

Reducing Your Pain

Anti-inflammatories vs. natural painkillers

The single most common cause of pain is inflammation - the redness and swelling that are the immune system's way of responding to any kind of challenge, such as infection or an imbalance in the system. Most chronic diseases, including artery disease, cancer and Alzheimer's, involve inflammation. But it's those that actively cause pain, particularly arthritis, that are most often treated with drugs to bring down the inflammation.

Arthritis is a huge problem in the West. According to the UK's Arthritis Research Campaign, nearly nine million adults in Britain (that's 19 per cent of the adult population) have seen their doctors in the last year for arthritis or a related condition, and as many as 13 million Britons suffer from it. Among the over-sixties, approximately three-quarters have osteoarthritis, which is the most common form. In Australia, 5.3 per cent of the total health spend for 2004 went on helping people with arthritis, who now make up 16.7 per cent of the population and are estimated to nudge 20 per cent by 2020.

'Itis' means inflammation, whether it's inflammation of the joints (arthritis), inflammation of the colon (colitis), inflammation of the lungs (bronchitis), or inflammation of the sinuses (sinusitis). There are, however, some linguistic exceptions such as eczema, which is inflammation of the skin; asthma, which is inflammation of the air passages; and other conditions such as headaches that often respond to anti-inflammatory drugs.

Pain and painkillers - double-edged swords

There's a good and a bad side to inflammation and to the drugs used to treat it. When it first appears, it's a sign that your body is responding to a problem and trying to deal with it. It's the way we fight off infections, for instance. But if an area is still inflamed after the problem has been dealt with, that can get in the way of healing. When this happens, using anti-inflammatory drugs in the short term can improve healing - as long as the problem that triggered the inflammation in the first place has gone. If it hasn't, then taking anti-inflammatory drugs for any length of time just allows you to ignore the underlying causes. In the case of arthritis, this could be a food allergy, a lack of omega-3 fats or a physical misalignment.

But anti-inflammatory drugs don't just mask the problem, they are also dangerous. They come in several forms but by far the most commonly used are a type known as NSAIDs (nonsteroidal anti-inflammatory drugs), which include aspirin and ibuprofen. Prescriptions for NSAIDs cost the UK's National Health Service about £250 million a year.

It may seem extraordinary, but this class of drug is responsible for more deaths than any other. Of the 10,000 deaths in the UK every year from prescribed drugs, anti-inflammatory drugs account

for 2,600. In the US, the figure is 16,500 deaths a year - more than from asthma, cervical cancer or malignant melanoma.

The other, more heavyweight drugs are the corticosteroids such as prednisone. They are based on the steroid cortisone (hence the phrase 'non-steroidal' to distinguish the aspirin-type drugs) and can be very dangerous over the long term. This is because they suppress the production of cortisol, the body's natural anti-inflammatory hormone, which is reserved for emergencies and acts as an immediate painkiller following serious accidents.

The long-term use of painkillers is also associated with 'chronic daily headache'. Painkillers should never be taken more than one day in four, or seven days a month. Despite this danger the average person takes in excess of 300 doses of these painkillers a year! That's six a week.

Before we look at what happens in your body when pain occurs, and the mechanism behind painkilling drugs and natural painkilling nutrients and herbs, let's gauge your pain level.

Unlike diabetes, which is principally measured by your blood-sugar level, the main indicator of pain and inflammation is simply how you feel. The effectiveness of treatments is rated by how much patients say their pain has gone down. Different types of questionnaires are used for different kinds of pain. (For example, the WOMAC check is used for hip and knee pain, while the Oswestry test is used for back pain.) Check yourself out on the questionnaire below.

How's your pain?

1. Do you have aching or painful joints?
2. Do you suffer from arthritis?
3. Do you have painful or aching muscles?
4. Do you suffer from muscle stiffness, which limits your movement?
5. Do you wake up with physical pain?
6. Do you suffer from headaches?
7. If so, how often? On average once a week (score 1), twice a week (score 2) or more (score 3)?
9. Does your level of pain make you feel tired?
10. Does it make you feel weak?
11. Does it limit your ability to move around?
12. Does it limit your ability to sit for more than 30 minutes?
13. How intense is your pain, without medication? No pain (score 0); mild (score 1); discomforting (score 2); distressing (score 3); horrible (score 4); excruciating (score 5)

Score 1 point for each 'yes' answer (unless the question states otherwise).

If you answered yes to:

- Less than 5: your level of pain may be reduced by following the advice in this chapter.
- 5 to 10: you have a moderate level of pain and should definitely explore each of the options in this text.
- More than 10: you have a high level of pain which has likely become a chronic issue, with these issues the longer they have been present the longer it takes to deal with them.

