

Z HEALTH

3 MINUTES TO YOUR NEXT PR

Z-HEALTH JOINT MOBILITY FOR STRENGTH & POWER



THE CHALLENGE

Over the next hour, we will be exploring the basic neuroscience of performance – specifically the arthrokinetic reflex and proprioceptive enhancement. While this may sound intimidating – don't worry! Science is useful only as long as it is digestible. Your challenge is to follow along and approach the topic with an open mind. Our challenge is to translate neurophysiology into specific drills that you can do to reach your next PR in 3 minutes or less!

THE SCIENCE

YOUR SURVIVAL – PRIORITY #1

The human body is an amazing and tightly run organization – there are millions of isolated tasks being carried out simultaneously every moment of every day – usually in near-perfect harmony. When this harmony is interrupted, however, while top performance may be the ideal, survival is priority #1!

In the body, survival needs are primarily met by the nervous system through a vastly complex array of sensory signals and hard-wired reflexes. This amazing system is constantly at work deciding just how dangerous every stimulus should be considered. This includes both internal and external stimuli! In other words, if you see a baseball flying at your face (external stimulus) – you'll flinch and move to protect yourself. That flinch is fast, powerful and reflexive and designed to protect you from injury. Conversely, if you are pushing a bench press that is "too heavy" (internal stimuli) and your nervous system believes you're about to rupture a pec, it will hit the brakes – literally. Your nervous system will shut down pushing power in an attempt to protect you from yourself. These reflexive activities are happening all the time on both micro and macro levels.

All of that sounds pretty good, right? To a point, it should, but here's the problem for athletes. In many cases, the nervous system hits the brakes far earlier than necessary! Why is that? Meet the arthrokinetic reflex.

ARTHROKINETIC REFLEX

If you run a Google search on this term, do not be surprised when you get a minimal number of hits! This vital concept is only now coming into vogue in the training and therapy communities. Very simply, arthrokinetic reflex is a term that describes the hard-wired neural loops governed by joint motion. These reflexes are a two-edged sword. On the positive side, they help keep you "safe" when your body is in danger of damaging a joint. Conversely, these same protective reflexes can also hold back your training when they are "mis-firing."

Here's how the arthrokinetic reflex works. Your nervous system is continually monitoring where you are, what you are doing and how fast you are doing it via small nerve endings distributed throughout the body. The intricate work of this system is termed "proprioception". The vast majority of this neural input comes from a class of nerve endings termed "mechanoreceptors". You'll find millions of these when you start looking at the muscles, tendons, and ligaments of the body, but an even greater number are found around your joints!

When you move in such a way that your nervous system detects a threat to structural integrity, a barrage of signals shoots from your spinal cord into the involved area to shutdown the activity. This shutdown effect is based upon the relative amount and quality of the proprioceptive input coming INTO the spinal cord. What that means is that you can inhibit this reflexive response by altering the quality and quantity of information being sent to the spinal cord and CNS!

Are you excited yet? Probably not. Let's get a bit more practical.

What this means in simple terms is that by altering improper or less-than-optimal nerve signals from the periphery to the spine, you can dramatically enhance performance by inhibiting the body's protective reflexes. Thankfully, you can do this safely because the body's margin for error is very high!

Where do these less-than-optimal nerve signals come from? Most often they come from compensatory movement patterns that developed from old injuries, sensory-motor amnesia or other nasty little "motion inhibitors". These compensatory movement patterns impact dramatically on the QUALITY of proprioceptive information being sent to the spinal cord, which can then fire off our protective reflexes inappropriately.

What's the solution? Improving proprioceptive input. How do we do that? Through Dynamic Joint Mobility training!

DYNAMIC JOINT MOBILITY (DJM) TRAINING

While many people are throwing around terms like dynamic joint mobility these days, most often they are referring to dynamic stretching rather than specific joint mobility work. These are not the same thing! Dynamic flexibility training is an isolated tool that focuses on lengthening body tissues to meet the demands of a specific activity. On the other hand, correctly performed DJM drills provide a proprioceptive training effect that makes the body neurologically "smarter" about movement.

