



Your Monthly Update

Dear Colleague

Welcome to the October 2011 newsletter from Pure Bio Ltd.

Did you know:

Aloe vera cream was significantly more successful in treating 30 patients with second-degree burns than the over-the-counter antimicrobial cream silver sulphadiazine (Surg. Today, 2009; 39: 587-91)

The chosen topic for this month is:

Osteoarthritis

Protocol Summary

Ranking	Nutritional Supplements	Botanical Medicine
Primary	Zinc Chondroitin Sulphate Glucosamine Sulphate SAmE Vitamin B3	Boswellia Ashwaganda Turmeric Cat's Claw Cayenne Ginger
Secondary	Avocado & Soybean Cartilage & Chondroitin	Devil's Claw Nettle
Other		Guggul White Willow Meadowsweet
<p>Primary – Reliable and relatively consistent scientific data showing a substantial health benefit.</p>		

Secondary – Contradictory, insufficient, or preliminary studies suggesting a health benefit or minimal health benefit.

Other – An herb is primarily supported by traditional use, or the herb or supplement has little scientific support and/or minimal health benefit.

Description

Osteoarthritis is the most common type of arthritis, affecting 8.5 million people in the UK. It develops gradually over time, causing joints to become stiff and painful. It can affect any joint but commonly affects the hands, knees, hips, feet and spine.

Causes

Osteoarthritis is caused by 'wear and tear' on a joint. It causes the cartilage at the end of the bone to get rougher and thinner. The underlying bone then thickens and grows outwards, creating outgrowths (osteophytes) which create a physical deformity. The capsule around the joint also thickens and becomes inflamed.

Predisposing factors

- over 40
- female
- overweight or obese
- familial incidence
- competitive, high-level sport or joint injury
- joint surgery
- rheumatoid arthritis often leads to secondary osteoarthritis

Symptoms

Generalised symptoms may include:

- joint pain that is worse with movement and better with rest
- stiffness in the morning or after a period of inactivity
- swelling of the joints
- joints that are warm to the touch
- a crunching or crackling noise when the joint moves
- limited range of motion
- muscle weakness
- osteophytes as described above

More specific symptoms for different joints include the following:

- Hand - the base of the thumb and the joints at the end of the fingers are affected, resulting in firm, knobbly swellings known as Heberden's nodes.
- Neck and back (spondylosis) - the discs between the vertebrae become thinner, causing the spaces to narrow. Outgrowths form at the edges of the vertebrae and joints, causing nerve root irritation and pain / tingling / numbness

- Feet - osteoarthritis generally affects the joint at the base of the big toe leading to difficulty walking
- Knee - pain tends to focus at the front and sides of the knee. Progressive osteoarthritis will cause the knee to become bent and bowed.
- Hip – pain focuses at the front of the groin, but also around the side and front of the thigh, buttock or down to the knee. Severe degenerative change will lead to a shortening of the leg.

Lifestyle Changes

Regular exercise combined with a healthy, balanced diet is advisable and this protocol will also assist in the reduction of any excess weight. This in turn reduces the strain on all weight-bearing joints. General exercise recommendation is moderate output on a frequent basis (at least four times weekly)

Specific exercises for the affected joint can also be sought from a qualified practitioner.

Acupuncture

Studies have shown that acupuncture is effective for treating the pain associated with osteoarthritis, as well as improving joint function and walking ability. Acupuncture may even be more effective than some conventional medications. Studies have shown that acupuncture releases natural pain-relieving substances such as endorphins and serotonin.

A study involving 294 people with osteoarthritis knee pain found that after eight weeks of treatment, participants who had acupuncture experienced a significant improvement in pain and joint function compared to those who had sham acupuncture or placebo.

Yoga

Used appropriately, yoga can be safe and effective for people with osteoarthritis. Yoga's gentle movements can keep build strength, flexibility, and balance and reduce arthritis pain and stiffness.

A pilot study conducted by the University of Pennsylvania School of Medicine examined one type of yoga, Iyengar yoga, for people with osteoarthritis of the knee. After an 8-week course of weekly 90-minute beginner classes, there was a statistically significant reduction in pain, physical function, and mood.

Massage Therapy

Massage can help to relieve muscle tension associated with osteoarthritis. Massage boosts circulation to the affected joint, which decreases joint stiffness and promotes cartilage repair.

