

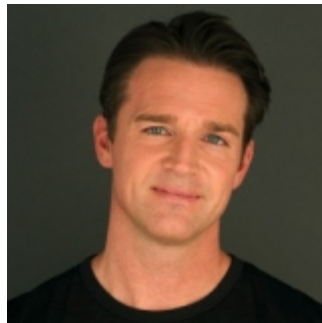
POWERFUL MOBILITY

A person is shown from the waist down, in a squat position. A white grid is overlaid on the right side of the image. A white line with arrows at both ends connects the hip and ankle on the right side. There are also curved arrows at the hip and ankle, and a straight arrow pointing left from the knee area.

**Corrective Exercises
for Better Performance
and Joint Health**

DR CHAD WATERBURY PT, DPT, MS

POWERFUL MOBILITY
Corrective Exercises for Better Performance and Joint Health
DR CHAD WATERBURY PT, DPT, MS



If you want to find out more about Dr. Chad Waterbury visit: <http://chadwaterbury.com>

Published by Chad Waterbury LLC

ASIN: B075K1XWZP

NOTICE

The information in this book is meant to supplement, not replace, proper exercise training. All forms of exercise pose some inherent risks. The author advises readers to take full responsibility for their safety and know their limits. Before practicing the exercises in this book, be sure that your equipment is well maintained, and do not take risks beyond your level of experience, aptitude, training, and fitness. The exercises in this book are not intended as a substitute for any exercise routine that may have been prescribed by your doctor. As with all exercise programs, you should get your doctor's approval before beginning.

© 2017 by Chad Waterbury LLC

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any other information storage and retrieval system, without the written permission of the author.

ACKNOWLEDGMENTS

Here I want to give a big thanks to all the people that have helped me become better at what I do. This book is possible because of their willingness to share the valuable information they've learned over the years:

John Berardi, PhD
Ben Bruno
Mark Cheng, PhD
Bret Contreras, PhD
Gray Cook, PT
Eric Cressey
Sue Falsone, PT
Jason Ferruggia
International Sports Sciences Association
Craig Liebenson, DC
Stuart McGill, PhD
Christopher Powers, PhD
Lou Schuler
Trisha Smith, DC
Andreo Spina, DC
Pavel Tsatsouline
University of Southern California PT Dept.
Charlie Weingroff, DPT

START HERE

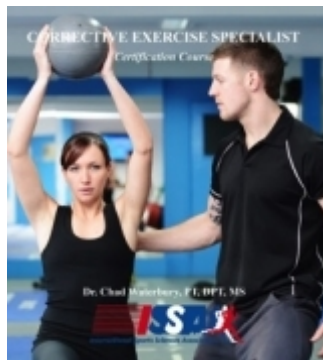
Dear Friend,

First of all, thank you for your purchase. I'm confident this condensed e-book will be a valuable tool for helping expand your corrective exercise knowledge base, and achieve better results with clients, patients, or your own training programs.

What you are about to read is just one of 13 chapters I wrote in a textbook for the Corrective Exercise Specialist certification course I created for the International Sports Sciences Association (ISSA). This 10-week online college course will help personal trainers, health care practitioners, massage therapists, and fitness buffs drastically increase their skillset and income stream.

If you enjoy the information presented in this e-book, I hope you will check out my Corrective Exercise Specialist certification course at:

<http://issaonline.edu/certification/corrective-exercise-certification/>



The great news is that, by purchasing this e-book, you're qualified to receive 10% off the Corrective Exercise Specialist course. To receive the discount, follow these simple steps:

- Call the ISSA at 800-892-4772 and ask to speak to Frank Miele, or email Frank Miele at fmiele@issaonline.edu
- Then, simply request the "Waterbury Author discount" and you'll receive 10% off the Corrective Exercise Specialist course!

Cheers to your strength, health, and performance!

Dr. Chad Waterbury, PT, DPT, MS

Contents

[ACKNOWLEDGMENTS](#)

[START HERE](#)

[WHAT YOU WILL LEARN](#)

[ARE YOU OBSESSIVELY ASSESSING?](#)

[WHAT TO DO FIRST?](#)

[Interplay Between Mobility and Stability](#)

[The IT Band/TFL/Gluteus Medius Connection](#)

[CORRECTIVE ACTIVATION EXERCISES](#)

[TRUNK AND PELVIS](#)

[Hardstyle Plank](#)

[Modified Side Plank Clam with Band](#)

[HIPS AND PELVIS](#)

[Reverse Goblet Lunge with Band](#)

[Squat or Deadlift with Band](#)

[Hip Hinge Posture](#)

[Hip Hinge with Mini Band](#)

[Standing Fire Hydrant with Mini Band](#)

[Lateral Step with Mini Band](#)

[Monster Walk](#)

[ANKLE AND FOOT](#)

[Posterior Tibialis Activation](#)

[SHOULDER COMPLEX](#)

[Postural Stability Hold \(PSH\) with Head Movement](#)

[Wall Elbow Walk with Band](#)

[Plank Roll](#)

[Downward Dog](#)

[Y Raise on a Swiss Ball](#)

[BEFORE MOVING ON](#)

[Sphinx with Reach](#)

[Scapular Activation](#)

[HOW TO USE THIS INFORMATION](#)

[Make a Home Exercise Program](#)

[Create a Joint-Friendly Workout](#)

[Create a Customized Warm-up](#)

[FINAL WORDS](#)

[SUMMARY](#)

[USEFUL LINKS](#)

[REFERENCES](#)

WHAT YOU WILL LEARN

In this excerpt, taken from the Corrective Exercise Specialist certification course textbook, we'll look at the complex interplay between mobility and stability. You'll learn a set of corrective exercises that can produce far-reaching benefits from head to toe, and are appropriate for clients at all fitness levels.

ARE YOU OBSESSIVELY ASSESSING?

Some well-meaning personal trainers are fond of telling each other, “If you’re not assessing, you’re guessing.” The challenge, of course, is figuring out what to assess. Even the most knowledgeable physical therapists and clinicians don’t agree on the answer.

Some experts believe that more emphasis should be put on a patient’s history—previous injuries, job demands, exercise routines, etc. Others will spend more time on the individual’s psychological state. Could that chronic stiffness on the left side of her neck and shoulder come from the fear of being hit by an abusive spouse, who just happens to be right handed? And some sports doctors will say they need to perform a long list of special tests for each joint, analyzing ligament integrity, muscle activation, and bony clearance, for starters.

These mixed messages filter down to personal trainers, who increasingly feel pressure to assess everything, even when they don’t have the knowledge or skills to decipher all the information they accumulate. One consequence is a growing reliance on foam rolling and specialized stretches, which may be unnecessary and could even make a client’s problem worse.

Fortunately, there’s a lot you can do with corrective exercise to keep your clients moving safely and often, while leaving the more complicated tests to physical therapists, orthopedists, and, in some cases, psychiatrists.

WHAT TO DO FIRST?

There's an ongoing debate about what to do first when a client is too stiff to move through a normal range of motion. It makes intuitive sense to have her perform stretches, foam rolling, and soft-tissue work to increase her range of motion. That would be both necessary and beneficial if the client had an injury that resulted in scar tissue and damage to the muscle and fascia.

Tissues that would be neatly aligned under normal circumstances can become distorted and misaligned after an injury, limiting the extensibility they need for optimal movement. Soft-tissue interventions, over weeks and months, allow them to reform in the correct alignment. (Remember that tissue changes usually take eight weeks or more.)

But stiffness doesn't always originate in the tissue. The nervous system will often create stiffness in a muscle as a protective mechanism. This protective tension is a common problem in "healthy" clients who don't have a recent injury.

To better understand why this happens, and what you can do to correct it, we'll start by discussing the relationship between mobility and stability.

Interplay Between Mobility and Stability

Optimal movement requires a hand-in-hand balance of mobility and stability. Mobility is achieved when the soft tissues—muscles, fascia, joint capsules—have the extensibility to allow the joints to move through a full range of motion, and there's no restriction imposed by the nervous system. This also includes the nerves themselves, since they must have the freedom to slide freely between the other soft tissues. The science and practice of nerve sliding during movement is known in rehabilitation circles as neurodynamics.

