
PRIME
PERFORMANCE
ATHLETE TRAINING

Prime Performance Athlete Training
Tommy Johnson, MS, PES, CES

Keep On Trainin'

The Importance of In-Season Training

When the common athlete is on the cusp of the season's start, a lot of changes occur; less time to train, more practices, increased traveling, late nights, and managing the ever-accumulating expectations for academics. There seems to never be enough time, and maintaining sanity is tough during these times. Due to the increased amount of stressors, life becomes a balancing act. Something has to give. Something needs to come off of the schedule in order fit all of the items in the available time. We even have to squeeze in time for video games, our favorite tv shows, taking selfies and obscure photos, sharing them across all social networks, and of course, making time to practice dabbing and whipping. Unfortunately, our training often moves to the bottom of our list of priorities. Why toss to the guillotine the single most important thing for injury prevention, personal catharsis, and stress relief? Below are some common answers:

- I am afraid of getting sore.
- I don't want to get tight.
- I don't have time.
- I will be tired from/for my games.
- I don't feel like it.
- I am afraid of injury.
- The gym is too far away.
- My girlfriend says I don't spend enough time with her.

If these are some of the misconceptions or excuses you have about performance training in-season, then the information I am about to present will benefit you greatly.

When there is a the lack of understanding in the progressive and regressive performance programing, athletes are not able to reach or sustain their potential. What many fail to realize is, it's not all about your skill. Some athletes are born with a God-given talent, while others have to acquire skill through hard work and determination. In order to advance in your sport, you

need to get stronger, more reactive, agile, mobile, balanced, conditioned and skilled. This is what scouts, recruiters, coaches are looking for. The combination of athleticism and skill equals talent. So, I encourage you, DO NOT STOP TRAINING. Something to keep in mind as you go through a season is "Man Games Lost". The idea behind this is that the healthier your athletes are throughout the course of the season, the better your chances of winning. The link for more information is: https://www.mangameslost.com Training with lower training volumes and intensity can help prevent MGL. We term this "in-season training".

Below, evidence will be presented so you can see the extensive benefits of in-season training. Maintaining a training routine will not only help you sustain higher levels of performance, but it will greatly decrease the risk for injury, and allow you to achieve movement efficacy. The topics that will be covered are: correcting imbalances (autonomic and muscular), core/balance training, and maintaining strength.

Autonomic Imbalance is defined as a "lack of balance; especially lack of balance between muscles, as in insufficiency of ocular muscles. Autonomic imbalance defective coordination between the sympathetic and parasympathetic nervous systems." (1) This imbalance affects your entire being (respiratory, muscular, visual, emotional, etc).

Muscular imbalance is defined as "deviation in normal facilitation or inhibition of muscle resulting from a physical, mental, or chemical stressor and often leading to further related imbalances and joint dysfunctions that may take months or years to manifest."(2)

When reading these two definitions, you can see these are not ideal situations for an athlete, and having these imbalances won't take you to Tom Brady's status. What you may not realize is that the autonomic and muscular systems are intertwined. To keep this simple, the Autonomic Nervous System (ANS) has two branches that govern mental, emotional, and physical state. These branches are called sympathetic and parasympathetic, and they are in a constant game of tug-of-war. The prize is the mode that you would be living in; high-stressed or cool cucumber. To differentiate the two, let's start with parasympathetic. We can get a better understanding of this word if we associate it with "parachute", which we know slows down descension or free fall. Therefore, parasympathetic is the slowing of heart rate, the rest-and-digest phase of ANS. The sympathetic side is the feeling of being amped up, fight or flight, and higher heart rates.

Since we are referring to athletes , I can tell you that the majority are living in an overstimulated state (sympathetic). From the constant tweets, snapchats, endless flow of news, bright flashing colors and constant noise of PS4, it's safe to make this assumption. Please note, our eyes and brain are information collectors, and information collecting is a stressor that takes up energy. Shut down visual stimulus post-training or sporting event, and you can potentially start the recovery process more quickly.