Massage can also prevent muscle spasms in other parts of the body. Osteoarthritis is

usually one-sided, which can make muscles elsewhere tense as they try to compensate for the weakened joint.

Osteopathy and Chiropractic

Osteopathy and Chiropractic care for osteoarthritis sufferers may be able to:

- increase range of motion
- restore normal movement of the spine
- relax the muscles
- improve joint coordination
- reduce pain

Magnet therapy uses electromagnetic fields. Low-energy AC and DC magnetic fields stimulate the production of cartilage. Therapeutically, magnets can be applied to the skin directly over a bone or joint, or via pulsed electromagnetic fields that induce an electrical current in the target tissue without making direct contact with the body.

Balneotherapy is an old therapy used for pain relief and it refers to bathing in thermal or mineral waters. Mud baths that contain sulphur, for example, have been shown to relieve arthritis symptoms. Balneotherapy can improve the range of joint motion, increase the muscle strength, eliminate muscle spasms, enhance functional mobility, and reduce pain. Orthoses include splints, braces, and shock absorbing soles in shoes. All support braces should be used in moderation – to balance the need for support, without encouraging wastage of overlying muscles. They should be fitted by a qualified mechanical practitioner.

Dietary Changes

The Warmbrand diet

Starting in the 1950s, Dr. Max Warmbrand used a diet free of meat, poultry, dairy, chemicals, sugar, eggs, and processed foods for people with rheumatoid arthritis and OA, anecdotally claiming significant success. He reported that clinical results took at least six months to develop. The Warmbrand diet has never been properly tested in clinical research, leading many doctors who are aware of the Warmbrand diet to use it only if other approaches have failed.

Avoid nightshade vegetables

Solanine is a substance found in nightshade plants, including tomatoes, white potatoes, all peppers (except black pepper), and aubergine. If not destroyed in the intestine, solanine may be toxic. A theory is that some people might not be able to destroy solanine in the gut, leading to solanine absorption and resulting in OA. Although not scientifically proven, eliminating solanine from the diet **has** been reported to bring relief to some arthritis sufferers in preliminary research. In a survey of people avoiding nightshade plants, 28% claimed to have a “marked positive response” and another 44% a “positive response.” Exclusion of solanine requires up to six months before potential effects may be seen. Totally eliminating tomatoes and peppers requires complex dietary changes for most people

Uncover allergies

Studies linking allergies to joint disease have focused more on rheumatoid arthritis, although some reports suggest a possible link between food reactions and aggravations of OA symptoms.

Nutritional Supplement Treatment Options

Chondroitin Sulphate - 800 to 1,200 mg a day. Chondroitin sulphate (CS) is a major component of the lining of joints. The structure of CS includes molecules related to glucosamine sulphate. CS levels have been reported to be reduced in joint cartilage affected by OA. Possibly as a result, CS supplementation may help restore joint function in people with OA. On the basis of preliminary evidence, researchers had believed that oral CS was not absorbed in humans; as a result, early double-blind CS research was done mostly by giving injections. This research documented clinical benefits from CS injections. It now appears, however, that a significant amount of CS is absorbable in humans, though dissolving CS in water leads to better absorption than swallowing whole pills.

Strong clinical evidence now supports the use of oral CS supplements for OA. Many double-blind trials have shown that CS supplementation consistently reduces pain, increases joint mobility, and/or shows evidence (including X-ray changes) of healing within joints of people with OA. Most trials have used 400 mg of CS BID–TID. One trial found that taking the full daily amount (1,200 mg) at one time was as effective as taking 400 mg TID. Reduction in symptoms typically occurs within several months.

Glucosamine - 1,500 mg daily. Glucosamine sulphate (GS), a nutrient derived from seashells, is a building block needed for the synthesis and repair of joint cartilage. GS supplementation has significantly reduced symptoms of osteoarthritis in uncontrolled and single-blind trials. Many double-blind trials have also reported efficacy. While most research trials use 500 mg GS taken TID, results of a three-year, double-blind trial indicate that 1,500 mg taken once per day produces significant reduction of symptoms and halts degenerative changes seen by x-ray examination. GS does not *cure* people with osteoarthritis, and they may need to take the supplement for the rest of their lives in order to maintain benefits. Fortunately, GS appears to be virtually free of side effects, even after three or more years of supplementation. Benefits from GS generally become evident after three to eight weeks of treatment.

