

# Body Mechanics

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## A Few Simple Stretches for the Low Back

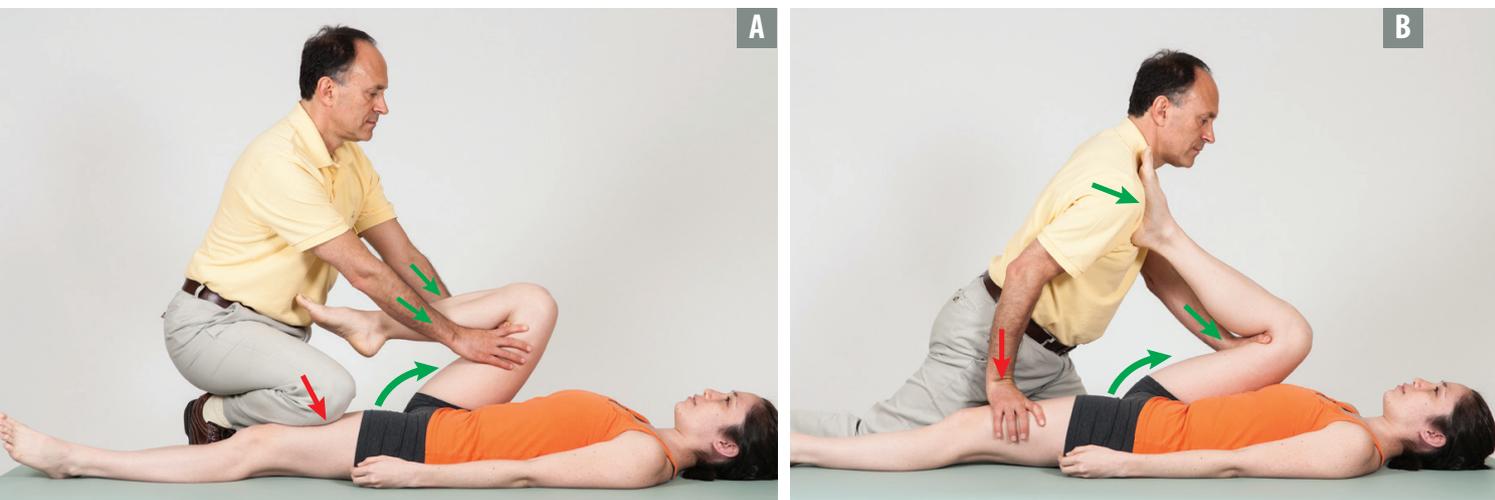
Referring to his study and practice of martial arts, Bruce Lee once said: “Before I studied the art, a punch to me was just a punch, a kick just like a kick. After I learned the art, a punch was no longer a punch, a kick no longer a kick. Now that I’ve understood the art, a punch is just like a punch, a kick just like a kick. The height of cultivation is really nothing special. It is merely simplicity; the ability to express the utmost with the minimum.”

I love this quote because it illustrates the typical learning curve for any skill or profession. When we begin to learn a subject, we often see it very simplistically. Then as we continue our study, we become immersed in the details and complexity of the subject, but often lose sight of the simplicity. But as we gain mastery of the subject, the complexity dissolves into the elegance of the simplicity as the bigger picture is appreciated.

I believe that this is often true in the world of massage therapy. We learn some simple techniques early on that have great value, but we often discard them as we search for more complicated treatment techniques. With this in mind, with the intent of returning to an elegant simplicity, I would like to revisit a few simple stretches with which we are probably familiar and re-recommend them for our use with clients with low back conditions.

Before practicing any new modality or technique, check with your state’s or province’s massage therapy regulatory authority to ensure that it is within the defined scope of practice for massage therapy.





**FIGURE 1** SKTC stretch shown for the right side. A, The therapist stabilizes the client's left side pelvic bone by placing his knee on her distal left thigh. B, Alternate contacts are shown. The client's foot is placed on the therapist's clavicle so that the therapist can use his core to create the stretch; the therapist uses his hand instead of his knee for stabilization.