Now, this system is not our enemy. It attributes to what takes a scholarly gentleman off the field, and turns him into an absolute beast on the field. This system is an energy consumer, and must be switched off in order to recover. An easy way athletes can down regulate stress is with proper breathing and repositioning. Breathing in the proper position can inhibit or activate specific chains of muscles. Simply laying on your back and filling a balloon can do wonders. From the article The Value of Blowing up a Balloon, "A therapeutic exercise that promotes optimal posture (diaphragm and lumbar spine position), and neuromuscular control of the deep abdominals, diaphragm, and pelvic floor (lumbar-pelvic stabilization) is desirable for utilization with patients who demonstrate suboptimal respiration and posture. This clinical suggestion presents a therapeutic exercise called the 90/90 bridge with ball and balloon. This exercise was designed to optimize breathing and enhance both posture and stability in order to improve function and/or decrease pain."(3) To give full respect to this approach, I will tell you that it can help significantly, but will not solve all of the world's problems. If you are in true pain seek a physical therapist. I believe in those who are well versed and practice PRI.

Another simple way to drive your system more towards serenity is with monitored (zone 1 or zone 2 @ 45-60mins), low intensity conditioning such as walking, biking, rowing, climbing stairs, etc. This method is great for recovery. These ideas will be an intervention for you to reduce distress and enhance the recovery process. So, don't forget to breathe.

To correct muscular imbalances, it is necessary for an athlete to inhibit overactive muscles, and facilitate muscles that need to be active. This is where continuing with your trainer can benefit you because he will be able to run assessments or use deductive reasoning during your training sessions. Two simple tools that can help when an athlete can not reach their "training mecca", are the foam roller and the mini-band. Attached, you will find some simple foam roll and stretching exercises to assist you to an injury free season.

On to the core! The core is the musculature of the lumbo-pelvic-hip-complex(LPHC). NASM defines core stability as, "LPHC stability comprised of local or intersegmental stability, global stability, and global mobility."(4) Local stability can be viewed as the muscles that attach directly to Lumbar vertebrae. Global stability can be thought of as the muscles that attach from the pelvis to spine. When these muscles turn on, they stabilize the spine. This action is important for optimizing human performance. It is important because it reduces the amount of shear, rotation, and compression forces placed on the spine. This corset and pressure effect allows the rest of the human body and its appendages to function with greater movement capacity and overall efficiency. Having a strong core and well aligned LPHC can not only reduce low back pain and increase performance, but it can reduce appendicular injury. Simple exercise selections, if done properly, can prevent all sorts of issues throughout the season. Examples of these exercises are: anti-extension, anti-side flexion, and anti-rotational. Activating these core muscles serve well to develop good neuromuscular relationship between the positions of pelvis and thorax (ribs and thoracic spine). With optimal positioning, this also allows for greater thoracic spine rotation or freedom. This freedom will help a person walk, run, swing, throw, breathe, and live better.

That being said, there also has to be a relationship between the lower abs and the hamstrings. "The study showed that the relative participation of these two synergists can vary, depending on the individual…a decrease in activity of one muscle of a force-couple is accompanied by increase in the activity of the other."(5) If synergy does not exist between muscles on the frontside and the backside, the body will be out of balance. Good hamstring activation can be gained through the 90/90 hip lift, hip bridge, or integrative exercises.

I would now like to discuss balance training and its importance for keeping an athlete prepared for performance. Balancing is another way of saying "postural control." We aren't going to dive as deeply into the science behind this, but more-so into the benefits. By practicing balance training, an athlete will develop better proprioception and kinesthesia. Proprioception is "the neural input to the CNS from all mechanoreceptors that sense position and limb movement."(4)

Kinesthesia is "the conscious awareness of joint movement and joint position sense that results from proprioceptive input sent to the CNS."(4) These two ideas will allow our nervous system to stack the joints from the ground up as we translate through space. If you are aware of the difference

between good and bad positioning, ultimately the joint can remain safe and free from any unwanted forces. When you can gain balance, you will be able to gather sensorium from the ground that will give the nervous system information. Some of this information is related to the condition(surface) of the ground beneath the foot. A good relationship between the ground and the foot enables our human movement system to go into beast-mode and achieve high velocities of action. This will allow you to hit or throw with less effort and more result. According to Dickinson, "It is noted that there is now growing evidence that the most fruitful way of conceptualizing the physiological function of proprioception is as a series of interlocking feedback systems."(6) Although I have not shared about the importance of scapular awareness on a thorax, which will be saved for another time, it is important to have shoulder preparation exercises for warm-up and cool-down.