SAMe - 1200 mg daily. SAMe (S-adenosyl methionine) possesses anti-inflammatory, pain-relieving, and vulnerary properties that may help protect the health of joints, though the primary way in which SAMe reduces OA symptoms is not known. A very large, though uncontrolled, trial (meaning that there was no comparison with placebo) demonstrated “very good” or “good” clinical effect of SAMe in 71% of over 20,000 OA sufferers. In addition to this preliminary research, many double-blind trials have shown that SAMe reduces pain, stiffness, and swelling better than placebo and equal to drugs such as ibuprofen and naproxen in people with OA. These double-blind trials all used 1,200 mg of SAMe per day.

Lower amounts of oral SAME have also produced reductions in the severity of OA symptoms in preliminary clinical trials. A two-year, uncontrolled trial showed significant improvement of symptoms after two weeks at 600 mg SAME daily, followed by 400 mg daily thereafter. This amount was also used in a double-blind trial, but participants first received five days of IV SAME. A review of the clinical trials on SAME concluded that its efficacy against OA was similar to that of conventional drugs but that patients tolerated it better.

Vitamin B3 - 250 to 500 mg of niacinamide four times daily. In the 1940s and 1950s, one doctor reported that supplemental niacinamide (a form of vitamin B3) increased joint mobility, improved muscle strength, and decreased fatigue in people with OA. In the 1990s, a double-blind trial confirmed a reduction in symptoms from niacinamide within 12 weeks of beginning supplementation. The mechanism by which niacinamide reduces symptoms is not known.

Avocado and Soybean Unsaponifiables - 300 mg per day. An extract of avocado and soybean oils, known as avocado/soybean unsaponifiables (ASU), was found in a double-blind trial to reduce arthralgia and improve overall functioning in people with osteoarthritis of the knee or hip. The amount used was 300 mg per day for six months.⁷⁶ In a three-month double-blind trial, 71% of people taking ASU, but only 36% of those taking a placebo, were able to decrease their pain medicine or anti-inflammatory medicine by more than 50%. ASU is believed to work by reducing inflammation and by aiding in the repair of damaged cartilage tissue. ASU is approved as a prescription drug in France and is available over the counter in some other countries.

Cartilage and Collagen - In a double-blind study, collagen hydrolysate was compared with gelatin and egg protein as a treatment for osteoarthritis of the hip and/or knee. When subjects took 10 grams per day either of gelatin or collagen hydrolysate for two months, they reported significantly more analgesia than when they took a similar amount of egg protein.

Cetyl Myristoleate - 540 mg per day orally for 30 days. Cetyl myristoleate (CMO) has been proposed to act as a joint “lubricant” and anti-inflammatory agent. In a double-blind trial, people with various types of arthritis who had failed to respond to nonsteroidal anti-inflammatory drugs (NSAIDs) received CMO (540 mg per day orally for 30 days), while others received a placebo. These people also applied CMO or placebo topically, according to their perceived need. A statistically significant 63.5% of those using CMO improved, compared with only 14.5% of those using placebo.

Digestive Enzymes - 90 mg of bromelain and 48 mg of trypsin, with 100 mg of rutosid, taken in enteric-coated pills TID. In a double-blind study, a group of people with painful OA of the knee received an oral enzyme-flavonoid preparation or a nonsteroidal anti-inflammatory (NSAID) for six weeks. While both treatments relieved pain and improved joint function, the enzyme-flavonoid product appeared to be slightly more effective than the NSAID. No serious side effects were seen.

Green-Lipped Mussel - 1,050 to 2,100 mg daily of freeze-dried powder or 210 mg daily of lipid extract. The effects of New Zealand green-lipped mussel supplements have been studied in people with OA. In a preliminary trial, either a lipid extract (210 mg per day) or a freeze-dried powder (1,150 mg per day) of green-lipped mussel

reduced joint tenderness and morning stiffness, as well as improving overall function in most participants. In a double-blind trial, 45% of people with OA who took a green-lipped mussel extract (350 mg TID for three months) reportedly had improvements in pain and stiffness. Another double-blind trial reported excellent results from green-lipped mussel extract (2,100 mg per day for six months) for pain associated with arthritis of the knee. Side effects, such as stomach upset, gout, skin rashes, and one case of hepatitis have been reported in people taking certain New Zealand green-lipped mussel extracts.