### Single Knee to Chest Stretch

Single knee to chest (SKTC) stretch is performed in the supine position. As its name implies, one of the client's knees is brought to their chest by flexing the thigh at the hip joint (Figure 1). By bringing the hip joint into flexion, SKTC stretches hip extensor musculature, specifically the gluteal musculature (the hamstrings are not stretched because the knee joint is in flexion).

However, SKTC stretch does much more than simply stretch the gluteals. It also stretches and mobilizes the sacroiliac and lumbosacral (LS) joints. As the knee is brought closer to the chest, in addition to thigh flexion, the pelvic bone on that side begins to move into posterior tilt. Let's look at the right side SKTC stretch as our example: as the right pelvic bone drops into poste-

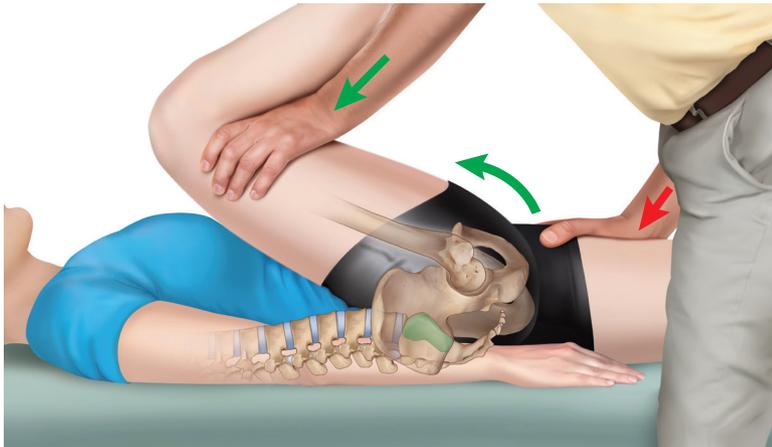
## TECHNIQUES

In the world of manual therapy, massage therapists are often looking for the next great technique that they can learn and use in their practice. New techniques often come along that propose fancy mechanical and neural patterns in the body and specific assessment and treatment recipes to address them. These techniques often purport to cure everyone and everything. But this is rarely the case. An excellent proverb that applies is: "Follow the person who seeks truth; beware of the person who has found it."

When asked about a new technique with which I am not familiar, I often respond by saying: "Let's wait five years. If it is as good as its proponents say, we will all be doing it and no one will be doing anything else." Five years later, it is usually one more technique amongst the rest. This approach might be viewed as being "anti-technique" because it posits that no one technique holds all the answers for all our clients. However, it might also be viewed as "pro-technique" because it holds that each technique has some of the answers to our clients' problems and can add value to our practice.

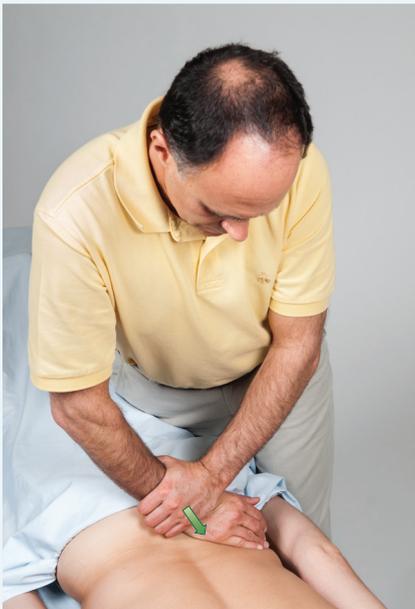
A sound philosophy to follow is to take as many technique seminars and workshops as we comfortably can so that we can gain more assessment and treatment tools to put in our proverbial toolbox. Then when a client comes in, we can choose the tools that are most appropriate. The key to being able to choose amongst these tools is to understand the kinesiology of the body and mechanism of the client's condition so that we can critically think and creatively apply our assessment and treatment tools for the client who is on the table at that moment.

**A sound philosophy to follow** is to take as many technique seminars & workshops as we can so that we can gain more massage therapy tools to put in our proverbial toolbox.



**FIGURE 2** As the right pelvic bone drops into posterior tilt during SKTC stretch, it moves relative to the sacrum at the right sacroiliac joint, thereby mobilizing it.