Stability is achieved when key muscles can contract at the precise time, and with enough force, to provide stiffness exactly where the body needs it.

Picture a client who can perform a full squat, with his hamstrings touching his calves, while standing on stable ground. What happens when he tries to do the same movement on a Bosu ball? Unless he's spent a lot of time practicing it, his range of motion is going to be much shorter. The nervous system reacts to the instability of the Bosu ball by limiting mobility. It's a protective mechanism.

Another example: The active straight leg raise from the supine position is a common test of hamstring mobility. If a person is unable to achieve 85 to 90° of motion, it's easy to assume the hamstrings need to be stretched. But will that actually help? Let's take a closer look.



Figure 12.1. Straight leg raise. *This is a common assessment of hamstring mobility. However, other factors can limit the range of motion a person can achieve, such as an anteriorly rotated pelvis, hip capsule stiffness, and stiffness in the IT band. In this photo, he's pulling the leg into more hip flexion as a measure of passive mobility.*

The glutes and hamstrings, as you know, are large muscle groups that can perform various actions. During a sagittal plane exercise such as the squat, the hamstrings and glutes are agonists, since they both perform hip extension. However, in the frontal plane they're antagonists at the hip: The glutes abduct, but the hamstrings adduct, due to their origin and insertion points, as well as being closely linked with the adductor magnus. When the glutes are strongly activated during hip abduction it creates a relaxing, inhibitory effect in the hamstrings due to reciprocal innervation. In other words, activating the glutes during hip abduction can increase mobility of the hamstrings.

Conversely, if you focused on stretching the client's hamstrings, without considering the underlying problem of poor stability, you could actually make her problem worse by creating more pelvic instability. This is why stretching alone rarely produces a long-term improvement.

What almost always works is summed up in this phrase, which is a key point of the Corrective Exercise Specialist course: Proximal stability creates distal mobility.

Here's a real-world example: In my seminars I'll ask for an audience member who has stiff hamstrings to come up to the podium. I'll have him attempt to touch his toes, which he isn't able to do, and use a piece of tape on his leg to indicate how far his fingers reached. Then I'll take him through a 30-second muscle-activation drill, using a Swiss ball. When he

stands up and attempts to touch his toes for the second time, his range of motion will be dramatically increased.

Of course I didn't permanently fix the guy's stiff hamstrings. He would need to continue doing the drill, on a daily basis, until the muscles are strong enough to hold everything in place all day long. Any physical therapist will tell you that a patient's progress hinges on his adherence to the program at home.

But it nonetheless highlights how important it is, when focusing on mobility, to begin by activating the muscles that contribute to stability. Let's look at another example you're likely to see.

The IT Band/TFL/Gluteus Medius Connection

Iliotibial band syndrome (ITBS), an overuse injury of the IT band, is one of the most common injuries in runners. Some research suggests that weakness of the glutes, particularly the gluteus medius, could be a contributing factor.

Another problem often associated with weak glutes is an overactive tensor fasciae latae (TFL). During dynamic activities such as running and jumping, the glutes need to have enough strength to prevent the knees from buckling inward, thus causing knee valgus (shown below). However, it's common for the glutes to lack strength during hip abduction. This puts the burden of hip stability on a smaller hip abductor, the TFL, which can become overactive and strained.



Knee valgus. *Problems arise when the knees are narrower than the feet.*

The TFL is located at the upper, lateral thigh, and inserts into the IT band. Interestingly, that's where the highest level of tissue strain occurs during a straight leg raise. An IT band that's holding excess tension at rest could thus limit the straight leg raise. And there might be some correlation between an overactive TFL and ITBS. Whether there is or isn't, you'll commonly see ITBS, gluteus medius weakness, and a strained TFL simultaneously. The key point here is that strengthening the glute fibers that perform hip abduction is likely one way to relieve both ITBS and TFL strain.



Figure 12.2. The TFL and IT band relationship. *The TFL, which inserts into the IT band, can become overactive and strained when the glutes are weak. Research demonstrates a correlation between weakness of the hip abductors and IT band syndrome.*

Let's return to the first example, the active straight leg raise. Since it appears that the IT band can limit mobility in the straight leg raise, and ITBS is correlated with a weak gluteus medius, one strategy to improve a person's range of motion is to activate his hip abductors and release that protective tension.

Switching on an underactive muscle sometimes has unexpected benefits. For example, an overly pronated foot that's due to an underactive posterior tibialis can lead to compensatory chains up through the body that result in jaw pain. Indeed, progressive physicians who treat the temporomandibular disorder, a dysfunction of the temporomandibular joint (TMJ) and associated muscles of the head and neck, analyze the patient's feet and gait early on.

But how do you figure out which muscles aren't doing their job? Even if you had the skills to do so, it would take hours to isolate and test the strength of every muscle group—time the client expects you to use to help him get into shape. And you still wouldn't come close to solving the problem. A muscle might be able to fire on cue when tested in isolation, but still fail to contract correctly during a more complex task.

These are all issues I've had to address repeatedly over 20-plus years as a trainer, working with a range of clients from teenagers to elderly people in a

hospital to some of the most skilled athletes on the planet. Despite their differences, I typically see the same patterns of muscle underactivity. Whether it's caused by weakness, inadequate motor control, or a poor mind-muscle connection is irrelevant. Good things usually happen, sometimes immediately, when I can get those muscles turned on. Table 12.1 is a list the most common culprits, from the ground up.

Table 12.1. Commonly underactive muscles

Commonly Underactive Muscles	
Region	Muscle(s)
Feet	Posterior tibialis
Hips/pelvis	Hip abductors and hip external rotators
Trunk	Obliques, lats, and diaphragm
Glenohumeral Joint	External rotators (teres minor, infraspinatus)
Scapulothoracic	Serratus anterior, mid/low traps, rhomboids
Neck	Deep neck flexors

Our goal at this stage of corrective exercise is to learn how to activate these key stabilizing muscles, using the most functional exercises possible, thus allowing your clients to correct imbalances while still getting a challenging workout.

Regardless of where your client lacks mobility, you'll first address the issue with exercises that emphasize muscle activation throughout the trunk and pelvis. Then you'll move outward to the hips, shoulders, or both, depending on the limitations you identified with the information you gathered during earlier assessments.

If none of the interventions provide the results you need, in the next unit we'll look more closely at structural limitations within soft tissue, and outline ways to mobilize them.

CORRECTIVE ACTIVATION EXERCISES

Most of the following exercises train several muscle groups simultaneously. The goal is to turn on underactive muscles while still challenging as many other muscles as possible. This allows you to create a metabolically demanding workout for your client. There's also carryover between exercises. For example, most of them are performed using a chin tuck (i.e., double chin) to activate the deep neck flexors, a group of muscles that are commonly underactive, as you saw in table 12.1. Exercises such as the monster walk will challenge many muscles throughout the trunk and pelvis, even though the primary goal is to activate the hip external rotators and abductors.

Finally, none of the exercises should cause pain. If your client experiences some pain, have her slow down the movement or, in the case of static exercises, generate less tension in the muscles. You can always increase speed and tension as she gets accustomed to the exercises and the initial discomfort subsides.

TRUNK AND PELVIS

Hardstyle Plank

I learned about the hardstyle plank from Pavel Tsatsouline, an author, strength-training expert, and founder of StrongFirst. This exercise is a challenging variation on the traditional plank, due to the high levels of muscle activation it requires. The benefit of this version is that it engages the glutes and lats, which helps support the lumbar spine and can improve pelvic alignment.



