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Joint Health

What is Joint Health

A joint is the connection between two bones. Joints and their surrounding structures allow you to bend your elbows and knees, wiggle your hips, bend your back, turn your head, and wave your fingers to say bye-bye. Muscles, bones and joints are affected by the ageing and overuse process. Osteoarthritis, osteoporosis and rheumatoid arthritis are more common in older people.

Smooth tissue called cartilage and synovium and a lubricant called synovial fluid cushion the joints so bones do not rub together. But increasing age, injury -- even sitting the wrong way or carrying too much weight -- can wear and tear your cartilage. This can lead to a reaction in your joint that can damage your joints and lead to arthritis.

What happens

Some age-related changes, such as wrinkles and grey hair, are inevitable. It was once thought that changes to muscles, bones and joints were unavoidable too. However, researchers now suggest that many factors associated with ageing are due to inactivity, and that performing physical activity can help to reduce or reverse the risk of disability and chronic disease.

Some muscle and bone conditions common in older age and with overuse

- Nearly half of all Australians over the age of 75 years have some kind of disability. Common conditions affecting muscles and the skeleton, or the musculoskeletal system, in older people include:
  - Osteoarthritis – the cartilage within the joint breaks down, causing pain and stiffness.
  - Osteomalacia – the bones become soft, due to problems with the metabolism of vitamin D.
  - Osteoporosis – the bones lose mass and become brittle. Fractures are more likely.
  - Rheumatoid arthritis – inflammation of the joints.
  - Muscle weakness and pain – any of the above conditions can affect the proper functioning of the associated muscles.

Age-related changes in muscle

- Muscle loses size and strength as we get older, which can contribute to fatigue, weakness and reduced tolerance to exercise. This is caused by a number of factors working in combination, including:
  - Muscle fibres reduce in number and shrink in size.
• Muscle tissue is replaced more slowly and lost muscle tissue is replaced with a tough, fibrous tissue.
• Changes in the nervous system cause muscles to have reduced tone and ability to contract.

Age-related changes in bone
• Bone is living tissue. As we age, the structure of bone changes and this results in loss of bone tissue. Low bone mass means bones are weaker and places people at risk of breaks from a sudden bump or fall.
• Bones become less dense as we age for a number of reasons, including:
  • An inactive lifestyle causes bone wastage.
  • Hormonal changes – in women, menopause triggers the loss of minerals in bone tissue. In men, the gradual decline in sex hormones leads to the later development of osteoporosis.
• Bones lose calcium and other minerals.

Age-related changes in joints
• In a joint, bones do not directly contact each other. They are cushioned by cartilage that lines your joints (articular cartilage), synovial membranes around the joint and a lubricating fluid inside your joints (synovial fluid). As you age, joint movement becomes stiffer and less flexible because the amount of lubricating fluid inside your joints decreases and the cartilage becomes thinner.
• Ligaments also tend to shorten and lose some flexibility, making joints feel stiff.

Many of these age-related changes to joints are caused by lack of exercise. Movement of the joint, and the associated ‘stress’ of movement, helps keep the fluid moving. Being inactive causes the cartilage to shrink and stiffen, reducing joint mobility.
What is Arthritis

Arthritis is often referred to as a single disease. In fact, it is an umbrella term for more than 100 medical conditions that affect the musculoskeletal system, specifically joints where two or more bones meet.

Arthritis-related problems include pain, stiffness, inflammation and damage to joint cartilage (the tissue that covers the ends of bones, enabling them to move against each another) and surrounding structures. This can result in joint weakness, instability and deformities that can interfere with the most basic daily tasks such as walking, driving a car and preparing food.

Arthritis is the major cause of disability and chronic pain in Australia, with 3.85 million Australians affected at a cost to our economy of more than $23.9 billion each year in medical care and indirect costs such as loss of earnings and lost production¹.

As the population ages, the number of people with arthritis is growing. According to leading researcher Access Economics, current trends suggest that, by 2050, 7 million Australians will suffer from some form of arthritis ².

There is a widely held belief that arthritis is simply a consequence of age, the pain of growing old. But it is not a natural part of ageing. In fact 2.4 million of all people suffering from the disease are of working age ³.

Research suggests that early intervention can delay the onset of the disease and may reduce the number of cases of osteoarthritis by about 500,000 within 15 years. While there are about 100 forms of arthritis, the three most significant - osteoarthritis, rheumatoid arthritis and gout - account for more than 95 per cent of cases in Australia.

Arthritis is not yet curable. While the condition is usually manageable, it invariably impacts on a patient's quality of life and includes varying degrees of discomfort and pain.

The most common forms of arthritis are:

- Osteoarthritis
- Rheumatoid arthritis
- Gout
- Ankylosing spondylitis
- Juvenile arthritis
- Systemic lupus erythematosus (lupus)
Fish oils

This sheet provides general information about the use of fish oil supplements as a treatment for arthritis. It includes information about who may benefit from taking fish oils, how much to take and where to find more information.

