RELIEVE THE PAIN OF YOUR OSTEOARTHRITIS IN YOUR HAND AND RHIZARTHROSIS!

YOUR PRACTICAL GUIDE TO UNDERSTANDING AND RELIEVING YOUR SYMPTOMS AND PREVENTING DEFORMITIES.

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Dr Jean Paul Brutus
Nathalie Brisebois
Noémie Vézina
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RELIEVE THE PAIN OF YOUR OSTEOARTHRITIS IN YOUR HAND AND RHIZARTHROSIS!
YOUR HANDS ARE UNIQUE AND PRECIOUS!
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YOUR PRACTICAL GUIDE TO UNDERSTANDING AND RELIEVING YOUR SYMPTOMS AND PREVENTING DEFORMITIES.

Dr Jean Paul Brutus, hand surgeon
Nathalie Brisebois, occupational therapist specialized in hand therapy, Centre Professionnel D'Ergothérapie
Noémie Vézina

Osteoarthritis of the fingers and the base of the thumb (also called «rhizarthrosis») are frequent, often neglected pathologies that compromise the function of the hand and the quality of life. This handbook, written by specialists in hand surgery and hand therapy, will allow you to recognize your pathology and give you the ability to treat yourself immediately by adopting effective measures to alleviate your symptoms. In the majority of cases, the use of surgery will not be necessary!

Find the answers to your questions about osteoarthritis of the hand right here, in just a few minutes:

• You will be informed of the most modern knowledge on this pathology and will know exactly how to take charge of your condition in the most effective way to resume your professional activities and leisure in the shortest possible time.
• You will be certain of when to consult a surgeon if it becomes necessary.
• You will know the dramatic advances made in minimally invasive modern techniques to permanently alleviate the pain and consequences of rhizarthrosis.

Stop enduring pain and, above all, do not ignore the pathology of what you are suffering from. Your hands are unique and precious!
What are the symptoms of osteoarthritis?

What are the symptoms of osteoarthritis of the base of the thumb, also known as rhizarthrosis?

Osteoarthritis of the fingers and of the base of the thumb is very common. Who can be affected by this condition?

What causes osteoarthritis and rhizarthrosis?

How is the diagnosis made and what types of tests should I take if I am affected?

Is ultrasound of the thumb and/or fingers helpful?

Do I need an X-ray?

Do I need an MRI?

Is it necessary to treat osteoarthritis and rhizarthrosis?

What can I do to relieve the pain and prevent deformities?

What about the usefulness of a cortisone injection to relieve my joint pain?

How does cortisone work? Can we safely repeat cortisone injections?

Are there alternatives to cortisone injections for osteoarthritis in the fingers or at the base of the thumb? What about hyaluronic acid that is used for osteoarthritis of the knee?

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What type of anesthesia is required for the surgery?

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25 / Are the scars painful in the hand?
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30 / Is it possible to control the pain caused by osteoarthritis in a natural way through diet and natural products?
WHAT ARE THE SYMPTOMS OF OSTEOARTHRITIS?

A joint is a point of junction between two bones of the body linked by an articular capsule. The latter is defined as a membrane enveloping the joint, the purpose of which is to ensure the maintenance of the synovial fluid within the latter. This liquid acts as a lubricating agent between the two bones and prevents erosion. The presence of articular cartilage on the surface of each of these bones, acting as cushions, also represents a protection factor against mechanical damage. Finally, the stability of a joint is maintained by ligaments, non-elastic tissues allowing the latter to perform certain movements while limiting others.

Osteoarthritis is the degenerative destruction of the cartilage located on the surface of the bones. When damaged, it loses its function as a damper thus generating direct friction of the bones composing the joint. A pain is then felt when there is movement of the affected joint. It is therefore considered to be a mechanical pain.

This mechanical pain can also be accompanied by another type of inflammatory pain. The latter manifests itself in painful episodes which also appears at rest.

A person with osteoarthritis may also suffer from stiffness in the affected joints as well as a general decrease in grip strength, which is the force required to pick up items. Overall, it could result in a loss of skills of the affected joints.

In advanced stages of the disease, the joints may become deformed, causing nodules and/or deviations in the fingers.

The most frequent presentations of osteoarthritis in the hands are in the distal inter-phalangeal joints, which are the joints at the tips of the fingers.
2 / WHAT ARE THE SYMPTOMS OF OSTEOARTHRITIS AT THE BASE OF THE THUMB, ALSO KNOWN AS RHIZARTHROSIS?

The person suffering from rhizarthrosis experiences pain at the base of the thumb, in the region of the wrist. This is often compared to a burning sensation and is accentuated by certain motions of the hand involving movement of the affected thumb.

Any gripping movement where the thumb is in opposition to another finger, or even rests on an object, can cause pain. This can be diffuse, and therefore spread into the same region, or it could be located at a specific point.

Some tasks such as opening the lid of a jar, peeling a potato, using scissors, writing or manipulating a key to open a door then becomes difficult and painful.