INSIDE STORY: PAIN

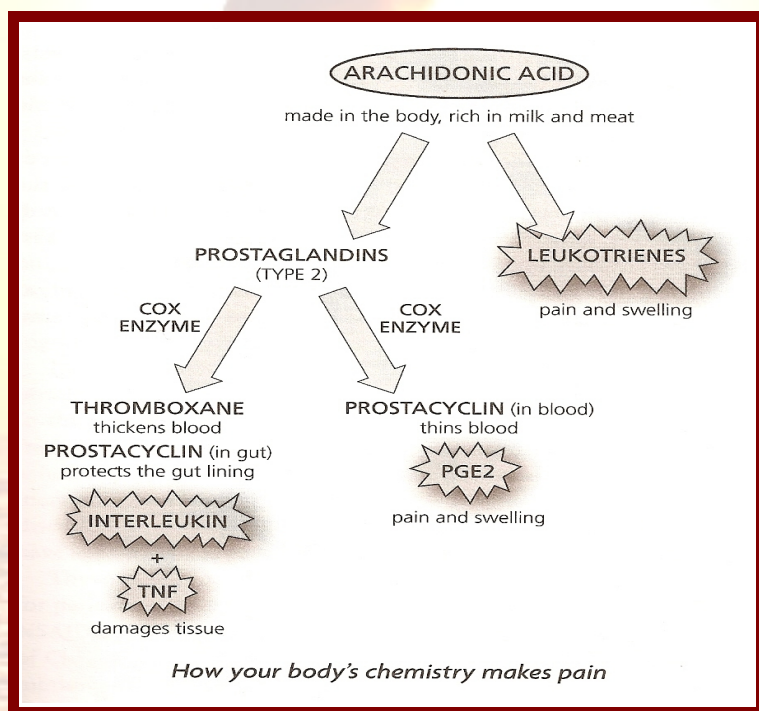
The experience we call pain is triggered by certain chemicals called 'inflammatory mediators', which our bodies produce in response to some sort of damage. There are many of these, including interleukin, cytokines and leukotrienes. These in turn promote the accumulation of the substances that cause swelling and redness. Eventually, if pain and inflammation persist over the long term, body tissues will begin to break down. In the case of arthritis, for example, the joint becomes increasingly hard and stiffened - calcified - until you can't use it at all.

If you have joint problems you may have had your erythrocyte sedimentation rate (ESR) measured. A high ESR means your body is in a state of inflammation, as does a high level of (C reactive protein (CRP).

The problem with antiinflammatories

By now it will probably come as no surprise that the drug approach to dealing with pain is to block one or more of the inflammatory chemicals. NSAIDS, for instance, work by stopping the formation of prostaglandins, which in turn are made from one of the omega-6 fats, arachidonic acid, which is abundant in meat and milk. The human body needs some of this fat, but too much can be harmful. Here's why.

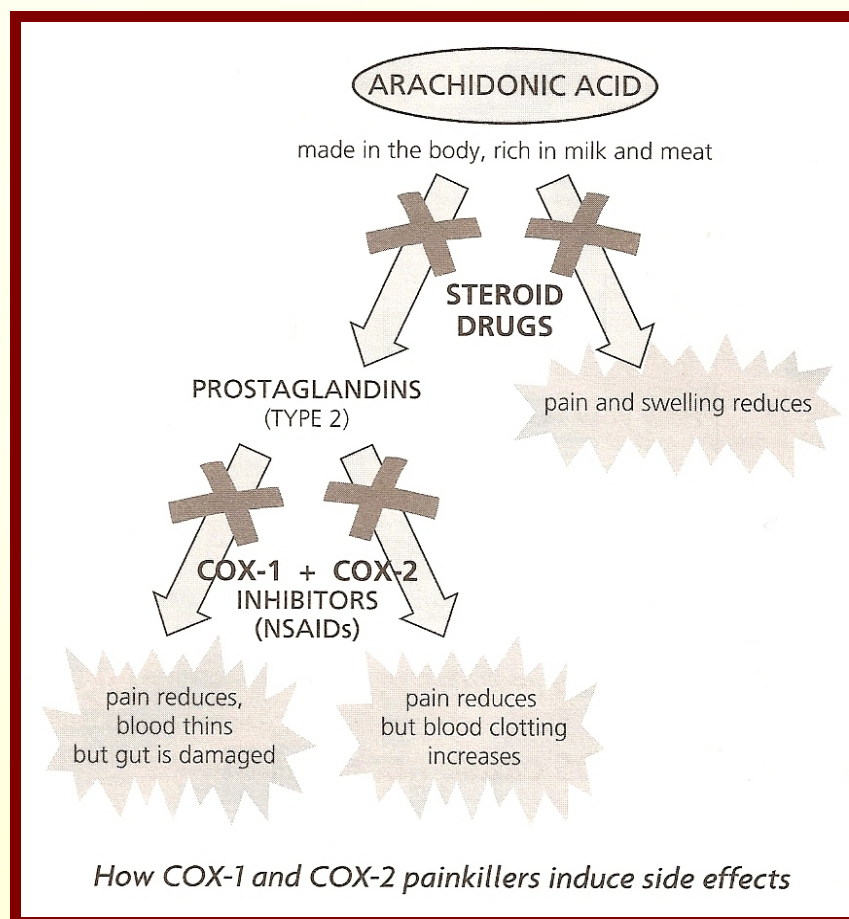
Arachidonic acid makes two inflammatory chemicals known as type 2 prostaglandins and leukotrienes. The NSAIDs go to work on an enzyme involved in a crucial step in these chain reactions, which turns arachidonic acid into a type of prostaglandin called PGE2, which in turn causes pain. The enzyme's name is 'cyclo-oxygenase' or COX, which comes in two varieties. Blocking one or both of these COX enzymes is where all the action is, as far as NSAID drugs are concerned.