What are fish oils?

Fish oils are oils found in the tissues of fish. They contain a certain type of fat called omega-3.

What are omega-3 fats?

Omega-3 fats are a type of fat that may be important for good general health. Our bodies cannot produce omega-3 fats so they must be obtained from food. Omega-3 fats are mostly found in oily fish and certain nut and seed oils.

How do omega-3 fats work for arthritis?

Certain types of omega-3 fats can reduce inflammation from arthritis. This may help to relieve joint pain and stiffness in a similar way to non-steroidal anti-inflammatory drugs (NSAIDs).

What types of arthritis benefit from omega-3 fats?

Omega-3 fats have not been studied in all forms of arthritis. Current research suggests omega-3 fats are helpful for people with inflammatory arthritis, such as rheumatoid arthritis, ankylosing spondylitis and psoriatic arthritis. There is also evidence that fish oils may help control symptoms of osteoarthritis and lupus (systemic lupus erythematosus).

Other benefits

Long-term intake of fish oil has been shown to reduce the reliance on NSAIDs in some cases of arthritis. This can help decrease the risk of side effects from these medicines. Fish oils can also help reduce the risk of heart disease and heart attack. There is some evidence that they may also play a role in preventing and treating depression.

Where do I find omega-3 fats?

- Oily fish, such as tuna, salmon, herring, sardines and mackerel
• Flaxseed (linseed) and canola oil (however these oils are not as active against inflammation as fish oils)
• Walnuts
• Foods fortified with omega-3, such as margarines and eggs.

Eating foods rich in omega-3 fats may help you to achieve benefits for your heart and general health. However it is unlikely that you can obtain enough omega-3 fats from your diet to reduce inflammation without fish oil supplements.

**Where do I find fish oil supplements?**

There are many different brands of fish oils supplements available at health food shops and pharmacies.

**What type of supplement should I choose?**

Fish oil supplements are available as capsules or as a liquid. Different brands of capsules vary in the amount of omega-3 fats they contain so it is worthwhile to compare brands. Check the label to see the amount of omega-3 contained in each capsule (it may be listed as a total omega-3 or as EPA and DHA, which are two forms of omega-3). Bottled fish oil is generally the most convenient and least expensive way to take the dose needed to reduce inflammation (see below). Capsules are preferred by some people and are more portable when travelling.

**What dose should I take for arthritis?**

Research suggests the dose needed to reduce inflammation is 2.7 grams of omega-3 (EPA plus DHA) daily. This dose usually requires approximately either:

- nine to 14 standard 1000mg fish oil capsules or five to seven capsules of a fish oil concentrate per day, or
- Recent studies suggest that daily fish oil supplements which provide omega-3 (containing a minimum of 180mg EPA plus 120mg DHA) may be useful for osteoarthritis.

(Note, fish oil can benefit your heart and general health at lower doses. However these doses, generally, will not control symptoms of arthritis).

**How long will it take to notice an effect?**

You may need to take fish oil supplements regularly at the recommended arthritis dose for two to three months before you notice improvements in your arthritis symptoms. If there is no change by then, the supplements are probably not effective for your arthritis.
Are there any side effects?

Fish oil is usually well tolerated. A possible side effect from fish oil supplements is a mildly upset stomach (for example, heartburn, nausea, diarrhoea). There is currently no evidence that fish oils increase the risk of bleeding or interact with medicines that affect bleeding, such as aspirin or warfarin. Despite this, it is recommended that you consult with your doctor before having major surgery or if you are commencing fish oil while taking warfarin. INR monitoring tests may be done more often at first, as with the addition of any new treatment, to ensure there are no side effects. If there is any bleeding, stop taking fish oils and consult with your doctor.

Caution with fish liver oils

It is important not to confuse fish oils with fish liver oils (such as cod liver oil and halibut liver oil). Fish liver oils also contain vitamin A. Large amounts of vitamin A can cause serious side effects, particularly during pregnancy. If you take fish liver oils in the doses recommended for arthritis you may exceed the recommended daily intake of vitamin A. Only take the dose of fish liver oil recommended on the label. To increase your intake of omega-3 fats, you should do so by taking pure fish oils, not fish liver oils.

Let your doctor know

Always let your doctor and pharmacist know if you are taking any treatments, including fish oils and other natural medicines. Do not stop any current treatments without first discussing it with your doctor.

CONTACT YOUR LOCAL ARTHRITIS OFFICE FOR MORE INFORMATION SHEETS ON ARTHRITIS.

Omega-3 fats may help reduce inflammation in some forms of arthritis. Make sure you take the right dose to affect inflammation.
What is glucosamine?

