



Basal Thumb Arthrosis

Arthritis of the joint at the base of the thumb is the most common form of hand and wrist arthrosis. The thumb is the most important digit of the hand and is critical for hand function. Even mild arthrosis of the base of the thumb can be fairly troublesome. Loss of the thumb results in 50% loss of hand function. Range of motion is critical for thumb function, with only the shoulder joint possessing a greater range of motion in the human body. The base of the thumb is prone to degenerative arthrosis due primarily to the high demands required for normal hand function and the high rate of instability of this joint. Instability of the base of the thumb is common, and instability frequently develops before arthritis. Instability results in pain and weakness. Instability causes damage to joint surfaces accelerating joint degeneration.

Treatment for basal thumb arthrosis could include:

- **Rest** – is avoiding the activities which cause pain. Heavy lifting, firm gripping, or jar lid twisting should be avoided. These activities are particularly bothersome to the base of the thumb.
- **Splinting** – is the use of devices which can be soft or firm to decrease stresses, decrease motion, and enhance stability of the base of the thumb. Rigid splints give better pain relief but result in poorer hand function than more flexible splints.
- **Anti-inflammatory medicines** – aspirin, ibuprofen, Advil, Motrin, naproxen, Aleve, or ketoprofen will often decrease pain, swelling, and improve function of the thumb. These medicines are most effective when the arthrosis pain is mild. These medicines should be avoided if you have a history of ulcers, stomach irritability, or significant kidney problems. These medicines are best taken with food to decrease the change of stomach irritation. If stomach irritation occurs, the medicine should be stopped. Although Tylenol (acetaminophen) does not decrease inflammation, Tylenol usually will decrease pain and will not irritate the stomach. Tylenol is safe to take in the setting of stomach ulcers or kidney problems.
- **Glucosamine and chondroitin sulfate** – can provide a level of relief similar to anti-inflammatory medicines without the risk of ulcers or stomach irritation. These food supplements are most helpful when the symptoms are mild. Glucosamine and chondroitin sulfate come from animal sources. The two compounds are natural elements of joint fluid and cartilage. These cartilage products are absorbed by the stomach and actually increase the amount of these lubricants in joint fluid. Normally, Glucosamine and chondroitin sulfate are used on a trial basis (\$20-\$50 per month). If the symptoms are improved with one month trial, the supplements are continued. If no relief occurs, the supplements may be stopped. Because these compounds are food supplements, no prescription is required. Side effects are rare.
- **Cortisone injection** – is most helpful when the symptoms are severe, inflammation is marked, and the duration of symptoms is short. Repeated cortisone injections can increase joint surface degeneration. When the basal

thumb joint arthrosis is severe or the joint is very unstable, cortisone injection may not help.

- **Surgery** – is needed when night pain, instability, and pain with thumb use are disabling, and all non-surgical measures fail. Two main types of surgery are used on the base of the thumb:

1. **Arthroplasty** is the more frequently (90%) performed surgery. The procedure involves removal of the small bone (trapezium) at the base of the thumb and replacement with a rolled piece of tendon (flexor carpi radialis “anchovy”). Motion is maintained. Pain relief is extremely predictable with this operation. Over 90% get good to excellent relief of pain. This procedure is most helpful when arthrosis affects other joints of the thumb, and when the stress demands of the thumb are not severe. Pain relief with this procedure is excellent, but some weakness of the thumb is common afterwards. Instability of the base of the thumb can occur with this procedure. Excellent range of motion is maintained or even improved with the procedure. The surgery is followed by a brace for several more weeks.
2. **Arthrodesis** is a less frequently used procedure (10%) and results in fusion of the joint at the base of the thumb. Pain relief, stability and strength with fusion tend to be excellent, but significant permanent loss of motion of the thumb results. Arthrodesis is the best procedure when the demands across the thumb are high (heavy labor) in a young person. This surgery can occasionally result in failure of complete bone healing (10%). The procedure should not be done if arthrosis is present on both sides of the trapezium joint. Arthrodesis (fusion) should be avoided in the setting of other arthritis hand or finger joints, in people older than age 50, and when hyperextension is present at the MCP joint of the thumb.