Why some NSAIDs cause heart problems

You could think of COX-1 as the 'good' COX, because it helps to protect the gut and the kidneys and promotes normal blood clotting, while COX -2 is the 'bad' one because it leads to the painful prostaglandins. One of the first NSAIDs was aspirin, which targets both of these enzymes. Thus it's good for stopping pain and inflammation, but it's also likely to put patients at risk by causing gastrointestinal bleeding when used over the long term, and also taxes the liver. Ibuprofen also targets both enzymes.

Blocking some element - such as an enzyme - that is part of a network as complex as the body almost never has just one effect, which is why drugs nearly always have damaging side effects. To see exactly why NSAIDs can be so harmful we need to delve a bit further into their biochemical pathways. The diagram below shows the effect of blocking each of the COX enzymes - COX-1 and COX-2.



Because of the gastrointestinal problems, the thinking was that the ideal NSAID would be one that blocked only COX-2 and left COX-1 alone. And the launch of drugs such as Vioxx and Celebrex caused huge excitement because that's exactly what they did. But problems with these drugs also began emerging a few years after they appeared on the scene.

As you can see from the diagram 1, the COX-1 pathway, besides making mucus to protect the guts, also makes a fatlike substance called thromboxane A2. This promotes the narrowing of blood

vessels and makes blood cells called platelets more 'sticky'. The COX-2 pathway, on the other hand, makes what might be thought of as the antidote - a substance called prostacyclin which helps prevent platelets from dumping together and helps dilate the blood vessels.

In a healthy system, the action of these two would be balanced. But by powerfully inhibiting the COX -2 pathway (and so blocking prostacyclin in the blood), the new generation of so-called 'coxib' drugs created a fresh problem, doubling or in some cases quadrupling a person's risk of a heart attack. This effect of coxibs also caused another problem, increasing the level of damage to brain cells in the event of a stroke. As many as 140,000 Americans may have been damaged or killed by just one of them - Vioxx.

These 'new-generation', 'safer' painkillers were principally designed for patients who were at increased risk of gastrointestinal damage from NSAIDS. However, according to a study by researchers at the University of Chicago, '63% of the growth in COX-2 use occurred in patients with minimal risk of suffering gastrointestinal bleeding with NSAIDS.' Robert Green is a case in point.

'I've had two heart attacks in the last four months,' says 57-year-old Robert Green who is now suing Merck, the makers of Vioxx. He had been taking Vioxx for four years, during which time his blood pressure rose and he began to have chest pains. 'I have no history of heart problems in my family,' he says. 'No one warned me about any dangers of heart attacks, I'm not taking anything for my arthritis now and getting out of bed in the morning can be murder.'

Since these drugs were no better at controlling pain, there was probably no benefit to switching them at all. In fact, the decision to prescribe them, say the Chicago team had nothing to do with science or the evidence but was simply driven by 'heavy marketing and the tendency of physicians and patients to equate newer with better'. Until the withdrawal of Vioxx in September 2004, the COX-2 drugs had made up 25 per cent of all NSAID drugs prescribed in the UK, but accounted for 50 per cent of the costs. These were highly profitable drugs.

However, it isn't just coxib drugs you need be concerned about. As a study published in 2005 shows, other NSAIDs, including ibuprofen, can also raise the risk of heart attacks, although not by as much as Vioxx.

Back to aspirin?

Given the dangers of COX-2 inhibitor painkillers, should we be switching back to aspirin, which also blocks COX -1? Unfortunately, it looks like a case of out of the frying pan back into the fire. Out of every 1,000 people aged 55 to 59 who take a low-dose daily aspirin, about two will be prevented from getting a heart attack. But that comes at a high price.

Side Effects

The effect of preventing heart attacks is about evenly weighted with the risk of having serious gastrointestinal problems - two in 1,000 will suffer a major gastrointestinal bleed at age 60.

Many other NSAIDs also cause gastrointestinal symptoms, including ulcers, which kill several thousand people in the UK every year. (In the UK, there are 25 million annual NSAID prescriptions, 12,000 hospital admissions and 2,600 related deaths.) One small study published in 2005, using new scanning technology, has recently found that NSAIDs may damage more than the stomach. Seventy per cent of patients who had been on NSAIDs for just three months had visible damage to their small intestine.

One other rarely mentioned side effect of aspirin and some other NSAIDs is that they can actually make the damage caused by arthritis worse. They stop the production of the collagen and other materials in the matrix that, with minerals and water, makes up the substance of bone; and in the process they speed up the destruction of cartilage in joints. They can also worsen the key problem arthritis sufferers are wrestling with in another way: aspirin lowers blood levels of vitamin C, which is vital for the formation of collagen.

