



Stretch to Win

***Flexibility for
improved speed,
power, and agility***

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and one-leg squats of some type, so this motion test is very helpful for picking out asymmetries and other problems.

1. Stand in front of the mirror with the feet slightly wider than the hips. Squat as far down as you can easily balance, looking for any of the following errors in movement: feet starting to turn outward (possible tight peroneals); knees turning outward (possible tight hip external rotators); or back rounding excessively, with the trunk leaning forward (possible tight hip flexors or deep hip external rotators). Mark any of these on your PFA.
2. Now step back 6 to 8 feet (1.8 to 2.4 m) from the mirror so that you have room to lunge. Begin by standing with the feet hip-width apart. Step out with one foot and lunge forward until the back knee just starts to touch the ground. Your front knee should bend over the center of your foot; it should not pass over the toes. If your knee leans inward, this may be due to tightness in the groin or psoas. If it leans outward, tight hip external rotators could be the cause. If the back, hip, or thigh feels like it restricts the movement, you could have tightness in those regions as well as in the hip flexors or quadriceps. Repeat on the other side and note the results on your PFA.

Step 6: Identify Trigger Points

A trigger point (often described as a knot) is a taut local band of myofascia that is very sensitive but also quite responsive to progressively deeper levels of externally applied pressure. This step in the flexibility assessment will teach you how to identify active trigger points in your own body so that you can eliminate a significant cause of decreased athletic performance. You'll also learn how to identify latent or hidden trigger points so that you can eliminate them with a combination of self-myofascial release (sMFR) and stretching before they start causing problems. This chapter helps you identify problems and imbalances; you will learn how to deal with them in chapter 5.

Please note that several conditions are contraindications to performing this part of the assessment. Do not roll on the balls if you are receiving anticoagulant therapy or suffer from malignancy, osteoporosis, osteomyelitis, acute rheumatoid arthritis, inflammatory conditions, systemic or localized infection, sensitive diabetes, circulatory conditions (e.g., edema, hematoma, blood pressure conditions), open wounds, stitches, fractures, or hypersensitive skin conditions. Also be aware that this can be very powerful and intense work. If you ever feel dizzy, light headed, or nauseated, please stop immediately.

To identify trigger points you will need a minimum of two balls: one racquet ball or tennis ball (or a Footsie Roller, if you have one) and one firm 5-inch (13-cm) diameter rubberized ball that has a little give to it when you press it.

Athletes who are taller than 6 feet (183 cm) or weigh more than 200 pounds (91 kg) may want to also use the 7-inch (18 cm) ball, which can cover more surface area. If you don't have either the 5- or 7-inch balls but do have a firm foam roll, you can use that instead, but we prefer the ball because of its increased specificity, relatively small size, and portability compared to the foam roll. You will use the smaller tennis or racquet ball to find trigger points in the feet and the larger ball (or a foam roll) to find them in the rest of the body. You will also need to find a floor that is firm but also has some resilience, such as an athletic-room floor or a carpeted surface; most people need to get used to the pressure of the ball on their body before they can roll on it over a hard floor.

Figure 4.4, *a* through *e*, shows you the myofascial lines that will guide you as you roll on the ball. Use these illustrations to also guide your markings on your PFA. Mark any areas where you notice tightness and tenderness, as well as the direction of any pain that radiates outward from where you are rolling the ball.

You will start with your feet, which have important acupuncture points that act as gauges for the entire body (the hands and head also have similar points that will not be discussed in this book). This is because the feet are both beginning and terminal points for the acupuncture meridians—channels in your fascia that store, move, and dispel energy, blood, and water throughout your body. We also start with the feet since they are the foundation of your posture and of your movements.

You can see in figure 4.4, *a* through *e*, that the fascial lines begin at the feet, run up the body then down the other side, ending at the feet again. Consequently, assessing (and, later, treating) your feet first can give you a reliable idea not only of what is going on in the feet but also of what is going on in the rest of the body. Since we are not discussing acupuncture in this book, suffice it to say that eliminating any trigger points in the feet can only benefit the rest of the body. And because the feet are the base for just about all functional movement especially in athletics, unblocking restrictions in the feet will help unblock other areas of the body.

