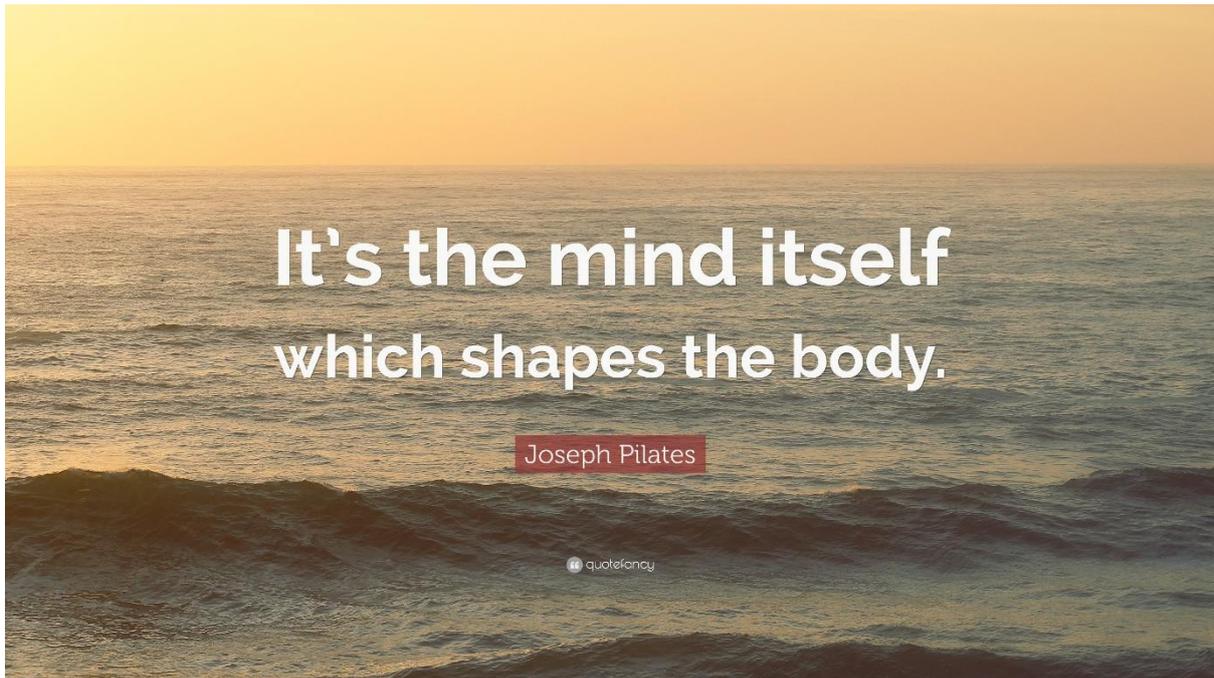

The positive effects of Pilates on greater trochanteric bursitis



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Abstract:

After evaluating numerous individuals during practical teaching hours, a conclusion was made that greater trochanteric bursitis is a relatively common condition. This research shows that greater trochanteric bursitis does not discriminate and can occur in a wide variety of individuals regardless of fitness levels, body type, gender, age, etc.

Greater trochanteric bursitis pain can be quite severe. It is characterized by pain over the lateral side of the hip and it prevents many from lying comfortably on their sides. Pain may radiate down through the outside of the thigh towards the knee. Pain might also be present over the gluteal area and related soft tissue surrounding the bursae. Most people complain about having trouble at night when lying on the affected side. This nocturnal pain can cause sleep disturbances and is often one of the reasons for seeking treatment.

Although it is recommended to rest the affected area, I have found that the symptoms do not really clear up after resting the area. My personal experience was that hip bursitis responds very well to most types of exercises in the BASI repertoire and the people that I trained felt a definite improvement after starting doing Pilates for this.

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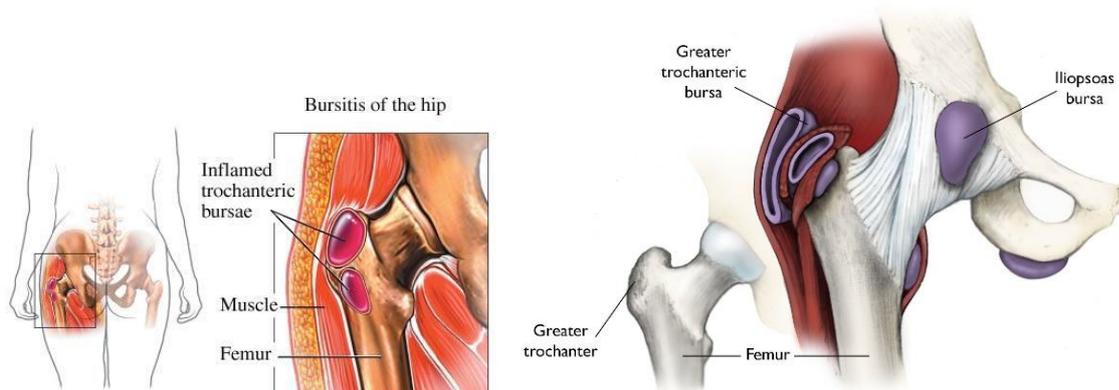
Anatomical overview:

There are over 150 bursae found in the human body. Bursae are fluid-filled sacs that act as a cushion between bones, tendons, joints, and muscles. They prevent bones from rubbing against tendons and muscles. This cushioning and lubrication allows joints to move easily and without friction. They are present wherever there are bony prominences close to joints and the major bursae are located next to the tendons near the large joints, such as in the shoulders, elbows, hips, and knees.

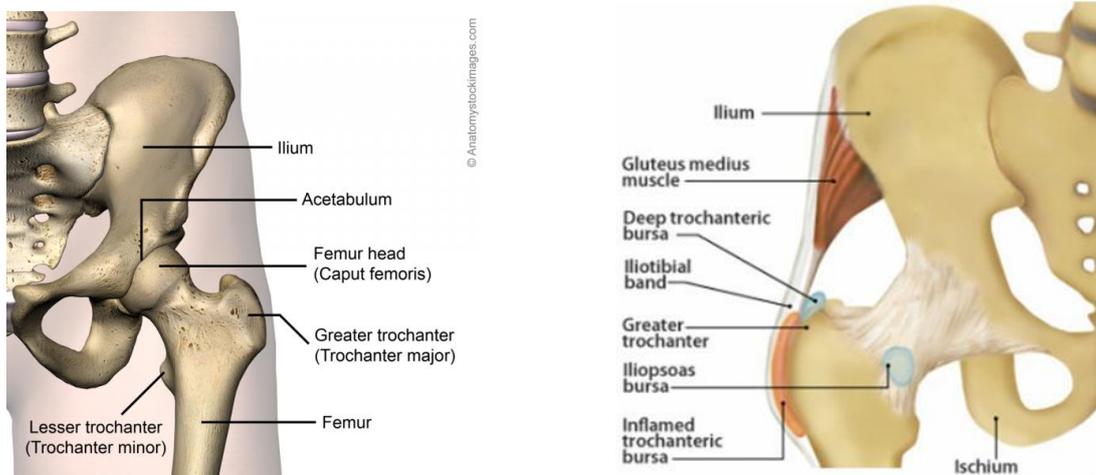
An inflamed bursa (swelling in the synovial walls of a bursa) is called bursitis.

Bursitis can occur in any bursa in the body, but it is more likely in certain places, including:

- Hip bursitis
- Shoulder bursitis
- Elbow bursitis
- Knee bursitis
- Achilles tendon bursitis



The greater trochanter is one of the bony prominences at the end of the femur. The greater trochanter gives attachment to several tendons and muscles such as the gluteus minimus, gluteus medius, gluteus maximus and the tensor fascia latae. The tensor fascia latae keep the Iliotibial band (ITB) tense. Due to contraction of these muscles there can be a lot of friction in this area when for instance running or walking. Friction in this area is absorbed by the bursae. The superficial trochanteric bursa is located over the greater trochanter and is the most commonly inflamed bursa. A deep trochanteric bursa (iliopsoas bursa) lies deeper and on the inside of the hip. It can also become inflamed in more severe cases and cause pain in the groin area.



Causes of trochanteric hip bursitis:

It can occur because of overuse at joints that perform a frequent repetitive motion, such as the repetitive bending of an elbow or repeated kneeling or even repetitive physical activities such as running or biking.

It can also occur because of a minor impact to an area or from a more serious injury. An injury can irritate the tissue inside the bursa and cause inflammation. A fall or simply bumping the hip hard can cause trochanteric bursitis.

Poor posture or abnormal postural deviations (such as length differences in your legs, scoliosis, etc.) can put added stress on a bursa sac, causing bursitis.

Being overweight can also place added strain on joints.

Sometimes a person may develop bony growths or calcifications on the trochanter, which can rub against the bursa and cause inflammation.

An infection or a pre-existing condition, such as rheumatoid arthritis, gout, tendonitis, thyroid disorders, diabetes can lead to the inflammation of a bursa.

