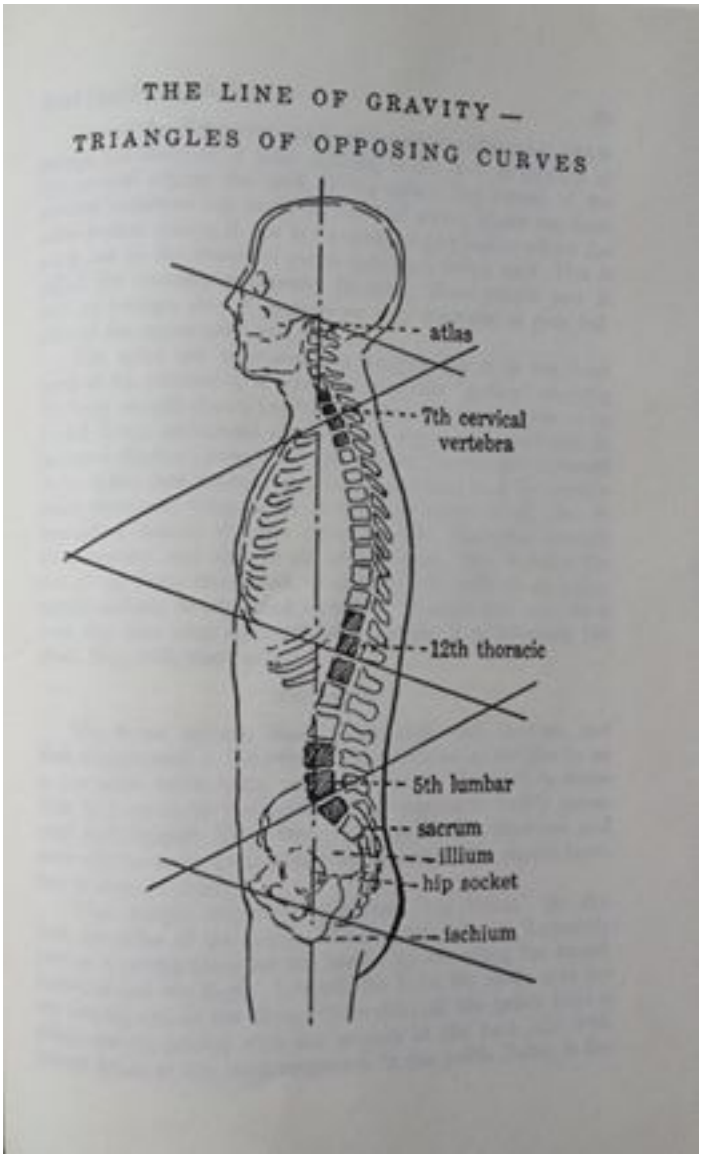
Feldenkrais® & Osteopathy, Developing Collaboration with Ian McCarthy (notes compiled by Katarina Halm) 200707)