Figure 12.3. Hardstyle plank. *From a standard plank position, pull the elbows and feet toward the hips and squeeze the glutes and quadriceps with 80% of maximum force.*

How to do it:

- Your client starts by resting on his forearms and toes while keeping his body in a straight line from neck to ankles (Figure 12.3).
- Cue the client to “tuck the chin” or “make a double chin” to activate the deep neck flexors. Next, cue him to “squeeze the glutes and quads.” Now, cue him to “bear down” as he simultaneously pulls his elbows and feet toward the hips as hard as possible without any change in body position. The elbows and feet shouldn’t move.
- Perform a 10-second hold with as much force as comfortably possible for 3 sets with 30 seconds rest between each set.

How to modify it:

- If this version is too difficult, you have a few options. The first is to have your client rest his knees on the floor, with his body in a straight line from neck to knees. You’ll cue him to “pull the knees toward the hips” instead of “pull the feet towards the hips.” The second option is to have your client

hold a traditional plank without pulling from the elbows and feet. Start with a 10-second hold, or whatever duration your client can hold without discomfort, and then work up to a 90-second hold over the course of weeks.

Common mistakes:

- The pelvis lifts or lowers during the activation. Cue the client to maintain a straight body position from neck to ankles.
- The shoulder blades pull together. Instruct the client to push through the elbows to keep the chest as far from the ground as possible.

Modified Side Plank Clam with Band

Technically, this exercise should be called the “modified side plank with hip external rotation, hip abduction, and lat activation.” But for the sake of brevity, it’s not. No matter how you describe it, it’s an excellent exercise to strengthen the obliques, quadratus lumborum, and lats. A mini-band is used to activate the hips’ external rotators/abductors on both sides. This is one of my frequently used corrective exercises for people that have low back discomfort.



Figure 12.4. Modified side plank clam with band. *The exercise can be performed as shown in the photo, or with greater lat activation by pulling the resting elbow toward the hip.*

How to do it:

- Your client starts by placing a mini resistance band around the lower thighs, just above the knees. Then he assumes the side-lying position, propped up on his right elbow with the knees bent to 90° and feet together. The knees are slightly in front of, or in line with, the trunk, whichever is most comfortable (Figure 12.4A).
- Instruct the client to push down through his right elbow and lift his hips while maintaining ground contact with the right knee. His spine should be in a straight line when viewed from the front (Figure 12.4B).
- Cue the client to make a double chin, then instruct him to “bear down and stretch the band as far as possible while the feet remain in contact with each other.” The exercise begins when he pulls his right elbow toward the hips to activate the right lat (Figure 12.4C).

- Instruct him to maintain this position with as much muscle activation as possible for 10 seconds.
- Have him switch to the opposite side and repeat the drill. Perform 3 sets of the 10-second hold on each side, alternating sides with each set. Rest 20 seconds between each side.

How to modify it:

- If the lightest available band has too much tension, perform the exercise without a band, but increase the duration of the hold as long as possible.

Common mistakes:

- The spine laterally flexes. Cue the client to keep the hips held high.
- The trunk and pelvis rotate posteriorly. Instruct the client to keep the trunk and pelvis facing straight forward.

After performing these two activation exercises, retest your client's mobility, or have him repeat any exercise that was problematic.

HIPS AND PELVIS

You'll frequently encounter knee and low back pain among chronic exercisers. Both can arise from weakness in the hip external rotators and abductors, which in turn is either caused or exacerbated by overtraining the lower extremities in the sagittal plane, with minimal activation in the frontal or transverse planes.

Placing a mini resistance band above the knees is a simple way to challenge the hips in the frontal and transverse planes, even when the exercise is primarily in the sagittal plane (e.g., squat, lunge, and deadlift). The cue to "bear down" is especially important in this section since it activates the pelvic floor muscles that increase stability within the pelvis.

The following corrective exercises, in many cases, will drastically reduce or even eliminate low back or knee pain. But if they don't, you'll need to regress to less demanding lower-body exercises, albeit exercises that still give your client a good workout. The goal is to find the most challenging exercises that allow your client to move without pain.

Reverse Goblet Lunge with Band

The reverse lunge is an ideal single-leg exercise for people with knee or low back pain, since it puts less stress on the knee joint than a forward lunge. Holding a dumbbell or kettlebell in the goblet position helps the client maintain a more vertical trunk. It also encourages activation of the lats as the elbows are squeezed together, reducing stress on the low back. Bearing down during the exercise improves pelvic stability. The guys at Functional Movement Systems (FMS) get credit for popularizing the addition of the band.



Figure 12.5. Reverse goblet lunge with band. *A left) Starting position with a resistance band set at knee height. B right) Ending position when the client pulls the knee laterally against the force of the band.*

How to do it:

- Secure a resistance band to a stable structure that's the same height as your client's knee joint, and loop it around the knee that's causing pain. Have him hold a dumbbell or kettlebell in the goblet position, and instruct him to squeeze his elbows together to activate the lats (Figure 12.5A).
- Instruct him to take a big step back with his free leg, and lower as far as possible into the lunge position while maintaining a relatively vertical trunk and lat tension (Figure 12.5B).

- Perform 3 to 5 slow reps with each leg, or as many reps as the client can do without pain.

How to modify it:

- Perform the exercise while squeezing a ball between the elbows, instead of holding a weight (Figure 11.8). This works well for people who shift their trunk laterally during the exercise.
- Reduce the range of motion to the point where it's pain-free, and slowly increase the range over time.

Common problems:

- The working (front) leg buckles inward. Instruct the client to stretch the band as he lunges, especially during the positions in which he has knee or low back pain. The knee joint of the working leg can move slightly lateral to the foot if it reduces discomfort.
- It's common for people to lose tension on the band as they return to the starting position. Instruct him to move slowly and stretch the band by pulling the knee outward as he steps forward.

Squat or Deadlift with Band

As a personal trainer, you're already familiar with the squat and deadlift, and you gained even more knowledge as we covered the steps for performing a lower-body movement analysis. Now you'll learn how to use a mini band for those exercises to activate the hip external rotators and abductors. But before we get to the steps, let's review some important points about these two exercises.

Generally speaking, the deadlift is easier for people to perform correctly, especially compared to a barbell back squat. People who are taller, or have proportionally long femurs or limited dorsiflexion, have an easier time mastering deadlift technique, since it allows a greater hip hinge than a squat. The deadlift also puts more emphasis on the hip extensors, a muscle group that's typically weaker than it should be in most of your clients.

The key with the deadlift is to perform it from a height that allows your client to maintain the natural lordotic curve of the lumbar spine. It's sometimes best to elevate the starting position of the barbell 4 to 6 inches off the ground, or on pins set in a power rack, to allow your client to maintain the correct spinal posture.



Figure 12.6. Squat or deadlift pattern with band. *In this photo, the client is stretching the resistance band to activate the hip abductors and external rotators during a body weight squat. Importantly, the client is cued to stretch the band during the eccentric (i.e., descending) and concentric (i.e., ascending) phases. The band can be used with any bilateral version of the squat or deadlift to reduce stress on the knees and low back.*

How to do it:

- Have your client place a mini resistance band around his lower thighs, just above the knees, before performing any bilateral squat or deadlift variation.
- Provide an external cue by instructing him to “stretch the band” during the concentric and eccentric phases of the squat or deadlift. (Figure 12.6).

Common problems:

- The feet roll excessively outward. Cue your client to stretch the band while maintaining ground contact with the base of each big toe.
- The knees buckle inward, or the client experiences knee discomfort, during the concentric phase. People are usually pretty good at stretching the band during the descending phase, but they often lack the motor control and mind-muscle connection to do it during the ascending phase. Therefore, instruct your client to pause briefly at the bottom of the squat or deadlift,

and “stretch the band” or “pull the knees apart” as soon as he begins to ascend.

Using a resistance band during a lunge, or a mini band during a squat or deadlift, is a quick fix to many problems you might encounter with the low back and knees. In some instances, however, it won't be enough to get your client out of pain. If that's the case, your next step is to deconstruct the hip hinge pattern, and make sure your client can do it correctly. I learned the following steps from Prof. Stuart McGill.

Hip Hinge Posture

The hip hinge is an essential aspect of movement, one that's required during countless exercises and daily tasks. Doing the hip hinge the following way provides three benefits.