Finally! The main course, the meat and potatoes: strength training. This part of your in-season program should only occur once your heart, muscles, and joints are prepared. Strength training in-season should be a very simple approach: joint by joint and in a unilateral fashion (i.e. single-leg, single arm). The whole goal for in-season strength training is to maintain all of your hard-earned gains from the offseason. According to Baker, "The results for the NRL(National Rugby League) group remained unchanged in all tests across their 29-week in-season. The fact that no reductions in any tests for either group occurred may be due to the prioritization, sequencing, and timing of training sessions, as well as the overall periodization of the total training volume. Having athletes better conditioned to perform concurrent training may also aid in reducing the possible interfering effects of concurrent training."(7) In this study, they were testing the strength of multiple rugby players across a 29-week period in order to understand the effects of in-season strength training. No changes in strength were found, which means these players stayed strong through that period of time. Not only that, but it is stating training consistency has likely helped protect the athlete from the nature of their sport. The last thing I would like to reiterate is the advantage of training unilaterally. Training unilaterally will not only allow you to get stronger, but it can also enhance core facilitation and balance. All are necessary to stay consistent, making us a true threat to our opponents. Strength training and corrective exercise can help an athlete balance the patterns that are over-used by many baseball players (i.e. throwing, hitting, or trunk rotating to one side only). Repetitive use of certain patterns will accumulate, and the body of the athlete will accentuate the imbalance until

interventions are applied. Repetitive use can eventually manifest as pain and can lead to injury.

To sum it all up, taking the time and making sacrifices can and will help advance your abilities. Staying consistent with your training will keep you healthy, prevent injury, increase recovery, increase self-awareness, enhance mood, and keep you confident as the athletic season progresses. I hope this article serves you well and aids you in making the right decisions this year. Just remember to prepare yourself because:

"Excellence is a continuous process, not an accident."
-Kalam

Written By:

Prime Performance Athlete Training
Tommy Johnson, MS, PES, CES

Citation:

(1)muscular imbalance. (n.d.) Jonas: Mosby's Dictionary of Complementary and Alternative Medicine. (2005). Retrieved February 24 2016 from http://medical-dictionary.thefreedictionary.com/muscular+imbalance

(2)autonomic imbalance. (n.d.) Miller-Keane Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health, Seventh Edition. (2003). Retrieved February 24 2016 from http://medical-dictionary.thefreedictionary.com/autonomic+imbalance

(3)Boyle, K. L., Olinick, J., & Lewis, C. (2010). THE VALUE OF BLOWING UP A BALLOON. North American Journal of Sports Physical Therapy : NAJSPT, 5(3), 179–188.

(4) Clark, M., Sutton, B. G., & Lucett, S. (n.d.). NASM essentials of sports performance training.

(5) Sahrmann, S. (2002). Diagnosis and treatment of movement impairment syndromes. St. Louis: Mosby.

(6)Dickinson, J. (1974). Proprioceptive Control of Human Movement. The Human Movement Series. Institute of Educational Sciences. Retrieved from http://eric.ed.gov/?id=ED130997

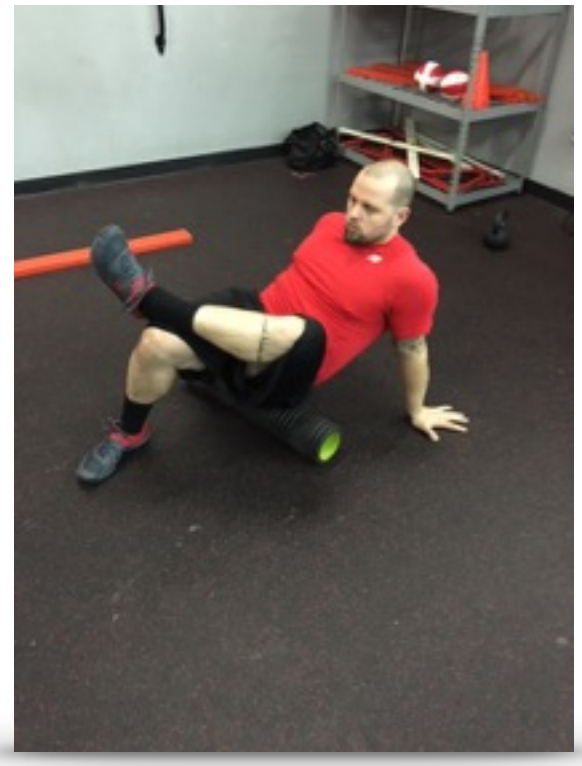
(7)Baker, D. (2001). The effects of an in-season of concurrent training on the maintenance of maximal strength and power in professional and college-aged rugby league football players. The Journal of Strength & Conditioning Research, 15(2), 172-177.