So in the short term, the use of aspirin may relieve symptoms, but in the long term it is more likely to cause further problems. When you do come off NSAIDs you should do it slowly; stopping abruptly often makes symptoms flare up.

Paracetamol and the liver

Paracetamol (called acetaminophen in the US), although classified as an NSAID, works in a different way from the others. There is little evidence that it suppresses the COX enzyme, or that its analgesic effect comes from reducing inflammation and swelling. Instead, as a study from 2000 shows, it seems to mainly reduce pain by boosting chemicals called opioids in the brain, making you less sensitive to the pain.

An Australian study from 2004 showed that 66 per cent of patients found that paracetamol was better than ibuprofen, aspirin or the newer and much more expensive COX-2 inhibitors although most studies on arthritic patients has shown the opposite - that it is less effective than other NSAIDs.

Side effects

The problem with paracetamol is that it is notoriously toxic to the liver, an effect that lands thousands of people in the UK in hospital each year, kills several hundred and is a major cause of the need for liver transplants. According to Professor Sir David Carter of Edinburgh University, one in ten liver transplants is due to damage caused by paracetamol overdose.

The cortisone dilemma

All of this brings us back to the original 'miracle' painkiller - cortisone and the subsequent steroid-based drugs such as prednisone, prednisolone and betamethasone. Cortisone is a derivative of a hormone produced naturally by the body in the adrenal cortex, which sits on top of each kidney.

Steroid - based drugs were the most commonly prescribed for arthritic conditions back in the 1980s. Since the discovery of cortisone more than 40 years ago, 101 uses have been found for it, including the relief of pain and the treatment of arthritis.

Back in 1948 Philip S. Hench, who later won a Nobel Prize, reported miraculous results using cortisone on arthritis sufferers disabled by the condition. But the hope that it was a cure for arthritis didn't last long. In one early case, a ten-year-old girl who had made an amazing recovery from severe arthritis when given cortisone - quickly developed diabetes. When the cortisone was stopped, the diabetes melted away - and the arthritis returned with a vengeance. Even so, 29 million prescriptions for cortisone are written for arthritis each year in the US.

It's still not completely understood exactly how cortisone works. It's known that it brings down inflammation by stopping production of the inflammatory compound histamine. It also suppresses the immune system, which could be good if your immune system is destroying healthy cells as in an autoimmune disease like rheumatoid arthritis. And, in addition, it blocks COX-2, which seems to be the main way it relieves pain.

Side Effects

The trouble is that once you start taking cortisone, the adrenal glands stop producing it. Given in small amounts, cortisone seems manageable; but in large amounts, particularly over long periods of time, it causes disastrous and even deadly side effects.

'The sad truth is that, like aspirin, cortisone does not cure anything. It merely suppresses the symptoms of the disease,' says Dr Barnett Zumoff of Beth Israel Medical Centre in New York City, and formerly of the Steroid Research Laboratory at New York's Montefiore Hospital. Withdrawal from high doses of cortisone must be very gradual to allow the adrenal glands to start producing their own cortisone again. Even so, a full recovery is often not possible, leaving previous cortisone users unable to produce enough to respond to stressful situations such as an accident or operation. Severe adrenal insufficiency can be fatal. Congestive heart failure can also result from long-term use.

Some of the other consequences of taking this drug over a long period of time may not be fatal, but they can certainly be extremely unpleasant. They include obesity, a rounded 'moon' face, a higher susceptibility to infection, slow wound healing and muscle wasting. 'Using it,' says Dr Zumoff, 'is like trying to repair a computer with a monkey wrench! While cortisone has undoubtedly saved many lives, it is unlikely to cure arthritis if taken over months or years, and may even speed up the disease because it can weaken cartilage and remove minerals from bone?'

Painkillers – do the benefits outweigh the risks?

From any rational perspective, it's clear that none of the antiinflammatories we've described is safe for handling joint pain in the long term. But does their effectiveness outweigh the risks?

A review of 23 trials, including one involving 10,845 patients with arthritic knee pain, published in a 2004 issue of the British Medical Journal concludes: 'NSAIDs can reduce short term pain in osteoarthritis of the knee slightly better than placebo, but the current analysis does not support long term use of NSAIDs for this condition. As serious adverse effects are associated with oral NSAIDs, only limited use can be recommended.' What's particularly significant about this review is that the only trial that looked at the long-term effects of NSAIDs versus placebo on pain showed 'no significant effect of NSAIDs compared with placebo at one to four years'.

If you have been on painkillers for some time, all this is worrying, and you might wonder why you weren't told either about the risks or about the alternatives. The answer is that for a long time the truth about the dangers of the COX-2 drugs like Vioxx was deliberately kept from both you and your doctor, and that - as we've seen - doctors get little or no training in nutritional medicine.

The lengths to which drug companies will go to keep the problems with drugs concealed is amazing, but let's just look a little closer at the Vioxx case to see the extent of the problem. A Wall Street Journal investigation in 2004 claimed that an internal document about how to deal with tough questions on Vioxx, which was intended for use by the sales teams that visit doctors, was labelled 'Dodge Ball Vioxx'. In other words, do everything to avoid the question.