Jansen Orthopaedic Clinic, LLC

L. Dean Jansen M.D.

2124 N. Biomet Drive

Warsaw, IN 46582

(574) 267-2663

(574) 267-4408



Degenerative Knee Arthrosis

Degenerative arthrosis (degenerative arthritis, osteoarthritis, degenerative joint disease) is the age-related failure to maintain full joint function without swelling or pain. Knee degeneration progresses through several stages. **Normal** knees are **Stage 0**. With aging or injury, the cartilage surface begins to **soften** (chondromalacia – **Stage I**). The joint surface becomes rougher, causing friction with motion. The person at this stage may feel a slight grinding or popping of the knee with certain motions. With further injury or aging, the joint surface (articular) cartilage begins to develop *shallow* cracks, fissures, and small areas of surface **fraying** (**Stage II**). An increased sense of swelling, catching, or popping may occur in the knee, but commonly few symptoms are present. With further injury or aging, more deep surface cartilage splitting occurs. The fissures enlarge extending down to bone (**Stage III**), but no bone is seen. When seen with the arthroscope, the articular cartilage looks extremely irregular and rough, like crabmeat. The friction with knee motion increases, causing a grinding sound. Swelling often occurs with periods of increased activity. Some people will show few symptoms even at this more advanced stage. Standing x-rays usually show a mild leg bowing and substantial loss of joint space. Areas of Stage 0, I, II, and III arthrosis can frequently occur simultaneously in different parts of the same knee. The articular cartilage can become completely worn away leaving **exposed bone** (**Stage IV**). Few people will not have pain in this stage. Generally, thin people who are not very active will be the most likely to tolerate this severity of arthrosis without much pain. Progressive bone-on-bone wear and loss on bone causes **knee deformity and instability** (**Stage V**). As the amount of deformity increases, a **thrust** develops from shift in of the knee with weight bearing.

The ability for your joint surface cartilage to completely heal from an injury decreases with increasing age. Severe joint surface injuries will often completely heal in young children. After growth is complete, the joint surface rarely completely heals after a severe injury. The impact and exercise tolerance of your joints also tends to decrease with increasing age. This is probably due to an age related decrease in the regenerative potential of the joint surface. This trend partly explains why there are few athletes in high impact professional sports over 40 years old. The severity of the loss of joint space on x-rays does not always parallel the severity of pain.

Meniscus cartilage tears commonly occur in the setting of degenerative arthrosis. The meniscus tears occur for two reasons:

1. The meniscus cartilage, like the joint surface, can undergo degeneration with weakening of the supportive structure. The meniscus then is vulnerable to tearing even with low grade stresses such as simply squatting down or a mild twist to the knee.
2. As the joint space narrows from loss of surface (articular) cartilage, the meniscus is more readily pinched with twisting motions. The meniscus is therefore exposed to much greater shearing forces even with low levels of joint activity. Surgery for

meniscus cartilage tears is most likely to be curative in people in their twenties and thirties. As people age, the amount of degenerative arthrosis increases, making failure from arthroscopic treatment of meniscus cartilage tears much more likely than with younger patients. The failure rate for meniscus tear surgery is less than 5% in young patients. The failure rate with arthroscopic treatments increases to approximately 25% by age 50 and 50% by age 75.

Degenerative arthrosis is affected by:

- Age
- Weight
- Activity level
- Previous injuries
- Joint instability
- Mechanical factors and joint alignment (bowed legs or knock knees)
- Genetic factors (family tendency for arthrosis)
- Disease of the joint surface cartilage or joint lining (gout, rheumatoid arthritis)

Conservative treatments for decreasing pain could include:

- Switching to “**lower impact**” **activities** – *swimming* is the single best form of exercise for an arthritis joint because the joint is exercised without loading. Gliding machines, Nordic tracks, elliptical exercisers, and stationary bikes are the second best form of exercise because of the low impact forces. Walking and stair machine involve more impact than the gliding machines but less than running.
- **Modification of activities** – Use the elevator instead of stairs. Use a cane to unload the joint. The cane should be used in the same side had as the painful knee. Use of running shoes with a soft heel and rounded sole will decrease impact on the leg with activity.
- **Weight loss** – The effect on joint symptoms can sometimes be dramatic.
- **Cardiovascular conditioning** – 20 minutes 3 times per week. The conditioning exercises must be done in a way that does no irritate the arthritic knee. Physical fitness improves your pain tolerance and helps keep your weight down. Low impact exercise is best for arthritic joints.
- **Muscle strengthening** through a pain free arc of motion improves joint function and stability.
- **Muscle stretching** decreases the resistance against which the joint must work.
- **Glucosamine** (1.5gms per day) and **chondroitin sulfate** (1.2gms per day) are food supplements (like vitamins) and are not regulated by the FDA. Prescriptions are not needed. Glucosamine and chondroitin sulfate are processed animal cartilage. The cartilage supplement is taken orally, absorbed, and delivered by the circulatory system to your joints. The cartilage supplements encourage cartilage building and decrease cartilage destruction. Joint pain and swelling decrease in

about 2/3 of people with arthritis who take the supplements. Side effects are rare. Glucosamine and chondroitin sulfate act on all joints.

