



about the AUTHOR

Fraser Quelch is the Director of Training & Development for Fitness Anywhere

Eric Lichter is the Director of Football Performance for Ohio State University

Applying Suspension Training to Football

Fraser Quelch, CSCS and Eric Lichter, CSCS

Of all the major sports, football demands some of the most intense strength and conditioning training. Accordingly, football players are among the best conditioned athletes on the planet—strong, agile, and powerful. But at the same time, football players must maintain the durability to withstand car-wreck force impacts play after play, game after game, season after season.

Traditionally football players have relied on basic, heavy lifts like hang cleans, squats, dead lifts and bench presses to build strength. Today almost all programs have some form of traditional training in place. To separate themselves from the pack, some NCAA and NFL programs have added suspension training techniques to their program to help enable their players to reach their peak potential.

Enhancing Basic Lifts

Suspension training can be used as an incredibly effective technique to help with neuromuscular activation prior to heavy lifts. This can be integrated as a component of a general warm-up routine or as a series of warm-up sets for a range of heavy lifts.

Using suspension training for this purpose is highly effective for a number of reasons. The ability to adjust resistance simply by adapting body position allows for a fast and efficient method to prepare a number of players simultaneously with individually appropriate resistances.

Suspension training uses functional, integrated movements that task balance, attack subtle instabilities, heightens neuromuscular activation, and prepares the appropriate motor pattern for the exercise, without causing any lasting local muscular fatigue. This approach can significantly increase performance of the key heavy lifts and help athletes to break through plateaus and achieve new levels of strength. Many exercises can be used to achieve this effect. Figures 1 – 4 are a few of the primary movements that can be used for enhancing key lifts. In this way suspension training is

an ideal technique to support lifts that encompass the sport of weightlifting and other ground-based training that modern football teams must utilize to be as functionally strong and powerful as possible.

Building Upper Body Strength

Upper body strength and stability play central roles in winning at football. Players must be able to ward off defenders, battle for position or take down opponents. Therefore, the ability to functionally train the upper body with high loads in a way that integrates the entire body as a complete unit in the movement has tremendous transferability to the demands of the game.

Exercises like the deep single arm row (figure 5) require extremely high relative strength coupled with full body muscular integration. Clearly, then, these movements offer considerable advantages in training that map directly to certain demands of football (such as tackling or stripping the ball).

Single-leg (unilateral) Strength, Power and Reactivity

The development of single-leg strength and power is key to athletic success in football. Sudden decelerations, hard cuts and explosive accelerations are the tools necessary to create game-making plays. An athlete's single-leg strength and power determines the intensity at which these movements can be successfully performed. A direct comparison of the movements below shows just how closely a number of suspension based exercises resemble some of the key movements in football rooted in single-leg strength and power.

Explosive Accelerations:

Exploding off the line of scrimmage or “getting off the ball” is one of the key determinants of the outcome of each play. A faster or more powerful reaction to the snap can create a split second advantage that is often the difference between a play succeeding or failing. The



Figure 1. Single Leg Squat: Activates single leg squat motor pattern, teaches movement mechanics and is excellent for the entire hip complex



Figure 2. Suspended Lunge Functional movement that neuromuscularly activates the entire lower body using single leg stance and a highly athletic motion



Figure 3. Postural Squat Reinforces the squat pattern while activating the posterior chain to prepare for overhead lifts like clean and press

sprinter's start (figure 6a and 6b) is an excellent movement to help effectively transfer the explosive power developed in a traditional bilateral lift to a single-leg, body weight environment that more closely resembles the actual movement and speed in which it occurs on the field. Another alternative that suspension training offers is the ability to train the movement in quick succession, either in sets or as a reaction drill to help develop the endurance players must possess to maintain this explosiveness during long drives.

Single Leg Reactivity

Often a play must be made from a less than optimal body position. Typically, an opponent has knocked a player out of an ideal body position or the player must instantaneously respond to a poor pass or change in direction. A player's ability to decelerate unusual forces from a poor body position can make the difference between a game-making catch and a failed pass. These out of position plays usually involve a single leg.

Suspension training techniques provide a unique means to train single-leg neuromuscular ability coupled with strength and power. Figure 7

shows a suspended lunge with a lateral medicine ball throw.

The ability for a player to make a hard cut requires an inordinate level of eccentric single-leg strength and power. The suspended lunge variation in figure 8 is an excellent way to train the ability to suddenly decelerate a tremendous amount of momentum in one direction and explode in another.