This then develops towards the loss of the gripping force of the pinch between the thumb and forefinger and the appearance of stiffness as well as a progressive increase in pain. It thus becomes more and more difficult to use the thumb and this decrease in its use is manifested by the phenomenon of muscular atrophy at its base. In other words, it is the atrophy of the muscle encompassing the thumb. This can also cause difficulty in moving the thumb away from the other fingers.

Loss of manual dexterity and a decrease in the force between the thumb and the index finger follows. It then becomes difficult to manipulate small objects like coins, or to button
clothes. Clumsiness appears to the point of dropping pens and having trouble writing.

A deformity typical of rhizarthrosis then appears; the base of the metacarpal, or the portion of the bone that comes into contact with a wrist bone (the trapezium), deforms and it can move. This is often manifested by the appearance of a «bump» at the base of the thumb and causes the hyper-extension of the overlying joint, the joint that connects the thumb to the hand, which is called the metacarpal-phalangeal joint. The final stage of this deformation is known as a «Z deformation» because the thumb takes the shape of this letter.

Numbness and loss of thumb sensitivity are not part of the symptoms of rhizarthrosis. They may, however, be indicative of a distinct but associated pathology, such as the carpal tunnel syndrome.

3 /

OSTEOARTHRITIS OF THE FINGERS AND OF THE BASE OF THE THUMB IS VERY COMMON. WHO CAN BE AFFECTED BY THIS CONDITION?

Osteoarthritis affects more women over the age of fifty than men. It is likely that this difference in frequency between the sexes is of an hormonal origin.

Rhizarthrosis, osteoarthritis specific to the trapezo-metacarpal joint at the base of the thumb entering the wrist bone, is the most frequent form of osteoarthritis in the hand. Arthritis, on the other hand, is a distinct articular disease whose etiology is mainly inflammatory in nature. The latter can be caused by various factors such as immune agents in the case of rheumatoid arthritis and psoriatic arthritis.

To date, there is no clear explanation for the disparity in the prevalence of rhizarthrosis between the sexes, affecting women more than men. It could potentially be due to a greater ligament laxity in the latter.

This disease affects otherwise healthy people but some risk factors are involved:

- a genetic or familial predisposition
- hormonal factors, such as menopause, probably explaining the difference in frequency between the two sexes
• a history of trauma in the trapezo-metacarpal joint (fractures, sprains, dislocations and bruises of the base of the thumb)

Commonly, no predisposing factor is present in the patient. Rhizarthrosis is said to be of an «idiopathic» nature.

4 / WHAT CAUSES OSTEOARTHRITIS AND RHIZARTHROSIS?
The joints of the fingers are subjected to many stresses over time and mechanical wear and tear inevitably occurs. This wear mainly affects the cartilage, a structure acting as a damping cushion between the bones forming a joint, and is known as «degenerative osteoarthritis.» The degenerative process of this condition can be accelerated by overuse of the joints, as seen in some jobs such as seamstress. Since cartilage does not have the capacity to regenerate, degenerative osteoarthritis is an irreversible condition.

The trapezo-metacarpal articulation is a very mobile hinge that articulates the first metacarpal to a very important bone of the wrist called the «trapezium”. This name is given because of its particular shape. This articulation frequently solicited by our daily activities is subjected to many constraints, making it more susceptible to early wear of its cartilage. This explains the high prevalence of rhizarthrosis.

Osteoarthritis may also arise from prior traumatic damage of the joint and its cartilage. This is the case, for example, after an intra-articular fracture, where the damage is located within the joint, or during a dislocation of the joint, commonly referred to as a sprain.

Finally, rhizarthrosis can result from an infection of the joint. However, this is a more rare phenomenon and is known as «septic arthritis.»

5 / HOW IS THE DIAGNOSIS MADE AND WHAT TYPES OF TESTS SHOULD I TAKE IF I AM AFFECTED?
In general, osteoarthritis and rhizarthrosis are recognized by the history and chronology of their symptoms. In some cases it is necessary to obtain confirmation of the diagnosis
by further examination. Your specialist will observe the size and shape of your joints, look for the presence of inflammation, check the joint amplitudes, which are the possible movements of a joint, and perform certain maneuvers and manipulations to test the range of motion of the joints.

The most commonly used supplementary examination is an X-ray. It may be necessary to make an X-ray of the hand in precise positions to ensure clear visualization of certain joints.

6 /
IS ULTRASOUND OF THE THUMB AND/OR FINGERS HELPFUL?
Ultrasound is an examination that is of little use in determining a diagnosis of osteoarthritis or rhizarthrosis. However, it can be very interesting to demonstrate the presence of synovitis or inflammation in the joint. It can also be useful for doing intra-articular injections, directly in the affected joint, giving them greater precision and effectiveness.

7 /
DO I NEED AN X-RAY?
Radiography is the most widely used complementary examination in the diagnosis of osteoarthritis and rhizarthrosis and allows the assessment of its severity, as well as the stage of its development. In particular, it can be used to assess:

- the severity of the pinching in the joint, thus the space remaining in the joint
- the presence of osteophytes which are small bone prominences in the joint
- the degradation of the bone below the damaged cartilage referred to as «subchondral sclerosis»
- the severity of the subluxation, or the displacement of the base of the metacarpal bone, which can lead to a «Z» deformation
- The presence of bone debris in the joint called «joint mouse»
- the presence of osteoarthritis lesions in the other joints of the fingers and the thumb (the scapho-trapezo-trapezoid joint and the trapezometacarpal joint below, and the metacarpophalangeal articulation above)

All this information is essential in order to guide the choice of treatment towards the therapeutic options that will best suit the needs of the affected person.