First, it places the hip joints in an advantageous position to engage the hip abductors and external rotators. Second, it aligns the ribcage directly over the pelvis, which increases intra-abdominal pressure. Third, it activates the musculature throughout the posterior chain without placing undue stress on the intervertebral discs.



Figure 12.7. Hip hinge posture. *A top left) Starting position with a band around the lower thighs. B top right) Hip hinge. C bottom left) Anti-shrug. D bottom right) Hip hinge posture.*

How to do it:

- Have your client place a resistance band around his lower thighs, just above the knees. Instruct him to stand tall with a “long spine,” feet slightly wider than shoulder width and pointed straight ahead. The arms are held straight down with the palms resting on the anterior thighs (Figure 12.7A).
- Instruct him to push his hips back, allowing the knees to flex slightly, as he slides his hands down the thighs until the weight of his upper body is

supported through the palms. There should be minimal forward movement of the knees (Figure 12.7B).

- Have him push down through his palms, keeping the arms held straight, to activate the lats (Figure 12.7C). If he struggles with this step, instruct him to shrug his shoulders, then do the opposite motion—“anti-shrug”—to push the shoulders down to activate the lats.

- Now tell him to flex his elbows, and hold his hands at chest height, without losing his posture and lat activation. Instruct him to keep his ribcage locked down over his pelvis, and his chin tucked (Figure 12.7D).

Common problems:

- The client loses his neutral spine position. The lumbar spine should be neither flexed nor extended, so cue accordingly.

- He feels discomfort in the low back or knees. Because this hip hinge posture places minimal stress on the spine and knees, your client shouldn't feel any discomfort. But if he does, a few modifications are in order. First, have him squeeze a ball between his elbows (shown below) to increase lat activation, which supports the lumbar spine and helps activate the abdominals. Second, adjust the hip, trunk, or knee position in any way you think will help him achieve a pain-free position.



Lat squeeze. *Squeeze the ball with elbows to activate the lats.*

The following movements, as you'll see, are based on the hip hinge, and they're illustrated here using the ideal posture. But as I noted, you may need to adjust from the ideal to help your client find a comfortable starting

position. In some cases, for example, a client might require less of a hip hinge and anterior trunk shift. Finding the posture that best suits your client is a key component of this stage of Exercise Therapy. Once you've found it, it's time to actively engage the abductors and external rotators.

Hip Hinge with Mini Band

This exercise will help your client do any lower-body exercise with better form. It does that by engaging the hip abductors and external rotators while maintaining a proper arch in both feet.

Placing a mini band around your client's lower thighs is one of the most beneficial interventions you can do to reduce strain in his or her low back and knees. This corrective is terrific for any variation of the squat or deadlift. The goal is improved activation of key muscles throughout the lower body and trunk, which in turn facilitate proper muscle firing patterns.



Figure 12.8. Hip hinge with mini band. *A left) Begin exercise from hip hinge position. B right) Stretch the band and shift weight to the outside of the feet while keeping the base of each big toe on the floor.*

How to do it:

- Have your client place a resistance band around his lower thighs, just above the knees. Instruct him to perform a hip hinge using the cues we just covered (Figure 12.8A).
- Cue him to make a double chin, bear down, and then stretch the band as far as possible while maintaining contact with the base of each big toe for 10 seconds (Figure 12.8B). Have the client squeeze a ball between his elbows during the exercise if it improves his technique.
- Perform 3 sets of the hip hinge band stretch, resting 30 seconds between each set.

- The goal is to achieve one 60-second hold with a black mini band, without any discomfort in the low back or knees, before progressing to the next exercise, the standing fire hydrant.

Common problems:

- The feet roll excessively outward. Cue the client to focus more on stretching the band while maintaining ground contact with the big toes.
- The knees don't spread an equal distance. When you see one knee that's more medial than the other, cue the client to increase the stretch on that side of the band.

Standing Fire Hydrant with Mini Band

Once your client is able to perform the hip hinge with a band, it's time to progress to a single-leg exercise. The standing fire hydrant is an excellent exercise I learned from Dr. Christopher Powers that strengthens the glutes through their three primary functions: abduction, external rotation, and extension of the hip.

The keys here are to ensure the elevated leg is held at end range of motion, and the knee of the stance leg is actively pulled in the lateral direction. This is an important exercise to master because single-leg stance stability is essential for sport and life. Indeed, becoming proficient and strong with the standing fire hydrant band exercise will not only help relieve knee pain, but it will also help you run faster, jump higher, and lift more loads with lower body exercises.

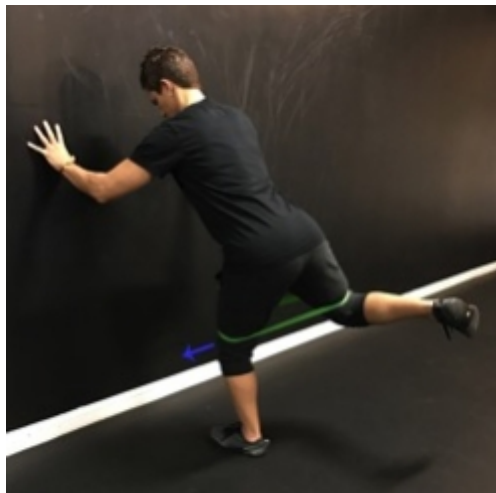


Figure 12.9. Standing fire hydrant with mini band. *Female demonstrating the standing fire hydrant with mini band using a left leg stance. The right leg is held in hip abduction, external rotation, and extension at the end range of motion. The left knee is pulled lateral to engage the left glutes (arrow). To give a greater emphasis to the quadriceps, instruct the client to achieve greater knee flexion in the stance leg.*

How to do it:

- Have your client place a resistance band around her lower thighs, just above the knees, and stand approximately 18" in front of a wall.

- Instruct her to hinge at the hips and place her fingertips lightly against a wall for balance. Then, have her lift the right leg out to the side, back, and externally rotated until the end-range of motion for the right hip is achieved. There should be minimal trunk rotation.
- Instruct her to actively pull the left knee laterally (i.e., outward) to activate the left glutes (Figure 12.9).
- Perform 2 sets of the standing fire hydrant, resting 30 seconds between each leg.
- The goal is to achieve a 60-second hold with a green mini band, without any discomfort in the low back or knees, before progressing to the next exercise, the lateral step.

Common problems:

- The trunk rotates excessively toward the elevated leg. A small amount of trunk rotation is normal; however, there shouldn't be any strain felt in the lower back region. All muscle activation should be felt in the glutes.
- The knee of the stance leg isn't being pulled in a lateral direction. When the client is in a left leg stance, cue her to "pull your left leg outward while maintaining ground contact with your big toe."

Additional points:

- For athletes that rely heavily on single-leg stance stability (e.g., hockey, soccer, basketball players), I prefer to have them work up to a 60-second hold without any balance support from a wall.
- Quadriceps strength is an important aspect of athleticism. The standing fire hydrant is an excellent way to increase quadriceps strength when your client lacks it. Instruct her to squat into deeper knee flexion on the stance leg, without the knee traveling past her toes.
- An excellent strategy for anyone that needs to take single-leg stability to the highest level is to have her squeeze a ball between her elbows to activate the lats.

Lateral Step with Mini Band

Once the client can hold the standing fire hydrant with a green mini band for 60 seconds without discomfort, it's time to progress to a more dynamic movement. The lateral step is a good place to start because the hip hinge posture gives the glutes a more effective line of pull.



Figure 12.10. Lateral step with mini band. *A left) Start with hip hinge posture. B middle) Step to the right with the right leg while keeping the knees over the ankles. C right) Client demonstrates valgus in both knees while stepping laterally, indicating incorrect form. Both knees should remain directly over, or slightly outside of, the feet.*

How to do it:

- Have your client place a resistance band around his lower thighs, just above the knees. Instruct him to perform a hip hinge (Figure 12.10A).
- Cue him to make a double chin, bear down, and then take a small step to the right, landing with a flat foot. The left knee should remain directly over the left foot as he steps to the right. (Figure 12.10B).
- Next, instruct him to take a very small step to the right with the left leg, thus returning his stance width to the starting position (Figure 12.10A). The feet should not be narrower than shoulder width.
- Instruct him to take 3 steps to the right, followed immediately by 3 steps to the left. Without resting, have him take 2 steps to the right and 2 to the left. He'll finish with one step in each direction. Have the client squeeze a ball between his elbows during the exercise if it improves his technique.
- Perform 3 sets of the 3-2-1 rep sequence, with 30 seconds of rest between each set.