1. Place a tennis or racquet ball or a Footsie Roller on a carpeted or athletic-room floor that has some give to it. If you have poor balance, stand facing a wall, counter, or stable piece of furniture that will not move when you lean on it.
2. If you are using a surface as a support, place both hands on it. Place one foot on the ball so that it is under the center of your heel. If you have any heel pain or problems, position the ball just in front of the heel, under the arch, instead.
3. Slowly shift more of your weight onto the ball to increase the pressure under the foot. Stop increasing the pressure the moment you feel discomfort or pain under the ball; get off it and note the location of the discomfort on your PFA. If the discomfort radiates outward, make an arrow that shows where it starts and ends.

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4. Get back on the ball and continue in like fashion heading toward your toes, slowly moving your foot over the ball, stepping on it with as much pressure as tolerated and stopping only to note the places where you feel significant discomfort on your PFA. Remember that each time you move the ball forward to a new spot, you begin with light pressure and slowly increase it to see how it feels, then ease off before moving to the next spot.
5. When you are done with one foot, repeat the process on the other. Note that, like any new skill it takes more time to learn it in the beginning; as you make this a regular part of your training, you will assess and effectively treat yourself in seconds to a few minutes.

Now you are ready to find trigger points in the rest of the body using the bigger ball. Before you begin, note that you should not use the ball to put pressure on any of the following areas: the coccyx (tailbone); the lower eleventh and twelfth ribs (the floating ribs), which start in the mid to low back region and extend to your sides above the pelvis; any part of the front of your abdomen, from the bottom tip of your breastbone down to the bottom of the pelvis and out to the sides above your pelvis and below the ribs; the genital area; any part of the neck; or any other areas that are too sensitive to tolerate pressure.

Superficial Back Line

The superficial back line (SBL; figure 4.4a) connects the entire posterior surface of the body from the bottom of the foot to the top of the head. When standing, the SBL functions as one continuous line of integrated fascia and frequently reflects symptoms of tightness in the back of the knees, hamstrings, and low back in our clients.

While this line provides a good basic reference for the line you follow for this assessment, the assessment includes some detours and variations. We encourage you to explore and find out for yourself what works best for you.

1. Sit on the floor, leaning back with your legs in front of you and bent at the knees, your feet pointing forward on the floor, and your hands on the floor behind you with the fingers pointing away from you.

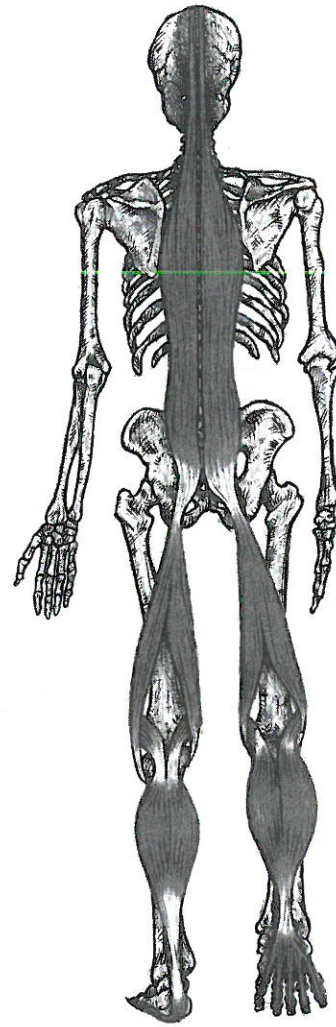


Figure 4.4a The superficial back line (SBL).