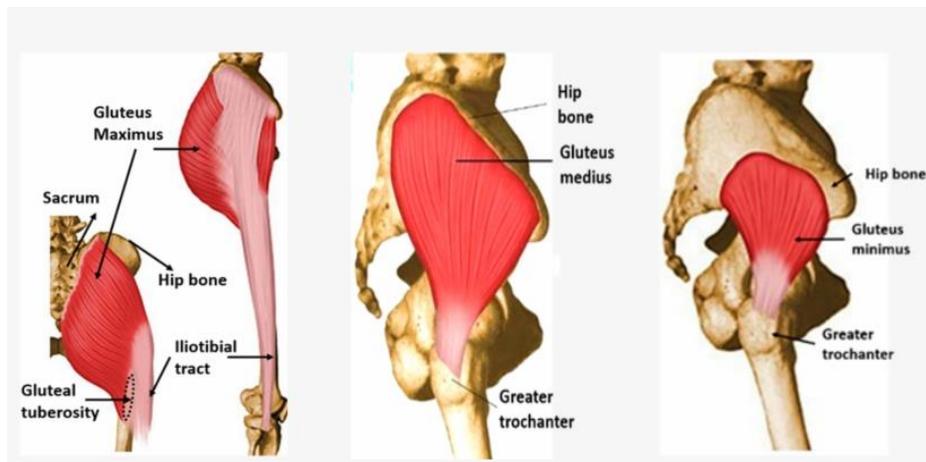
People that have had previous surgery on their hip, for instance a hip replacement or prosthetic implants, are also more likely to develop hip bursitis due to irritation to the bursae. Sometimes, hip surgeries can result in a slight difference in leg length, which can also contribute to trochanteric bursitis.

Insufficient stretching or conditioning before exercise can lead to bursitis.

Age can also play a role. As muscles, tendons and ligaments age, they are able to tolerate stress less, are less elastic, and are easier to tear. It can also be more common as a result of age due to degenerative soft tissue changes, such as the loss of muscle tissue, loss of cartilage, bone mass and density, etc. Joints become stiffer and less flexible. Fluid in joints may decrease. Cartilage may begin to rub against each other. Because of aging there might also be a change in posture and gait (walking pattern) and this can place added strain on a bursa.

It can also occur as a result of starting an unusual or vigorous exercise program, from weight-bearing on the one leg for long periods, from hip instability, and also due to pathology of the gluteal muscles that insert on the femur. There can be a tear or inflammation of a tendon which leads to a secondary inflammation of the bursa. Another cause can be from the iliotibial band which runs over the greater trochanter. When the ITB is tight it can irritate and inflame the bursa.

Trochanteric bursitis also seems to be more prevalent among females and often affects females with wide pelvises and/or patients with prominent greater trochanters.



Symptoms of trochanteric hip bursitis:

The most critical factor is correct diagnoses. Arriving at the correct diagnosis can be challenging, given the complex anatomic relationships surrounding the hip. The hip has several structures that can cause hip pain or tenderness and there may be other possible causes of hip pain. If for instance the cause of the pain is due to a spinal disc disorder, and you continue to treat the hip without addressing the root cause you will not recover and may make matters worse.

When a person has trochanteric hip bursitis, movement in or pressure on the area is painful. Tenderness may also be experienced even without movement. The pain may build up gradually or occur without warning. If the tendons around the hip bone are also inflamed, symptoms tend to be worse. As previously mentioned, the pain may be worse at night, especially when lying on the affected area.

There may be a referred pain that travels down the outside thigh and may continue down to the knee. Symptoms may also include swelling, stiffness, immobility and loss of movement in the area.

Pain may be experienced upon getting up from a deep chair, after prolonged standing or after sitting for an extended period. It can also be present even when walking, climbing stairs, performing prolonged activities like squatting, or activities involving repetitive hip flexion and extension.

Most people with trochanteric bursitis find that there are specific activities that aggravate their symptoms.

If the bursitis is caused by an infection, it is called septic bursitis. A person with septic bursitis may experience redness in the area, have a fever and the area may feel hot when touched.

Diagnosis of trochanteric hip bursitis:

The most effective method for diagnosing greater trochanteric bursitis is by placing deep lateral pressure directly over the bony prominence of the femur. The test is considered positive when the patient experiences pain with this deep palpation. Although such a clinical examination is typically sufficient to determine the cause of the pain, other methods may be used. X-rays may show bony spurs at the trochanter. An ultrasonography or magnetic resonance imaging can be helpful in revealing pathology. An ultrasound scan or MRI scan may show fluid within the inflamed bursa.