Krill Oil - 300 mg per day. In a double-blind study, people with high levels of C-reactive protein (CRP), an indicator of systemic inflammation in the body, most of whom also had osteoarthritis, were given 300 mg each morning of krill oil from Antarctic krill (a zooplankton crustacean) or a placebo. After one month those taking krill oil had significantly greater reduction in arthritis severity based on a questionnaire focusing on arthralgia, stiffness, and loss of function related to osteoarthritis of the knee and hip. Use of pain-relief medication was also reduced compared to those taking placebo.

Methylsulfonylmethane (MSM) - 2.25 to 6.0 grams per day. According to a small double-blind trial, 2,250 mg per day of oral methylsulfonylmethane (MSM), a variant of DMSO, reduced OA pain after six weeks. In another double-blind trial, supplementation with 3 grams of MSM BID for 12 weeks significantly reduced pain and improved overall physical functioning in patients with OA of the knee.

Pycnogenol - 100 to 150 mg per day. In a double-blind trial, 100 mg per day of Pycnogenol reduced pain and other osteoarthritis symptoms, improved walking performance, and reduced the use of pain-relieving medication. Another double-blind trial found that 150 mg per day also improved symptoms and reduced use of pain-relieving medication.

Vitamin E - 400 to 1,600 IU per day. People who have OA and eat large amounts of antioxidants in food have been reported to exhibit a much slower rate of joint deterioration, particularly in the knees, compared with people eating foods containing lower amounts of antioxidants. Of the individual antioxidants, only vitamin E has been studied as a supplement in controlled trials. Vitamin E supplementation has reduced symptoms of OA in both single-blind and double-blind research. In these trials, 400 to 1,600 IU of vitamin E per day was used. Clinical effects were obtained within several weeks.

Boron – 6mg per day. Boron affects calcium metabolism, and a link between boron deficiency and arthritis has been suggested. Although people with OA have been reported to have lower stores of boron in their bones than people without the disease, other minerals also are deficient in the bones of people with OA. One double-blind trial found that 6 mg of boron per day, taken for two months, relieved symptoms of OA in five of ten people, compared with improvement in only one of the ten people assigned to placebo.

Fish Oil - The omega-3 fatty acids present in fish oil, EPA and DHA, have anti-inflammatory effects and have been studied primarily for rheumatoid arthritis, which involves significant inflammation. However, OA also includes some inflammation. In a

24-week controlled but preliminary trial studying people with OA, people taking EPA had “strikingly lower” pain scores than people who took placebo.

Glucosamine Hydrochloride - 2,000 mg per day. A few trials have evaluated glucosamine hydrochloride (GH), another form of glucosamine, as a single remedy for OA. In one trial, supplementing with GH (2,000 mg each morning for 12 weeks) significantly improved symptoms, compared with a placebo, in people with knee pain due to cartilage damage or OA. In a four-week study from China, GH was as effective as GS in people with OA of the knee. Another study found that the combination of GH and chondroitin sulphate was more effective than a placebo in people with moderate to severe knee pain from OA, but not in those with mild pain. Despite the reported beneficial effects of GH, some investigators believe that the sulphate component of GS itself helps relieve OA, and that GS would therefore be more effective than GH.

Phenylalanine - 1,500 to 2,000 mg per day of *dl*-Phenylalanine. Supplementation with DL-phenylalanine (DLA), a synthetic variation of the amino acid, L-phenylalanine (LPA), has reduced chronic pain due to OA in a preliminary trial. In that study, participants took 250 mg TID–QID, with analgesia beginning in four to five weeks. Other preliminary trials have confirmed the effect of DPA in chronic pain control. DLA inhibits the enzyme that breaks down some of the body’s natural painkillers, substances called enkephalins, which are similar to endorphins. Phenylalanine should be taken between meals, because protein found in food may compete for uptake of phenylalanine into the brain, potentially reducing its effect.