## PRONE JOINT MOBILIZATION OF THE SACROILIAC JOINT



SKTC stretch theoretically introduces a stretch/mobilization force into both SIJs. However, there are times when if one of the SIJs is locked (hypomobile), all the motion occurs at the other SIJ. In effect, one SIJ becomes hypermobile as a compensation for the side that is hypomobile. In cases like this, when SKTC stretch fails to mobilize one of the SIJs, a more direct and precise arthrofacial stretch/mobilization might be indicated.

The accompanying figure demonstrates a prone method for mobilization of the SIJ. The therapist contacts and applies a force to the posterior superior iliac spine (PSIS). The direction of this force can vary, but a good default is to press along the plane of the joint, which is anteriorly toward the floor, superiorly toward the client's head,

and laterally away from the midline. Alternately, the therapist could apply the same direction force to the base of the sacrum instead; the contact point on the sacrum would be immediately medial to the PSIS. Pressure should be applied until a tissue tension barrier is felt and then a gentle increase of force (literally millimeters of excursion of movement) should be applied to mobilize the joint. This force should be held for only a fraction of a second; and can be performed in sets of 3-5 oscillations.

rior tilt, movement occurs between it and the sacrum, stretching and mobilizing the intrinsic fascial tissue of the right side sacroiliac joint (SIJ) (Figure 2). This movement occurs until no more movement is possible at the right SIJ, at which point the sacrum begins to move into posterior tilt (counternutation) along with the right side pelvic bone. This sacral movement occurs relative to the left side pelvic bone, thereby stretching and mobilizing the intrinsic fascial tissue of the left SIJ. Sacral movement also occurs relative to the L5 vertebra, thereby stretching and mobilizing the LS joint. Therefore, SKTC stretch is an effective way to stretch gluteal musculature as well as mobilize the SIJs and LS joint. After performing SKTC stretch on one side of the body, it should be performed on the other side.

SKTC stretch is an effective mobilization stretch for the SIJ. However, if the SIJ is sprained/irritated/inflamed, placing a stretch force into it may cause pain or discomfort. For this reason, SKTC stretch may also serve as an assessment tool for the health of the SIJ. If pain is experienced locally at the SIJ during the stretch, it is indicative of SIJ sprain or inflammation.

**NOTE:** Joint mobilization is a very specific form of stretching and within the legal and ethical scope of practice for some massage therapists in the U.S. and Canada. Before employing joint mobilization, be sure that it is within the scope of your specific license/certification.