Breathing:

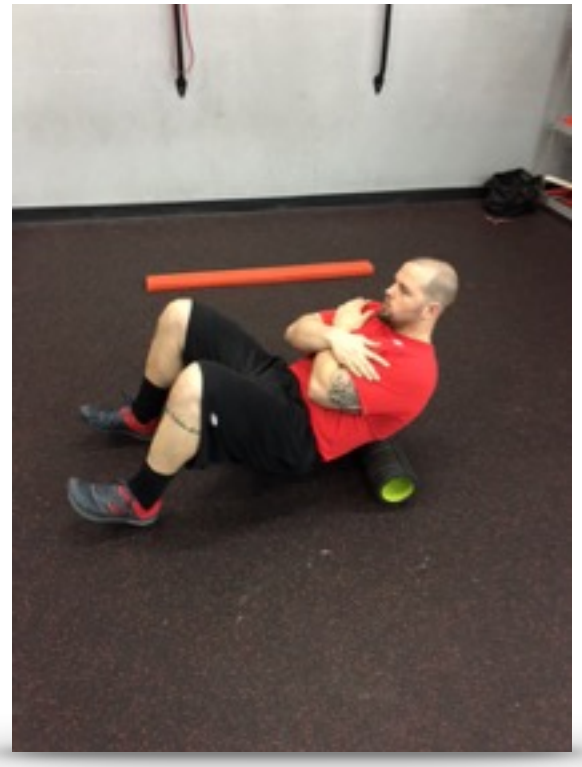
90/90 Hip Lift
1)Lie on back with feet flat on wall with knees and hips at 90°.
2)Place 4-6in ball between knees.
3)Inhale through nose (4sec) and exhale (8sec) through your mouth performing pelvic tilt. Tail bone should be slightly raised from mat. Should feel hamstrings engage.
4)Hold position while taking 4-5 breaths.
5)Relax, then repeat 4 more times.

Foam Rolling Exercises: 20-30sec (Also stretch these muscles after rolling.)