Treatment of trochanteric hip bursitis:

The best treatment will be avoiding any activities that may aggravate the problem. Pain is your body's signal that something is wrong. Don't try to follow the "no pain, no gain" philosophy. Doing so can not only make the damage worse but will also delay your recovery time.

It may be useful to use ice as it can relieve pain and swelling and speed up healing in the area. Apply an ice pack to the injured area for 10-20 minutes, then remove for 10-20 minutes. This can be done for a 48-hour period. Another recommendation is to apply ice for 20 minutes of each hour.

Temporary use of a mobility aid or assistive devices such as a cane or crutches may help take the load off the affected area.

Ultrasound therapy (deep heating) can also be considered to decrease inflammation and swelling and to treat pain. Ultrasound therapy uses sound waves to penetrate tissue. The warming effect encourages healing.

You can also take nonsteroidal anti-inflammatory medication to reduce pain and decrease inflammation. NSAIDs work by reducing the production of prostaglandins. Prostaglandins are chemicals that promote inflammation, pain, and fever.

Corticosteroids, also known simply as "steroids," are often used because they work quickly to provide relief. Corticosteroids are man-made drugs that closely resemble a hormone that your adrenal glands produce naturally. Steroids can be given topically, by mouth or injected directly at the precise place where

the problem exist such as a bursa. Steroids work by decreasing inflammation and reducing the activity of the immune system. Inflammation is a process in which the body's white blood cells and chemicals can protect against infection and foreign substances such as bacteria and viruses. In certain cases, the body's immune system is overactive. This might cause inflammation to work against the body's tissues and cause damage. Steroids reduce the production of chemicals that cause inflammation and also reduce the activity of the immune system in order to minimize tissue damage. Steroids might provide significant relief from pain and stiffness but may have possible side effects. It is also not advisable to continue with injections because of the possibility of masking problems that need to be treated differently. Prolonged corticosteroid injections may also damage the surrounding tissues.

Surgery may be an option when bursitis does not respond to the other treatment options. Removal of the bursa does not hurt the hip and the hip can function normally without it. When performing arthroscopic surgery, the bursa is removed through a small incision over the hip.

There is also a relatively new operative procedure for patients with chronic trochanteric bursitis, called trochanteric reduction osteotomy. Basically, the greater trochanter is reduced and repositioned more distally and fixated by means of two cortical lag screws with washers. By doing so, friction between the tractus iliotibialis (ITB) and the greater trochanter will be reduced.

If the condition does not improve a doctor can also do an X-ray test to check for broken bones. The doctor can do a blood test to assess for rheumatoid arthritis or do a CT or MRI scan to see if there is a torn muscle or tendon or a cartilage injury. When these findings are consistent with a muscle tear or tendon disruption, surgical repair can be an option. As previously mentioned, trochanteric hip bursitis can also develop because of repetitive friction between the ITB and the greater trochanter and therefore there are surgical options available such as the longitudinal release of the iliotibial where the surgeon makes an incision at the level of the greater trochanter, and this incision will reduce the tension.

Prevention of trochanteric hip bursitis:

When doing repetitive tasks, it is important to take regular breaks. Aside from taking breaks, it is also important to vary movements and use different parts of the body to help.

It is important to protect vulnerable parts of the body. Individuals who for example kneel a lot could get knee pads. Wearing something like an elbow, knee or ankle brace can help stabilize an area when in use. Avid runners and walkers should invest in quality shoes and protective gear.

One can for example get a shoe insert to compensate for height differences in your legs.

It is important to warm up before exercise and to gradually increase the pace and level of your exercise routine.

Maintaining strength and flexibility in the hip is key and will add extra protection to an area.

After most of the pain and inflammation has settled one can start with an exercise program to increase your muscle strength and flexibility.

Strengthening muscles that support your hip can relieve pain, it will help keep your hip joint stable and prevent future injury. Stretching the muscles that you strengthen is important for restoring range of motion and prevent injury by keeping your muscles long and flexible.

**The answer is
Pilates.**

**What was the
question?**

BASI Pilates exercise plan for the treatment of trochanteric hip bursitis:

It is best to avoid high impact activities such as running and jumping that can cause the bursae to become irritated and to flare-up again. Alternative to Pilates, walking would be a better choice. Swimming and things like water aerobics are also wonderful exercises, as they allow you to strengthen your muscles without putting much pressure on your joints. Because Pilates is a low impact form of exercise it is great for rehabilitation.

The goal of the below BASI Pilates conditioning program is to strengthen weak hip muscles and to increase strength and flexibility in the lower extremities.

