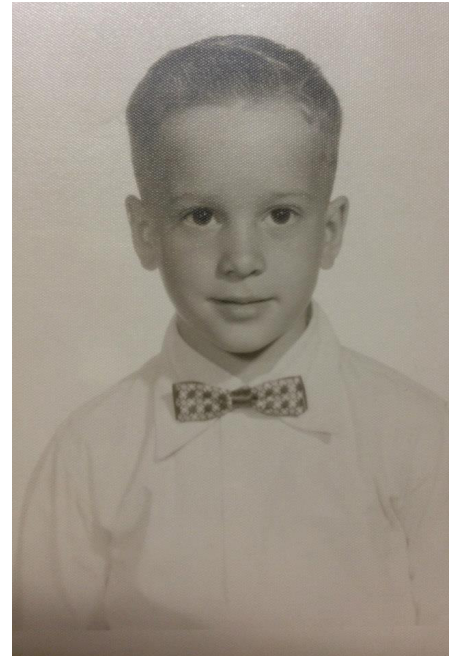


Topic of the week: Osteoarthritis

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I have many patients that are lucky enough to have lived 95 years without any serious health problems. They take no medications. They have never had surgery or been hospitalized yet they all have the same complaint – “Everything hurts”. Years of wear and tear on their joints has led to osteoarthritis. The soft cartilage cushions that once existed between the bones in their joints have been slowly filed away with every bend and release.

If you have a picture that looks something like this old picture of my dad (you know, black and white), chances are that you too have some nagging arthritis. The truth is, you don't have to be old to experience arthritic pains. Osteoarthritis begins developing at the age of 30 and depending on how you have used your bony skeleton over the years plus your genetic makeup will determine when you start to feel that early morning achy joint stiffness, which joints will be involved and how quickly the it will progress.



Before we move on, I want to clarify that osteoarthritis is very different from other types of inflammatory arthritides, like rheumatoid arthritis or psoriatic arthritis. In these types of arthritides, one's own immune system attacks their joints, causing an inflammatory reaction, that erodes the joint. I like to think of osteoarthritis as more of a mechanic problem. Eventually, the tire treads on your car, the brake pads on your bike, and the soles of your shoes just wear out.

Osteoarthritis causes joint pain, stiffness and restriction in movement, in one or more joints. It is usually not symmetric, but can become symmetric over time. Knees, hips, hands, fingers, neck (cervical spine) and lower back (lumbar spine) are most frequently affected. However, for example, if you were a competitive swimmer, you might be more likely to get shoulder arthritis.

The timing of the symptoms throughout the day can seem somewhat paradoxical. The pain and stiffness can be troublesome in the morning if you haven't been still all night until you get up and get moving. This limitation should improve within 30 minutes. At the same time, the more you use a joint, the more it tends to hurt. So, it also tends to hurt in the late day, if you have been using the joint to say type a long chapter and then feels relieved by rest your sore fingers and hands.

Osteoarthritis has three stages:

Stage 1: Predictable, sharp pain brought on by high impact activities with very limited effect on day-to-day function. For example, your left knee hurts after a long run, but you can still climb the stairs to get into bed at night, shower the next morning and head off to work.

Stage 2: Now the pain is more constant and affects your daily activities. The stiffness at times may seem unpredictable. For example, your ankle hurts all the time and you decide not to go to the store this afternoon because you will have to park far away from the entrance. You plan on going tomorrow morning because you can get in and out quicker... taking less steps.

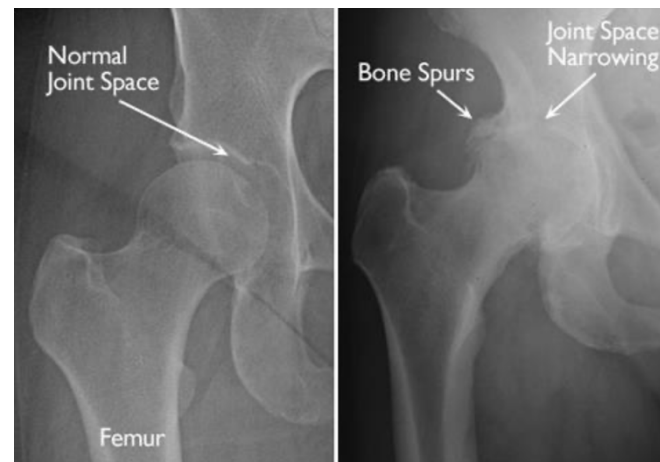
Stage 3: By this stage an individual has constant dull/aching pain with unpredictable, intense, exhausting pain that severely limits their function. By now, someone else is going to get their groceries for them.

