

## Hip and Back Issues and Solutions

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When I decided to create a program for Hips I realized that hips and backs go together in most clients. In the therapeutic setting (and I've found it's true in the fitness setting too) most people with hip problems have back problems and most people with back problems have hip problems. Because of that you'll see that some of my program below includes back exercises.

When I analyzed most hip problems I decided there were six major issues almost everyone came with. They are:

1. Lack of muscle balance in the hip joint (and low back)
2. Lack of symmetrical hip movement
3. Reliance on the more superficially placed muscles
4. Poor postural alignment
5. A need for muscle re-education
6. Pain (these are obviously not in any order!)

### **Muscle Balance**

80% of hip and back problems come from muscle imbalance so most issues are mechanical. Our job is to challenge the damaged tissue and overload healthy supporting tissue. This means a minimal load with a bit of challenge.

Muscles that are subjected to repeated overload will adapt by becoming stronger and wider. Unless they are specifically overloaded with a stretch, they will also become permanently tighter and shorter. When one muscle is consistently strengthened and the opposing muscle ignored, the strengthened muscle will become permanently shortened and the opposing or antagonistic muscle will remain lengthened, weak, and inefficient.

Muscle groups often work in pairs in order to first flex and then extend a part of the body at a joint. A good example of a flexor/extensor pair is the iliopsoas/gluteal muscle group. The iliopsoas flex the hip, and the gluteals straighten it.

Muscle balance is achieved when both muscles in a pair are developed to the same degree. Imbalance, resulting from overdevelopment or underdevelopment of one member of the pair, can cause poor posture, pain, tendon tightness, and eventual misalignment of the body's framework.

By nature of their fiber types, certain muscle groups are classified as postural (tonic) or dynamic (phasic). Postural muscles – such as the upper trapezius, subcapularis, latissimus dorsi and iliopsoas – will be more susceptible to increased muscle tone and shortening. Dynamic muscles – such as the lower trapezius, serratus anterior, gluteus maximus, gluteus medius and erector spinae – will be more susceptible to weakness, inhibition and loss of muscle tone. Stretch

hypertonic muscles (muscles that exhibit excessive tone or tension), and strengthen inhibited muscles.

One goal for these clients is to teach them how to strengthen the weaker of the muscle pairs

### **Symmetry**

When deviation from equal step length (i.e. hip flexion) exists, there is always a reactive deviation in another area. A person with unequal step length will usually end up with pain somewhere on the other side of the body – often in the low back, scapular area, neck or shoulder.

The first purpose of functional exercise is *to train muscles for their specific functions in daily activities*. The second purpose of functional exercise is *to physically train people – whole bodies with minds and emotions (not just individual muscles) – to function at peak performance*. Functional exercise is like sport-specific training- only it's for the “sport” of living.

The lack of symmetrical movement in the hips will always radiate through the rest of the kinetic chain to create more asymmetrical movement.

A second goal for clients with hip issues is to practice symmetrical movement.

### **Deep Tissue**

We have become far too concerned with trying to fix joints and extremities without first creating a solid infrastructure.

Muscles have different functions in the body. They can be movers or stabilizers. Most training programs train muscles only as movers. Unfortunately, this may not enable muscles to perform well as stabilizers. Karen Westfall's Anchored Down aquatic programs are excellent at strengthening stabilizers.

In traditional exercise we train prime movers without proportionate conditioning of the associated stabilizers. ***Clients must understand that while they are rehabbing and exercising (moving with control) they are programming their nervous systems with movement patterns.*** If technique and posture are poor during rehab and exercise the same will be true at work and in ADL's. Instead of improving musculoskeletal function, poor techniques and posture only accelerate musculoskeletal dysfunction.

Most hip problems need better joint integrity. We can do this by strengthening the muscle and connective tissue surrounding the joint. Initiating movement with deep tissue trunk muscles prior to the firing of the muscles of the extremities will help us in this job.

A third goal is to teach clients to allow the synergistic and stabilizing muscles to fire before the prime mover.

### **Alignment**

Postural integrity is vital. Range of motion is determined by posture, not by prime mover or strength. If we move with all parts stacked correctly there is much less likelihood of injury.

A factor that increases the risk of injury is speed of movement. Before focusing on high-repetition sets or speed, ensure that participants have mastered the required technique. Speed of movement is one of the last progressions of training. This is important because the body will move out of alignment when moving too quickly.