Position Specific Training:

Every player and position has unique training requirements. Individualization of training is a cornerstone of successful football strength and conditioning programs. Suspension training offers unique solutions for designing the truly individualized, dynamic strength and conditioning programs that today's game requires. Suspension training allows players to directly address faulty motor patterns, muscle weakness or imbalances, or specific training requirements for a particular position. These characteristics also make suspension training ideal for quarterback conditioning and shoulder injury prevention.

Hurling a 14 – 15 ounce football around the field as hard as possible places a tremendous amount

of stress on a quarterback's shoulder. Improper technique, overuse or an inability to decelerate external rotation can all cause shoulder injuries. When you factor in defender impact on the quarterback's arm while he is in a throwing motion, it is clear that the quarterback must be provided with the best functional strength and conditioning possible for his position.

Figures 9 – 10 demonstrate effective techniques for addressing these demands. Exercises like bilateral internal rotations (figures 9a & 9b) allow for isolated strengthening of the rotator cuff while the suspended scorpion (figure 10) develops core strength and loading while creating the hip dissociation necessary for an effective throwing motion.

The fixed point loading concept is a very unique and highly effective suspension training technique that mimics the forces and mechanics of the loading phase of the throwing motion. This exercise (figure 11) does a tremendous job of training the body to withstand the forces that the shoulder is subjected to during the throwing motion. It also helps to train the mechanics of effective throwing and ensures that the entire body is contributing to the throw in order to



Figure 4. Chest Press
Tremendous upper body activation due to the subtle instability associated with suspension training



Figure 5. Deep Single Arm Row

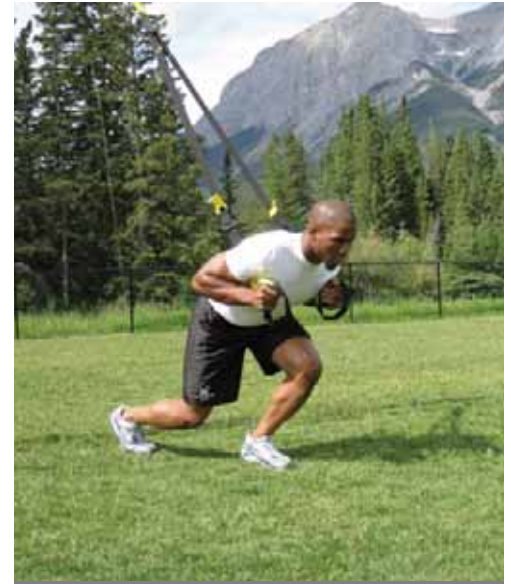


Figure 6 A. Sprinter's Start (Begin)

maximize performance and reduce related injuries. Further, it provides the ability to train different versions of this throwing motion. These variations map directly to the demands of common game situations where the environment dictates the throwing motion.

Unprecedented Core Strength

Finally, suspension training can lead to a quantum leap in functional core strength. Demanding exercises like the suspended body saw (figure 12) and the suspended pendulum (figure 13) develop exceptional core stability, strength and rotational control. Standing movements like the standing rotation (figure 14) and hip drop (figure 15) provide more functional rotational strength and power along with side pillar strength and reactivity from a standing position. These characteristics directly apply to the battling and impact resistance necessary for successful football.

One of the unique properties of all of these movements is their scalability—they become increasingly challenging with heavier body weight. Suspension training provides commensurate challenges and training benefits for bigger, stronger players and lighter players alike.

At the end of the day, the work that is done in the gym must transfer to performance on the field. Athletes with the best strength/power-to-weight ratios will likely be more explosive, more agile and better prepared to play the game. Victory is judged by wins and losses, not by the team weight room stats. In order to achieve victory, it is clearly paramount to utilize training techniques that enhance these ratios and map directly to football movements. ■



Figure 6 B. Sprint's Start (End)



Figure 7. Suspended Lunge with Lateral Medicine Ball Throw



Figure 8. Suspended Lunge Variation



Figure 9 A. Bilateral Internal Rotation (Start)



Figure 9 B. Bilateral Internal Rotation (End)



Figure 10. Suspended Scorpion



Figure 11. Fixed Point Loading



Figure 12. Suspended Body Saw



Figure 13. Suspended Pendulum



Figure 14. Standing Rotation



Figure 15. Hip Drop