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2. Position the ball on your sacrum just above the tailbone, and start a very slow roll, moving the upper body just a little, perhaps by leaning to one side and then the other, to better maneuver the ball into the flat bone of your sacrum and your muscles. Roll approximately the distance of the width of the ball in one direction, return to the central position, and then change directions and roll out another width of the ball, still sitting on it. Do this one time very slowly—to the left, to the right, and upward (but not downward, since you don't want to put pressure on the coccyx). If you find a trigger point, note its location and the direction of any radiating discomfort on your PFA.
3. When you have finished rolling out over the sacrum, pick one side and roll farther outward, past the high buttock, to reach your side. You will need to start turning your body to the side in order to roll over all the muscles that attach to the outside hip bone and on up to the outside of the pelvis, called the iliac crest. Review figure 4.4a for guidance as to what direction to roll in. This is one of the key regions that restrict low back, pelvis, and hip flexibility. On the PFA, note any areas that are especially tight and tender as well as anywhere the discomfort radiates outward.
4. Return to the sacrum area and repeat instruction 3 on the opposite side, making similar notes of any signs or symptoms.
5. Return to the sacrum area. Now begin to progress up your spinal column, starting just off the side of the spinal bone. Work the muscles around each vertebra, rolling 2 to 3 inches (5 to 8 cm) outward and back before you move up to the next segment. Going slowly, repeat this sequence all the way up the back to the shoulder. Return to the sacrum and repeat on the other side.
6. Roll on the ball between the shoulder blade and the spine. Go as high as you can toward the top before the shoulder rounds too much for you to roll on it accurately. Now go back to the area between your spine and your shoulder blade and slowly roll your body over so the ball is on the blade itself, which is covered by your rotator cuff muscles. Take your time and explore all the regions of the shoulder blade while you are on your back. Stop at this point and do not perform this assessment on the arm and hand as doing so is not as effective without personal instruction. Repeat on the other side.
7. Take another look at figure 4.4a and examine the way the line of fascia moves from the pelvis and down the leg. Upon finishing both sides of the back and shoulders, go back down to one buttock, starting at the "sits bone" at the bottom of the buttock, which is what you rest on when you sit in a chair. This is where most of the hamstring muscles originate.
8. Continue slowly down the back of the thigh (the hamstrings), noting any trigger points you find along the way. Then slowly roll the ball down your lower leg, starting just below the knee joint and proceeding down

the calf to finish near the Achilles tendon at the heel. Repeat the sequence on the other side.

Congratulations, you have just finished most of the important areas of the superficial back line of fascia. If this is the first time that you have ever done this, get up and walk around after assessing each side. Even though this is the assessment part and not the treatment part, you cannot help but start to feel a decrease in some of the pressure, tightness, and soreness of the trigger points that you have just rolled over.

Lateral Line

The lateral line (LL, figure 4.4b) traverses each side of the body from the medial and lateral mid-point of the foot around the outside of the ankle and up the lateral aspect of the leg and thigh, passing along the trunk in a basket weave pattern to the skull in the region of the ear. This line of fascia frequently is responsible for creating a functional short leg, contributing to athletic imbalance and unilateral pain.

Even though the lateral line is continuous going up the side of the body, you will avoid rolling over sensitive areas like the ribs. In this assessment you focus on the line as it proceeds from the pelvis to the ankle.

1. Lie on your side on the floor. Prop yourself up, supporting your upper body on the forearm of the bottom arm and keeping the hand of the top arm on the floor out in front of you.
2. Place the ball under the side of the bottom leg, just above the outside hip bone (known as the greater trochanter of the femur) but below the top of the pelvis. You are now on the large gluteus medius muscle.
3. Place the top leg out in front of you and separate it from the bottom one. Rest the lower part of the top leg with foot and knee on the floor so that, combined with the position of your arms and hands, you have three points of stability for side leg rolling. Explore this fan-shaped region which contains muscles responsible for the balance of your low back, pelvis, hip, knee, and foot when you walk and run. Those muscles also guide the leg



Figure 4.4b The lateral line (LL).

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when you move it out to the side and away from your body. Because of all the use this area gets, it is often tender, but it is particularly so as you descend below the hip to the knee.

4. In the same way you went over the other areas, proceed slowly down the side of the leg below the outside bone of the hip (greater trochanter) and slowly start to roll over what is called the iliotibial band (ITB). Note the tightest, most tender areas on your evaluation.

5. When you get to the level of the knee, get your legs in line with your upper body and stack your legs on top of one another, balancing on the hand of the topmost arm, the forearm of your bottom arm, and your bottom hip bone. Skip over the knee joint and slowly begin to roll on the outside calf. The peroneal muscles in this area are usually tender in athletes who pronate their feet. Stop when you can no longer maintain balance over the ball or when you have rolled to just above the ankle bone.

6. Repeat on the opposite side. Get up and walk around to ascertain whether you feel any different in the areas just rolled on compared with the rest of your body.

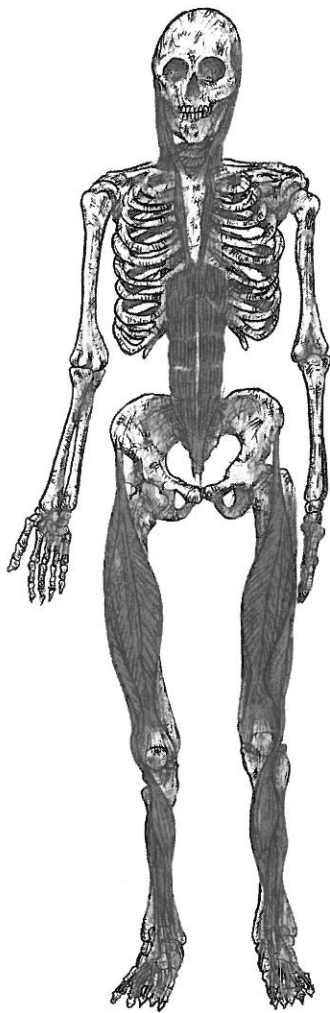


Figure 4.4c The superficial front line (SFL).