- **Tylenol** (acetaminophen), **anti-inflammatory medicine** (Advil, Aleve, ibuprofen, aspirin), and **Celebrex** – Tylenol or Celebrex are safer than other anti-inflammatories especially for people with a history of ulcers, stomach irritability, or kidney problems. Anyone taking Coumadin (warfarin) should use only Tylenol or Celebrex. Tylenol can be used with anti-inflammatory medicines for more pain relief.
- **Knee sleeve** – Usually helps if significant swelling is present. Many people without much swelling will find the sleeve helpful, especially if your symptoms are mild.

If conservative treatments fail to produce the desired results, more aggressive treatments could include:

- **Cortisone injections** – The medicine is a long acting anti-inflammatory injected directly into the joint. The benefits of the injection can last from a week to 3 months. A single injection is safe, but repeated cortisone injections may be associated with accelerated degeneration of the joint surfaces. If gout or other severely inflammatory process is present, the relief with injection can be very dramatic. Sometimes joint fluid is removed at the time of injection for lab analysis. Usually 3 cortisone injections are given before the treatment is considered failed.
- **Synvisc (hyaluronic acid) injection** - is animal joint lubricant injected directly into the knee joint. The injections serve to lubricate the joint, decrease inflammation, and decrease pain. The injections are usually given weekly (3 total injections). The injections can be repeated every 6 months. Synvisc is much more expensive than Glucosamine and chondroitin sulfate or cortisone injections, but is usually covered by most insurance plans. Synvisc can cause temporary local joint inflammation and pain. The pain improvement with synvisc is similar to cortisone injection in the knee. Synvisc may be most suitable for people who cannot tolerate cortisone or who have not improved with cortisone injection and Glucosamine/chondroitin sulfate. Whereas Glucosamine and chondroitin acts on all joints, Synvisc works only on the injected joint.
- **Arthroscopic procedures** – Trimming torn cartilage, washing out joint surfaces, creating small holes in the exposed bone surface for cartilage healing, and tissue releases can sometimes be helpful. The response to these treatments can be unpredictable and the benefits may not be long lasting. The failure rate increases with increasing age and increasing severity of degenerative arthrosis. Arthroscopic treatments are outpatient procedures done under general or occasionally local anesthetic. Recovery takes 2 weeks to several months depending on the procedure.
- **Osteotomy** – This operation works best in the setting of an angled limb (bowed leg or severe knock knees) with moderate arthrosis. Again, the benefits of this operation tend to decrease after several years from the operation. Total joint replacement may often be delayed several years or prevented with this procedure.

- **Total knee replacement**– This is the most effective operation for degenerative arthrosis (95% good or excellent results). Total knee will frequently correct bowed leg or knock knee deformity. Most patients who need a joint replacement have completely lost their joint space on standing x-rays. Usually, these patients can walk only short distances (often less than a block). Resting pain and night pain is frequently present before surgery. With knee replacement, infection, blood clots, or other serious complications can occasionally occur. Transfusion risk is less than 10% if you have normal blood counts. Transfusion risk can be decreased by donating blood for the surgery ahead of time. A 3 to 4 day hospital stay is needed before discharge to home or rehabilitation center. A walker or crutches are needed for about 3 weeks. By 6 weeks, most patients can walk without a cane. By 3 months, the knee usually begins to feel more normal. Permanent lifting, kneeling, and climbing restrictions may be necessary. A total knee replacement done at age 65 has approximately 85% chance of lasting the person's lifetime.

Jansen Orthopaedic Clinic, LLC
L. Dean Jansen M.D.
2124 N. Biomet Drive
Warsaw, IN 46582
(574) 267-2663
(574) 267-4408

Inflammatory Arthritis

Rheumatoid arthritis, juvenile rheumatoid arthritis, (SLE) lupus arthritis, ankylosing spondylitis, psoriatic arthritis, and scleroderma are forms of **rheumatoid disease** or “inflammatory arthritis”. The common feature of all rheumatoid (inflammatory) diseases is *joint inflammation* caused from attack by your own immune system upon your joint tissues. Your joint tissues become recognized by your body as foreign tissue and are attacked by your white blood cells. Wide variations in severity of inflammation occur between the diseases and between people with the same disease. Diagnosis of any rheumatoid disease requires a careful patient history, physical exam, appropriate x-rays, and usually several blood tests. Treatment usually requires use of medicines to suppress the immune system. There is no “cure” for these diseases. Commonly, medicines will markedly decrease symptoms.