The investigation also revealed how the manufacturer of Vioxx, Merck, targeted independent academics who questioned the drug's safety. A Spanish pharmacologist was sued in an unsuccessful attempt to force a correction of a critical article, while a Stanford University researcher was warned that he would 'flame out' and there would be consequences for himself and the university unless he stopped giving 'anti-Merck' lectures.

Yet more details about the way the company suppressed data showing a link between Vioxx and heart attacks emerged in an article published in 2005 in the New England Journal of Medicine. In 2000, this journal had published a key trial in favour of Vioxx (nicknamed VIGOR, for Vioxx gastrointestinal outcomes research), which found that the drug caused fewer gastrointestinal problems than an older NSAID. However, when the editor of the journal had been required to testify in one of the ongoing court cases involving Vioxx, he examined the original manuscript reporting the VIGOR trial and discovered 'that relevant data on cardiovascular outcomes had been deleted from the VIGOR manuscript prior to its submission to the journal and that the authors had withheld data on other relevant cardiovascular outcomes'.

So taking painkillers looks a risky business, long-term. If you overblock COX-1 you get intestinal bleeding and kidney problems; if you over-block COX-2 you increase your risk of having a heart attack. Among the most dangerous are aspirin, diclofenac (such as Voltrol), ibuprofen (such as Nurofen), ketoprofen and naproxen (such as Naprosyn and Napratec, respectively), and the coxib drugs rofecoxib (Vioxx) and celecoxib (Celebrex). Paracetamol (or acetaminophen) overdose accounts for over half of the cases of liver failure and death. In some combinations (such as taking aspirin with ibuprofen), these drugs can become even more dangerous. Using them long term when there are other, safer, nutrition-based options seems perverse.

Natural alternatives

Antioxidants, omega-3 essential fats and herbs and spices are important ingredients of a healthy diet. What's less well known is that, judiciously chosen, they're also effective at treating joint pain. This may sound beyond the pale. After all if they were, the experts would be recommending them - right? But as we've seen abundantly now, there are strong commercial reasons why scepticism about this approach remains widespread. And you have to remember that scepticism is quite different from a lack of evidence.

Joint effort - glucosamine

Take one of the best-known non-drug treatments for joint pain, glucosamine. This amino sugar (a molecule combining an amino acid with a simple sugar) is naturally occurring and found in almost all the tissues of your body. It is used to make N -acetylglucosamine which, in turn, is one of the building blocks for the making of cartilage. Daily wear and tear on our joints means that the connective tissue that surrounds them - cartilage, tendons, and ligaments - needs to be constantly renewed, and for that you need a constant supply of glucosamine. When this rebuilding process slows down, the result is degenerative joint diseases such as arthritis.

Although the body can make glucosamine, if you've got damaged joints you are unlikely to make enough unless you are in the habit of munching on sea shells, which is the richest dietary source. Taking a substantial quantity of glucosamine as a nutritional supplement has been shown to slow down or even reverse this degenerative process. There are about 440,000 joint replacements every year in the US, and many could be avoided with the right nutrition. But how does glucosamine do the job?

Cartilage protection

Glucosamine appears to be particularly effective in protecting and strengthening the cartilage around your knees, hips, spine and hands. And while it can do little to actually restore cartilage that has completely worn away, it helps to prevent further joint damage and appears to slow the development of mild to moderate osteoarthritis. As we've seen, traditional NSAIDs prescribed for arthritis actually impair your body's cartilage- building capacity.

In a 2001 study published in *The Lancet*, Belgian investigators reported that glucosamine actually slowed the progression of osteoarthritis of the knee. Over the course of three years, they measured spaces between the patients' joints and tracked their symptoms. Those on glucosamine showed no further narrowing of joints in the knee, which is an indicator of thinning cartilage. Put another way, glucosamine appeared to protect the shock-absorbing cartilage that cushions the bones. In contrast, the condition of the patients taking the placebo steadily worsened.

In a Chinese study of individuals with osteoarthritis of the knee published in 2005, investigators found that participants taking 1,500mg of glucosamine sulphate daily experienced a similar

reduction in symptoms as those given 1,200mg daily of ibuprofen. However, the glucosamine group tolerated their medication much better.

Speedier healing

Because glucosamine helps to reinforce the cartilage around your joints, it may hasten the healing of acute joint injuries such as sprained ankles or fingers, and of muscle injuries such as strains. In strengthening joints, glucosamine also helps to prevent future injury.

Back-pain control

Glucosamine strengthens the tissues supporting the spinal discs that line the back. It may therefore improve back pain resulting from either muscle strain or arthritis, and speed the healing of strained back muscles. Glucosamine seems to have similar effects on pain in the upper spine and neck.

Healthier Ageing

As your body ages, the cartilage supporting and cushioning all of your joints tends to wear down. By protecting and strengthening your cartilage, glucosamine may help to postpone this process and reduce the risk of osteoarthritis.