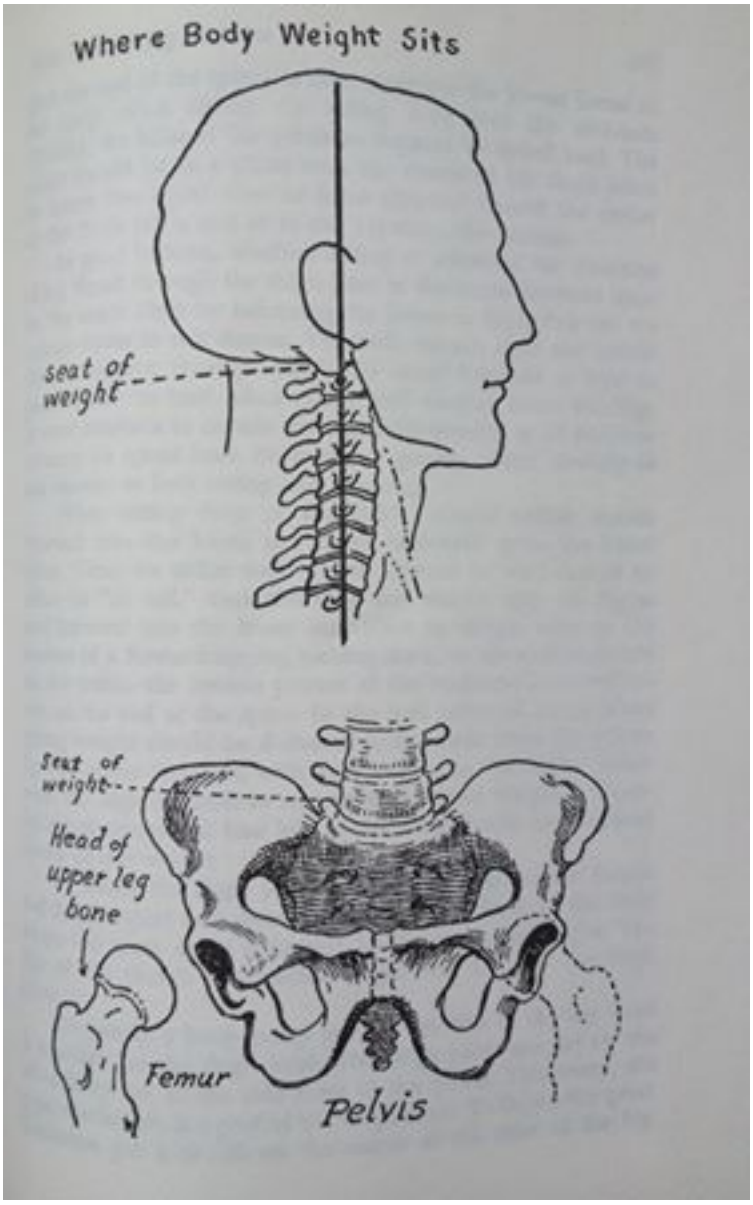
Two images from Mable Todd with appreciation to Stéphanie Menasé!



'Line of gravity,' from *The Thinking Body* by Mabel Todd, p. 98; published by Dance Horizons

It is a republication of the original 1937 edition.

(appreciation to Stéphanie Menasé)



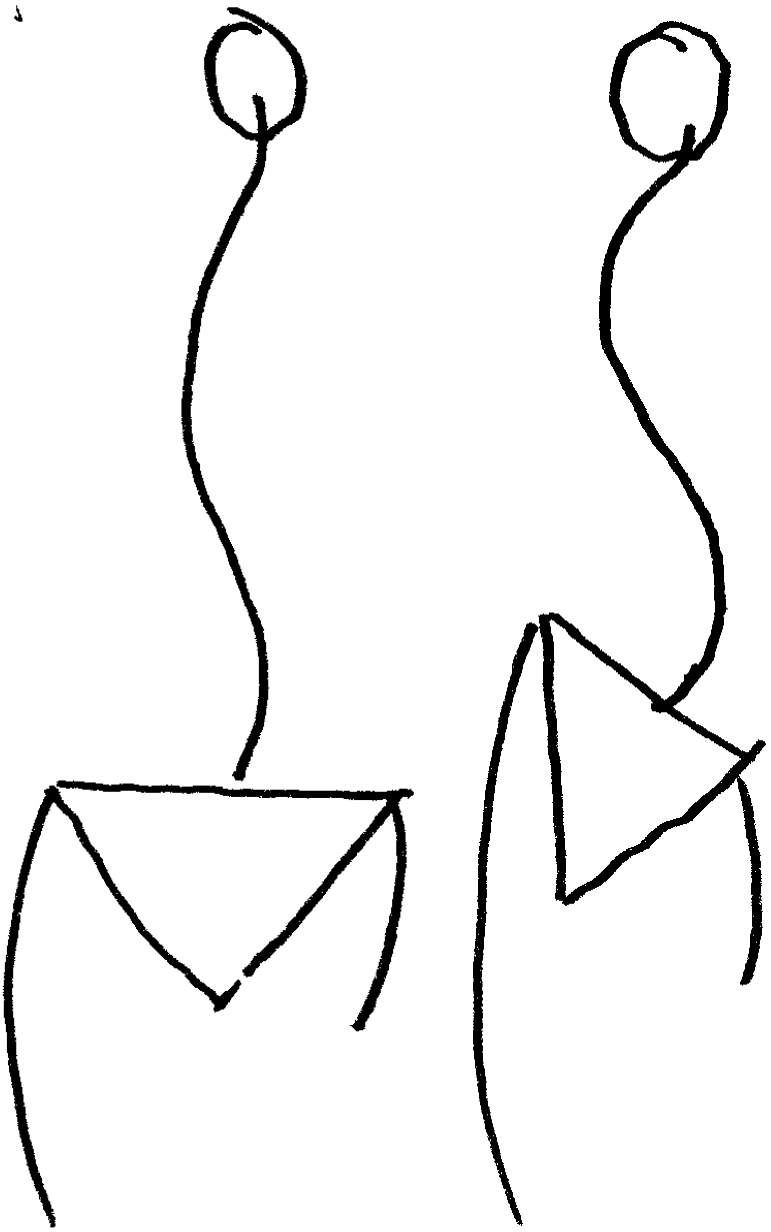
'The seats of weight' from *The Hidden You* by Mabel Todd, p. 101