- **Rheumatoid Arthritis** is the most common rheumatoid (inflammatory joint) disease. There are adult and juvenile (childhood) forms of rheumatoid arthritis. Adult rheumatoid arthritis affects about 1% of the population. The incidence of rheumatoid arthritis increases with age, affecting 2% of men and 5% of women older than age 65. Native Americans are most commonly affected, followed by Caucasians and Asians. Blacks are the least commonly affected racial group. The disease is more common in family members and twins suggesting a genetic relationship. Viral infection is believed to be a trigger of rheumatoid disease in some patients. Rheumatoid arthritis affects the small joints of the hand and feet, avoiding the most distal joint of the fingers. Morning stiffness is typical. Initially, one side of the body is affected, but over time both sides are usually affected. Joint swelling, loss of motion, and warmth of the joints is common. Deformity of the hands and feet often occur in more severe cases. Rheumatoid factor (RF) and RA latex (IgG/IgM) are used as blood tests for rheumatoid arthritis. High levels of RF is associated with more severe joint disease, rheumatoid nodules, more severe systemic symptoms (fatigue, malaise) and more resistant to treatment. Rheumatoid factor is present in about 2% of a normal population and 80% of rheumatoid arthritis patients. Joint fluid is typically cloudy due to the presence of WBCs (inflammatory cells). Rheumatoid arthritis is characterized by flares (periods of increased pain and inflammation) and remissions (decreased symptoms).

Diagnosis of rheumatoid arthritis is made by 5 of 8 criteria:

1. Morning stiffness lasting at least one hour
2. Soft tissue swelling around three or more joints
3. Swelling around hand PIP joints, MCP joints and wrist, but avoiding DIP joints
4. Left and right arthritis symmetry
5. Symptoms lasting at least 6 weeks

6. Rheumatoid nodules under skin over bone edges
7. Positive RF (RA latex fixation) tests
8. Joint erosions or bone demineralization on x-ray of affected joints

Treatment– A balance must be sought between activity, mobility, and strengthening to maintain fitness and range of motion versus over activity with the resulting accelerated joint damage. *First line therapy* is anti-inflammatory medicines (NSAIDs- Non-Steroidal Anti-Inflammatory Drugs) such as aspirin, ibuprofen, ketoprofen, peroxicam, naproxen, and indomethacin. These medicines should be avoided in the presence of peptic ulcer disease, kidney failure, or with very elderly patients. *Second line therapy* is needed when symptoms are not controlled adequately with NSAIDs. Immune system depressants (chemotherapy agents) are the most common second line agents. Methotrexate, prednisone, penicillamine, and gold salts are the most common medications. One of these medicines is usually used in combination with an NSAID. With single joint flares, cortisone injection can be extremely effective in decreasing severe pain and inflammation.

- **Lupus arthritis** is a form of inflammatory arthritis that occurs with the disease *systemic lupus erythematosus* (SLE). Skin rashes, heart problems, kidney problems, thumb instability, and blood vessel problems commonly can occur with SLE. Blood tests often show anti-nuclear anti-bodies (ANA). Treatment of lupus arthritis is similar to rheumatoid arthritis.
- **Ankylosing spondylitis** is a rheumatoid condition of the spine. Pain and loss of motion of the spine is the main symptom. The ligament attachment to bone is the site of inflammation, not the joint lining as occurs with RA and SLE. The sacroiliac joints are usually initially affected. Hip arthritis is common and may require hip replacement surgery. Fusion of portions of the spine occurs in severe cases. HLA-B27 is positive by blood testing in 95% of ankylosing spondylitis patients, but only 7% of normal patients. Indomethacin is usually the NSAID of choice. Exercise, postural training and bracing can help avoid permanent spinal deformity.
- **Polymyositis** is a rheumatoid disease affecting muscle tissue (literally meaning “many inflamed muscles”). Dermatomyositis is a form of myositis involving the skin. Muscle biopsy is needed to prove the diagnosis of myositis. Prednisone is usually the most effective medicine for myositis.
- **Scleroderma** (literally meaning “hard skin”) is a rheumatoid condition which results in hardened and thickened skin. Inflammatory arthritis is common especially in the small joints of the hands. Raynaud’s phenomenon is very commonly present with scleroderma. Cold exposure or emotional stress can trigger intense constriction of blood vessels to the hand and fingers (Raynaud’s phenomenon) resulting in a purple or very pale appearance of the hands. The blood supply can be restricted so

severely that death of the finger tip tissues (gangrene) can occur. Medication can decrease the hyper reactivity of the blood vessels.

- **Psoriatic arthritis** is inflammatory arthritis in the presence of psoriasis skin condition. About 7% of people with psoriasis develop psoriatic arthritis. Swelling and deformity of the DIP joints and fingernails are typical. NSAIDS are the initial treatment. Methotrexate is a second line therapy.

Jansen Orthopaedic Clinic, LLC
L. Dean Jansen M.D.
2124 N. Biomet Drive
Warsaw, IN 46582
(574) 267-2663
(574) 267-4408