The program also aims to increase core strength, stability, balance and proprioception.

| Number of sessions | 1-10 | 11-20 | 21 onwards |
|-----------------------|---|---|---|
| Warm up | <u>MAT:</u> <ul style="list-style-type: none"> ○ Pelvic curl ○ Spine twist supine ○ Chest lift ○ Chest lift with rotation | <u>MAT:</u> <ul style="list-style-type: none"> ○ Pelvic curl ○ Leg changes ○ Leg circles ○ Hundreds prep ○ Rolling-like-a-ball ○ Shoulder bridge prep | <u>MAT:</u> <ul style="list-style-type: none"> ○ Pelvic curl ○ Roll up ○ Double leg stretch ○ Single leg stretch ○ Criss cross ○ Spine stretch ○ Shoulder bridge <u>Cadillac:</u> <ul style="list-style-type: none"> ○ Roll-up with RUB ○ Mini roll-ups ○ Mini roll-ups obliques ○ Roll-up top loaded |
| Footwork | <u>Reformer:</u> <ul style="list-style-type: none"> ○ Parallel heels ○ Parallel toes ○ V position toes ○ Open V heels ○ Open V toes ○ Calf raises ○ Prances ○ Single leg heel ○ Single leg toes | <u>Wunda:</u> <ul style="list-style-type: none"> ○ Parallel heels ○ Parallel toes ○ V position toes ○ Open V heels ○ Open V toes ○ Calf raises ○ Prances ○ Single leg heel ○ Single leg toes | <u>Cadillac:</u> <ul style="list-style-type: none"> ○ Parallel heels ○ Parallel toes ○ V position toes ○ Open V heels ○ Open V toes ○ Calf raises ○ Prances ○ Single leg heel ○ Single leg toes |
| Abdominal work | <u>Reformer:</u> <ul style="list-style-type: none"> ○ Hundred Prep Short Box Series: <ul style="list-style-type: none"> ○ Round back ○ Flat back ○ Tilt ○ Twist <u>Wunda:</u> <ul style="list-style-type: none"> ○ Standing Pike ○ Pike sitting ○ Cat stretch <u>Step barrel:</u> <ul style="list-style-type: none"> ○ Chest lift ○ The reach ○ Overhead reach <u>Magic circle:</u> <ul style="list-style-type: none"> ○ Chest lift <u>MAT:</u> <ul style="list-style-type: none"> ○ Hundred ○ Teaser prep | <u>Reformer:</u> <ul style="list-style-type: none"> ○ Hundred ○ Coordination Legs in straps series: <ul style="list-style-type: none"> ▪ Double leg ▪ Double leg and rotation <u>Wunda:</u> <ul style="list-style-type: none"> ○ Standing pike reverse <u>Step Barrel:</u> <ul style="list-style-type: none"> ○ Teaser prep <u>MAT:</u> <ul style="list-style-type: none"> ○ Hamstring pull 1 | <u>Reformer:</u> <ul style="list-style-type: none"> ○ Backstroke ○ Teaser prep Short Box Series: <ul style="list-style-type: none"> ▪ Round back ▪ Flat back ▪ Tilt ▪ Twist ▪ Round about ▪ Climb-a-tree <u>Cadillac:</u> <ul style="list-style-type: none"> ○ Teaser 1 ○ Breathing with P.T.B ○ Bottom lift with RUB <u>Wunda:</u> <ul style="list-style-type: none"> ○ Full pike ○ Torso press sit <u>MAT:</u> <ul style="list-style-type: none"> ○ Hamstring pull 2 ○ Hamstring pull 3 |