Glucosamine is a sugar naturally produced by the body. It is one of the building blocks of cartilage. Cartilage covers and protects the ends of the bones, allowing bones to move smoothly against each other. Glucosamine comes in two forms – glucosamine sulfate and glucosamine hydrochloride. Glucosamine supplements are usually made from crab, lobster or shrimp shells, although some supplements are made from a plant form of glucosamine.

How does it help arthritis?

It is believed these supplements may be useful for people with osteoarthritis (OA), where there has been a breakdown of cartilage. It is thought that taking glucosamine may relieve the pain and prevent or slow the breakdown of cartilage in OA. Note, most of the studies have looked only at OA of the knee, with very few studies of other joints (for example, hips, hands, back). To date there is no evidence that these supplements are effective for any other forms of arthritis.

What does the research say?

In the majority of studies, glucosamine improved pain from OA of the knee more than placebo (fake pills).

What is the recommended dose?

1500mg per day

How long will it take to notice an effect?

You may need to take the supplements for four to six weeks before you notice any improvement. If there is no change in your symptoms by then, it’s likely the supplements will not be of benefit for you and it’s advisable you talk to your doctor about other ways of managing your arthritis.

What are the possible risks?

Most glucosamine supplements are made from shellfish although some made from non-shellfish sources are now available. Talk to your doctor or pharmacist, before taking it, about whether the supplement is safe for you.

- Bleeding: people taking the blood thinning medicine warfarin should talk to their doctor before starting, stopping or changing their dose of glucosamine as it may interact with warfarin and make the blood less likely to clot.
• Diabetes: glucosamine is a type of sugar so check with your doctor before taking glucosamine if you have diabetes.
• Pregnant or breastfeeding women: there have not been enough long term studies to clearly say that glucosamine is safe for a developing baby. Pregnant women should talk to their doctor before taking glucosamine.
• Other side effects: upset stomach (for example, diarrhoea), headaches, and skin reactions. Talk to your doctor or pharmacist about possible side effects before taking glucosamine.
Boswellia

Many studies have shown that Boswellia is just as effective as non-steroidal anti-inflammatory drugs (NSAID’s), which are the most commonly used treatment for issues of inflammation and chronic pain. NSAID’s work by inhibiting the inflammatory promoting cyclooxygenase-2 (COX-2) enzymes. Unfortunately, these drugs also inhibit COX-1, which is essential for a healthy stomach lining. This is why these medications cause stomach bleeding. They also deplete the body of anti-oxidant trace minerals like selenium and zinc as well as key b vitamins needed to naturally reduce inflammation.

Boswellia works to reduce inflammation through a different mechanism. It acts to modulate the pro-inflammatory enzyme 5-lipoxygenase (5-LOX). 5-LOX is the first enzyme released in the cytokine metabolic pathway. This pathway creates leukotrienes, which are strong inflammatory substances thought to influence many disease processes including cancer, rheumatoid arthritis, & asthma. The immune modulation reduces inflammatory chemicals and symptoms of inflammation.

These boswellic acids also reduce another inflammatory enzyme called human leukocyte elastase (HLE). HLE and 5-LOX are both classically elevated in inflammatory conditions and diseases. Boswellia is the only known substance to reduce both HLE and 5-LOX.

Boswellia also reduces the expression of the cytokine tumor necrosis factor alpha (TNF-a). In fact, it is thought that boswellia’s success in relieving symptoms of arthritis is due to its ability to inhibit the breakdown of connective tissue caused by TNF-a induced expression of matrix metalloproteinase enzymes.

Boswellia has shown tremendous success at reducing inflammatory conditions in challenging cases such as Crohn’s disease, Rheumatoid arthritis, asthma, allergies, osteoarthritis, & ulcerative colitis among others. Additionally, the powerful anti-inflammatory factors are being suggested for cancer and heart disease prevention.

Boswellia can be taken as a dried herb, a standardized extract and as a pain-relieving gel. All three work effectively. Experts recommend about 400mg taken 3x per day for relief from arthritic, asthmatic, or auto-immune symptoms. The dried herb can be put in smoothies and shakes and used throughout the day. Research has shown a greater absorption rate when taken with other forms of food.

Recommendation

For optimum joint health, reduction of joint pain, and maintenance we recommend Glucosamine HCL with boswellia combined with Omega-3 Complex taken daily at the following doses:

- Omega-3
- 3-6 x 1000mg omega 3 tablets a day
- Which includes should include
• 540-1080mg EPA
• 360-720mg DHA
• Glucosamine
• 1500mg Glucosamine a day
• 4 x 375mg Glucosamine Hydrochloride tablets

For individuals who are especially active or those who require additional joint & bone support in later life: please seek your health professional for advice.

Please note: Children under 6, Pregnant women, or anyone with a medical condition should consult with a health care professional before using Omega-3 and Glucosamine.
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