- The goal is to work up to a 5-4-3-2-1 rep sequence for all 3 sets with a band you feel is appropriate for the client.

Common problems:

- The trailing leg buckles inward. For example, when the client steps to the right with his right leg, it's common for the left knee to buckle inward. Cue him to "pull your left knee to the left as you step to the right."
- Both knees buckle inward (Figure 12.10C). This usually occurs when the band provides too much resistance for the client.
- The client takes steps that are too large. Instruct the client to step just a few inches at a time. The shorter the steps, the better.
- The client's weight shifts to the front of the feet, which decreases gluteal activation. Cue the client to "push through and land with your heel."
- The client loses his chin tuck or spinal alignment while stepping. If spinal alignment is lost, cue him again to bear down while he's stepping.

Monster Walk

When the client demonstrates proper technique with the lateral step, you can progress to the monster walk. Most people feel an intense glute contraction during this exercise, especially while stepping backward. The key is to take very short steps and land with a flat foot. When a client has low back pain it helps to squeeze a basketball between the elbows to activate the lats.



Figure 12.11. Monster walk. *A left) Begin exercise from hip hinge position. B right) Take a small step forward with the right leg and stretch the band wide when each foot is flat on the ground. Then step forward with the left leg and continue moving forward. This exercise is performed forward and backward.*

How to do it:

- Have your client place a resistance band around his lower thighs, just above the knees. Instruct him to perform a hip hinge (Figure 12.11A).
- Cue him to make a double chin, bear down, and then take a small step forward with the right foot, landing with a flat foot. The left knee should not pull inward as he steps forward. (Figure 12.11B).
- Next, instruct him to keep walking forward until he takes 3 steps with each foot. Without resting, have him take 3 steps backward with each foot, followed by 2 steps forward and backward with each foot, and finishing

with one step with each foot forward and backward. Have the client squeeze a ball between his elbows during the exercise if it improves his technique.

- Perform 3 sets of the 3-2-1 rep sequence, with 30 seconds of rest between each set.

- The goal is to work up to a 5-4-3-2-1 rep sequence for all 3 sets with a band you feel is appropriate for the client.

Common problems:

- The steps are too long. Instruct the client to take the smallest steps possible.

- The weight shifts forward onto the toes. Cue the client to “keep your weight on your heels and land with a flat foot.”

By the time your client is able to perform some or all of these exercises, you should see improved mobility while reducing or even eliminating knee or low back pain.

ANKLE AND FOOT

The alignment of your client's feet can have a profound impact throughout her body. I already mentioned temporomandibular disorders, which is almost as far from the feet as you can get. More often, though, you'll see the problem closer to the source, as excessive pronation of the feet, commonly referred to as overpronation, leads to knee pain.

Posterior Tibialis Activation

In many cases, placing a mini band around your client's thighs while performing a squat or deadlift will realign pronated feet. But it's sometimes not enough, and you'll need a more direct intervention. That's when a pen or marker comes in handy. I showed this technique in the previous unit as part of the final step in the postural stability sequence. But I didn't explain the purpose of the pen that you placed against the arch of each foot. It's there to provide tactile feedback so he can feel if his foot collapses into it, and adjust back into the correct alignment. This maintains activation of the posterior tibialis, the primary muscle providing arch support.

The following exercise is for anyone who's unable to maintain a proper arch during a lunge, squat, or deadlift. It's also for anyone who experiences knee pain during lower-body exercises, assuming the previous interventions didn't work.



Figure 12.12. Posterior tibialis activation. *The client rolls his foot outward as far as possible while maintaining ground contact with the base of the big toe. The tip of a marker is placed lightly against the arch as tactile feedback to promote activation of the posterior tibialis.*

How to do it:

- Have your client stand barefoot, or with socks, and instruct her to roll her feet outward as far as possible while maintaining contact with the base of the big toe. You'll do this for one or both feet, depending on what you saw. Place the end of a marker or pen lightly against the arch of the foot/feet (Figure 12.12).
- Explain to your client that the marker/pen provides tactile feedback so he can feel when his arch starts to collapse. Cue him to maintain minimal pressure on the marker while performing a lunge, squat, or deadlift (Figures 12.13A/B).



Figure 12.13. Posterior tibialis activation for bilateral and single leg exercises. *A left) The markers are used to provide tactile feedback during bilateral lower-extremity exercises such as the squat and deadlift. B right) A single pen is used during a lunge.*

Now that you have a full array of lower-body interventions and correctives, it's time to move on to the upper body.

SHOULDER COMPLEX

Earlier I listed four upper-body muscle groups that are typically underactive or inhibited: the external rotators of the glenohumeral joint, serratus anterior, middle/lower trapezius, and rhomboids of the scapulothoracic region.

The scapulothoracic region, as you recall from Unit 10, is one of the most challenging for the nervous system to control. Muscle inhibition is common, leading to dysfunctions throughout the entire shoulder. Weakness around the scapula can impair capsular structures in the anterior shoulder, increase stress on the rotator cuff, and decrease neuromuscular performance within the shoulder complex.

That's why shoulder pain and dysfunction are so common. Many people struggle while pressing weights overhead, or find it impossible to do a bench press or lateral raise without pain. Furthermore, problems in the neck and shoulder are commonly linked, making it even more challenging to develop a corrective exercise strategy.

We'll address each of those challenges in this section. But even with these correctives, your clients may need the soft-tissue interventions you'll learn later in this course before they can do all of the aforementioned upper-body exercises with a full and pain-free range of motion. Poor posture sometimes creates more stiffness in the neck and shoulders than you can counteract with activation exercises alone. But these correctives are still the best place to start.

At this point it's assumed that you know which of your client's upper-body exercises are causing shoulder pain. Your client has performed the exercise under your careful observation and rated his discomfort on a scale of 1 to 10, while you noted any movement compensations you saw.

Now you'll have your client perform the following activation exercises, and retest the problematic exercise after each one. When you find a corrective exercise that benefits your client, perform as many sets as necessary until the improvement plateaus. At that point, move to the next corrective and continue the process.

Postural Stability Hold (PSH) with Head Movement

This corrective exercise adds neck rotation and lateral flexion by using the postural stability hold (PSH). Here's why the neck movements matter: The nerves that control the muscles of the shoulders and upper extremities exit through the cervical spine. So when the neck muscles are overly stiff, they can compress and trap nerves, causing neural tension, pain, and dysfunction in the shoulders and arms.

Recall that stiffness in one region—the neck, in this case—can be due to poor activation of muscles in an adjacent region: the trunk. Correcting a problematic upper-body exercise thus starts with activation of the lats and abdominals. Their activation in turn frees up the cervical spine muscles and clears the obstructions that prevented nerves from communicating with the muscles of the shoulders and arms.



Figure 12.14. PSH with head movement. *A) Client rotates his head to the right. B) Client rotates his head to the left. C) Client performs right lateral flexion of the neck. D) Client performs left lateral flexion of the neck. The client squeezes the ball harder and stretches the band farther at the positions in which the neck feels stiffest.*

How to do it:

- Have your client start by placing a mini-band around the lower thighs, a ball between the elbows to activate the lats, and a pen beneath each arch to facilitate proper lower body mechanics. From here, perform a hip hinge as explained earlier. Instruct him to make a double chin, which activates the deep neck flexors and opens space between the cervical vertebrae.
- Have him slowly rotate his head side-to-side, as far as possible in each direction (Figures 12.14A/B). When he reaches a position in which his neck feels restricted, cue him to “squeeze the ball and stretch the band a little harder” to increase activation of the postural stability muscles. The goal is to achieve the normal range of motion for head rotation, approximately 80°

to each side, without pain. Or, at the very least, increase the rotation range enough to improve his upper-body exercises. Perform 5 slow rotations to each side.