Fine Books, Eastford, CT, 2018 isbn 978 1 68422 249 0

re-edition from Exposition Press, NY, 1953

(appreciation to Stéphanie Menasé)

Mon, 29. Jun 2020 Collaboration Ian McCarthy images
Ian A normal pelvis
Ian B tilted pelvis from stretched hamstrings
Ian C Flared rib cage added
Ian D Stretched/weakened abdominals & tightened lower back
Ian E Equal tension for stable knee
Ian F Tension skewed by weak quad, which must work harder (and tires, thus destabilizing the knee)



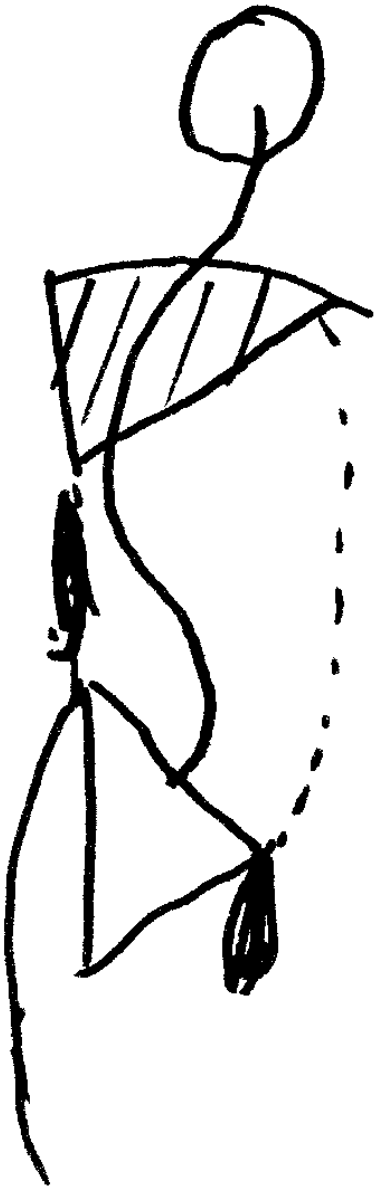
(Ian A) NEUTRAL pelvis & spine — (Ian B) ANTERIORLY TITLED pelvis