Other benefits

In addition, most studies indicate that arthritis sufferers can move more freely after taking glucosamine. Others report increased overall mobility and several studies suggest that glucosamine may be as effective as NSAIDs in easing arthritic pain and inflammation. In four high-quality 2005 studies that gave glucosamine sulphate versus NSAIDs, the glucosamine worked better in two, and was equivalent to the NSAIDs in the other two. However, it was as well tolerated as the placebo, without the stomach-irritating side effects associated with NSAIDs.

There is some evidence that taking glucosamine in combination with chondroitin, a protein that gives cartilage its elasticity may be even more effective. In a study funded by the US National Institutes of Health and published in 2005, researchers gave a group of 1,500 osteoarthritis patients a daily dose of either 1,500mg of glucosamine hydrochloride, 1,200mg of chondroitin sulphate, a

combination of both supplements, 200mg of the prescription painkiller celeCoxib (Celebrex) or a placebo. Six months later, the researchers found that both celeCoxib and the glucosamine-chondroitin combination significantly reduced knee pain in those with moderate to severe pain, compared to placebo, better than either glucosamine or chondroitin on its own.

This study, however, was widely reported as disproving the power of glucosamine because overall the supplements didn't reduce pain significantly more than the drug - except in those with higher levels of pain. The abstract (the summary at the beginning) and press release failed to point out this last, extremely important positive result.

The trouble with chondroitin is that not all supplements are of the same quality, and hence not similarly utilised by your body. And although there is evidence that chondroitin works, the research does not show that it works better than glucosamine. Most of the research has been done using glucosamine sulphate, but the most absorbable form is glucosamine hydrochloride.

The bone builder - sulphur

If you think of building bone as similar to building a house, glucosamine supplies the body's two-by-fours. These are essential for the framework, but you also need nails - and that's where sulphur comes in.

Although not often discussed in a health context, sulphur is involved in a multitude of key body functions, including pain control, inflammation, detoxification and tissue building. Extraordinary results are starting to be reported for pain relief and relief from arthritis in people taking daily supplements supplying 1 to 3g of one of the most effective sources of sulphur, methylsulfonylmethane (MSM). A combination of both glucosamine and MSM is particularly effective.

One trial from 2004, which gave a combination of glucosamine and MSM to its participants, found this combination to be significantly more effective than glucosamine alone. An unpublished double-blind study from 2003 giving 750mg to half a group of arthritis patients and a placebo to the other showed an 80 per cent improvement after six weeks in the first group compared to a 20 per cent improvement in the placebo group.

One possible reason for this remarkable effectiveness is that sulphur deficiency is far more common than realised. A study at the University of California, Los Angeles, School of Medicine found that on 2,250mg of MSM a day, patients with arthritis had an 80 per cent improvement in pain within six weeks, compared with a 20 per cent improvement in arthritis patients who had taken placebos. Foods particularly rich in sulphur include eggs, onions and garlic, but it is also found in all protein foods.

If you have arthritis or joint pain we recommend that you supplement 1,500 to 4,000mg of glucosamine sulphate a day, or glucosamine hydrochloride, together with 1,000 to 2,000mg of MSM. The lower end of the range is enough if you're looking to build joints and prevent their degeneration, while the higher end of the range is for those who have aching joints or a history of joint problems or arthritis, and are looking to maximise recovery.

A Dozen Anti-inflammatory Foods!

- Berries
- Flax seeds
- Omega-3-rich eggs
- Garlic
- Herring or kippers
- Olives
- Red onions
- Mackerel
- Pumpkin seeds
- Salmon
- Sardines
- Turmeric

Omega-35 - fats that fight inflammation

It's a popular misconception that fish oils lubricate your joints. What they actually do is reduce pain and inflammation. This happens because they are converted in the body to anti-inflammatory prostaglandins known as PG3S. These counteract the inflammatory PG2S that NSAID drugs are used to suppress.

It is a story that comes up again and again when comparing drugs and nutritional medicine. All over the body there are chemical accelerators and brakes. We've already seen that COX-1 is involved in producing blood - thickening thromboxane, while COX -2 is part of the pathway that makes the prostacyclin that can reverse that. And the same thing goes on with the chemical chain that produces inflammatory PG3 and antiinflammatory PG2. But while drugs inevitably create problems when they block part of our system, the food and herbs that we eat don't do that. Otherwise we'd have dismissed them as a poison centuries or millennia ago, and they would never have become part of the human diet.

Good research now shows conclusively that fish oil supplementation can reduce the inflammation of arthritis. A 2002 study giving cod liver oil to osteoarthritis patients scheduled for knee replacement surgery is a case in point. Half the 31 patients were given two daily capsules of 1,000mg high-strength cod liver oil, rich in the omega-3 fats DHA and EPA, and the other half were

given placebo oil capsules for ten to 12 weeks. Some 86 per cent of patients with arthritis who took the cod liver oil capsules had no or markedly reduced levels of enzymes that cause cartilage damage, as opposed to 26 per cent of those given a placebo. Results also showed a reduction in the inflammatory markers that cause joint pain among those who took the cod liver oil. An effective amount is the equivalent of 1,000mg of combined EPA and DHA a day, which means two to three of most fish oil capsules.