The Z-Health approach to using DJM training to enhance proprioception in the body is to work each joint through specific drills that encompass all potential ranges of motion. Done correctly, these "simple" drills require high levels of specificity and concentration and promote tremendous performance gains.

Correct DJM training emphasizing proprioceptive enhancement is one of the fastest methods available for decreasing the negative effects of the arthrokinetic reflex on your performance. By using specific, focused dynamic joint mobility training drills you can undo many of the body's compensations, improve the quality of proprioceptive input and unlock your performance potential at remarkable speeds!

MAKING IT USEFUL

As you consider the implications of adding joint mobility training to your protocols, there are some very basic rules to keep in mind that can serve as a guide. Combining these rules with a simple, specific dynamic joint mobility program can radically impact your performance.

THE KEY POINTS

- 1) The body is integrated – not isolated.
- 2) Muscles do not function properly if the joints they attach to are immobile.
- 3) For the smart slings of the body to work correctly, the joints must be mobile and under active control.
- 4) The right lower extremity works in conjunction with the left upper extremity and vice versa.
- 5) A loss of mobility in any area will be compensated for by increased mobility further along the kinetic chain.
- 6) The body's natural movement systems are always working to conserve energy.
- 7) Problems usually begin at the ground and work their way up, but not always.
- 8) Areas of the body with the most joints have the highest potential for changing chronically poor movement patterns.

ANKLE MOBILITY

MEDIAL & LATERAL TILTS



KEY POINTS

- Begin with Foot in Neutral
- Slowly Roll to Full Outer Edge of Foot then Back to Neutral.
- Widen Your Stance then Roll to Inner Edge of Foot
- Pressure Should Be Felt Near the Heel—Not Toward the Toes
- Keep Toes of Working Foot Facing Straight Ahead
- Maintain Long Spine Posture

COMMON ERRORS

- Pressure Toward Toes—Not Heel
- Foot Flared Out
- Flexed Body Position
- Balance Problems—Can Perform the Drill While Holding on to Chair, Wall, etc. for Support

***Do Not Overstress the Inner Knee When Tilting Toward the Inner Edge of the Foot**



Lateral Tilt



Medial Tilt

FOOT MOBILITY

3 POSITION TOE PULLS



KEY POINTS

- Begin in Neutral Stance
- Reach Working Leg Back Behind the Body and Curl Toes Under
- Use Knee Bend and Foot Position Behind Body to Mobilize Foot Just Below the Ankle (Not the Toes!) in 3 Positions:
 1. Outside
 2. Middle
 3. Inside
- Once in Position, Perform 5-7 Small Pulses Forward to Mobilize Foot Joints

COMMON ERRORS

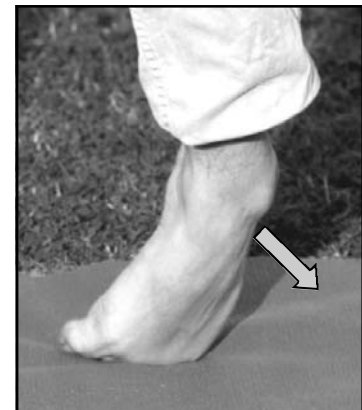
- Rotating the Hip
- Drifting from Strict Position to Neutral During Motion
- Feeling Pressure in Toes and Not Up Near Ankle
- Tightening Abs and/or Holding Breath
- Raising/Shrugging Shoulders
- Balance Problems—Can Perform the Drill While Holding on to Chair, Wall, etc. for Support



INSIDE TOE PULL



MIDDLE TOE PULL



OUTSIDE TOE PULL

ARM MOBILITY

WRIST ANT/POST & LAT TILTS



KEY POINTS

- Remember Neutral Stance
- Move Wrist—Not Hand
- Arm Bent to 90 Degrees
- Elbow Held Close to Side of Body
- Hand Stays "Fixed" in Space—Forearm & Wrist Move Around the Hand
- Loose Fist