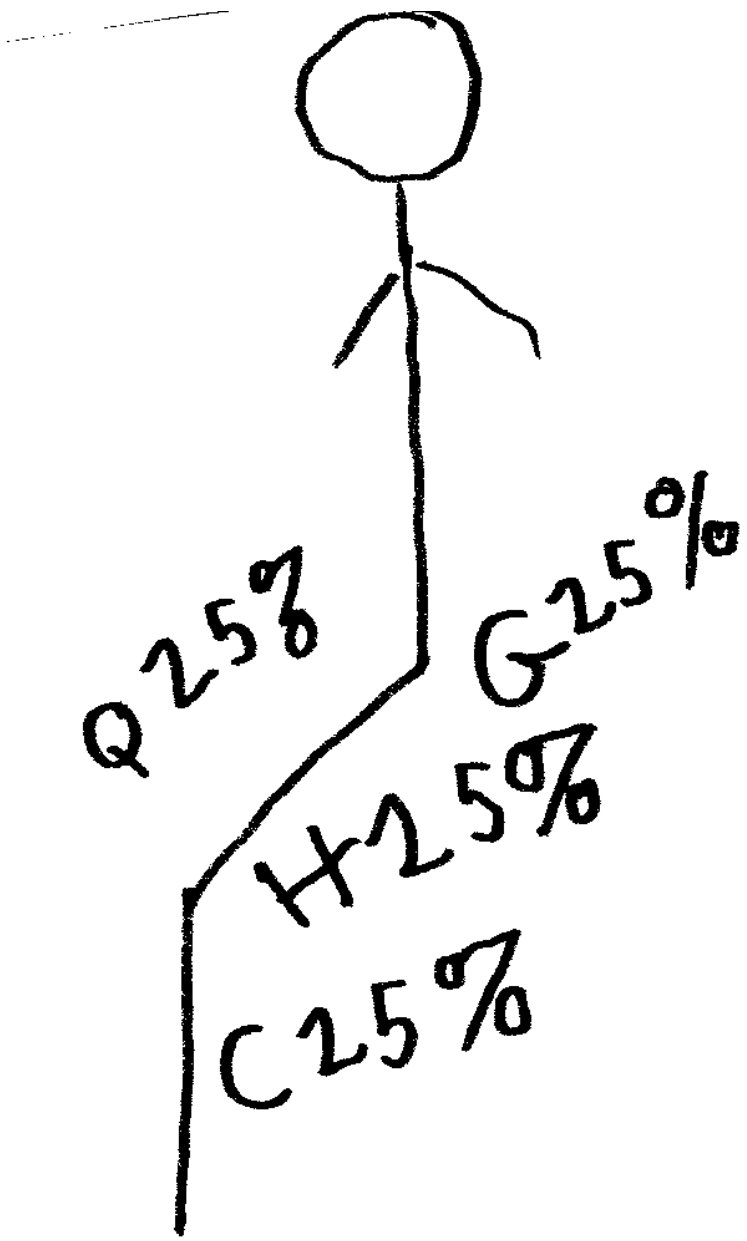
RESULTING from LENGTHENED hamstrings causing INCREASED LORDOSIS in spine

(Ian C) – Flared rib cage

Longer weaker ABDOMINALS) are usually present in the presence of longer weaker HAMSTRINGS. In this position the DIAPHRAGM is put into a shortened or contracted position. This COMPROMISED position limits thoracic mobility. The ribs can no longer go down properly for the exhalation. The ideal relaxation of the ribs/ diagram is impeded.