Talking of fats, there's a special blend of fatty acids called Celadrin that has proven highly effective, both as a cream and in capsules for reducing arthritic pain, in recent double-blind trials. Like so many natural remedies it seems to work on many different fronts, but certainly helps damaged cells in inflamed joints to heal more quickly.

Four herbs that kill pain

Turmeric

This bright yellow spice, an ingredient in many curry powders, contains the active compound curcumin which has a variety of powerful anti-inflammatory actions. Trials published in 2003, where turmeric was given to arthritic patients, have shown its efficacy to be similar to that of anti-inflammatory drugs, but without the side effects. In fact, it turns out that this rhizome of the ginger family is what everyone hoped drugs like Vioxx would be. It's a mild COX-2 inhibitor that not only does not affect COX-1, is tried and true (in use for hundreds of years with no evidence of any downsides even in high doses of 8g a day), and is even a potent antioxidant.

Astonishingly, an American company tried to get a patent on turmeric in 1995, claiming it was a 'new' discovery for the treatment of inflammation. But the Indian government successfully challenged this on the grounds that the spice had been used for precisely that purpose for generations in India. It has one small downside: it can stain. So keep spillage to a minimum when you cook with it (a heaped teaspoon a day will do the trick). Or you can buy supplements, in which case you'll need about 500mg, one to three times a day.

Boswellia

Frankincense may be the ultimate gift for a friend in pain. More precisely, this very powerful natural anti-inflammatory is called *Boswellia serrata*, also known as Indian frankincense. Not only is it potent; it is also free of any harmful side effects. In one study, where patients initially received boswellic acid and then a placebo later, arthritic symptoms were significantly reduced at first but returned with a vengeance when the treatment was switched over to the dummy pill.

Boswellic acid appears to reduce joint swelling, restores and improves blood supply to inflamed joints, provides pain relief, increases mobility, improves morning stiffness and prevents or slows the breakdown of the components of cartilage. Preparations of boswellia are available in tablet and cream form (the latter being especially useful as a treatment for localised inflammation). With supplements, the ideal dose is 200 to 400mg, one to three times a day.

Ashwagandha

The herb ashwagandha is a promising natural remedy used for hundreds of years as part of Indian Ayurvedic medicine. The active ingredient of this powerful natural anti-inflammatory herb is withanolides. In animal studies, ashwagandha has proven highly effective against arthritis. In one from 1991, animals with arthritis were given either ashwagandha, cortisone or a placebo. While cortisone produced a 44 per cent reduction in symptoms, the reduction with ashwagandha was 89 per cent. Try 1,000mg a day of the ashwagandha root, providing 1.5 per cent withanolides.

Hop extract

Those who think of hops only as an ingredient in beer might be surprised to know it provides one of the most effective natural painkillers of all. This is the extract IsoOxygene, and research in 2004 showed it is one of the top natural COX-2 inhibitors. One study compared the effects of the extract with those from ibuprofen. Two tablets of ibuprofen inhibited COX -2 by 62 per cent, while IsoOxygene achieved a 56 per cent inhibition - so it was almost as good. However, ibuprofen also greatly inhibits COX-1, while IsoOxygene does not. So the hops extract results in fewer gut-related problems. You need about 1,500mg a day.

Unlike drugs, herbs can't be patented and are therefore vastly under researched and under-marketed. Different combinations of these herbs are likely to be particularly powerful anti-inflammatories and painkillers.

An antioxidant a day ...

Antioxidant nutrients help reduce inflammation, so if you're arthritic or experience a lot of pain, eat plenty of fruit (especially berries) and vegetables, or consider supplementing an antioxidant formula. A study by the University of Manchester in the UK, published in 2005 and involving 25,000 people, showed that a low intake of the vitamin antioxidants found in fruit and veg significantly increased the risk of arthritis.

So what you want is a combination of the most powerful antioxidants: vitamins C and E, glutathione or N-acetyl-cysteine, lipoic acid and co-enzyme Q 10. If you are in constant pain, it could be well worth taking extra amounts of these in supplement form for a while - but ideally, in addition to more fruit and veg, up your intake of fish, seeds and nuts, eggs, onions and garlic.

Certain plant extracts also have powerful antioxidant and antiinflammatory effects - one of the most exciting being those from olives.

Marvel of the Med

Hydroxytyrosol, an extract from olives, is turning out to be an important anti-inflammatory. Its active ingredient is a polyphenol- a plant chemical that gives some fruit and vegetables their colour. Red grapes and red onions (both of which also contain the natural anti-inflammatory quercetin) contain polyphenols, as does green tea. But with an antioxidant content over ten times greater than that of vitamin C, none of these are as powerful as hydroxytyrosol. You need 400mg of it a day for it to work as an anti-inflammatory.

The polyphenol in hydroxytyrosol isn't the end of the story. Olives and their oil contain another compound called oleocanthal, which is chemically related to ibuprofen. This is the ingredient that gives olive oil a throaty bite, like a slight sting at the back of the mouth, just as ibuprofen does. Researchers at the Monell Chemical Senses Centre and the University of the Sciences, both in Philadelphia in the US, found in 2005 that oleo canthal was a potent anti-inflammatory painkiller, which partially inhibits the activity of the COX-1 and COX-2 enzymes.