Gastrocnemius



Pirformis

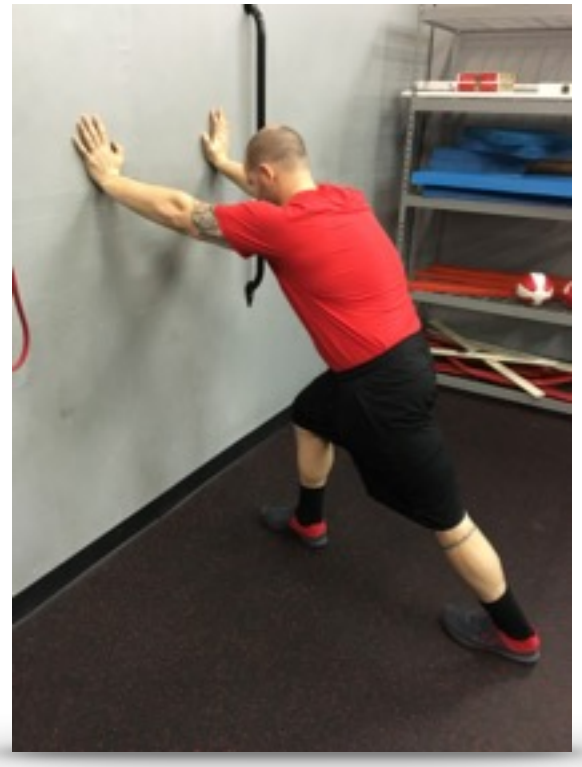


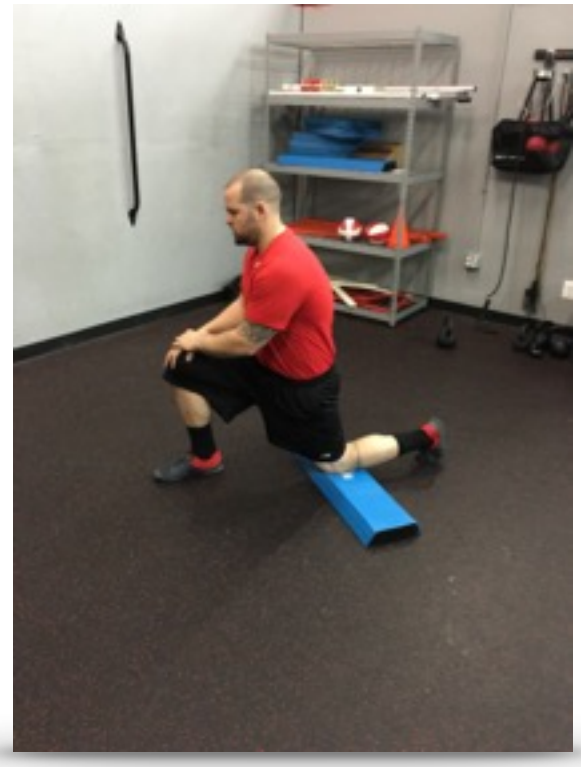
Back

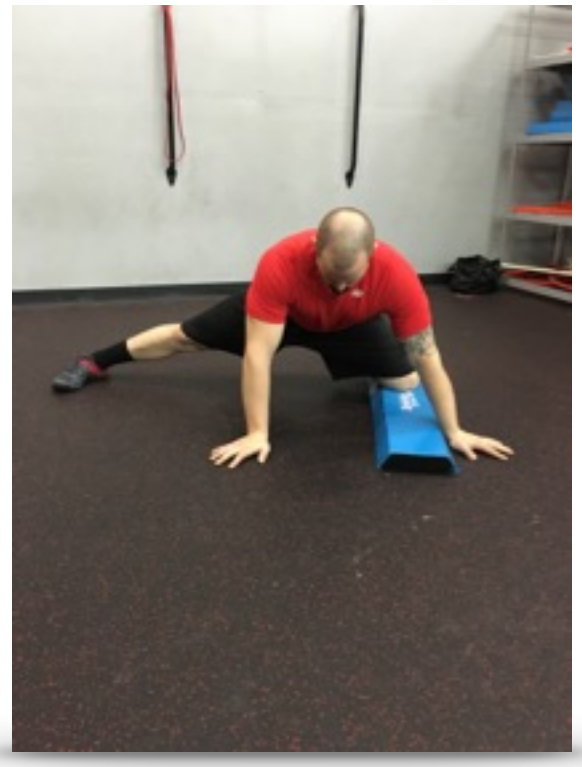
