



Fatigue may lead to poor postures, such as “wearing your shoulders as earrings.”

your shoulders can help you keep them in a more neutral position (see Chapter 11 for a description of this exercise). If you tend to hold your shoulders elevated, try exaggerating that movement, shrugging and holding it for a moment, and then letting your shoulders drop down to neutral. When tension and/or fatigue set in, you may also find yourself elevating your shoulders and winging out your elbows to the sides. Ask yourself periodically “where are my shoulders?” and consciously bring them back down if necessary. Bring your elbows in close to your sides and allow your shoulder blades to slide down your back. Squeeze your shoulder blades together a little to help stabilize them. Take a deep breath to counteract tension that could be causing you to raise your shoulders as you work. Focus on keeping your sternum forward and lifted,

to avoid rounding forward and caving in at the chest.

As you work, avoid reaching your arms far out in front of you, out to the side past the width of your shoulders, or across the midline of your body. Applying pressure in any of these positions, particularly if one or both of your shoulders are internally rotated, will stress the structures of the shoulder, placing them at risk for injury. If you find yourself extending your arms too much, move in closer to your work.

Movement of the Upper Extremity

We naturally associate performing manual treatment with using the hands and arms to apply pressure or perform techniques. Much of the training manual therapists receive concentrates on these techniques. The term “manual therapist” literally means someone who uses her or his hands to do therapeutic work. It isn’t hard to see why manual therapists get into the habit of using their hands and arms nearly exclusively to do their work.

Try not to think of your upper extremity as the main part of the body you use for your work. Although you may use your hands and arms to deliver treatment, they should be the last part of a chain of

Stabilizing Your Scapulae

The scapula is an important part of the kinematic chain of the upper body. Many muscles attach to it, and most of those muscles are brought into play when doing manual techniques. For the upper extremity to work efficiently, you need to stabilize the scapulae, placing them into a neutral position so that the stress coming through your arms can be distributed evenly between the larger muscles of your chest and upper back. By stabilizing your scapulae, you can avoid the tendency to move the upper extremity by itself, a habit that stresses the small arm muscles and increases your exposure to risk factors like repetitive movement and hand force.

To stabilize your scapulae, relax your shoulders and lift your chest slightly upward, just until your shoulders, rib cage and head line up with the rest of your body. Use a mirror to check your alignment. Lift just enough to get back into a comfortable, relaxed, neutral position—don't stick your chest out or push your shoulders back unnaturally. Use your breath to counteract any tension in your shoulders. Let your arms hang naturally by your sides.

Now that your scapulae are stabilized, your upper extremities can move in concert with the rest of your body. Try this simple exercise that illustrates the difference between working with scapular stabilization (with your scapulae engaged and neutral) and working without it:

Stand at the side of your treatment table with your feet a comfortable distance apart. Start out in a good standing neutral posture, then stabilize your scapulae by lifting your chest slightly upward and squeezing your scapulae slightly together while keeping your shoulders down and back. Make a loose fist with both hands. Keeping your arms straight, lean forward and rest the front of your fists

on the table. The broad, flat surface of your fist creates greater stability, which will help distribute stress evenly. Check your scapulae to make sure they are still in neutral position. Keep breathing deeply and evenly to make sure tension doesn't creep in and distort your posture.

Bend your knees slightly and lean in to let your fists sink into the surface of the table or into a bolster (refer to photo on page 83). Be sure to keep your hands soft, but still in a fist. Don't push your fists into the table with your arms. Don't let your arms move independently from the rest of the body in any way. Allow your arms to stay firm but not locked to absorb movement generated by the upper body, and initiate your movement with your whole upper body rather than just your arms. If you know CPR, you will recognize this concept from the way chest compressions are performed. Let your body move as one unit, so your body weight moves through your arms from your upper back and shoulders to create the downward motion that increases the pressure. Experiment with applying different degrees of pressure using this technique, from very light to very deep.

Now try the same exercise without scapular stabilization. Allow your shoulders to internally rotate, and the chest to cave in slightly. You will notice that it is now difficult for the upper extremity to work in concert with the rest of the body. Without proximal support, the arm can easily become unstable, and the arm muscles have to work harder to control arm movements. You can see that scapular stabilization allows movement of the arm to be initiated and controlled by the muscles of the chest and back, reducing stress to the smaller, less powerful muscles of the arm as you create pressure.

movement, rather than the initiators of the movement. Whenever possible, avoid moving your upper extremity independently from the rest of your body. Your power should come from your core muscles, chest, back, hips and legs, not just from your arms. The only exception to this rule will be small, precise techniques done with light pressure, for which you will necessarily use only the small muscles of your hands and arms. Be aware, though, that you may start by using light pressure, generated by the smaller muscles of the distal arm, and progress to using deeper pressure. As you increase the pressure you are using, you will need to consciously take the time to transition to using larger muscles that are better suited to this kind of work. If you are seated, you may need to move to a standing position to allow you to engage the rest of your body in your work.

Using your hands, fingers, and particularly your thumbs by themselves should be kept to a minimum in your work. Moving these small, vulnerable structures independently places them at too great of a risk of injuries like ligament tears and tendonosis. Restrict your use of these delicate structures to work you do with little to no pressure: the more pressure you use, the greater your risk of injury. Keep your hands soft and relaxed as you work to avoid static loading of the intrinsic muscles of the hands.

The most important single piece of advice to follow to avoid hand and wrist injuries is to keep your wrists straight as you work.

As you lean in with body weight, keep your elbows fairly straight, but not locked, so you can actively use the muscles in your upper arms to protect your elbow joints. Avoid fully pronating or supinating your forearms, particularly when you apply pressure, since these positions stress the attachments of the flexor and extensor muscles at the epicondyles of the elbow. Your flexor and extensor muscles have only so much stretch to them, and if they are pulled taut by forearm rotation, they will be more easily strained by finger movements or wrist bending.

Your lower arms are at their strongest, and under the least amount of stress, when they are in a “handshake” position with your wrists straight, mid-range between supination and pronation. The most important single piece of advice to follow to avoid hand and wrist

injuries is to keep your wrists straight as you work. When using hand force, you should not only avoid flexion and extension, but also ulnar or radial deviation. By taking your wrists out of neutral as you apply pressure with your hands, you use your wrist flexors and extensors more than you do when your wrists are straight. This places more stress on their tendons, and increases the pressure within the carpal tunnels in your wrists, all of which can lead to injury.

There is a small range (10–15 degrees) of wrist bending or deviation from neutral position that is acceptable and will not add undue stress to the joints. Many manual techniques can lead to a considerable amount of ulnar deviation, hyperflexion or hyperextension if you don't pay enough attention to your body mechanics as you do them. These awkward positions make injury more likely, particularly when combined with hand force. A good visual indication that you are bending your wrists too much is the appearance of any wrinkles or folds in the skin on the side you are bending toward.

Varying Your Movements

Even if you are using good body mechanics, you can still overuse a part of your body. If you rely too heavily on using your hands, fingers and thumbs, even if you are using your larger muscles and stabilizing your scapulae at the same time, you can still injure yourself. For this reason, varying the parts of your upper extremity that you use to deliver treatment is essential in preventing upper extremity MSDs. The same holds true for your neck, back and lower extremities; you need to keep moving to avoid static loading or repetitively doing the same techniques in



Hyperflexion of the wrists while applying downward pressure can put you at risk for wrist injury.



Hyperextension also increases the risk of injuring your wrists.