8 /
DO I NEED AN MRI?
Magnetic Resonance Imaging, or MRI, is a very sophisticated examination that makes it possible to better visualize the soft tissues such as the synovial membrane, which is the
membrane that lines the joint, and the ligaments, which are the structures which encompass the joint to ensure its stability.

Magnetic Resonance Imaging will demonstrate whether there is an abnormal inflammation of the joint (called "synovitis") and identify localized areas of joint destruction (called "chondritis").

However, this exam is not necessary in the vast majority of cases. It is useful in the cases of unusual presentation of the condition. Often being difficult to access and quite expensive, the MRI must be used wisely and reserved only for situations that justify it.

9 / IS IT NECESSARY TO TREAT OSTEOARTHRITIS AND RHIZARThROSIS?
Osteoarthritis and rhizarthrosis should be treated when there are painful symptoms or deformities causing mechanical problems. Examples include severe limitation of joint mobility and a significant loss of hand gripping force or thumb clamp.

10 / WHAT CAN I DO TO RELIEVE THE PAIN AND PREVENT DEFORMITIES?
The pain of osteoarthritis may be related to an inflammatory flare or mechanical friction between two damaged joint surfaces. The most recent studies demonstrate that protection of the thumb joint with an exercise program to strengthen the muscles that permit thumb movement can limit the deterioration of the joint and therefore prevent deformities.

1. Joint protection:

   The priority to be considered is the protection of the affected joints, as much as for finger injuries as for pain at the base of the thumb. Begin by identifying activities that triggers, or aggravates, the pain and change the way you perform these tasks. Some principles must be respected in order to protect your joints by minimizing the stress imposed on the joints, namely:

   • Respect the pain. Cease an activity that is painful and see if it is possible to do it differently. Pain should not persist more than 2 hours after ceasing an activity. Learn to recognize the clues that indicate joint damage such as heat and swelling in the joint.

   • Ensure a balance between activity and rest. Avoid activities that cannot be stopped. Take breaks frequently. Plan your days. Avoid doing unnecessary activities. Alternate between heavy and light work. Plan and organize your activities, especially when the symptoms are more present.

   • Reduce the effort required by your joints. Avoid pushing smaller joints; use larger joints that are stronger. It’s best to support an object with the palm of your hand rather than lifting it with your fingertips. Organize workspaces, place objects within reach. Avoid
stress on joints and positions that promote the appearance of deformities. Avoid staying in the same position for more than 20 minutes.

- Use technical aids if possible. Increase the diameter of the tools and utensils you use. You can easily wrap small diameter handles with pipe insulation that you can fix with elastics. It is preferable to facilitate your grip on an object.

- Avoid using a grip that involves using your thumbs to hold your book while reading. It is better to support the book with the palms of both hands or use a stand or a table for the book.

- When using a spatula or spoon for mixing, be sure to hold the instrument with all the fingers in the hand instead of using the grip between your index and your thumb.

- When brushing the teeth, be careful not to use the thumb to control the brush. Instead, place the thumb next to the other fingers rather than on the brush. An electric toothbrush is preferable.

- Lubricate hard-to-open locks.

- Use a suitable key holder that permits the use of a lever effect to facilitate unlocking a lock. Figure 10
• Stabilize the material on which you are working on by placing a non-slip placemat between the object and the work surface. Use a non-slip silicone mat to place underneath and above a jar to stabilize it when opening. This avoids using the tip of your thumb or fingertips. This technique promotes the use of the palm of the hand.

• Use tools to help you open bottles and use an electric can opener.
2. Use local heating and cooling applications:

The application of cold can help you calm the pain related to inflammation. You can use a bag of soft ice such as a bag of frozen peas that will serve as an ice bag. The advantage of using a bag of peas is that it conforms well to the contours of the thumb and the fingers and it can easily be reused. You can also buy reusable cold packs and keep them in the freezer or make them yourself by placing ice cubes in a bag.

In all cases, be sure to protect the skin from cold burns by placing a towel between the skin and the source of cold. Apply in sessions of ten to fifteen minutes.

Applying heat can help reduce pain and stiffness while soothing muscle spasms. You can apply local heat before indulging in intense use of the hands such as cooking or gardening. You can use thermal bags that can be heated in the microwave or in hot water. You can also make your own heat bag by filling a stocking, or sock, with uncooked rice. Close the bag tightly and place the bag in a microwave oven. You can then wrap it around the thumb or painful joints.

Always remember to protect your skin from heat to avoid thermal burns and do not overheat the bag used. Apply heat in 20-minute sessions.