Latissimus Dorsi

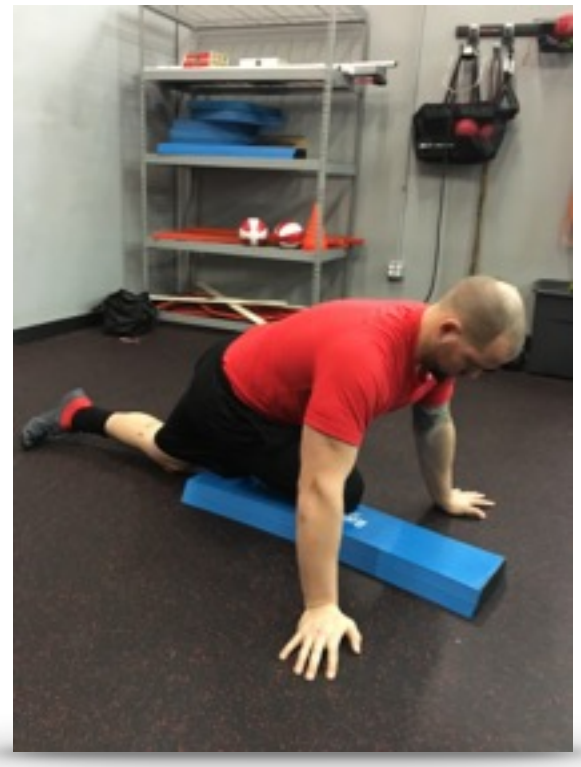
Adductors

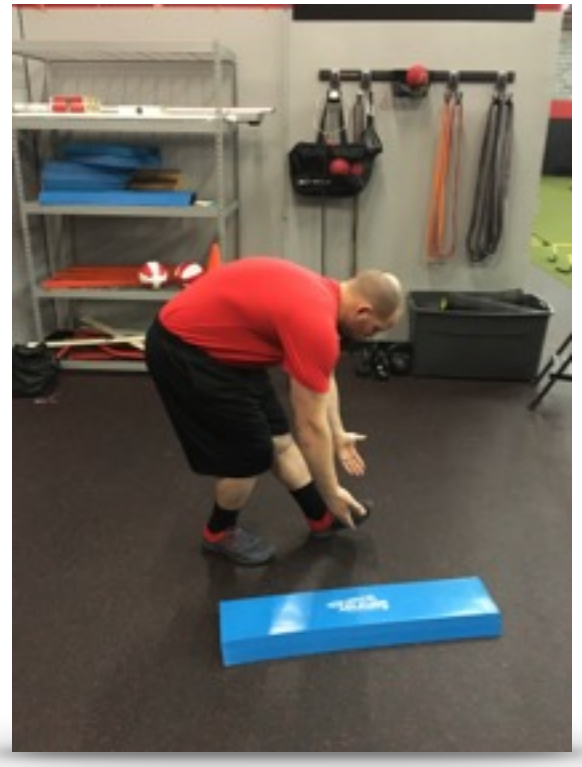
IT Band & Quadriceps

