

Osteoarthritis: Wear and Tear or Wear and Repair?

Osteoarthritis, commonly shortened to arthritis (even though there are other types of arthritis), is something we've likely all heard about from family members or experienced ourselves. Knees and hips may be the first areas that come to mind. 'Wear and tear' is another frequent name for this condition, even if outdated now. This blog aims to debunk the myths around osteoarthritis and build a solid understanding of a complex, yet normal, part of being human.

What is osteoarthritis?

This joint disorder is multi-faceted and far too often oversimplified. 'Wear and tear' is a phrase that gets thrown around that is only telling a small part of the story when you get an x-ray and speak to many healthcare professionals, unfortunately. You'll see later in the blog why actually that part of the story is only a half-truth itself anyways; spoiler: running can be better than none at all! We'll also uncover other factors later, but first we should explain what actually happens in a joint with osteoarthritis.

The clearest way to see osteoarthritis yourself is to look at the joint. You'll often see the joint has grown in size or might have bony bumps around the joint. The joint responds to stress by attempting to repair itself. This includes changes in the bone, cartilage, and other tissues. One example is the formation of 'bone spurs.' This is why 'wear and repair' might be more accurate as these processes are similar to what happens when another tissue is strained and cells try to repair the tissue by creating more of themselves. Another example is muscle growth where the muscle is worked, probably a bit sore, and adapts by growing, adding more muscle tissue. The body is trying to help the joints in the same way, but it can lead to narrowing of the joint spaces and changes in the surrounding soft tissues. This is quite a simple explanation, and there are many things that can influence how well this process works. There are even times where this process happens because of how natural it is, but some people have no pain at all despite severe osteoarthritis whereas others have it mildly but a lot of pain.

Who gets osteoarthritis?

Age-related structural changes become increasingly common with age, but not everyone develops pain or disability. It often starts in our 20s and becomes increasingly more prevalent with each decade. As we mentioned already, many people aren't aware of it (if ever) due to no symptoms until later in life despite being there for several years – it just goes to show that osteoarthritis is not guaranteed to cause issues. There are many different factors in why some people develop this condition quicker than others. Having a previous injury or surgery in the joint can increase the likelihood of developing osteoarthritis sooner than others. We used to think this use of the joint gradually wears it down over time, hence the name 'wear and tear.' This can be part of the picture but is not

the full truth. Current research suggests recreational running does not increase the risk of osteoarthritis and may even be associated with a lower risk compared to being completely sedentary. Yes, elite runners may have a higher risk due to very high volume and injuries, but most of us will not be running as intensely or frequently as them! The key take away here being moderation.

Beyond knees, osteoarthritis does show in various joints including the hands. If 'wear and tear' was accurate, we should ask why it shows up in the little finger joints even though there is only a fraction of the force going through these joints accumulatively compared to knees. This suggests other reasons are behind the development of this condition. We can easily split this into a few main categories that you can use for self-management:

- **Metabolic** – the body's cells are like builders on a site. They can only produce high quality projects if they are given the right materials. Some conditions like diabetes disrupt the supply of these materials and the conditions in which the workers are trying to function in (think supply chain issues or stormy weather).
- **Lifestyle** – similarly to metabolic factors, the choices we make day to day affect the likelihood of osteoarthritis progressing or being painful in the first place. This can include alcohol, smoking, physical activity, and nutrition. These also affect the materials and environment. Lifestyle can also have an effect on weight.
- **Weight** – carrying more body weight increases the load through weight-bearing joints such as the hips and knees. Additionally, body fat is metabolically active and produced inflammatory chemicals that may contribute to osteoarthritis through the body, including joints that don't bear weight. Therefore, the *type* of weight is important. Muscle tissue weighs more for a given volume, i.e. denser, but it gives us strength and supports joints.
- **Physical activity** – as we know now, using joints can actually be productive in preventing osteoarthritis. Being active gets our blood moving which carries nutrients around the body. It can also be a way to regulate our mental health. Moving joints stimulates the cells to reinforce the tissue to be stronger. This is like having a good building site manager: the builders might not know the plan well enough if there isn't enough guidance, or if there is too much pressure then the builders might complain or quit entirely. The goal isn't to avoid discomfort altogether, but to find a level of activity that your body can gradually adapt to. Doing too little or too much is not productive.
- **Mental health** – something as simple as stress can increase chronic, low-grade inflammation. This is the environment in which builders work in. Stormy weather might cause flooding or winds that make it unsafe to work that day. Having strategies to deal with heavy rain such as proper drainage or covers might help. This may look like improving sleep quality, reducing muscle tension, and helping mood.

- **Genetic** – this is what comes from mum and dad and indirectly related to the extended family. It essentially gives your body the blueprints to build your cells. Builders can have a wide range of training and experience which is not always something we can change. Nonetheless, genes or ‘blueprints’ can be expressed differently depending on lifestyle and environmental factors (known as epigenetics). The more we can give our builders good training and blueprints, the better.

The above isolated factors not only influence osteoarthritis but can influence each other, which creates a bit of a multiplying effect. Choosing healthier lifestyles can snowball into being more active which may help us feel better and regulate our metabolism effectively. We can’t change our genetics, but we can influence how they influence us.

Why do some people seem to have less pain than others?