A paraffin bath is also a great way to apply heat to your aching hand or thumb. The moist heat created by the wax provides a feeling of well-being because the heat seems to penetrate. The commercially available container contains a mixture of paraffin and mineral oil. You can then soak your hand several times by letting the wax dry in contact with the air, between each layer. Deposit 3 to 5 layers of hot wax on the hand, wrap it with a plastic wrap and then put the hand in a towel to hold the heat. A homemade recipe that also brings comparable benefits is as follows:

- Coat the hand with an oil such as vegetable, baby, mineral, sweet almond, or other.
- Slip the hand into a dishwashing glove. This glove should only be used for the described treatment.
- Fill a container with lukewarm water, according to tolerance.
- Place the gloved hand in the water for 10 to 15 minutes.

3. Massage

The muscles at the base of the thumb as well as the fingers can become painful due to muscle tension. You will be able to relieve them by practicing the massage of these tense muscles using the other hand or by using a small, relatively hard ball that you will place on a table. You will then be able to roll your hand on the ball to massage the muscles at the base of the thumb and the palm of the hand.

4. Exercises

Exercises are not recommended during the inflammatory period of a painful joint. Rest
and control of pain is more appropriate. A visit to a professional might be advised. An occupational therapist or a physical therapist can assess the condition of your hands and guide you through the exercises.

Once the pain is under control, the exercises should be performed without causing pain while doing them. In the event that discomfort follows the end of the exercise program, this discomfort, or pain, should not persist beyond 2 hours after the end of the program.

Stretching and muscle strengthening exercises performed once per day can contribute to pain relief because the muscles that stabilize a joint prevent this joint from being directly used. The mobility of the joint can be maintained through relaxation exercises and muscle building which helps to keep the muscles around the joint in good condition. It is essential not to lose the opening between the thumb and forefinger.

Depending ones abilities, the following exercises should be performed passively, either using the other hand to move the thumb, or actively by moving the thumb without help from the other hand.

**Examples of exercises to increase thumb mobility:**
- Rest the back of your hand against a table and move your thumb vertically away from the palm of your hand. Hold for 5 to 10 seconds. Bring your thumb back to its initial position. Repeat 5 to 10 times.

- Rest the side of the hand on a table and move the thumb away from the palm of your hand. Hold for 5 to 10 seconds. Bring the thumb back to its initial position. Repeat 5 to 10 times.

- Touch each finger alternately with the pulp of the thumb. Hold for 5 to 10 seconds. Bring the thumb back to its initial position between each movement. Repeat 5 to 10 times.

**Examples of Exercises to Strengthen Muscles**
- Crush an imaginary ball into the palm of your hand. Maintain the contraction for 5-10 seconds.

- Place and hold the thumb in opposition to the little finger and hold for 5 seconds while pressing firmly.

- Apply resistance to the 1st phalanx of the thumb while trying to move the thumb away from the hand.

- Try to bring the index finger near the thumb while applying resistance to the first phalanx of the index finger. Maintain the position for 5 seconds while forcing.

- Pinch a clothespin and keep the contraction for 5 to 10 seconds. If the resistance offered by the pin is not sufficient, an elastic can be twisted on its end to increase the resistance.
EXAMPLES OF EXERCISES TO INCREASE THUMB MOBILITY
EXAMPLES OF EXERCISES TO STRENGTHEN MUSCLES

FIGURE 17

FIGURE 18

FIGURE 19

FIGURE 20

FIGURE 21
5. Wearing splints:

Orthotics can relieve pain and lessen the joint deformities by putting the joint at rest, immobilizing or restricting permitted movement. Wearing a splint also increases the stability of the thumb and thus increases the level of function of the hand while protecting the immobilized joint. An occupational therapist, or an orthotist, can make a custom molded splint for your hand. This orthosis can be worn while performing your activities, to relieve the tension and stabilizing the affected joint. Wearing an appropriate orthosis can also correct thumb deformation, or avoid its progression.

An orthosis must often be worn for several weeks for greater effectiveness. The pain then decreases and the orthosis can be carried for certain activities only, such as gardening, for example. Constant wearing of an orthosis for an extended period of time, or even several months, is contraindicated because it does not allow voluntary «pumping» of the muscles. Muscle atrophy, or a melting of unused muscles, may result.

Some prefabricated splints, made of semi-rigid material such as neoprene, can be found on the market and can also have a certain efficiency, although often less than the more rigid, custom-made orthoses, especially when the condition is inflammatory, the pain is greater and the level of function is directly affected. The need for an orthosis depends on the stage of the attack and the symptoms experienced. An occupational therapist can then evaluate your hands and make custom-made orthotics, according to your specific needs.
6. Medication:

Painkillers such as acetaminophen or paracetamol are the first drugs to be tried because of their low toxicity and effectiveness in controlling pain.

Gel or anti-inflammatory tablets can also be used effectively to relieve pain and reduce inflammation of damaged joints. These may have side effects, such as gastritis or stomach ulcers, and preventive measures sometimes need to be taken. In particular, non-steroidal anti-inflammatory drugs should be avoided for a prolonged period. Depending on your medical condition, it is best to consult a pharmacist to verify that taking a medication is possible, as well as the dosage allowed.

7. Supplements:

The devil’s claw (harpagophytum procumbens) is a medicinal plant that is suggested by herbal medicine as an anti-inflammatory for the treatment of certain joint pain. It is believed to be more effective for chronic pain than for acute pain.