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|-----------------------------------|---|--|---|
| <p>Hip work</p> | <p><u>Reformer:</u> Supine leg series:</p> <ul style="list-style-type: none"> ▪ Frog ▪ Circles (down, up) ▪ Openings <p><u>Cadillac:</u> Supine leg series</p> <ul style="list-style-type: none"> ▪ Frog: ▪ Circles (down, up) ▪ Walking ▪ Bicycles <p>Single leg supine:</p> <ul style="list-style-type: none"> ▪ Frog ▪ Circles (down, up) ▪ Hip extension ▪ Bicycles | <p><u>Step barrel:</u> Supine leg series:</p> <ul style="list-style-type: none"> ▪ Scissors ▪ Bicycle ▪ Bicycle reverse ▪ Openings ▪ Helicopter | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Circles ○ Extended frog ○ Extended frog reverse |
| <p>Spinal Articulation</p> | | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Bottom lift ○ Bottom lift with extensions <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Monkey original ○ Tower prep <p><u>Wunda:</u></p> <ul style="list-style-type: none"> ○ Pelvic curl <p><u>Step barrel:</u></p> <ul style="list-style-type: none"> ○ Roll over <p><u>MAT:</u></p> <ul style="list-style-type: none"> ○ Seal puppy ○ Roll over ○ Open leg rocker | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Short spine ○ Long spine ○ Semi circle <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Tower <p>Wunda:</p> <ul style="list-style-type: none"> ○ Jack knife |
| <p>Stretches</p> | <p><u>Reformer:</u> Hamstring stretch group:</p> <ul style="list-style-type: none"> ▪ Standing lunge <p><u>Ladder Barrel:</u></p> <ul style="list-style-type: none"> ○ Shoulder Stretch 1 ○ Shoulder Stretch 2 ○ Gluteals ○ Hamstrings ○ Adductors ○ Hip flexors <p>Pole series:</p> <ul style="list-style-type: none"> ○ Shoulder stretch ○ Overhead stretch ○ Side Stretch ○ Spine twist <p><u>Pole series:</u></p> <ul style="list-style-type: none"> ○ Shoulder stretch ○ Overhead stretch ○ Side Stretch ○ Spine twist | <p><u>Reformer:</u> Hamstring stretch group:</p> <ul style="list-style-type: none"> ▪ Kneeling lunge | <p><u>Reformer:</u> Hamstring stretch group:</p> <ul style="list-style-type: none"> ▪ Full lunge <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Shoulder stretch |

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| <p>Full body integration (intermediate)</p> | | <p><u>Reformer:</u> Knee stretch group:</p> <ul style="list-style-type: none"> ▪ Scooter ▪ Round back ▪ Flat back ▪ Reverse knee stretch <p>Up stretch group:</p> <ul style="list-style-type: none"> ▪ Up stretch 1 ▪ Elephant ▪ Up stretch 2 <p>Down stretch group:</p> <ul style="list-style-type: none"> ▪ Down stretch <p>Stomach massage series:</p> <ul style="list-style-type: none"> ▪ Round back ▪ Flat Back ▪ Reaching <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Thigh stretch with RUB <p>Push through group:</p> <ul style="list-style-type: none"> ▪ Sitting forward ▪ Side reach ▪ Kneeling cat stretch | <p><u>Reformer:</u> Up stretch group:</p> <ul style="list-style-type: none"> ▪ Long stretch ▪ Up stretch 3 <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Saw ○ Sitting back |
| <p>Arm work</p> | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Shoulder push <p>Arm supine series:</p> <ul style="list-style-type: none"> ▪ Extension ▪ Adduction ▪ Up circles ▪ Down circles ▪ Triceps <p>Arm sitting series:</p> <ul style="list-style-type: none"> ▪ Chest expansion ▪ Biceps ▪ Rhomboids ▪ Hug-a-tree ▪ Salute <p><u>Cadillac:</u></p> <p>Arm standing series:</p> <ul style="list-style-type: none"> ▪ Chest expansion ▪ Hug-a-tree ▪ Up circles ▪ Down circles ▪ Punches ▪ Biceps <p><u>Wunda:</u></p> <ul style="list-style-type: none"> ○ Shrugs ○ Tricep press sit ○ Tricep prone ○ Frog back ○ Side keeling arm <p><u>Magic circle:</u></p> <p>Arm series:</p> <ul style="list-style-type: none"> ▪ Arms bent ▪ Arms straight ▪ Arms overhead ▪ Single arms side press ▪ Single arm bicep <p>Ped-o-pull series:</p> <ul style="list-style-type: none"> ▪ Extension ▪ Adduction ▪ Up circles ▪ Down Circles ▪ Triceps | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Shoulder push single arm <p>Arm kneeling series:</p> <ul style="list-style-type: none"> ▪ Chest expansion ▪ Up circles ▪ Down circles ▪ Triceps ▪ Biceps | <p><u>Reformer:</u></p> <p>Rowing series:</p> <ul style="list-style-type: none"> ▪ Rowing back 1 ▪ Rowing back 2 ▪ Rowing front 1 ▪ Rowing front 2 <p>Side arm kneeling series:</p> <ul style="list-style-type: none"> ▪ Deltoid reach ▪ Cross arm pull ▪ Triceps ▪ Arms overhead |