A goal for these clients is finding and maintaining proper alignment.

### **Repatterning**

All links in the entire kinetic chain, from toenails to skull, work together to decelerate the force of gravity trying to pull body segments down toward the ground, the ground reaction forces acting from the feet upward and the momentum of moving body segments. To optimize economy of movement, muscles have to generate exactly the right amount of force at the right time, in the right sequence and in the right plane of motion. Traditional training tends to focus on force production, not force reduction; at single joints instead of multiple joints working together; in a single plane, not three planes; and often with external stabilization, such as seats, belts and restraining equipment that don't require muscular stabilization.

Lack of core strength and body awareness also affects alignment and execution. A weak and unstable core sets up a poor working foundation on which to build strength. Injuries can occur due to the loss of ideal posture when performing an exercise. If an exerciser has poor posture to start with, it only compounds the potential for injury.

Another goal with clients with hip issues will be muscle re-education with proper technique and from the "inside out."

### **Pain**

As long as someone has pain there will be guarding and non-functional movement patterns. Jun Konno, creator of Ai Chi, says "The most important precondition to curing any disorder is relaxation." If a client's muscle tissue is tense from pain it's difficult to move forward. The same is true with mental and emotional stress and tension.

The source may be physical (injury, surgery, physical trauma, muscle imbalance) or psyche (injury, trauma, stress, fear). We can use breathing to assist in physical and psyche. Ai Chi's diaphragmatic breathing will increase circulation and calming, and will elicit a parasympathetic response (which leads to relaxation).

**Stress Causes Pain and Illness.** A stressful event initiates a "fight or flight" response in the body. Stress increases heart rate, blood pressure, respiration, adrenaline and cortisol outputs. It makes us clench our muscles, inhibits growth and digestion, and hampers the immune system. After the threat has passed, we are supposed to return to "normal," allowing the body and mind to recuperate.

Unfortunately, many of us do not recuperate. We go from one stressful event to another without ever allowing ourselves to return to normal. We end up living with perpetually increased blood pressure, engaged muscles, and repressed digestion and immune functioning. What's more, we become so accustomed to dealing with stressful situations that the drive to work and that pressing appointment become cues our bodies react to automatically. We see a line of traffic in the distance and our heart rate increases. We hear our boss's voice and get a tight feeling in the stomach. We react to all these cues in our daily environment with quicker and more pronounced stress reactions. It's an adaptation that, in ordinary situations, does not serve us well (unless ulcers, tension, pain and headaches are your goal).

Offloading. Simply being submerged in the water will often decrease pain. Tissue tolerance in water (Harrison, 1987 & 1992) is 85% relief submerged to C7, 71% relief submerged to xiphoid process, and 57% relief submerged to ASIS.

Cognitive Therapy Eases Chronic Back Pain. Researchers who authored a study published in the January 20, 2006, issue of *Musculoskeletal Disorders* found that people with chronic low back pain can benefit as much from cognitive behavioral therapy (CBT) as they do from physical therapy. "People with chronic back pain tend to start avoiding things that may actually be helpful to them, but cognitive behavioral therapy changed how they think about themselves," says Scott Eathorne, MD, medical director of athletic medicine at Providence Hospital in Southfield, MI. "CBT not only addresses the physical aspects of the pain, but starts to look at how they think about their pain and how they behave."

A final goal for these clients is pain reduction.

## **Summary**

After deciding I needed to focus on the six issues above I needed to decide what my pool goals would be. Here's what I came up with:

- Assess and teach alignment (Ai Chi is good for alignment). Teach clients to find center (alignment) first, then re-find it between and during exercises.
- Assess and teach symmetrical movement (visually watching or measuring wet foot prints on the deck). Teach clients to move limbs in a symmetrical fashion.
- Teach Ai Chi diaphragmatic breathing for pain reduction.
- Teach the Heavy Concept or use anchored movements for deep tissue work.
- Move backwards and move exercises toward pool bottom for muscle balance. Teach clients how to strengthen the weaker of the muscle pairs.
- Move slowly for repatterning. Ai Chi and Back Hab are great for this.

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Taken from Vertical and Seated Hip and Back Protocols workshop by Ruth Sova. Available through online education at [www.atri.org](http://www.atri.org).