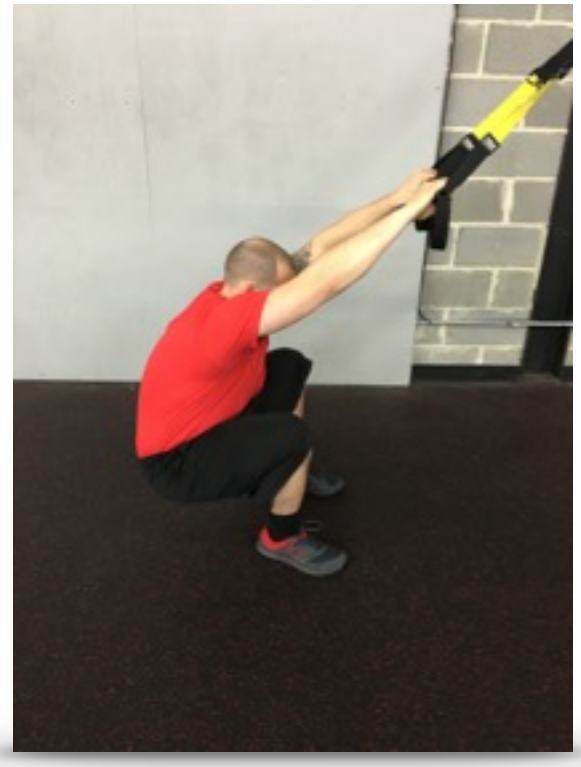


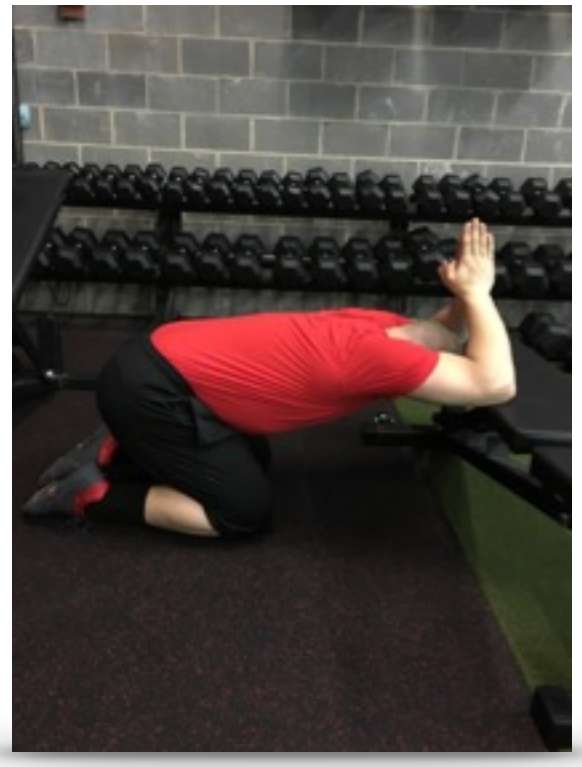


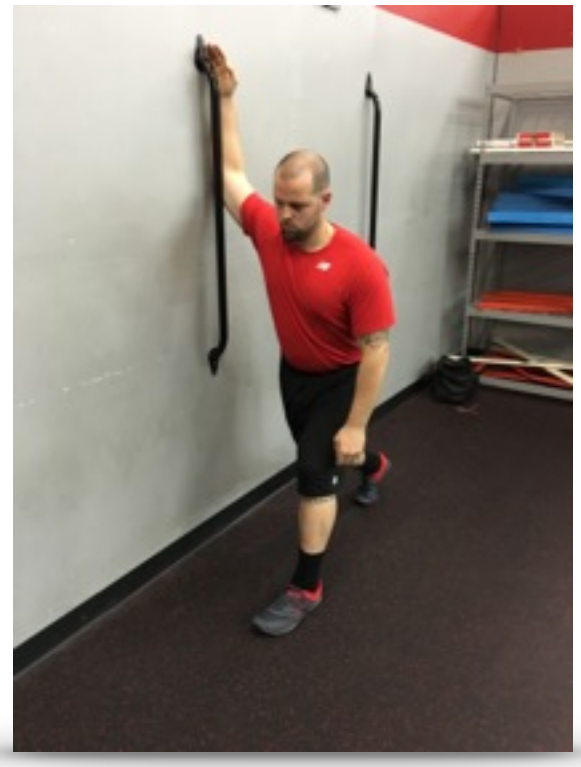


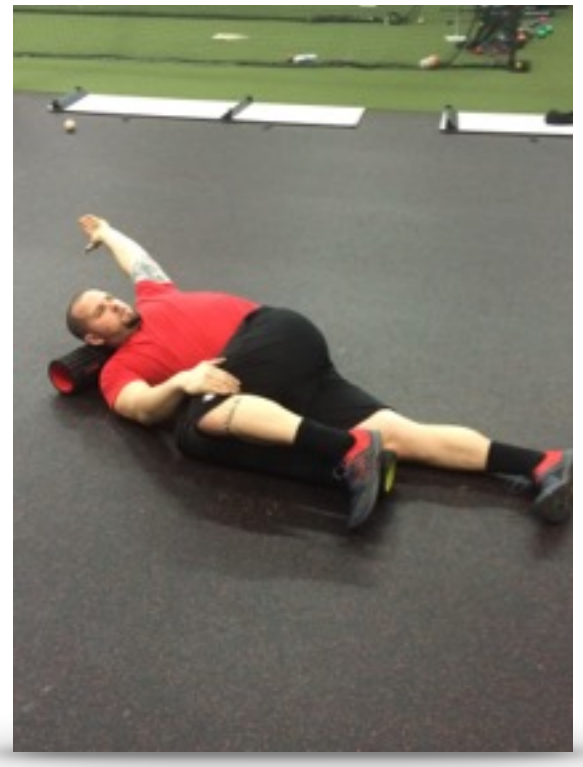