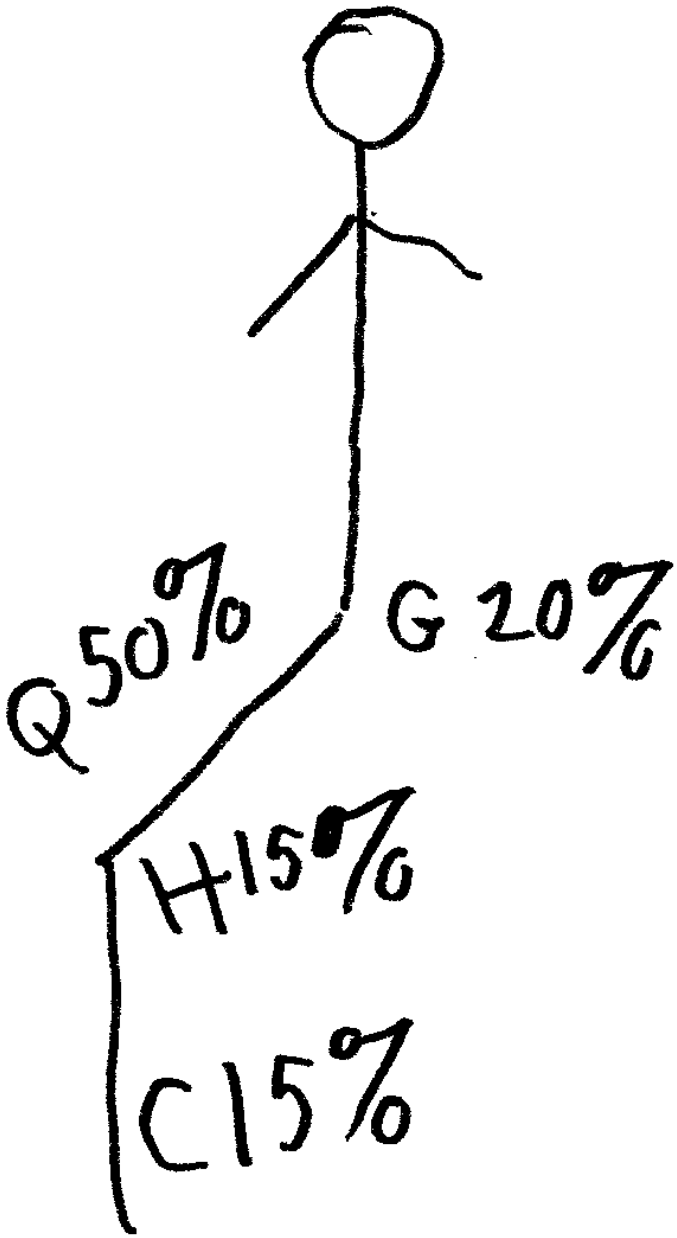
(Ian D) Stretched/weakened abdominals & tightened lower back





(Ian E) Normal tension for stable knee

C – Calf muscle
G – Gleuteal muscle
H – Hamstring muscle
Q – Quadraceps muscle
All the muscles are stressed equally



(Ian F) Tension skewed by weak quad, which must work harder (and tires, thus destabilizing the knee)

(notes compiled by Katarina Halm).

1.
There is something called a length/tension relationship. All the muscles in the body must be a certain length. If they are ELONGATED they are WEAK and basically NOT able to STABILIZE.
Likewise, if they are in a SHORTENED position they tend to be OVERACTIVE and very often contribute to pain and dysfunction and length on the opposite side of the joint.

So, as a rule of thumb, if you can put your palms flat on the ground, without being there one can assume that most of that flexibility is coming from the hamstrings. 80 degrees is normal. So 80 degrees of hamstring flexibility is considered anatomically normal. Anything beyond that is excessive.

What could cause a blockage feeling in the lower back:

If you have more length in your hamstrings than you are supposed to have, what typically occurs is of course an anterior pelvic rotation. Now what we fail to realize sometimes is that also affects the rib cage. Typically we are supposed to have a nice S-shaped deviation in the spine, so a little bit of lumbar lordosis and a little bit of cervical lordosis.

However, when the pelvis tips anteriorly because of long, weak, over-stretched hamstrings that will put this into an anterior pelvic tilt which creates the necessity for a deeper lordosis both in the lumbar and cervical spine.

If you have an anteriorly rotated pelvis you must come up with your chest to try and balance the centre of gravity.