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| <p>Full body integration (advanced)</p> | | | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Long back stretch ○ Tendon stretch ○ Balance control front ○ Balance control back prep <p><u>Wunda:</u></p> <ul style="list-style-type: none"> ○ Tendon Stretch |
| <p>Leg work</p> | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Hamstring Curl <p><u>Wunda:</u></p> <ul style="list-style-type: none"> ○ Leg press standing ○ Hamstring curl <p><u>Magic Circle:</u></p> <ul style="list-style-type: none"> ○ Adductor squeeze <p>Sitting Series:</p> <ul style="list-style-type: none"> ▪ Ankles ▪ Below knees ▪ Above knees <p>Supine Series:</p> <ul style="list-style-type: none"> ▪ Knees ▪ Ankles <p>Prone Series:</p> <ul style="list-style-type: none"> ▪ Ankles bent knees ▪ Ankles straight knees ▪ Hamstrings <p><u>Leg weights:</u></p> <p>Gluteal kneeling series:</p> <ul style="list-style-type: none"> ▪ Hip extension bent knee ▪ Hip extension straight leg | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Single leg skating ○ Side split <p><u>Wunda:</u></p> <ul style="list-style-type: none"> ○ Hip opener ○ Frog front <p>Step down group:</p> <ul style="list-style-type: none"> ▪ Backward step down | <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Squats <p><u>Wunda:</u></p> <p>Lunge group:</p> <ul style="list-style-type: none"> ▪ Forward lunge |
| <p>Lateral flexion / rotation</p> | <p><u>Reformer:</u></p> <ul style="list-style-type: none"> ○ Side over on box <p><u>Wunda:</u></p> <ul style="list-style-type: none"> ○ Side stretch ○ Side kneeling stretch <p><u>Step Barrel:</u></p> <ul style="list-style-type: none"> ○ Spine twist supine ○ Side lift ○ Corkscrew <p><u>Mat:</u></p> <ul style="list-style-type: none"> ○ Saw ○ Spine twist ○ Corkscrew | <p><u>Wunda:</u></p> <ul style="list-style-type: none"> ○ Side pike | <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Butterfly <p><u>MAT:</u></p> <ul style="list-style-type: none"> ○ Hip circles prep |
| <p>Back extension</p> | <p><u>Reformer:</u></p> <p>Long box group:</p> <ul style="list-style-type: none"> ▪ Breastroke prep ▪ Pulling straps 1 ▪ Pulling straps 2 <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Prone 1 <p><u>Wunda:</u></p> <ul style="list-style-type: none"> ○ Swan basic ○ Swan on floor ○ Back extension single arm <p><u>Step Barrel:</u></p> <ul style="list-style-type: none"> ○ Swan prep <p><u>Magic circle:</u></p> <ul style="list-style-type: none"> ○ Swan | <p><u>Reformer:</u></p> <p>Long box group:</p> <ul style="list-style-type: none"> ▪ Breastroke <p><u>Step Barrel:</u></p> <ul style="list-style-type: none"> ○ Swan <p><u>MAT:</u></p> <ul style="list-style-type: none"> ○ Double leg kick ○ Rocking prep | <p><u>Cadillac:</u></p> <ul style="list-style-type: none"> ○ Prone 2 <p>Hanging series:</p> <ul style="list-style-type: none"> ▪ Hanging back <p><u>Ladder Barrel:</u></p> <ul style="list-style-type: none"> ○ Swan <p><u>MAT:</u></p> <ul style="list-style-type: none"> ○ Swan dive prep |

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| | <u>Ladder Barrel:</u> <ul style="list-style-type: none"> ○ Basic back extension <u>MAT:</u> <ul style="list-style-type: none"> ○ Back extension ○ Swimming | | |
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Exercise notes:

All the exercises introduced in the first 10 sessions can be continued throughout the program. I started with fundamental and intermediate exercises and gradually progressed to more challenging exercises according to individual capability.

Warm up: I always made sure that I started a session with doing about 6-8 pelvic curls at the beginning of a session. I also added the shoulder bridge prep and shoulder bridge here as these exercises all target the posterior spinal stabilizers (erector spinae, semispinalis, deep posterior spinal group), the anterior spinal stabilizers (rectus abdominis, external oblique, internal oblique, transverse abdominis), the hip extensors (gluteus maximus and hamstrings) and the hip flexors (iliopsoas, rectus femoris, sartorius, tensor fascia latae, pectineus) and the pelvic floor muscles (coccygeus and levator ani). All of these muscles play a role in supporting the hip joints, making these exercises perfect for hip strength and hip stability.

Footwork: I alternated between footwork on the Reformer, Cadillac and Wunda chair. I avoided the hip opener on the Cadillac, to not put pressure on the bursa.