COMMON ERRORS

- Moving Hand Instead of Wrist
- Lack of Forearm Motion
- Tightening Abs and/or Holding Breath
- Raising Shoulders



ARM MOBILITY HAND FIGURE 8'S



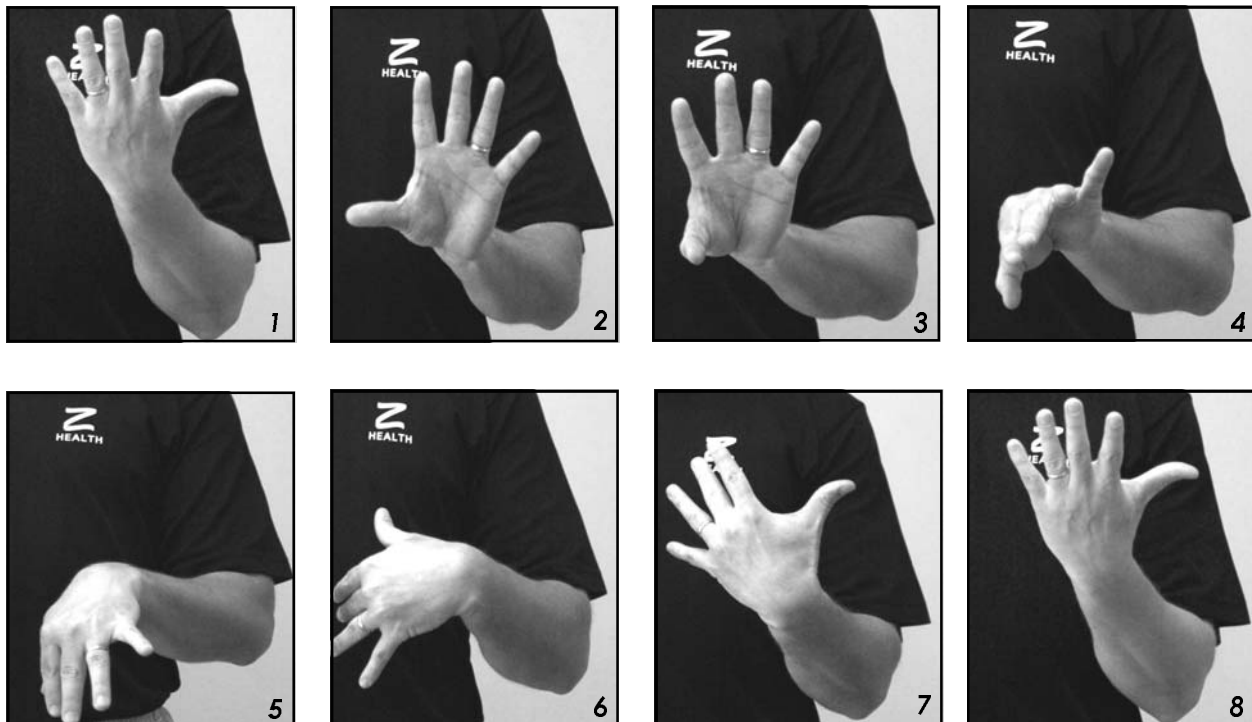
KEY POINTS

- Begin in Neutral Stance
- Begin with Palms Facing Toward the Body
- Lead Motion with the Index Finger
- Arm Bent to 90 Degrees
- Elbow Held in Close to the Side of the Body
- Repeat Only Leading Motion with Pinky Finger

COMMON ERRORS

- Forgetting to Lead Movement With Either the Index or Pinky Finger Throughout the Motion
- Flexed Head Position
- Bending Head to Watch Motion
- Tightening Abs and/or Holding Breath
- Raising/Shrugging Shoulders

Hand Circle—Index Finger Lead



TO LEARN MORE

Z-Health is a professional educational company whose primary goal is bringing cutting-edge neural training techniques to professional trainers and therapists. The company offers numerous learning opportunities in select venues around the country each year as well as a four-level certification program. To learn more about Z-Health programs visit us online at: www.zhealth.net or call Toll-Free at 1-888-394-4198.