If you get an anterior pelvic rotation you are then going to flare your rib cage up and out. If this was a normal rib cage, let us say here like that, what happens in an anteriorly rotated pelvic position is that it rotates up and you get what is known as a RIB FLARE.

Ribs go into what is known as EXTERNAL ROTATION. So the ribs come up and out.

So, when the ribs FLARE and the pelvis anteriorly rotates, you will get a long WEAKENING also of your abdominal muscles. So long weak hamstrings occur in conjunction, very often if not almost always, with long weak overstretched abdominal muscles.
That then creates TIGHTER, SHORTER, more RESTRICTED LOWER BACK.

So you will get tightness in the front, your hip flexors and quads actually become tighter because they are in a shortened position, and so too do the muscles, ligaments, tendons and fascia in the lower back. It is in opposition.

Now the minute your RIBS are in the FLARED position your DIAPHRAGM becomes SHORTENED. This is where the NECK issue can start to occur. You have already had surgery in your neck, so there is some functional trauma there and we have to optimize function of the neck as much as possible.
Again, it is not possible to have a pain-free neck if you have a restricted thoracic spine.

From a pure osteopathic perspective the DIAPHRAGM is connected to the lung and the LUNG is connected to the NECK, because we have something called our SUSPENSORY LIGAMENTS which attach into C1, C2 and C3 - upper cervicals - and they will pull and tug and lock those cervicals therefore

forcing C4, 5 and 6 to try and do MORE WORK than they are designed to do, creating inherent instability in the lower neck.
Then you are doing all these exercises to try and stabilize your neck - which you should do after surgery - but you are trying to stabilize a segment that is inherently unstable because the joints above it are in a restricted position.

Also, so there is static and dynamic. People say they do not feel or see their anterior pelvic tilt, but what happens when you are moving or walking around. The hamstrings are not contributing to stability anymore and then that whole cascade things kind of curves higher up. So there is a difference between static and dynamic.

You want to add strength - shorten hamstrings and calves because then you allow for more posterior rotation of the pelvis and for an opening of the anterior chain and a lessening of the lordosis.
Think about it this way: Your ligaments and muscles, potentially in your lower back here, are only in a shortened state because of the position they are in.
There are three ways to lengthen a muscle:
1 - the first is to massage it or provide some soft tissue - EASE
2 - the second is to STRETCH it.
3 - the third is to REPOSITION a muscle. And that is what you are essentially trying to do. You are going to strengthen through progressive exercises like hamstring bridges and single leg / double leg bridges and hamstring curls. All those types of exercises.

That is also going to strengthen your abdominals because often in similar situations abdominals are long, weak and over-stretched.

2.

Blood flow restriction training.
A big post-surgery challenge is building back the strength of the quads, hamstrings and groins. You are going to lose a lot of muscle mass.
It is hard to combat that because you cannot load your body. Blood flow restriction training is a possible option for you to kind of bypass that while getting the same results.

So, it is a medical tourniquet that you can put at the upper arm or upper thigh and you start exercising anaerobically. That means under low threshold. Let us say I am going for a very light jog.
The muscles of the body are receiving oxygen from the pumping of the blood, but when we start to exercise beyond a certain threshold we can no longer deliver oxygen to the muscles. Then they start working what is known as 'anaerobically'.

You may have felt this in the past. If you do a hard workout you feel your muscles start to burn after a minute. Say if you are doing squats, after a minute you start to get this really heavy burning sensation in your legs. That is because the muscles are no longer receiving oxygen. As a result they are producing lactic acid.
Lactic acid is a good thing because in the response to it the body releases growth hormone, which is essential for growing the size of the muscles.