- Now have him perform a slow lateral tilt of the head side-to-side while maintaining a double chin (Figures 12.14C/D). As before, have him squeeze harder and stretch the band farther when his neck feels restricted. Your goal is to get as close as possible to the normal range of motion for lateral flexion of the cervical spine, 45° to each side, without pain. Perform 5 slow reps to each side.

Additional points:

- It might take weeks or months before a normal range of motion is restored. But as long as your client is able to get her range closer to 80° of rotation, and 45° of lateral flexion, the improvement will likely be reflected in her performance of upper-body exercises. Remember to retest each problematic exercise after this drill to determine if it's helping.

- Your client should not experience any pain during this exercise. If she feels any sharp, nerve pain in the neck, terminate the exercise and refer her to a healthcare professional.

- Cue her to move slowly, and to exhale when the neck is in a restricted position. That helps to calm the nervous system.

Wall Elbow Walk with Band

This exercise, popularized by Eric Cressey, a corrective exercise expert, activates the external rotators (i.e., teres minor and infraspinatus) while increasing intra-abdominal pressure and improving ribcage alignment. The key to using it effectively is for your client to keep his ribcage pulled down, and be cognizant of the appropriate distance he should walk his elbows up the wall.



Figure 12.15. Wall elbow walk with band. *A left) The client demonstrates an elevated ribcage at the starting position. B middle) The client pulls the ribcage down to increase intra-abdominal pressure and reposition the ribcage, while performing slight external rotation of the shoulders to stretch the band. C right) The exercise is performed by slowly walking the elbows up and down the wall, a few inches at a time. It's important to avoid elevating the ribcage and extending the lumbar spine, as shown in the photo.*

How to do it:

- Have your client wrap a single resistance band around the back of his hands, holding the free ends between the thumb and index finger. While standing, have him place his forearms and elbows against the wall, with the elbows the same height and width as the shoulders, and forearms perpendicular to the floor (Figure 12.15A).
- Cue him to “bear down” or “pull the ribcage down and in” to correctly position the ribcage over the pelvis and increase intra-abdominal pressure. Have him externally rotate his shoulders slightly, while maintaining the same elbow position (Figure 12.15B), to increase band tension. This will increase the distance between his hands by perhaps an inch or two.

- Instruct him to walk his elbows up the wall slowly, a few inches at a time, alternating right and left (Figure 12.15C). Stop when he begins to elevate his ribcage. Now reverse the movement, walking his elbows back down to the starting position, and repeat the drill. He should feel the exercise in the posterior shoulder region.

- Perform 3 sets with 30 seconds of rest between each set.

- The goal is for your client to walk his forearms up the wall until his elbows are the same height as his forehead without elevating the ribcage. It may take multiple sessions before he can achieve that range of motion.

As before, have your client retest the problematic upper-body exercise and rate the discomfort on a scale of 1 to 10, noting any compensations you see, to determine if this is a useful intervention. If it indeed helps, you can have the client perform an additional set and assess if it helps even more. If not, move on to plank roll.

Plank Roll

The purpose of this exercise is to activate the serratus anterior and improve eccentric control of the scapulothoracic region, which, when lacking, can cause scapular winging. The plank roll also contributes to trunk stability, since it engages the core and hip muscles.



Figure 12.16. Plank roll. *A top) In the starting position, squeeze the glutes and push down through the elbows to activate the serratus anterior, while maintaining a double chin. B bottom) During the roll, the hips and trunk move as one interconnected unit.*

How to do it:

- Your client starts by resting on his forearms and toes while keeping his body in a straight line from neck to ankles. Instruct him to make a double chin, squeeze his glutes, and push down through his elbows. There should be no valley between the shoulder blades (Figure 12.16A).
- Instruct him to bear down, then have him rotate his trunk to the left, moving the pelvic region and trunk as one interconnected unit. Cue him to “push down through the right elbow” as he rotates until his upper arms and shoulders are perpendicular to the floor (Figure 12.16B).
- Have him slowly rotate back to the starting position, while moving his pelvis and trunk as one unit. He should feel muscle activation in the posterior region of his right shoulder along with his core muscles. Now

have him rotate to the right, using the same cues, while pushing through his left elbow.

- Perform 3 slow rotations to each side, resting 30 seconds between each set.

How to modify it:

- If this version is too difficult, have your client rest her knees on the ground throughout the movement. At the starting position, and throughout the roll, her body should form a straight line from neck to knees.

Common mistakes:

- The hips/pelvis move before the trunk during the roll. This occurs when the client doesn't bear down correctly. Have the client focus on her chest and pelvis rotating at the same time.
- She doesn't push down through her elbow during the roll, or at the end of the movement. You'll see her shoulder shrug on the side of the elbow that's down. Cue her to "push your trunk away from the floor during the rotation."

Downward Dog

The downward dog, a staple in yoga, is also increasingly popular in physical therapy for improving both stability and mobility throughout the shoulders and posterior chain. Sue Falsone, PT, founder of Structure and Function, advocates it for athletic populations.



Figure 12.17. Downward dog. *Push through the palms to move the chest as close to the thighs as possible. It is not necessary to have the client keep his heels on the ground, but that does indicate excessive stiffness of the plantarflexors.*

How to do it:

- Have your client place his hands on the ground with his legs straight, hips held high, and heels as close to the ground as possible. The hands should be slightly wider than shoulder width, or any similar position that feels comfortable to the shoulders. Instruct him to make a double chin (Figure 12.17).
- Cue him to “push through your palms to move your chest as close to your thighs as possible.” Hold the end position for 3 to 5 seconds while maintaining slow, controlled breathing through the abdominals, as well as a double chin.
- Return to the starting position for a few seconds, which should be relatively close to the end position, and then have him push again through his palms to move the chest toward the thighs. Hold for another 3 to 5 seconds. Repeat the sequence once more to complete the set.
- Perform 3 sets with 30 seconds of rest between each set.

How to modify it:

- If this version is too difficult, have your client perform the same steps with his forearms resting on the ground, instead of his hands. This modification is also recommended for clients who have a wrist injury.

Common mistakes:

- The client doesn't maintain a double chin. Be sure to cue accordingly.
- The client holds her breath. Instruct her to maintain a slow, relaxed breathing pattern.

Y Raise on a Swiss Ball

You've probably seen a few versions of the Y raise. It's commonly used by personal trainers and physical therapists to activate the lower and middle trapezius. If so, you may have noticed that a person doing the exercise often compensates by extending her lumbar or thoracic spine. That's why I prefer to have the client lie chest-down on a Swiss ball.

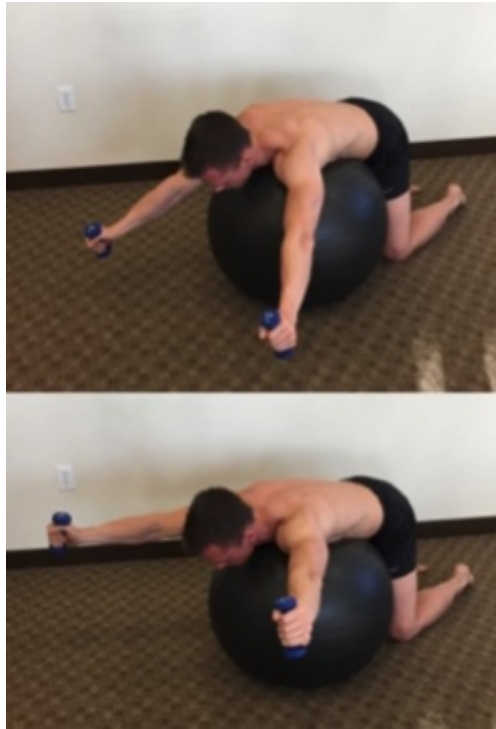


Figure 12.18. Y raise on a Swiss ball. *A) Start with the arms held at 10 and 2 o'clock and hands just above the floor, with the chin tucked. B) Lift the arms until they're parallel to the floor, or before the shoulders shrug.*

How to do it:

- Have your client grab two very light dumbbells and lie chest-down on a Swiss ball that's large enough to cover his entire anterior trunk. His arms are held straight at the 10 and 2 o'clock positions with the hands just above the floor, palms facing each other (Figure 12.18A).
- Instruct him to make a double chin, and then cue him to "pull your shoulder blades down toward your hips to lift your arms." When the arms are parallel to the floor, have him hold the top position for 2 seconds (Figure 12.18B).