Glucosamine is a carbohydrate that is used to relieve the pain of osteoarthritis and despite the absence of scientific consensus proving its superiority compared to a placebo, glucosamine is often used and prescribed by many doctors. Some patients benefit from it. It is important, however, not to exceed the prescribed doses.

Chondroitin sulfate is a polysaccharide that has an anti-inflammatory effect and stimulates the production of hyaluronic acid and could slow down joint degradation. Currently, scientific evidence is rather mixed and additional studies are underway.
Omega 3 and Omega 6 fatty acid have beneficial effects and slow the progression of degenerative osteoarthritis. This may reduce the need for traditional anti-inflammatory drugs.

11 / WHAT ABOUT THE USEFULNESS OF A CORTISONE INJECTION TO RELIEVE MY JOINT PAIN?
An intra-articular injection of cortisone, preferably performed under echo-guidance or ultrasound, can reduce pain and local inflammation for several weeks or even months. Following an injection of cortisone, immobilization of the infiltrated joint is generally suggested in order to rest the affected region and thus to protect its articular structures. The duration of this immobilization can range from a few days to 3 weeks depending on your doctor’s prescription.

However, it is preferable not to exceed three to four infiltrations per year, because there is a risk of weakening the tissues stabilizing the joint, such as the ligaments and the articular capsule, or a risk of discoloration and atrophy of the skin at the injection site. A risk of infection is also associated with cortisone, which diminishes local capacity for defense against infections.

It should be noted that injected cortisone does not cause any weight gain, as cortisone tablets taken orally can do.

12 / HOW DOES CORTISONE WORK? CAN WE SAFELY REPEAT CORTISONE INJECTIONS?
Cortisone is an extremely potent anti-inflammatory drug that, when injected into the joint, reduces the inflammation present and thus contributes to the reduction of pain associated with it.

This effect is, unfortunately, temporary and relief is of limited duration, ranging from a few weeks to a few months. However, some measures can be taken to maintain the health of the joint at risk and to prevent the progression of osteoarthritis. Among other things, it is advisable to limit the use of the affected joint by modifying certain hand movements as well as undertaking a program to strengthen the muscles that border the thumb.

Infiltrations should not be repeated too frequently and although exact limits are not known, it is not recommended to exceed three to four infiltrations at the same site per year. In addition, the symptom relief period appears to decrease after each infiltration and alternative treatments are therefore indicated.

13 / ARE THERE ALTERNATIVES TO CORTISONE INJECTIONS FOR OSTEOARTHRITIS IN THE FINGERS OR AT THE BASE OF THE
**THUMB? WHAT ABOUT HYALURONIC ACID THAT IS USED FOR OSTEARTHRITIS OF THE KNEE?**

Intra-articular injections of hyaluronic acid in the form of gel or visco-supplementation are effective in relieving the symptoms of osteoarthritis of the base of the thumb. Relief is a little slower to become established and lasts longer than with cortisone. Several recent scientific studies demonstrate the value of visco-supplementation based on hyaluronic acid to treat rhizarthrosis. However, many injections may be required.

14

**I TRIED ALL THE STEPS SUGGESTED ABOVE AND IT STILL HURTS. WHAT SHOULD I DO?**

The failure of conservative treatment indicates that consultation with a hand surgeon is required. A surgical procedure in the trapezo-metacarpal joint, the articulation between a wrist bone and the bone of the base of the thumb, is indicated in order to resolve the painful friction between the exposed articular surfaces of the trapezium and the metacarpal bones.

In the case of osteoarthritis located at the finger level, a surgery can also relieve associated pain. This is done at the inter-phalangeal joints of the fingers.

15

**GIVEN THIS SITUATION, IS SURGERY ESSENTIAL?**

**For rhizarthrosis:**

In a situation where, effectively the medical or conservative treatment fails to relieve pain or discomfort, there could be an indication for a surgery. Several techniques and options are available, depending on the evolution of the condition and according to the needs and preferences of its stage of evolution.

In all cases, the purpose of surgery is to relieve the pain associated with direct contact between the metacarpal bone and the trapezium. Stripped of its articular cartilage, the affected joint loses its shock absorber cushion that protects it from mechanical shocks.

**The surgical options are:**

1. Osteotomy of the thumb metacarpal: this procedure involves removing a slice of bone, like a wedge of pie, and then fixing the two bone fragments together securely with a temporary pin, or permanently, with a plate and screws. This makes it possible to modify the axis of transmission of the stresses and at the joint level, thus relieving the associated pain. This is only done in the later stages of rhizarthrosis.

2. Arthroscopic joint debridement: this minimally invasive new approach consists of cleaning the debris out of the joint. With a miniature motorized tool, the damaged articular cartilage at the trapezius level is removed to a height of approximately 3 mm. This procedure makes it possible to decompress the joint and expose the bone by stimulating vascularization and healing. It is made by two small holes, rather than an incision, and by means of miniature instruments and a camera.
The cartilage will then be replaced by a fiber-like scar tissue which will act as a cushion. In some cases, the surgeon will insert a small synthetic implant or a small piece of tendon. This technique is practiced in the early stages of rhizarthrosis and can sometimes be associated with an osteotomy as described above.