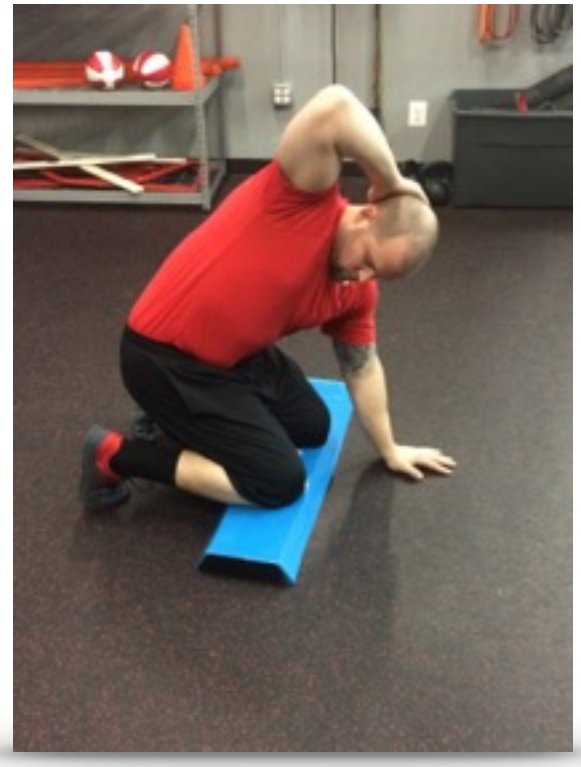


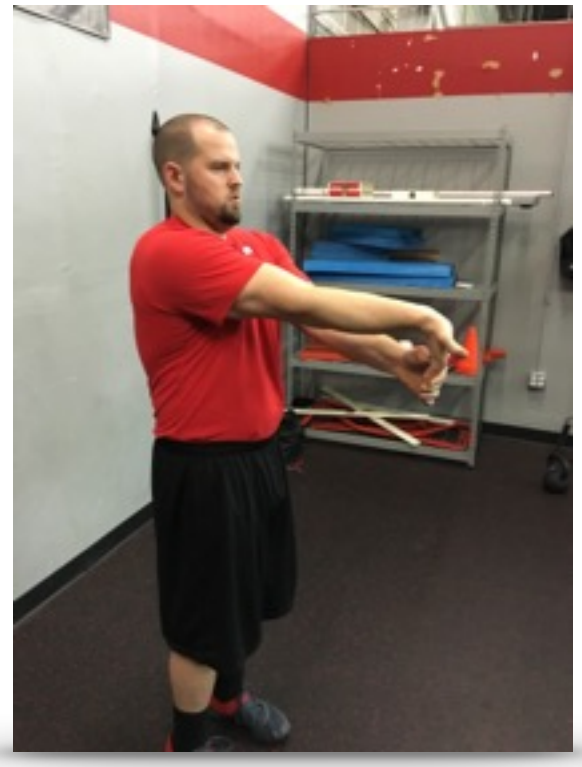


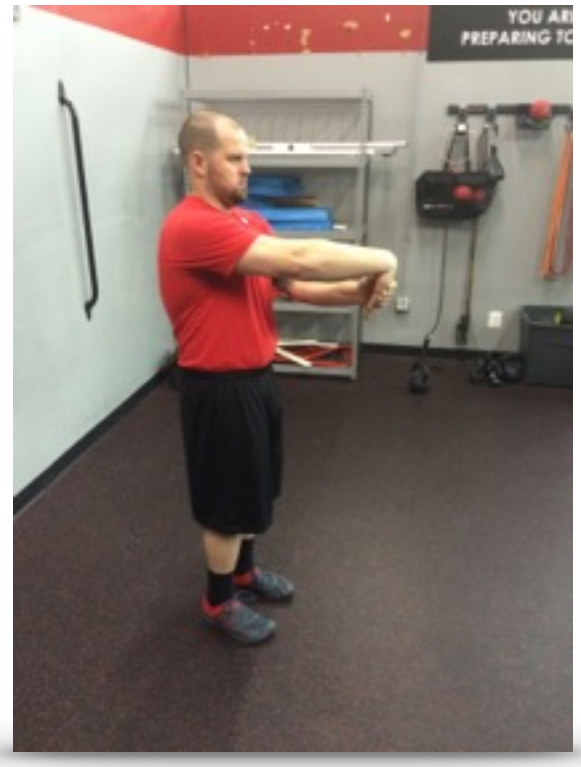











YOU AR
PREPARING TO