While there are 3 progressive stages, progression is highly variable and it is possible to remain at one stage for indefinitely long periods of time. Osteoarthritis can lead to tenderness of the joints, limited motion of the joints, bony swelling most noticed on the fingers, and joint deformities. It then often leads to sequelae like weak and fatigued muscles, overcompensation injuries of healthier joints and poor balance (all of which are treatable).



Physical exam and x-rays are the best way to diagnose arthritis. Your doctor will look for the following:

- Effusions – an abnormal presence of fluid in the joint, which is felt for on physical examination
- Osteophytes – bony lumps, also referred to as bone spurs; Many people notice the knobs on their knuckles first, just below the finger nails.
- Joint space narrowing – when the cartilage is gone the distance between bones on xray disappears
- Subchondral sclerosis – a hardening of thickening of the bone under where the cartilage should be
- Cysts – fluid filled areas that inside bone



MRI's are often not necessary as they are more frequently used to show soft tissue structures like tendons, ligaments and menisci rather than bone. Ultrasound is another imaging modality that can be useful to see fluid in the joint which can occur with osteoarthritis and osteophytes, but is very operator dependent.

When your doctor considers a treatment plan for you, they are considering many things:

- Previous treatments
- Impact of the pain and any functional impairment
- Your restrictions in participating with a treatment plan – financial, getting to appointments, other health conditions, other life obligations
- Your recreational and occupational goals
- Mood
- Sleep disturbances
- Fall risk
- Other medical conditions
- Expectations of treatment
- Modifiable risks like body weight, joint alignment, injury prevention



Your doctor will then use this information to minimize pain, optimize your function while limiting injury and help you achieve your goals. Each treatment in the doctor's black bag, so to speak, is of modest effect, so multiple modalities are required to see improvement. Please notice that I didn't say cure. (at least not at this time) The treatments don't modify the progression of osteoarthritis, only manage the effects. Treatment plans may include:

1. Weight loss plans
2. Ice to the joints with heat to surrounding muscles if strained from osteoarthritis
3. Physical therapy and exercises
4. Braces, splints and orthotics as appropriate, and other assistive devices
5. Topical medications – such as diclofenac gel, CBD creams, capsaicin
6. Oral anti-inflammatory medications – such as oral Tylenol, ibuprofen, naprosyn, celecoxib, meloxicam (ask your doctor before starting these medications)
7. Treatment of depression and additionally duloxetine which is an antidepressant has been shown to help with pain
8. Intraarticular glucocorticoid injections (steroid injections) – short duration of effect, for some as short as 4 weeks and the longer term outcomes are variable with both positive and negative effects

9. Supplements – some use the following: vitamin D, diacerein, avocado soybean unsaponifiables, and fish oil, have shown no benefits in trials. Curcumin, Boswellia serrata, and glucosamine with chondroitin have shown some preliminary evidence of potential benefit though the effects are modest.
10. Alternative therapies – Some find acupuncture and transcutaneous nerve stimulation to be helpful, others do not. They are not dangerous and for some, they are worth the try. We have not seen a lot of success from nerve stimulation over the years.
11. Intraarticular hyaluronic acid injections – are very expensive without clinical data to show significant benefit over placebo
12. Surgical options – Joint replacements are available for many joints, like knees, hips, shoulders, ankles, fingers, however 9-20% have moderate to severe long-term pain after surgery. Higher rates of pain depend on how much pain is coming from the soft tissue (ligaments, tendons, muscles) around the joint, prior to surgery as well as any surgical complications. Arthroscopic surgery has shown no clinically significant benefits over non-surgical treatment or placebo.

Of note, a 10% loss of body weight when appropriate and exercise results in a 50% decrease in pain after 18 months for knee pain and likely hip pain, though hips haven't been studied. Exercise alone has a similar magnitude of effect as anti-inflammatory medications. Tai chi by the way was studied and determined to be at least as effective as physical therapy for osteoarthritis. Starting these lifestyle modifications early in the process, will delay the need for more aggressive therapies and frailty as one ages. Those with severe knee and hip arthritis tend to die sooner because they become less active and that takes a toll on their overall health and wellbeing. We want to prevent such decline.

The next frontier is exploring cooled radiofrequency ablation of nerves to control osteoarthritis pain, with some hopeful early results. New monoclonal antibodies like canakinumab are being explored to help prevent the progression of osteoarthritis. Yes, I too wish there was more to offer today.