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Superficial Front Line

The superficial front line (SFL, figure 4.4c) connects the entire anterior surface of the body from the top of the feet to the front side of the skull; when the hip is extended, as in standing, it acts as one continuous line of integrated myofascia. Key points along this line get particularly short and tight in people who spend a great deal of the day sitting.

Note that even though the line of fascia traverses the abdomen and ribs, you do not roll over those areas.

1. Now, get down on the ground and kneel on one knee. Place the ball under the shin of the kneeling leg, as far down the leg toward the ankle as you can without letting the ball roll out from under you.
2. Proceed slowly over the ball and up the shin until the ball stops moving at the bone below the knee joint. Mark on your PFA any painful areas in this shin muscle (anterior tibialis).

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3. Lie facedown on the floor, place the ball just above the kneecap, and slowly proceed up the front of the thigh (quadriceps) back toward the hip and pelvis (not toward the groin and pubic bone). You will likely find areas of tenderness and tightness here; many athletes have tight quadriceps from frequent squatting and running activities.
4. Continue slowly rolling in a straight line until you bump into a prominence on your pelvis bone (just above where your thigh joins the trunk), called the anterior superior iliac spine. This is one of two bony points in the front of the pelvis, one on each side of the lower abdomen. Since the hip flexor tendons attach here, this is a common site of tenderness and tightness in athletes who do lots of activities on their legs. Remember to mark any sore areas on your assessment sheet.
5. Repeat on the opposite leg.

Deep Front Line

The deep front line (DFL; figure 4.4, *d* and *e*) defines the myofascial core of the body. It begins deep in the underside of the foot, passes up behind the bones of the lower leg and behind the knee to the inside of the thigh, and in front of the hip joint, pelvis, and the lumbar spine. It continues around and through the thoracic viscera, ending on the underside of the cranium.

Keep in mind that even though this is called the deep front line, it is three dimensional and therefore has volume. Yet, it acts functionally like a continuous line, from foot to head, in the sense that it is all connected. When it gets out of balance there are repercussions, large and small, anywhere and everywhere up and down any of the fascial lines. As such, the DFL harbors much of the chronic sources of inflexibility, decreased athleticism, and pain.

In this assessment, you follow the line from the inside of the calf and thigh to the groin.

1. Lying on your belly, raise your head and upper body, propping yourself up on both forearms.
2. Keeping one leg extended, bring the other hip and knee up about 45 degrees or to where it is comfortable, keeping the lower leg and foot relaxed and loose. (This is kind of like the way soldiers crawl, by raising one leg up about 45 degrees in order to plant and power fulcrum off the knee.) Place the ball on the inside calf of the bent leg as far down toward the ankle as you can without letting the ball slip away. Proceed over the ball slowly, using your upper body strength to push and roll your body backward over the ball.
3. Move the ball up the inner calf until it stops below the knee joint. Then place it above the knee joint and continue up the center of your inner thigh, but also moving slightly off the center line in different directions,