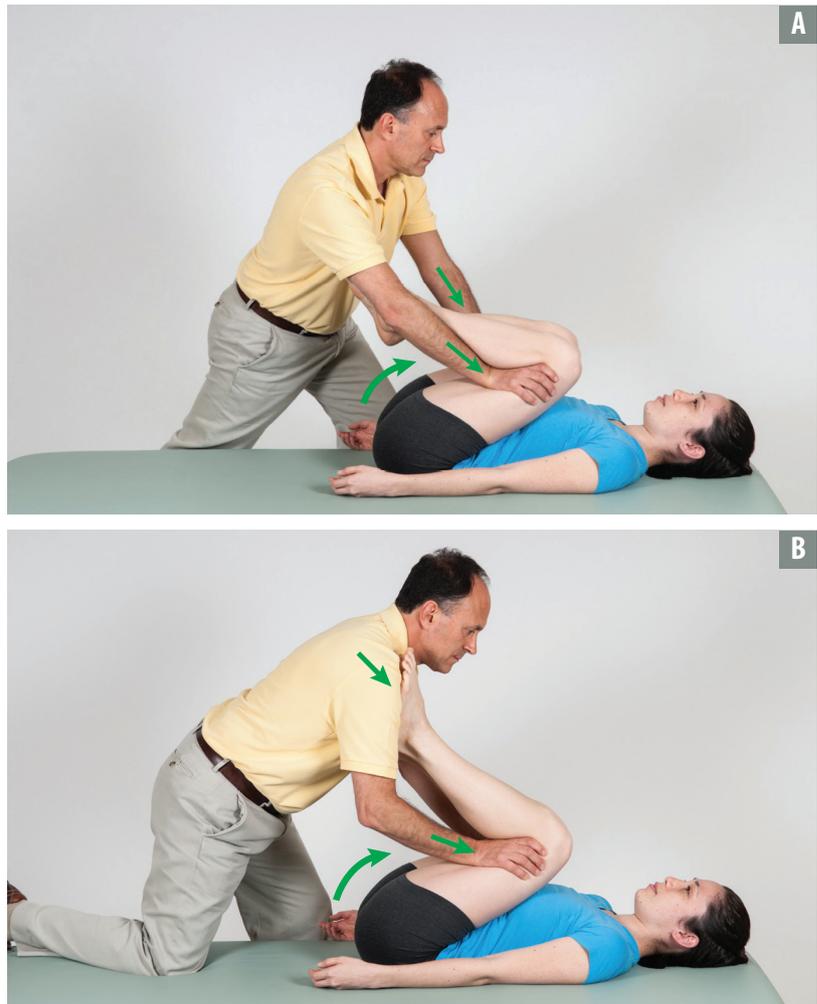


Always weigh the positive aspects of these stretches with the possible precautions & contraindications.

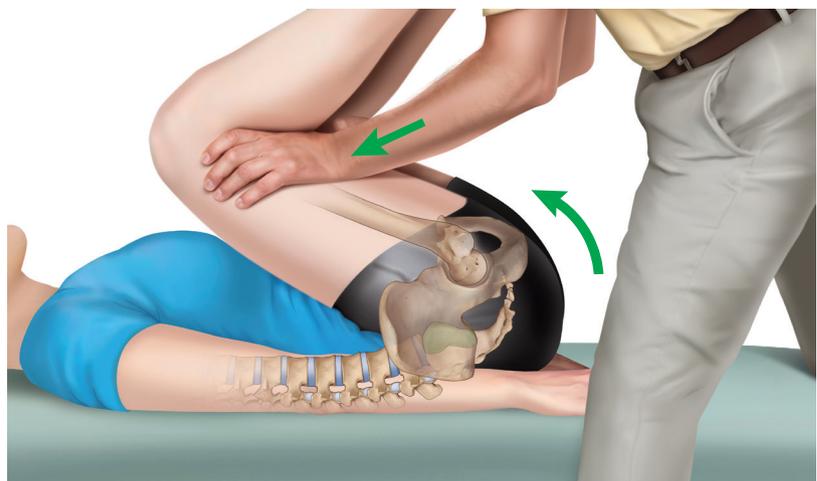
Often these stretches prove to be simple yet powerful additions to our tools for our clients with low back conditions.

#### Double Knee to Chest Stretch

Double knee to chest (DKTC) stretch is also performed with the client in the supine position. As its name implies, both of the client's knees are brought in toward their chest by flexing the thighs at the hip joints (Figure 3). As the knees are brought to the chest, the entire pelvis begins to drop into posterior tilt. This motion occurs at the L5 joint relative to L5 until the L5 joint can no longer absorb this motion, at which point the L5 vertebra begins to flex relative to L4 at the L4-L5 joint. Similarly, once the L4-L5 joint can no longer absorb this motion, the L4 vertebra begins to flex relative to L3 at the L3-L4 joint. As the thighs are brought farther into flexion, this movement pattern continues up the client's lumbar spine. In effect, DKTC stretch results in flexion of the client's lower lumbar spine relative to their upper lumbar spine (Figure 4). Depending on their flexibility, DKTC stretch may even extend into their thoracic spine.



**FIGURE 3** DKTC stretch. A, The therapist pushes on the client's posterior proximal thighs to create the stretch. B, An alternate contact is shown: the client's feet are placed on the therapist's right clavicle so that the therapist can use his core to perform the stretch.



**FIGURE 4** During DKTC stretch, the pelvis drops into posterior tilt and the lower lumbar spine flexes relative to the upper lumbar spine.

Flexing the lumbar spine stretches the client's paraspinal (erector spinae and transversospinalis) and quadratus lumborum musculature bilaterally. Just as importantly, it mobilizes each of the segmental vertebral joints of the lumbar spine. In this manner, DKTC stretch continues the joint mobilization process up the spine that SKTC stretch began.