- Have him return slowly to the starting position, and repeat for 8 to 10 reps. Another option is to perform an isometric hold at the top position for 20-30 seconds. This sometimes works better to help the client improve the mind-muscle link.

- Perform 3 sets with 30 seconds of rest between each set.

How to modify it:

- Perform the exercise without any weight in hand.
- Perform the exercise one arm at a time.
- Decrease the range of motion to match the person's available mobility.

Common mistakes:

- The client doesn't maintain a double chin. Be sure to cue accordingly.
- The client doesn't feel the lower/mid trapezius muscles working. In that case, perform the exercise one arm at a time.
- The shoulders shrug, especially when the arms are in the highest position. Cue him to "pull from your shoulder blades." You can shorten the range of motion if necessary.
- The elbows flex during the movement. Instruct him to keep his elbows locked straight, or even hyperextended, during the exercise.

BEFORE MOVING ON

We've now covered five corrective exercises that activate key muscles throughout the shoulders and trunk. You've retested the problematic upper-body exercise after each one to determine if it helped your client. If the correctives didn't solve your client's problem, you'll have her perform the following two exercises. Even though they won't do much to get your client into better shape, they'll still activate the muscles that should help your client return to more challenging workouts in the near future.

Sphinx with Reach

I learned this exercise from Dr. Mark Cheng, a doctor of Chinese medicine and an internationally recognized corrective exercise specialist. The sphinx drill is especially helpful for people who have problems caused by poor activation of the serratus anterior and rotator cuff.



Figure 12.19. Sphinx with reach. *A top left) To start, the elbows are directly below the shoulders, palms flat on the ground. B top right) Push through the elbows, elevating the chest as high as possible, to activate the serratus anterior. C bottom left) You can see in this example that his left shoulder starts to shrug as he reaches to the right, indicating poor activation of the serratus anterior. D bottom right) As he looks to the left, his chest falls farther toward the floor. When performed correctly, the left shoulder position shown in photo B will be the same throughout the movement.*

How to do it, and common errors:

- Have your client lie prone, with his elbows directly below his shoulders, upper torso raised and supported by his forearms, and palms flat on the floor. Instruct him to pull his shoulder blades together (Figure 12.19A).
- Cue him to “push down through your elbows to elevate your chest as high as possible while making a double chin.” This activates the serratus anterior and deep neck flexors (Figure 12.19B).

- Instruct him to extend his right arm straight out to the side, slowly, until it's approximately parallel to the floor, while pushing down through the left elbow. The left shoulder should not shrug, but it commonly does (Figure 12.19C).

- Now have him slowly rotate his head to the right as far as possible while maintaining a double chin. At this point, it's common for the left shoulder to shrug even more due to poor activation of the left serratus anterior (Figure 12.19D). If his shoulder shrugs, cue him to “push your chest away from the floor through your left elbow” or “push down harder through your left elbow.”

- Have him slowly return the right elbow to the floor while maintaining activation of the serratus anterior (Figure 12.19B), and then sink into the starting position by pulling his shoulder blades together (Figure 12.19A).

- Repeat with his left arm reaching to the left side, and then turning his head to the left.

- Perform 3 slow reaches to each side, and then retest the problematic upper-body exercise.

Additional points:

- When the right arm reach and head turn are performed correctly, the left shoulder will remain in the position shown in Figure 12.18B.

- The legs should remain relaxed throughout the exercise.

Scapular Activation

This drill, popularized by Andreo Spina, D.C., a movement and mobility expert, increases activation of the scapular retractors at the end range of motion. Because it's common for people to lose their ability to fully retract the scapulae, restoring it increases motor control of the scapulothoracic region.

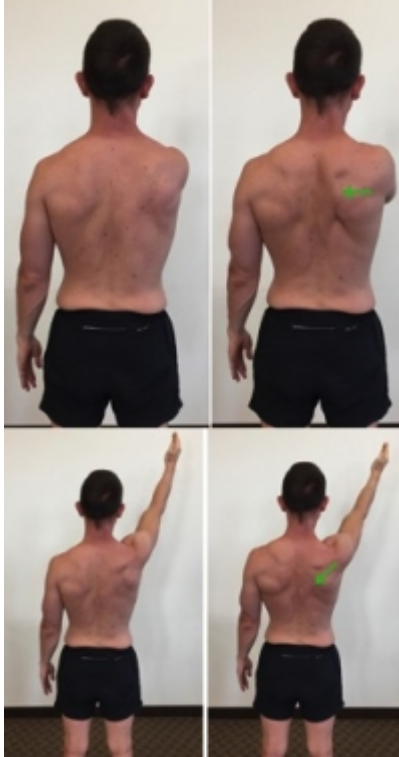


Figure 12.20. Scapular activation. *A top left) Hold the right arm straight out in front, parallel to the ground, with the scapula fully protracted. B top right) Pull the scapula into full retraction by activating the rhomboids and middle trapezius. C bottom left) Hold the right arm straight at an upward angle, with the scapula protracted and upwardly rotated, near a position that causes shoulder discomfort. D bottom right) Retract and downwardly rotate the scapula by activating the rhomboids, middle trapezius, and downward rotators.*

How to do it:

- Have your client stand with his feet shoulder-width apart, holding his right arm straight out in front, parallel to the ground. Instruct him to make a

double chin, and then reach forward as far as possible to fully protract the right scapula (Figure 12.20A).

- Cue him to “pull your shoulder blade back as far as possible while keeping your right arm straight” to activate the scapular retractors (Figure 12.20B). Slowly reverse the motion back to the starting position. Perform 5 slow reps with each arm, focusing on muscle activation at the end range of motion.
- Next, have him hold his right arm somewhat higher, forming perhaps a 150° angle with the torso. If the client has shoulder pain, position the arm slightly below the point at which the pain occurs (Figure 12.20C).
- Cue him to “pull your right shoulder blade back and down as far as possible while keeping your right arm straight.” Slowly reverse the motion back to the starting position. Perform 5 slow reps with each arm, focusing on muscle activation at the end range of motion.
- Retest the problematic upper body exercise.

Common mistakes:

- The shoulder shrugs when the arm is parallel to the floor and the client retracts his scapula. Cue the client to “maintain as much space as possible between your ear and the top of your shoulder.” Or you could keep it simple by telling him not to shrug his shoulder.
- The client doesn’t achieve his full range of scapular motion. It’s important to instruct your client to move slowly, and focus on maximal activation at the end range, in order to regain motor control.

Additional point:

- The key with this drill is to find the arm angle (i.e., shoulder position) where it’s challenging to engage the scapular muscles at the end range of motion. Have your client work at that angle until he gets it right.

HOW TO USE THIS INFORMATION

I've described the corrective exercises in the specific order I recommend using them, based on my experience with a wide array of clients. What's most important is that you retest the problematic exercise after each corrective. That's the only way to know if it helps your client move better, or with less pain. With that in mind, there are three additional ways you can use the correctives.

Make a Home Exercise Program

When you discover the correctives that improve your client's movement, or reduce pain, print out the corresponding sheets, and have your client do them at home once or twice a day until your next session. Alternatively, you can use your client's smartphone to shoot video of her doing the exercise correctly while you give instructions. Remind your client that permanent changes to tissue quality and movement skill can take weeks or months, but the more often she practices the exercise, using the best possible form, the faster she'll improve.

