

Functional Isometrics

Q and A with Brijesh Patel, MA, a Certified Strength & Conditioning Specialist (NSCA) and USA Weightlifting Club Coach (USAW)

1. What is functional isometrics?

Functional Isometrics are exercises that are done isometrically (no movement) that are geared to help teach athletes proper positioning when moving, increase strength at weak ranges of motions, correct posture and increase mental toughness.

2. If soccer coaches don't have access to weights or the time to take their team to a gym to train, how can functional isometrics increase athleticism for soccer players? Can they?

Functional Isometrics are perfect when there is a lack of training time or equipment. Functional Isometrics themselves, will not improve athleticism directly as there is no movement involved. The key is to also include drills that emphasize athleticism such as sprints, footwork drills, movement drills and plyometrics. They can indirectly improve athleticism and movement skills, b/c they teach the athletes where their foot position must be when running and cutting, where their body should be when landing from a jump, and how to use the correct muscles to move.

3. Are functional Isometrics something that can take the place of a regular strength training program? Especially if they don't have time to go to a gym?

Functional Isometrics can definitely be substituted if there is a lack of time or equipment, but you will only get so far. A truly complete program must emphasize a variety of muscular contractions, muscle balance, injury prevention work, as well as overload. The principle of overload states that for an adaptation to take place, there must be a greater than normal stress that must be applied. Increasing the time of the hold will only work for so long. And then it becomes more a strength endurance stimulus than a maximal strength stimulus.

4. What are some specific Isometric exercises that would prove valuable for soccer players.

The Lunge and Squat Hold would be excellent for soccer players.

Lunge:

Begin with your feet the length of your foot apart. Take a big step forward into a lunge and hold the bottom position with the back knee off of the ground. The front thigh should be parallel to the floor, the front shin should be perpendicular to the floor, and the weight should be on the ball of the foot. Attempt to pull the ground back with the front leg and relax the back leg as much as you can.



Picture of the lunge hold. Provided by Brijesh Patel

Squat:

Begin with your feet the length of your foot apart, and descend into a squat with your chest out, butt back, and back arched. The weight should be through the balls of the feet, and the hands should be held at the sides.



Picture of the Squat hold. Provided by Brijesh Patel

5. Can athletes increase their speed and agility with this type of training? If they can how does this happen.

I believe that they can increase speed if done correctly and with maximal effort because when done correctly they teach the athlete to be in the most efficient position when running and jumping (namely the lunge and squat holds). The weight must be on the inside ball of the foot to move efficiently. By performing the isometrics we are ultimately trying to improve their movement efficiency.

6. Will functional isometrics decrease the potential for injury?

Functional isometrics may decrease the potential for injury, because they are reinforcing proper motor patterns for movement. Injuries occur when you lose position and isometrics are geared towards maintaining the proper position every time you move.

7. When is it too young to start functional isometrics?

I think you can do isometrics at any age, but younger athletes may not have the attention span nor willpower to do them correctly and with the intent that is required.

8. Are functional isometrics something coaches can do with their teams on the soccer field? At what point in a practice would you recommend they do functional isometrics, beginning, or end?

Functional isometrics would be great to use on the field itself. I think they could be used either at the beginning and at the end of a training session. At the beginning they could be used to jumpstart their bodies and get them ready to go. They shouldn't be done any longer than 15 seconds to minimize fatigue. They can be done longer if implemented at the end of practice.

9. How should soccer players use the functional isometrics, How many sec or min should they hold, how many sets and reps?

I like to give them a certain time to achieve perfectly, such as 2:00. They are then to complete 2:00 perfectly! If they can only hold for 30 seconds before breaking down, then they stand up, shake it out and repeat until they achieve the total goal time.

To implement on the field effective sessions here is the following order that I would use:

- a. Dynamic Warm-up 5:00
- b. Core Stability (planks and bridges) 3:00
- c. Agility/Speed Drills w/o ball 5-8:00
- d. Agility/Speed Drills w/ ball (dribbling, passing, etc.) 8-10:00
- e. Practice Session 40-60:00
- f. Bodyweight Strength Circuit 10:00 (squats/pushups/core work/lunges/jumps)
- g. Iso's 1-3:00 (finish w/ squat or split squat emphasizing technique)

10. what are the different phases of functional Isometrics? And how are athletes limited in using these based on age or training age?

There are a number of phases and ways to progress the isometrics into more sport specific exercises, but I think that much progress can be achieved from mainly sticking to the first phase of just holding a position and forcing your athletes to hold for an extended period of time.

Once the athlete has shown proficiency, I progress them to exercises that emphasize movement, but require them to land in the perfect position, (i.e. jumping from different positions). By forcing them to jump, I am increasing the load when they have to absorb force (land) which is when most injuries occur and a determinant of success in most speed/strength sports. The faster we can absorb force and use it to propel ourselves, the more efficient we are and faster we will be able to move. But we must be able to absorb force in the proper body position to be able to use it to move.

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