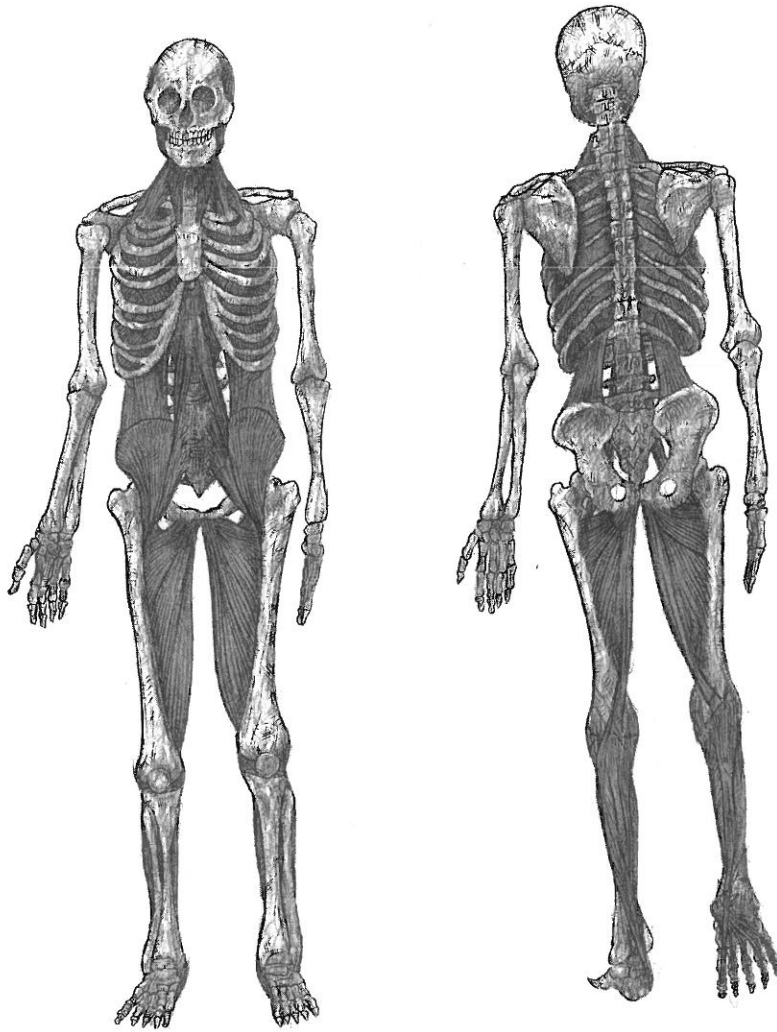


Figure 4.4d-e The deep front line (DFL).
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until the ball ends high up at the tendons of the groin. You may also assess the tissue in varied directions around the groin tendons, obviously avoiding any pressure on the genitals. This is especially beneficial for athletes who have torn or strained their groin in the past and have lots of scar tissue still present. Or they may have injured their knees by spraining the medial collateral ligament (commonly known as the MCL) and have had compensatory tightness in the hip adductors and groin.

4. Repeat on the opposite leg.
5. Skip over the delicate area that includes the entire abdomen and the bottom of your breastbone. Still lying facedown, let one arm rest on the ground in front of you, bent at the elbow, palm down, with the forearm

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supporting the weight of your forehead. Let the other arm lie comfortably out to the side, where it will act like an outrigger, helping to direct you over the ball. (Remember that these hand, arm, and head positions are only general guidelines. Experiment with these positions to find out what works best for you.)

6. Place the ball in front of your body in the area of your pectoral muscles—between the shoulder joint and the breastbone. In men the ball should be below the collarbone and above the nipple; in women below the collarbone and above the breast. Just stay within this area and slowly creep and crawl your body over the ball along the floor, searching for tight and tender points and then marking the most significant ones on your PFA sheet. This region is usually much tighter on the side of the dominant arm, especially in throwing athletes who have overtrained these muscles. Remember to not roll directly over any ribs (thick muscles like the pectorals and back muscles usually protect the ribs enough) or areas that make you hurt or stop breathing. You might also want to use a pillow to support your head and neck when working on the upper body.

Now examine all the areas in which you've identified trigger points on your evaluation form. These are some of the prime regions that are likely causing faulty and restrictive movement patterns for you. With this map of your signs and symptoms, you are well on your way to eliminating many of these problems. Doing so will immediately improve not only your strength and flexibility but also, even more importantly, the proper firing activation and sequencing of the muscle fibers that had trigger points. Improving this alone will boost athletic performance.

Step 7: Review Your Findings

Now that you have completed the first six steps of the PFA, what you end up with are several body maps showing your symptoms and assessed movements. When our clients take the time to document, study, and reflect on their personal physical history as it is displayed in the form of personal body maps, the way they feel when they compete and train starts to make more sense. Their maps show so much about their bodies: what has happened in the past, what is happening now, and even what may happen in the future. Such a body map can become a valuable asset in any athlete's ongoing pursuit of excellence.

One of the best ways we've found to use these maps, is to relate them to the fascial lines. You can do this by comparing the personal body maps created in your PFA with the illustrations of the fascial lines shown in figures 4.4, *a* through *e*. We walk you through an example of such a comparison in the next chapter as you learn how to use the findings you gathered to develop an effective individualized flexibility program.