Abdominal work: I started with beginner / fundamental exercises in the first 10 sessions and progressed to more challenging exercises as illustrated in the table above. I made sure that the client was able to progress to the next exercise, that their abdominals were strong enough in order to prevent them from feeling it in the lower back.

Hip Work: I continued with the hip work (supine leg series) on the Reformer and Cadillac throughout. Only after people had the supine leg series on the Reformer under control and were able to follow the sequence, breathing and exercise techniques correctly, I added the extended frog and extended frog reverse. I added the hip work on the Step Barrel (supine leg series) from the 11th session onwards. I found that some people struggle a bit with coordination and I did not want them to feel intimidated within the first few sessions. I avoided the side lying single leg series on the Cadillac.

Spinal Articulation: No additional notes.

Stretches: I started with the standing lunge on the Reformer and gradually progressed to the kneeling lunge and full lunge as flexibility improved. I continued with stretches on the Ladder Barrel throughout and found the gluteal, hamstring, adductor and hip flexor stretch to be crucial, because these stretches specifically target the area where you want to increase strength, flexibility and restore range of motion. I only introduced the shoulder stretch on the Cadillac from the 21st session onwards as I found that most people have limited range of motion in the shoulder and that some people experience slight discomfort in the shoulder while performing this stretch.

Full body integration intermediate: I only incorporated exercises from this block from the 11th session onwards as prescribed by layout of the BASI block system.

Arm work: I only incorporated the side kneeling arm series on the Reformer from the 21st session onwards. I found this to be a very challenging exercise, especially for women that do not necessarily have the upper body strength compared to males. I only introduced this series once people had the adequate strength, balance and stability to execute them properly. I also only introduced the rowing series on the Reformer later on. As previously mentioned I found that a lot of people struggle with coordination and following a complicated sequence in an exercise.

Full body Integration advanced: I only introduced these exercises once people were strong enough and ready to do them properly. I am very cautious when it comes to exercises that fall into this block, as people can really get hurt when they are not yet ready and strong enough to do them.

Leg work: I avoided the jumping series on the Reformer, as I did not want to incorporate exercises with a high impact that might irritate the bursa further. Gluteal strengthening is vital, and I included exercises aimed at improving this, such as the gluteal kneeling series with the leg weights. I found that people experienced slight discomfort with the hip abduction bent knee, so I excluded that one exercise from the series. I avoided the gluteal side lying series and the adductor squeeze with the leg weights. Exercises for strengthening inner thighs are also very important as these muscles also help to support the hips. I therefore included all of the leg exercises with the magic circle. I did the side split and single leg skating on the Reformer once people were strong enough and able to stand up and hold their balance. I also only did the backward step down on the Wunda after people were strong enough and able to support their own weight on one leg.

Lateral flexion / rotation: I avoided the side lifts on the mat, the side lift with the push through bar on the Cadillac and the side over prep and side over on the Ladder Barrel. People found it to be very painful when putting pressure on the side of the bursa. I therefore mostly incorporated lateral flexion/rotation exercises lying prone. They were able to do all of the exercises mentioned in the table above without any pain.

Back extension: Most people exclude this extremely important section from their exercise program. I was able to do all of the exercises mentioned above in order to strengthen the back extensors muscle that are so important for good posture, good alignment, good stability and correct recruitment of the targeted muscles.

Conclusion:

Greater trochanteric bursitis is a frequent syndrome, but it may easily be misinterpreted. As previously discussed it may mimic pain caused by other pathologies in the hip, therefore a careful and thorough examination of the hip joint should be done to get an accurate diagnosis.

When starting the rehabilitation program, I was a bit hesitant to incorporate hip work, but no one experienced pain with any of the hip work in the BASI repertoire. I was pleased after receiving response from clients that the hip work helped to relieve pain and for me to see that it increased the range of motion in the hip joint. Overall performing the hip work exercises helped to promote the range of motion, flexibility, and strength in all of the small muscles that make hip and leg rotation possible.

The only problem I encountered throughout the program was when doing side lying work and putting pressure on the bursa.

The feedback that I received was that people felt an overall improvement in quality of life, health, strength, endurance, flexibility, energy levels, productivity and most importantly they had less pain and better sleeping patterns. This to me was again just a testament of the immense benefit of doing Pilates.

I absolutely agree with the words of Rael Isacowitz: "The Pilates method addresses the kinetic chain in its entirety, recognising the influence that one region of the body can have on another. Through a process of refinement, Pilates can bring about profound changes, which enhance the body's performance and lay a path to well-being."

Bibliography:

Books:

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