### Protocol for SKTC and DKTC Stretches

A nice protocol to follow is to first perform SKTC stretch on one side and then the other side, followed by DKTC stretch. The manner in which these stretches are performed can vary. They can be performed statically, which is usually done by holding the position of stretch for a prolonged period of time, perhaps 10-20 seconds or longer; three repetitions are usually performed. Or they can be performed dynamically, in which case the position of stretch is held for only a few seconds, but many more repetitions are performed, perhaps 10-20. Or a hybrid of the two can be done, perhaps 40-50 seconds of dynamic stretching repetitions followed by one longer held static stretch for 10-20 seconds. It is also possible to use neural inhibition techniques, such as contract relax (CR; also known as post-isometric relaxation [PIR] or proprioceptive neuromuscular facilitation [PNF]) or agonist contract (AC; also sometimes referred to as PNF) stretching. The manner in which these stretches are performed should be determined on a case-by-case basis depending on the client who is on the treatment table at that moment. How forcefully these stretches are performed also varies based on the client. A general guideline to follow is to stretch the client until the tissue

## MODIFYING SKTC & DKTC STRETCHES

SKTC and DKTC stretches are typically performed in the sagittal plane. As such, these stretches lengthen musculature in the sagittal plane and create a posterior tilt mobilization to the SIJs. However, these stretches can be modified by adding in frontal and/or transverse plane component motions. For example, Figure A shows SKTC stretch being performed with adduction added to the hip joint flexion. This begins to focus the stretch toward the deep lateral rotator musculature and adds in a gapping to the posterior aspect of the SIJ. Figure B shows SKTC stretch being performed with abduction added to the hip joint flexion instead. This begins to focus the stretch instead toward the adductor magnus muscle and adds in a gapping to the anterior aspect of the SIJ. Figure C shows modification of the DKTC stretch with the thighs being brought toward the client's right side as they are flexed. This focuses the stretch toward the client's left side low back musculature and adds in a rotation stretching mobilization force to the lumbar spinal joints. Muscular and joint mobilization stretching are meant to lengthen and loosen taut soft tissues. This is often best accomplished by being creative with the direction of the stretch so that it is performed within an oblique plane.





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tension barrier has been reached; at that point, in order to be therapeutic, a little more stretching force needs to be added. Exactly how much force is added is based on how conservative or assertive you want to be. Certainly, any manual therapy performed should be within the comfort and tolerance of the client. Regarding how SKTC and DKTC stretches should be incorporated into our treatment session, as with all stretching it is always best to perform them after the region has been warmed and loosened up, usually with heat and soft tissue manipulation.

**Indications and Precautions/Contraindications**

Given that SKTC and DKTC lengthen and stretch much of the musculature of the posterior pelvis and low back, and mobilize the SI and lumbar spinal joints, these simple stretches accomplish quite a lot. Most clinical orthopedic pathologic conditions of the low back involve some degree of muscular spasming and joint dysfunctional hypomobility. Therefore, these stretches can help to resolve many of the low back complaints with which our clients present.

Precautions are few. Acuity of muscular spasming calls for a gentle application of the stretches, but does not contraindicate these stretches. In fact, acute low back muscle spasming often responds very well to SKTC and DKTC stretches. Lumbar flexion created by DKTC stretch is also often indicated and recommended for lumbar spondylolisthesis (anterolisthesis) because it helps to allow the slipped vertebra to move posteriorly back into place. Space occupying lesions that compress nerve roots in the intervertebral foramina (IVF) such as osteoarthritic bone spurs and bulging/herniated discs also often respond quite well to lumbar flexion because it increases the size of the lumbar IVF by approximately 19 percent, thereby decreasing the likelihood of compression upon the lumbar spinal nerves.

The most common contraindication is a bulging/herniated lumbar disc that is aggravated by flexion because flexion compresses the anterior aspect of the disc driving the nucleus pulposus posteriorly against the posterior annular fibers, perhaps increasing the size of the bulge/herniation.

Always weigh the positive aspects of these stretches with the possible precautions and contraindications. Often these stretches prove to be simple yet powerful additions to our treatment tools for our clients with low back conditions. ■



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