3. A trapeziectomy is a surgery which consists of adjusting the mechanical conflict between the trapezius and the metacarpal bone by removing a portion of the trapezius (hemitrapeziectomy) or more often, removing the bone completely. The space left empty by this shrinkage can be filled with a small piece of tendon or other material. In some cases, the surgeon will choose to reconstruct the ligaments of the joint using tendons and tunneling it in the first metacarpal bone (ligamentoplasty). The mechanical pain then disappears but the recovery period generally lasts from six to nine months. Moreover, one of the problem frequently associated with this procedure is the recession of the metacarpal bone which is no longer supported by the trapezoid, having been removed. This causes instability of the thumb and a lack of gripping force by the hand.

4. Joint replacement with a total modular prosthesis is similar to hip arthroplasty. This prosthetic arthroplasty has existed for several decades. This technique has become much more refined over time and the results are now excellent. However, the prosthesis has a lifespan limited to a dozen or perhaps fifteen years at the most, and a second surgery may be necessary later. Trapeziectomy remains a possible solution later, but a great advantage of joint replacement is to preserve the normal length of the thumb. This maximizes the maintenance of its strength and is associated with a recovery period of only a few weeks. The main disadvantage of this procedure is that it involves introducing a foreign body into the hand with a limited lifetime. Additional risks include dislocation, premature wear, and joint infection. This surgery is increasing in popularity.

5. Trapezometacarpal arthrodesis involves sacrificing the joint by fusing the metacarpal bone and the trapezius, which then form a single bone. The major disadvantage of this procedure is the sacrifice of joint mobility; it becomes impossible to lay the hand flat on a table. In addition, arthrodesis can fail and cause what is called a pseudarthrosis. Its advantages are the absence of a foreign body and theoretically, a better gripping force compared to a trapeziectomy. This procedure is often preferred by men and manual workers.

For osteoarthritis of the inter-phalangeal joints of the fingers:
The surgical options are as follows

1. Arthrodesis is a procedure that sacrifices the residual mobility of the joint by fusing the two phalanges in order to avoid friction and thus relieve pain. The joint is then permanently fixed in its functional position.

2. Joint replacement with a silicone implant or metal prosthesis can be achieved to preserve mobility while relieving pain. However, this procedure is rarely performed at the distal inter-phalangeal joint, which is the joint located near the nail.
WHAT TYPE OF ANESTHESIA IS REQUIRED FOR THE SURGERY?
Today, these procedures are very commonly performed under regional (arm) or local (finger) anesthesia in a comfortable and safe manner. There is no longer any reason, in a normal situation, to perform these surgeries under general anesthesia. The risks associated with anesthesia are thus dramatically reduced.

HOW DO I CHOOSE MY SURGERY?
Rhizarthrosis:
The various techniques all aim to restore thumb function by relieving pain. The ideal procedure will preserve the natural length of the thumb, and thus its strength and mobility. Risks should be limited and surgical trauma minimized.

The choice of surgery will be based on the experience of your hand surgeon and the degree of progress of your rhizarthrosis, while taking into account the requirements of your personal lifestyle. In order to be able to make the most informed choice with your surgeon, it is essential that you understand that the treatment of rhizarthrosis has evolved a lot.

- First metacarpal osteotomy:
  Advantages: effective for early stages, simple to perform and does not compromise other treatments.
  Disadvantages: risk of bone failure, risk of failure if the stage of development has been misjudged.

- Arthroscopic debridement of the trapezometacarpal joint:
  Advantages: effective for mild to moderate stages, minimally invasive technique, without incisions or scars, very painless.
  Disadvantages: complex to perform, must be performed by a hand surgeon specializing in this technique.

- Replacement of the trapezometacarpal joint:
  Advantages: is used for the early stages of development. Very effective for pain, short convalescence, makes it possible to gain a higher gripping force compared to a trapeziectomy.
  Disadvantages: implantation of a foreign body that will have to be removed or replaced in a decade or so. The surgical technique is sophisticated and must be performed by an experienced hand surgeon. Risks of displacement (loosening), premature wear or infection are associated with implants.
• Trapeziectomy with or without insert and ligament reconstruction:

Advantages: well codified surgery and known for more than half a century which relieves mechanical pain quite well. It does not use a foreign body and is simpler to perform than other procedures.

Disadvantages: it sacrifices a bone and an important joint at the base of the thumb, and therefore causes instability and loss of strength of the grip between the thumb and index finger. It requires a recovery period and long rehabilitation (six to nine months).

• Arthrodesis or bone fusion of the trapezometacarpal joint:

Advantages: it relieves pain and preserves gripping force from the thumb to the index finger while retaining the height of the thumb. It does not use a foreign body.

Disadvantages: it is accompanied by a high failure rate due to incomplete bone consolidation, or pseudarthrosis. Mobility is sacrificed significantly since the operated person can no longer lay the hand flat on a table.

Interphalangeal joints:
Arthrodesis surgery is preferred for the joint of the tip of the finger where a prosthesis gives disappointing results. This procedure usually helps to relieve the pain by giving the hand strength and stability.