Pain is incredibly complicated. We’d recommend having a look at our pacing blog for a more detailed explanation, even if that still only scratches the surface. If we combine that blog with what we’ve discussed in this one so far, we start to get a better idea of why pain doesn’t match the findings on an x-ray. Here are a few reasons why this can happen:

- **Inflammation** – active irritation of tissues brings molecules with it that make nerves in the area more sensitive. This essentially lowers the threshold for which requires nerves to send pain signals. Damage doesn’t have to be happening if the threshold is low enough leading to mixed signals. It is like turning the volume up on the radio too high. The same message is being relayed, but now way more intensely to the point of being overwhelming. Inflammation can be productive if controlled and triggered productively. Temporary inflammation is a normal part of the body’s response to exercise and recovery that you may feel the day after a good workout. Too much and without recovery leads to longer-term complications.
- **Stress** – not only does stress increase systemic inflammation, but it can also put us on edge constantly. This is like fight or flight. If we’re on edge for other reasons, the slightest things can push us over the edge. This is like having too many tasks at work and your colleagues ask if you want to go for a walk during a break. It isn’t a hostile question but being reminded you have no time to walk away from the desk when you’re entitled to can be too much sometimes. Not all pain is hostile in the same way. Emotional and physical stress share some overlapping brain areas. This isn’t saying the pain isn’t real. The experience is real and it is simply overwhelmed.
- **Load tolerance** – the findings on x-ray may be mild but are debilitating. This may be due to whether the force is going directly on to the painful area or if it can be off-loaded by other means including other parts of the joint and surrounding soft tissues. Many people who can maintain their mobility and strength preventatively

are often better off. Nonetheless, people who are physically fit can still have pain, so it isn't as black and white as we like to think.

These are just a few brief overviews of why pain can differ significantly between people and even within the same person but at different stages of their life. In some people, especially when pain has persisted for a long time, the nervous system itself can become more sensitive. This means everyday movements may feel more painful even when they are not causing harm. We have more information on this in our [pacing page](#).

How is osteoarthritis treated and when?

The most effective way to treat any condition would be to prevent it in the first place. This may be having a look at the factors we've gone through already. If the pain is already present and causing issues in daily life, then there are a few options depending on where the pain is and how severe it is. We won't be able to go through each part of the body, but the below list is a good start for most:

- **Rehabilitation** – Exercise and education are essential and are the first line of treatment. This covers a wide range of approaches clinicians can take, however, the focus is on trying to encourage a return to your normal function. Options may include strengthening, aerobic activity, and low-impact classes. Occasionally, hands-on treatments can be used depending on the joint affected, where in the joint, and how severe. It doesn't normally help by itself, but the aim is to help in the short-term to allow better movement which is what helps in the long-term. This needs to be individualised as everyone will have different factors that need addressing, and not everyone will have the same response to treatment.
- **Medication** – medicines can help some people manage symptoms, particularly during flare ups. Topical gels are usually recommended before tablets due to side effects and interacting with other medications. Stronger opioids are also minimised due to the long-term risks in a long-term condition.
- **External support** – braces, splints, taping or walking aids may be suitable to reduce pain, improve confidence, and support function. This is usually prioritised during flare-ups or when things feel unstable. This essentially means there may be instability or locking/catching of the joint that needs to be supported. This may also include walking aids. These devices are not always permanent if it allows symptoms to settle and give a window of opportunity for progress in other areas such as exercises. Depending on the joint affected, you may also see occupational therapists who are experts in creating bespoke supports. They can also help with functional tasks like physiotherapy but from a different approach. Podiatrists are other clinicians who can create bespoke orthotics for osteoarthritis in the feet/ankles.
- **Biopsychosocial approaches** – as we've covered earlier in this article, sometimes there may be other non-joint related factors that are increasing the

level of pain experienced. The treatment here doesn't necessarily target the anatomy, but it can help improve the environment in which the pain is created. It can also decrease the general overwhelming of the nervous system if relevant.

- **Shared decision-making** – everyone needs a tailored approach. Simply being given a template of treatment and told to crack on without discussion is rarely effective. Some people appreciate the direct approach, however, patients and clinicians should work together to come up with ideas that would be the most effective and enjoyable. An easy example would be choosing a type of physical activity. Walking or swimming are both good options, and some people would enjoy one more than the other. Neither are objectively going to be more beneficial, so whichever you enjoy more is the one you should choose because consistency is key. If you don't enjoy something, you'll be less likely to do it in the long-term.
- **Injection therapy** – there are many different types of injections. The one most of us will hear about is corticosteroid injections. These are often reserved in situations where other options with less side effects are not helping or not suitable. Injections carry some risks so should be discussed with your healthcare provider. Nonetheless, they can be an effective one-off for temporary relief but this varies widely between people. Repeated injections into the same joint may carry some additional risks, so the total number and how often is usually limited. All of this to say it is not black and white and should be an open discussion.
- **Pain clinics** – these require onwards referral from your GP surgery. They can be useful when pain is severe, surgery isn't appropriate, and other treatments fail to provide significant relief. Pain clinics typically have a diverse team of different professions depending on what you need help with. This includes other options you might've had already such as physiotherapy, however, pain specialist physiotherapists take a slightly different approach than a musculoskeletal specialist might. You will likely also speak to a pain specialist nurse to discuss medication. The clinics will offer seminars or group sessions if suitable. The approach here is normally managing symptoms.
- **Surgery** – usually used as a last resort, surgery can be necessary when all other options have failed. There are more significant risks by undergoing surgery compared to other treatments, but many people have incredible outcomes afterwards alongside rehabilitation. It is a great option when non-surgical options have been exhausted. It is also important that function is affected, not just pain.

No matter what treatment options there are, it should be a shared decision between you and all of the clinicians you speak with. It also needs to be tailored to the joint in question. This general overview is a good starting point to help guide you on the right path. If you've been trying these already, it is worth speaking to a clinician to help analyse things a bit further to determine where slight adjustments to the approach can be made.