When you use these medical tourniquets to restrict blood flow you are bringing yourself into the anaerobic threshold almost instantaneously. As you keep exercising research shows you can actually increase the amount of percentage of lactate by approximately over 350%.
So in response to that the body increases the production of growth hormone by over 300%. The amount of research out there on post-operative studies for things like hip or knee replacement or a fractured humerus or wrist is amazing. It drastically slows down the amount of muscle loss you

experience in the first few weeks and will maximally increase the amount of hypertrophy.
So, building muscles size to get you back to where you were a lot faster.

The last and most beautiful thing about blood flow or friction training is that it allows you to achieve the same production of lactate while exercising at 20% of your maximum rate, as opposed to if you were exercising normally.
In other words, in order for muscles to grow you must lift over 65% of your maximum ability to lift - what we call your One Rep Max.

So for argument's sake, say you are able to squat 100 kg of weight. In order to stimulate muscle growth you need to start lifting 65 kg. But you had surgery and cannot lift 65 kg. So with the blood flow restriction training you will be able to lift 20 kg - let's say your body weight - and achieve the exact same outcomes as someone lifting with 65 kg.
That allows you to get there two or three months head of time.

You can go online and order a set of Blood Flow Restriction Cuffs and use them according to the protocols.

You can get started on these exercises straight away because the surgeon will probably give you some exercises like simple raises.

They will get you doing those. But even your ability to do those with the cuffs on will seem like you are running a marathon, because of the amount of lactate you are producing.

3. Knee

Internal rotation in the knees occurs because of having long posterior chain. That is not something I discussed earlier, but

when the pelvis rotates forward in that direction you actually get an internal rotation of the hip sockets which creates what they call knock-knee, when you are rotated in.

For anterior knee pain, see the following diagram. Q for Quads and H for hamstring and C for Calf and G for gluts. So that is basically somebody's body.

Now most anterior knee pain comes from a mismanagement about the forced production in the lower body. So when we are walking and our foot hits the ground we need what is called a co-contraction of all the muscles groups to stabilize the position of the knee.
With this, each of these would contribute about 25%, for argument's sake. So your quads, hamstrings and calves should all contribute about 25% to stabilization of the knee joint once your foot hits the ground when you are walking.
I would say probably 80% if not more of anterior knee pain, so where you are describing your pain, comes when this happens. When the quads do way too much. So you are saying the quads are doing 50% but your hamstrings are doing 15 and your calves also weak at 15. So all of a sudden you are left with the gluts at 20%. The quads are doing too much of the work.

If you look at x-rays the likelihood is you will see some form of osteoarthritis in the knee, but everybody has a little bit, who cares. Everybody has a bit of damage in their knees. But, according to research, the number one muscle that you must strengthen to reduce knee pain in osteoarthritis are the QUADS. There is so much research out there saying the vast majority is due to a weakness in the quads. They are not strong enough.

If you have a muscle group that is weak and working 50% compared to the rest, it will be a huge driver towards your knee pain. So for you I would recommend doing a lot of BRIDGING to start with to take pressure off your quads.

Do a lot of bridge work focusing on pushing through specifically the MIDDLE of your FOOT because you want to get your CALVES and HAMSTRINGS co-contracting together to improve the activation and take the PRESSURE OFF the QUAD.
However, BEFORE doing that, it's likely that just above your kneecap you will get a lot of tenderness. So it's good to use something like a ROLLING PIN - or your knuckles, or a foam roller, or some kind of ball - to press in and release out the distal quads which are closest to the kneecap. Release that out FIRST on both sides. Spend about five/ten minutes doing that.
Then IMMEDIATELY follow that up with lots of bridging in this position, pushing through the HEELS to ACTIVATE the BACKSIDE [of the legs]. You can progress to pushing the legs further out, like that [feet are further away from the knee so the legs are less bent]. That is harder to do. [The muscles have to work harder].

Then eventually you can progress to doing single leg [bridges] in different positions [foot further out or further in towards the midline]. Carmen, that would also help with the POSTERIOR chain [all the muscles along the back of the let and entire leg to spine] . These are only BASIC exercises. This is like level one basic. There are lots more progressions from there.