Joint replacement or arthrodesis may be proposed for proximal interphalangeal joints, depending on the quality of the residual bone and the type of physical activity that the affected person regularly performs. Indeed, a prosthesis will not resist vigorous and repetitive use. In this case, an arthrodesis in a functional position would be a better choice.

ARE THERE LESS INVASIVE ALTERNATIVES?
There are, indeed, other techniques, much more recent and sophisticated, which are less invasive and can relieve the trapezometacarpal joint of the thumb without scars.

This is done by two small holes made at the base of the thumb allowing the introduction of a small high definition camera inside the joint. Lesions of the cartilage are therefore viewed perfectly and treated with a miniature cutter, always under continuous direct visual control.

It is a safe procedure that allows faster recovery, minimizing pain and secondary stiffness. It is also distinguished for the quality of its aesthetic results, limiting the risk of unsightly scars. This arthroscopic technique is only practiced in the early stages of rhizarthrosis and cannot be adapted to treat the small joints of other fingers.
ARE THESE TREATMENTS PAINFUL?
During the surgery, pain is prevented by long duration anesthesia in the affected area. Surgical procedures, however, are accompanied by discomfort or postoperative pain of varying intensity, depending on the endurance of each person and the more or less invasive nature of the chosen procedure.

After the surgery, it will be very important to keep the operated hand higher than the elbow for the first few days after surgery to limit swelling and pain in the hand. The swelling can also be controlled with a combination of anti-inflammatories and painkillers taken at regular intervals during the first few days of recovery.

Arthroscopic surgery is almost painless. Joint replacement is followed by moderate discomfort for a few days. Trapeziectomy is the most painful procedure and it is essential to provide good pain control by taking medication and keeping the hand elevated.

WHAT ARE THE REAL CHANCES OF A SUCCESSFUL SURGERY FOR RHIZARTHROSIS?
The surgery for rhizarthrosis generally provides good results. The complication rate varies between 5% and 15%, depending on the technique used and the degree of progress of the pathology. Avoid waiting too long before surgery to minimize irreversible consequences.

Like all sophisticated surgical techniques, minimally invasive surgery requires special skills and must be practiced by an experienced hand surgeon.

Surgery of the inter-phalangeal joints also provides good results.

ARE COMPLICATIONS OFTEN OBSERVED AFTER THIS TYPE OF SURGERY?
For rhizarthrosis:
Infection is rare but can be caused due to a bacteria passing through the skin and proliferating beneath the skin as soon as there is a cutaneous incision. The infection rate after such surgery is less than 1% and is even lower with arthroscopic surgery that is less invasive in nature. The infection rate is slightly higher if a temporary pin is left in place, as it is the case for an osteotomy.

Postoperative stiffness is not unusual, due to the immobilization required after surgery, but responds well to rehabilitation. The stiffness is proportional to the duration of the immobilization of the thumb column.

Non-consolidation of the trapeziometacarpal arthrodesis is not rare but is not always
painful. However, it may require a second procedure with bone grafting.

**For interphalangeal joints:**
The most frequent complication for an arthrodesis is the absence of bone consolidation known as a pseudarthrosis. This may or may not lead to residual pain. This complication involves a second surgery.

Joint replacement involves the risk of infection, loosening or displacement (dislocation) of the prosthesis. Moreover, the prostheses have a limited lifespan and will one day require surgical revision.

**22 / ARE THERE RISKS OF NERVE DAMAGE?**
Nerve damage is a rare but possible complication because a branch of the superficial radial nerve, a small nerve in the region of the base of the thumb, is near the surgical site. It is the duty of the surgeon to take the necessary precautions to protect it, but temporary numbness of the dorsal surface of the thumb is nevertheless possible following the surgery.

**23 / I HAVE HEARD OF REFLEX SYMPATHETIC DYSTROPHY “RSD” OR COMPLEX REGIONAL PAIN SYNDROME “CRPS”. WHAT DOES THAT MEAN?**
C.R.P.S. (Complex Regional Pain Syndrome) is a painful complex syndrome. This is an amplified and disproportionate reaction of the body to a painful trauma such as a surgical trauma. It is a complication whose frequency can reach 4 to 5% following rhizarthrosis surgery.

Do not hesitate to take vitamin C before surgery to reduce this risk. According to current studies, the recommended dose would be 500 to 1000 mg per day for one month, before and after the procedure. This dosage should be confirmed with the surgeon during the preoperative evaluation.

**24 / WHAT ABOUT STIFFNESS? I HEARD THAT REHABILITATION IS NECESSARY AFTER SURGERY.**
Postoperative stiffness is essentially related to the healing process, the healing of connective tissue. It can be relatively significant, depending on the type of surgery performed and the personal propensity of the person being operated on.

Indeed, this complication is more rare with the less invasive techniques that allow rapid mobilization. However, techniques that immobilize the thumb and wrist for longer than 3 weeks require teaching a rehabilitation program. It is then necessary to begin the gradual recovery of movement and eventually to work on muscle strengthening.
25 / ARE THE SCARS IN THE HAND PAINFUL?
Conventional open surgery could leave a scar that remains hypersensitive for weeks in a very exposed area of the hand. Arthroscopy, on the other hand, leaves very few scars.