Create a Joint-Friendly Workout

Most of the correctives in this unit work well as stand-alone exercises. They're challenging and engage multiple muscle groups. Design an entire workout based on the exercises that work best for your client. You'll improve her fitness while correcting imbalances.

Create a Customized Warm-up

In many cases, a single corrective in this unit will have an immediate effect. It will improve your client's range of motion or relieve a nagging pain, allowing her to perform her normal workout routine without restriction. Choose the best corrective exercises for your clients and make them part of their warm-up before every workout, until the problem is completely eliminated. For example, the monster walk and modified side plank with a mini band are not only good correctives, more often than not, they're also effective warm-up drills, and my clients enjoy doing them.

FINAL WORDS

We covered a lot of material in this unit, with a lot of exercises that might be new to you. Make sure to practice unfamiliar correctives on your own before using them with a client. Mastering the exercises will help you coach them more effectively.

In the next unit, we'll take a closer look at each joint to determine which soft-tissue structural limitations might be causing a problem that activation drills alone can't fix. To find out more information about the Corrective Exercise Specialist course, click on the following link:

<http://www.issaonline.edu/certification/corrective-exercise-certification/>

SUMMARY

1. It's often difficult to decipher the information you get from the most common assessments, due to the interconnectedness of the human body.
2. Stretching, foam rolling, and other soft-tissue interventions are important after an injury when the tissues need to reform in proper alignment. But to improve mobility and relieve minor pain, activation drills will typically be more effective.
3. Optimal movement and performance require an appropriate balance between mobility and stability.
4. Proximal stability creates distal mobility. That's why activation drills need to target the muscles that support the spine and pelvic region.
5. Corrective exercises that mimic functional, multi-joint exercises allow your clients to get into shape while restoring stability and mobility.
6. Retest the problematic exercise after each corrective to determine if it reduced your client's pain and/or improved movement. If it did, have the client perform the corrective once or twice each day with the recommended parameters.
7. Moving slowly during corrective exercises, and maintaining diaphragmatic breathing, are key components of motor learning. Make sure you emphasize both with your clients.
8. When appropriate, use the corrective exercises in this unit to create a home exercise program, a stand-alone workout, or a warm-up.

USEFUL LINKS

The following links are from Amazon. You can click directly on the link or copy/paste it into your web browser.

Most of the time, I use the Perform Better mini bands since they come in a wide range of resistance levels, which is important for progressing a client.

Perform Better mini bands: <http://amzn.to/2vDW0e2>

Some people prefer the comfort of the SlingShot hip circle, instead of the rubber Perform Better mini band. But the Slingshot doesn't come in as many different levels of resistance. I suggest the S/M "grippy" hip circle version.

SlingShot Hip Circle: <http://amzn.to/2vVAhRy>

Jump Stretch makes high quality bands that can be used for the reverse lunge with band exercise in this book.

Jump Stretch band: <http://amzn.to/2vD8qTv>

REFERENCES

- Aminaka N, Pietrosimone BG, Armstrong CW, et al. Patellofemoral pain syndrome alters neuromuscular control and kinetics during stair ambulation. *J Electromyogr Kinesiol*. 2011;21(4):645-651.
- Barton CJ, Lack S, Malliaras P, et al. Gluteal muscle activity and patellofemoral pain syndrome: a systematic review. *Br J Sports Med*. 2013;47(4):207-214.
- Davenport TE, Kulig K, Sebelski CA, Gordon J, Watts HG. *Diagnosis for physical therapists: a symptom-based approach*. Philadelphia, PA: F.A. Davis Company; 2013.
- Dutton M. *Dutton's orthopaedic: examination, evaluation and intervention*. 3rd ed. Columbus, OH: McGraw-Hill Education; 2012.
- Eubanks JD. Cervical radiculopathy: nonoperative management of neck pain and radicular symptoms. *Am Fam Physician*. 2010;81(1):33-40.
- Fredericson M, Cookingham AM, Chaudhari BC, et al. Hip abductor weakness in distance runners with iliotibial band syndrome. *Clin J Sport Med*. 2000;10(3):169-175.
- Gebremariam L, Hay EM, van der Sande R, et al. Subacromial impingement syndrome – effectiveness of physiotherapy and manual therapy. *Br J Sports Med*. 2014;48(16):1202-1208.
- Lee JH, Cynn HS, Kwon OY, et al. Different hip rotations influence hip abductor muscles activity during isometric side-lying hip abduction in subjects with gluteus medius weakness. *J Electromyogr Kinesiol*. 2014;24(2):318-324.
- Liebenson C. *Rehabilitation of the spine: a practitioner's manual*. 2nd ed. Baltimore, MD: Lippincott Williams & Wilkins; 2007.
- McGill S. *Back mechanic*. Gravenhurst, Ontario, Canada: Backfitpro, Inc; 2015.
- McGill S. *Low back disorders*. 3rd ed. Champaign, IL: Human Kinetics; 2015.

Niemuth PE, Johnson RJ, Myers MJ, et al. Hip muscle weakness and overuse injuries in recreational runners. *Clin J Sport Med*. 2005;15(1):14-21.

Novak CB. Thoracic outlet syndrome. *Clin Plast Surg*. 2003;30:175-188.

Powers CM. The influence of abnormal hip mechanics on knee injury: a biomechanical perspective. *J Orthop Sports Phys Ther*. 2010;40(2):42-51.

Reijnen EA, Noten S, Michener LA, et al. Clinical outcomes of scapular-focused treatment in patients with subacromial pain syndrome: a systematic review. *Br J Sports Med*. 2017;51(5):436-441.

Sarhmann S. Diagnosis and treatment of movement impairment syndromes. 1st ed. St. Louis, MO: Mosby; 2001.

Schenkman M, Deutsch JE, Gill-Body KM. An integrated framework for decision-making in neurologic physical therapist practice. *Phys Ther*. 2006;86:1681-1702.

Sidorkewicz N, Cambridge ED, McGill SM. Examining the effects of altering hip orientation on gluteus medius and tensor fasciae latae interplay during common non-weight-bearing hip rehabilitation exercises. *Clin Biomech (Bristol, Avon)*. 2014;29(9):971-976.

Taunton JE, Ryan MB, Clement DB, et al. A retrospective case-control analysis of 2002 running injuries. *Br J Sports Med*. 2002;36(2):95-101.

Wilcox EL, Burden AM. The influence of varying hip angle and pelvis position on muscle recruitment patterns of the hip abductor muscles during the clam exercise. *J Orthop Sports Phys Ther*. 2013;43(5):325-331.

Willy RW, Meira EP. Current concepts in biomechanical interventions for patellofemoral pain. *Int J Sports Phys Ther*. 2016;11(6):877-890.

Thanks for reading **Powerful Mobility**. I hope you found it helpful and informative. If you would like to leave an Amazon review visit <http://amzn.to/2f1rSFu>

Books by Dr. Chad Waterbury

Corrective Exercise 10-week certification course: for more information visit <http://issaonline.edu/certification/corrective-exercise-certification>

Huge in a Hurry: for more information visit <http://amzn.to/2wi7C9t>

High Frequency Training 2 (HFT2): for more information visit <http://hftmuscle.com>

About the Author

Dr. Chad Waterbury is a board certified physical therapist that received his Doctor of Physical Therapy degree from the University of Southern California, the nation's top-ranked program in the country. He also has a master's degree in Neurophysiology from the University of Arizona. Chad has written hundreds of articles for publications such as Men's Health, Men's Fitness and T-nation. He is an internationally recognized speaker and has given presentations for Perform Better and the National Strength and Conditioning Association (NSCA). Chad lives in Santa Monica, California.

For more fitness and health-related information, and to sign up for his free newsletter, you can visit his website at: <http://chadwaterbury.com>

Chad's Social Media

Twitter: <http://twitter.com/chadwaterbury>.

Facebook: <http://facebook.com/officialchadwaterbury>.

Instagram: <http://instagram.com/chadwaterbury>.