Pain and inflammation can also be triggered in the body when levels of two inflammatory messengers TNF-alpha and interleukin-6, increase. Studies on olive pulp extract have shown that it reduces both of these. However, a combination of olive pulp extract, hop extracts, other herbs such as turmeric and boswellia, and omega-3 fish oils and antioxidants, is perhaps the way forward because it will tackle pain and inflammation on several fronts at once. Ed is a case in point.

Ed first started getting joint pain in his mid-thirties. He had kept himself fit by playing tennis daily and running, often on hard pavements, before the days of air-filled trainers. By the time he reached his mid-forties, Ed had had surgery on both knees and was suffering from severe arthritis, with ever-increasing pain. Ed loved playing golf, but his knees just got worse until he could no longer play a round without being in excruciating pain afterwards.

When we met Ed, we told him to take 1.5g glucosamine, plus a range of supplements including essential fats, high-dose niacinamide (500mg), a form of B3, and the B-complex vitamin pantothenic acid (1,000mg), 3g of vitamin C, 400ius of vitamin E and a high-potency multivitamin. Ed transformed his diet, too, with more fish, seeds, fruit and vegetables. By six months and after following our nutritional and rehabilitation programme, he was virtually pain-free.

'I used to have constant pain in my knees and joints. I couldn't play golf or walk more than ten minutes without resting my legs. Since following your advice my discomfort has decreased by 95-100 per cent. It is a different life when you can travel and play golf every day. I would never have believed my pain could be reduced by such a large degree, and not return no matter how much activity I do in a day.'

Check yourself for allergies

The possibility that allergy might be contributing to your arthritis, persistent headaches or other chronic conditions is well worth investigating. Studies do show that some people experience great benefits on allergy-free diets. In one, from 1992, nine per cent of a group of rheumatoid arthritis patients improved when they were put on an allergy free diet, and worsened when they stopped the diet. To make sure these results were real, six of these patients were reintroduced to small amounts of non-allergic foods or allergic foods without their knowing which they were taking. Four got noticeably worse on the allergy food rather than the placebo.

John G developed both psoriasis and arthritis in his toes, fingers, ankles and knees at the age of 23. When he turned 40, he couldn't sleep at night from the pain and had to go upstairs on hands and knees. Walking just 100 metres was painful, Holidays were awful. He used to have to think carefully where to park the car when going out so as not to have to walk too far. He saw consultants, read books and took lots of medication, which controlled the pain but had their own side effects - stomach pain and depression. Sometimes he had steroid injections to quell the pain, but it would return later in the day.

Then John heard about food-allergy testing. Although his doctor actively discouraged testing of that type, saying that there was 'absolutely no clinical evidence' that altering diet would improve such a condition, John went ahead and discovered he was allergic to three different foods. He was shocked to discover that the main one was white fish, as everyone had been saying he should cut out red meat and eat much more white and oily fish. Egg white and tea were the other two.

John cut them all out. Gradually the number of painkillers he needed lessened and eventually he stopped taking them altogether.

In his own words, 'Life is now pain and tablet-free and I have complete mobility. I am amazed at the difference in my quality of life simply by making such simple adjustments.'

Food or Drugs? The verdict.

As we've seen, there is no safe and effective painkilling drug, at least in the long term. Nutrients are an entirely different matter. Even glucosamine or omega-3 fats on their own show similar painkilling properties without the side effects. However, the combination of these, plus some of the powerful anti-inflammatory herbs, foods and supplements we've covered here, is a winning formula, without risks, for reducing pain and inflammation.

What works?

- Eat a diet high in omega-3s, from oily fish (wild or organic salmon, mackerel, herring, kippers and sardines - tuna steak can also be allowed once a fortnight), flax and pumpkin seeds, and go easy on meat and milk. Also take omega-3 supplements containing 1,000 mg of combined EPA/DHA, which usually means two to three fish oil capsules a day.
- Supplement 1,500 to 4,000mg of glucosamine sulphate a day, or glucosamine hydrochloride, together with 1,000 to 2,000mg of MSM.
- Include plenty of omega-3 rich eggs, red onions and garlic in your diet, all high in sulphur.
- Eat olives, use olive oil and add turmeric to your food (traditional curries and Indian condiments make good use of it, and it is excellent in fish soups or blended with a little olive oil or melted butter and drizzled over cooked vegetables).
- Supplement herbal complexes containing hop extracts, turmeric (or curcumin), boswellia or ashwaghandha.
- Take a good all-round multivitamin with at least 1,000mg of vitamin C.
- Supplement an all-round antioxidant formula if you don't eat at least six servings of fruit and veg a day - but do aim to eat that much.

Working with your GP

There's plenty you can do yourself to reduce your pain and inflammation, and find out underlying causes such as an identified food allergy. If you are on prescribed painkillers or anti-inflammatories, let your doctor know that you'd like to use these as little as possible and are going to explore some alternatives. The chances are you take painkillers when you feel the pain, so you'll be the first to know if your need is reduced. They should be delighted if your need for these drugs decreases.