26 / WHAT IS THE EXPECTED CONVALESCENCE TIME?
Depending on the operating technique chosen, the duration of recovery varies between a few weeks, for an articular replacement by total prosthesis, and several months, or up to nine months for a trapeziectomy.

Sports will be delayed depending on the type of activity. For cycling or golf, it takes about eight weeks, or more, depending on the surgical technique used. For heavier physical activities, it will take three to six months, or longer, depending on the technique chosen.

As for returning to work, people with relatively light physical work will be able to resume work six to eight weeks after joint replacement, but will have to wait at least three to four months after a trapeziectomy. Workers doing heavy physical work, on the other hand, will have a recovery of at least six months with conventional surgery.

27 / IS IT NECESSARY TO WEAR A SPLINT AFTER SURGERY?
Immobilization with a splint of variable duration is required after each type of procedure. It varies from two weeks for an articular replacement to six weeks after a trapeziectomy.

Postoperative rehabilitation will relieve the stiffness associated with tissue healing.

28 / SHOULD REHABILITATION BE PROVIDED IN OCCUPATIONAL THERAPY OR PHYSICAL THERAPY AFTER SURGERY?
Rehabilitation is often not required after joint replacement in a minimally invasive manner but is the rule for a trapeziectomy. It will range from a few weeks to a few months. Rehabilitation aims to regain thumb and wrist movement, grip strength and muscular endurance.

As far as arthrodesis surgery is concerned, rehabilitation is mainly for the joints associated with the joint operated on, since it is obviously fixed.

After one or the other of these surgeries, rehabilitation must be entrusted to a specialized hand therapist. An occupational therapist could make a molded splint on the hand, or on the finger, as the need arises. The duration and justification of the support will then be explained.
IS IT TRUE THAT A HEALTHY DIET CAN SLOW DOWN THE PROGRESSION, OR DECREASE THE RISK, OF DEVELOPING OSTEOARTHRITIS?

It is true that the «Mediterranean» regime is often referred to as the reference diet for the prevention of many diseases. This is mainly due to the numerous inflammatory properties conferred on it by its high content of omega-3 and monounsaturated fatty acids, such as those contained in oily fish and olive oil respectively. These latter modulate our inflammatory function both directly, such as by reducing the expression of pro-inflammatory genes, and indirectly by affecting the activity of our lymphocytes and monocytes (fundamental immune system cells). As far as articulatory diseases of the hand are concerned, it has been attested to many times in literature that this type of diet has beneficial effects on the progression and impact of rheumatoid arthritis with etiology of an inflammatory nature. However, this correlation cannot be applied to osteoarthritis of the hand whose origin is degenerative in nature. Some studies, however, show that maintaining adequate levels of vitamin D via supplementation and reducing high cholesterol levels can have beneficial effects on this condition.

IS IT POSSIBLE TO CONTROL THE PAIN CAUSED BY OSTEOARTHRITIS IN A NATURAL WAY THROUGH DIET AND NATURAL PRODUCTS?

It has been shown that certain food have pain relieving properties in patients with osteoarthritis. Once the degenerative process causing osteoarthritis is initiated, pain associated with it may be partly caused by subsequent inflammation. Adopting a diet with anti-inflammatory properties can be beneficial in this context.

This implies among other things:

- regular consumption of fish and sea food (3 to 4 ounces, at least twice a week)

- incorporation of 2 cups of fruit or vegetables per meal, green leafy vegetables such as kale, broccoli and spinach which are rich in vitamin K and berries such raspberries, blackberries and blueberries rich in antioxidants would be preferred

- the use of a source of healthy fat, such as extra virgin olive oil for cooking and for the preparation of your favorite recipes

- promote the incorporation of high-fiber foods such as whole grain cereals and nuts into your grocery cart

- minimize the consumption of industrially refined products, such as pre-packaged cupcakes and cookies

There are also several recommendations for taking food supplements that can help control the pain caused by osteoarthritis. Here are a few:
• a daily intake of 500 to 1500mg of glucosamine; it is necessary to be patient because it usually takes 3 to 4 months before noticing the effects

• a daily intake of 300 to 600mg of avocado soybean unsaponifiables [ASU]

• taking 250mg of bromelain twice daily, an enzyme isolated from the pineapple components

• Finally, incorporating certain herbs and spices into your diet and daily lifestyle can also benefit you:

  • turmeric; consume 300mg three times daily for a total of 900mg

  • ginger; consume up to 2g per day, ideally divided into several doses

  • capsaicin, a molecule derived from the cayenne pepper that can be found as a topical cream; apply daily to the skin covering the affected joint

It is important to note that some of these molecules may interfere with your present medication or medical condition. It is therefore essential to discuss beginning to use these natural treatments with your doctor.

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**To contact the authors**

Dr Jean Paul Brutus :  [www.drbrutus.com](http://www.drbrutus.com)

Nathalie Brisebois :  [www.cpergotherapie.ca](http://www.cpergotherapie.ca)