Botanical Treatment Options

Boswellia - 1,000 mg daily *boswellia resin herbal*. Boswellia has anti-inflammatory properties that have been compared to those of the NSAIDs used by many for inflammatory conditions. Clinical trials have found that boswellia is more effective than a placebo for relieving pain and swelling and preventing loss of function in people with osteoarthritis. Boswellia has also been found to be as effective as the anti-inflammatory drug valdecoxib (Bextra). In addition, while the improvements occurred more slowly in the boswellia group than in the valdecoxib group, they persisted for a longer period of time after treatment was discontinued. One clinical trial found that a combination of boswellia, [ashwagandha](#), [turmeric](#), and [zinc](#) effectively treated pain and stiffness associated with OA but did not improve joint health, according to X-rays of the affected joint. Unlike NSAIDs, long-term use of boswellia does not lead to irritation or ulceration of the stomach.

Cat’s Claw - 100 mg of a freeze-dried preparation daily. Cat’s claw has been used traditionally for OA. In a double-blind trial, 100 mg per day of a freeze-dried preparation of cat's claw taken for four weeks was significantly more effective than a placebo at relieving pain and improving the overall condition.

Cayenne - Apply 0.025 to 0.075% capsaicin ointment QID over painful joints. Several double-blind trials have shown that topical use of cayenne extract creams containing 0.025 to 0.075% capsaicin reduces pain and tenderness caused by OA. These creams are typically applied QID for two to four weeks, after which BID

application may be sufficient. Products containing capsicum oleoresin rather than purified capsaicin may not be as effective.

Ginger - 510 mg daily of a concentrated herbal extract, taken in divided doses.

Ginger has historically been used for arthritis and rheumatism. A preliminary trial reported relief in pain and swelling among people with arthritis who used powdered ginger supplements. More recently, a double-blind trial found ginger extract (170 mg TID for three weeks) to be slightly more effective than placebo at relieving pain in people with OA of the hip or knee. In another double-blind study, a concentrated extract of ginger, taken at a dose of 255 mg BID for six weeks, was significantly more effective than a placebo, as determined by the degree of pain relief and overall improvement.

Devil's Claw - 2,610 mg daily (containing 57 mg harpagoside, 87 mg total iridoid glycosides daily) . Devil's claw extract was found in one clinical trial to reduce pain associated with OA as effectively as a slow-acting analgesic/cartilage-protective drug.

Guggul - 500 mg of a concentrated extract (3.5% guggulsterones) TID.

In a preliminary trial, supplementation with 500 mg of a concentrated extract (3.5% guggulsterones) of *Commiphora mukul* (guggul) TID for one month resulted in a significant improvement in symptoms in people with OA of the knee.

Nettle - Apply stinging nettle under the direction of a qualified healthcare practitioner. Nettle has historically been used for arthralgia. Topical application with the intent of causing stings to relieve arthralgia has been assessed in preliminary and double-blind trials. The results found intentional nettle stings to be safe and effective for relieving the pain of OA. The only reported adverse effect is a sometimes painful or numbing rash that lasts 6 to 24 hours.

White Willow - Take an extract supplying 240 mg of salicin per day. Willow has anti-inflammatory and analgesic properties. Although analgesia from willow supplementation may be slow in coming, it may last longer than analgesia from aspirin. One double-blind trial found that a product containing willow along with black cohosh, guaiac (*Guaiacum officinale*, *G. sanctum*), sarsaparilla, and aspen (*Populus* spp.) bark effectively reduced OA pain compared to placebo. Another trial found that 1,360 mg of willow bark extract per day (delivering 240 mg of salicin) was somewhat effective in treating pain associated with knee and/or hip OA.

Meadowsweet - Meadowsweet was historically used for a wide variety of conditions, including treating complaints of the joints and muscles. The herb contains salicylates, chemicals related to aspirin, that may account for its reputed ability to relieve the pain of OA.

Homoeopathy

People that suffer from osteoarthritis should use a homoeopathic remedy that has been specifically designed for them by a homoeopath. However, some remedies that may help include:

- A topical gel containing comfrey, poison ivy, and marsh tea
- A combined preparation that includes R. toxicodendron, arnica, climbing nightshade, bloodroot, and sulphur
- A liquid preparation including R. toxicodendron, potassium hydrate, and cow's milk

Other common remedies include:

- Calcarea carbonica
- Bryonia
- Graphites
- Guaiacum

For further information, contact:

Tracy S Gates

Director, PURE BIO LTD.

01403 730342

info@purebio.co.uk