis. They just ease symptoms of pain and stiffness. However, this may provide further benefit because, if pain is eased, you may then be able to move around more easily or use a painful joint more easily. The inflammation and pain of various types of arthritis often come and go. During good spells, when symptoms are not too bad, you may not need to take anti-inflammatories.

The different types of anti-inflammatories have pros and cons which is why different people take different ones. For example:

- Some are less likely to cause side-effects, but may not be as strong as others.
- Some need to be taken more often each day than others.

Some people find that one preparation works better than another for them. If one preparation does not work very well at first, then a different one may work better. It is not unusual to try two or more preparations before finding one that suits you best. Your doctor can advise.

Anti-inflammatories can also be given topically as a cream or ointment which you rub into the effected area. See [separate leaflet called Topical Anti-inflammatory Painkillers](#).

You may also be advised to use anti-inflammatory painkillers with heat and ice treatment for pain. See [separate leaflet called Heat and Ice Treatment for Pain](#).

What are the possible side-effects and risks?

Most people who take anti-inflammatories have no side-effects, or only minor ones. When taken appropriately, the benefit usually far outweighs the potential harms. In particular, many people take a short course of an anti-inflammatory for all sorts of painful conditions. However, side-effects, and sometimes very serious possible adverse effects, can occur.

Therefore, do read the leaflet that comes with the tablets for a full list of cautions and possible side-effects. In particular, check if you have any of the conditions or take other medicines where the risk of side-effects is increased.

For example, one important caution is that, ideally, you should not take anti-inflammatories [if you are pregnant](#). Also, if you have any cardiovascular (heart, stroke or blood vessel) condition, or certain gut conditions, or are elderly, they are prescribed with caution and only if there are no alternatives, and at the lowest doses and durations necessary.

The following is not an exhaustive list but highlights some of the more important side-effects and cautions to be aware of.

Bleeding into the stomach and gut

Anti-inflammatories sometimes cause the lining of the stomach to bleed. This is because the chemicals (prostaglandins) that are reduced by anti-inflammatories are also involved in helping to protect the lining of the stomach from the effects of the acid within the stomach. [Sometimes a stomach ulcer develops](#). Sometimes bleeding is severe, and even life-threatening. Elderly people are more prone to this problem but it can occur in anybody.

Therefore, if you are taking an anti-inflammatory and you develop upper tummy (abdominal) pains, pass blood or black stools (faeces), or bring up (vomit) blood, stop taking the tablets. Then, see a doctor urgently, or go to a casualty department.

The risk of bleeding into the stomach is increased if you are taking an anti-inflammatory plus **warfarin**, **steroids**, or **low-dose aspirin** (used by many people to help prevent a heart attack or stroke). These combinations of medicines should only be used if absolutely necessary. Some people need an anti-inflammatory to ease pain, and yet are at increased risk of stomach bleeding. For example, people aged over 65, or those with a past history of a stomach or duodenal ulcer. In such cases another medicine may also be prescribed to protect the lining of the stomach from the effects of the anti-inflammatory. This usually prevents bleeding and ulcers from developing if you take an anti-inflammatory. Another option sometimes considered is to take an anti-inflammatory that some studies suggest may possibly have a lower risk of causing stomach bleeding. These types of anti-inflammatories are called selective COX-2 inhibitors (described earlier). However, you should not take a selective COX-2 inhibitor if you have a cardiovascular disease such as angina, heart attack (myocardial infarction), stroke, peripheral arterial disease, etc.

Cardiovascular problems

Studies have shown that people who take anti-inflammatory painkillers have a small but significant increase in the risk of **developing a heart attack or stroke**. Although it can occur in anybody, the risk is mainly in people already known to have cardiovascular problems such as **angina** or **peripheral arterial disease**, and in the elderly. Perhaps the highest risk is in people who have previously had a heart attack. For example, one research study looked at people who had previously had a heart attack. The results showed a marked increase in the rate of a second heart attack in people who were taking an anti-inflammatory compared to those who were not.

So, it seems that the use of anti-inflammatory painkillers should be kept to an absolute minimum for people with heart disease and other cardiovascular diseases.

If you have asthma, high blood pressure, heart failure or kidney failure

In **some people with asthma**, symptoms such as wheeze or breathlessness are made worse by anti-inflammatories. If your asthma does suddenly become worse you should stop the anti-inflammatory and seek medical help. Also, anti-inflammatories can sometimes make high blood pressure, heart failure, or kidney failure worse. If you have any of these conditions, you may be more closely monitored if you are prescribed an anti-inflammatory.

Some other side-effects that sometimes occur

These include:

- Feeling sick (nausea).
- Diarrhoea.
- Rashes.
- Headache.
- Nervousness.
- Depression.
- Drowsiness.
- Poor sleep (insomnia).
- Dizziness (vertigo).
- Noises in the ear (tinnitus).

If one or more of these occur they will usually ease off if you stop taking the tablets. There are also a number of other uncommon side-effects - see the leaflet in the tablet packet for details.

Interactions with other medicines

Anti-inflammatory painkillers may sometimes react in the body with certain other medicines, sometimes to cause harmful effects. Therefore, it is best to check with a doctor or pharmacist if you take any other medication before taking an anti-inflammatory painkiller.

How to use the Yellow Card Scheme

If you think you have had a side-effect to one of your medicines you can report this on the Yellow Card Scheme. You can do this online at www.mhra.gov.uk/yellowcard.

The Yellow Card Scheme is used to make pharmacists, doctors and nurses aware of any new side-effects that medicines or any other healthcare products may have caused. If you wish to report a side-effect, you will need to provide basic information about:

- The side-effect.
- The name of the medicine which you think caused it.
- The person who had the side-effect.
- Your contact details as the reporter of the side-effect.

It is helpful if you have your medication - and/or the leaflet that came with it - with you while you fill out the report.

Further reading & references

- Schjerning Olsen AM, Fosbol EL, Lindhardtsen J, et al; Duration of treatment with nonsteroidal anti-inflammatory drugs and impact on Circulation. 2011 May 24;123(20):2226-35. Epub 2011 May 9.
- British National Formulary (BNF); NICE Evidence Services (UK access only)

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