



Football

Incorporating Agility into an Off-Season Football Program

Michael Barnes, MEd, CSCS,*D, NSCA-CPT,*D

Introduction

Agility is the ability to effectively and efficiently change direction. However, in an athletic context, agility can take on a much greater meaning. For instance, the ability to coordinate sport specific tasks (like elude a defender, carry a ball and evaluate the defensive scheme), the ability to coordinate several skills simultaneously, and even effectively decipher a novel situation can be added to the definition of agility. Outside of sport specific skills, agility is perhaps one of the most fundamental characteristics to predict success in sports.

Many coaches and athletes think that agility cannot be influenced or improved to any significant degree. Agility is difficult to influence and improve, but it can be improved through training much as strength, flexibility and conditioning can be improved.

In an effort to minimize the chances for failure and maximize the opportunity for success, agility training should be incorporated into the off-season strength and conditioning program. Agility training should be performed in an environment that as much as possible simulates the conditions that the athlete will be participating in. Thus it is the goal of this article to establish a scientific foundation for agility training and make some practical recommendations in an effort to improve training methods for football.

Science and Agility Training

It is important to understand some of the mechanisms associated with acquiring agility skills. Sometimes drills are quickly incorporate into practice for the team with little understanding of the why's behind the drills. There should be

an understanding of the science behind agility in order to avoid some common pitfalls.

Agility training draws from a number of important sport science disciplines.

These disciplines are:

- physiology,
- biomechanics, and
- motor learning.

Physiology and Agility Training

Metabolic conditioning and agility training should be considered inseparable. Appropriate agility training drills can duplicate movement skills. These skills tax the metabolic system in a specific manner. Additionally the intensity, duration and rest can simulate game situations.

Biomechanics and Agility Training

The basis of all human movement is muscles applying force to bones rotating around joints. The human body is a very complex series of systems that allows the great variety of movements indicative of human activity (1). When training for agility, or in athletic competition, the biomechanics of the movements become very important and can have a pronounced effect on the outcome.

When it comes to biomechanics and agility training there are two general considerations that should be taken into account. These considerations are:

1. Where: Where are the locations that the player needs to be on the field
2. How: How is their body positioned to most efficiently move

The Where

It is fairly simple to simulate the “where” aspect. This is done by setting up drills that reflect the distances covered while playing. As an example a defensive back may back pedal 10 yards, turn and run in the same direction another 10 yards, then quickly break at a 45 degree angle.

The How

How a player moves is a little more difficult to discern. Movement evaluation is based on some type of criteria such as head position, foot placement, location of center of gravity, upper body movements, etc. Table 1 identifies basic guidelines for movement evaluation.

Motor Learning and Agility Training

Motor learning is a set of internal processes associated with practice or experience leading to a relatively permanent gain in performance capability (1). It is important to understand that when learning agility, an athlete will go through three phases of learning. They are:

- Cognitive-Verbal Stage: The cognitive-verbal stage is characterized by the athlete not being familiar with the movement. A significant amount of attention is required to perform the drill.
- Motor Stage: The motor stage is characterized by the athlete knowing some key aspects of the movement but there is still the need for attention.
- Autonomous Stage: The autonomous stage is defined by the athlete knowing the movement and little attention is needed for execution.

The Drills

It is not uncommon for the strength and conditioning practitioner to use drills that are demonstrated at clinics or use equipment that is market driven. This situation is often problematic because the athlete can perform mistakes that are never corrected or be using drills

that have little to no carry over to the sport itself. When this situation happens the potential to make maximal gains is limited. Therefore, there are several considerations when developing drills. They are listed below:

- Drills should progress from linear to multi-directional
- Drills should progress from simple to complex
- Drills should progress from speed irrelevant to speed relevant
- Drills should progress from general to specific

A recent study comparing linear sprinting and agility training findings concluded that straight speed and agility training methods are specific and produce limited transfer to the other (2). However, conceptually these two characteristics are related at some level. So it may be advantageous to use linear speed drills prior incorporating more advanced agility drills (2). Here are a few suggestions:

- Three Point Starts
- Three Point Starts to Stop
- Three Point Starts to Stop and Accelerate

Table 1. Movement Evaluation

| Criteria | Cues |
|-------------------------|--|
| Center of Gravity | Lower is better and controlled |
| Base of Support | Over base of support or in good position to advance position |
| Upper Body Movement | Elbows are in or in good position |
| Lower Body Movement | Plant foot, additional steps |
| Task Criteria Execution | Successful |

Fundamental Drills

The Cross-Over Step (Figure 1):

Simply stand in a universal athletic position and cross over step in each direction. Complexity can be added by having someone signal which direction you should go. Although the cross over step is rarely if ever used in football, this drill can still be used to teach body position and explosive movement.

The V-Cut (Figure 2):

Directly running forward, V-Cut to the left or right at approximately 45 degrees. You can cut off at varying angles as well.

Intermediate Drills

These drills add change of direction either linear or multi-directional. The drills selected are “closed” skilled meaning that there is no anticipation to which direction they are going.

Out Ten Back Five (Figure 3):

From a three point stance sprint out 10 yards as quickly as possible, stop and backpedal five yards, and then sprint forward as hard as possible. Difficulty can be added to this drill by repeating the distances. For example out 10, back five, out 10, back five, out 10.

The Z Pattern Run (Figure 4):

Set up 4 cones in a Z pattern. The cones can be placed from 5 to 15 yards apart. Sprint from cone to cone until the pattern is completed.

Figure 8 Shuffle (Figure 5):

Place two cones on the ground about three yards apart. Side shuffle around in a figure eight pattern. Be sure to reverse directions.

Advanced Drills

Advanced drills are specific not only to football but also player positions. These drills can be “open” meaning that there is a reactionary component added. Position specific skills like shuffling, using a drop

step, back peddling, or catching a ball should be incorporated. It is important to perform these types of drills at similar speeds seen in game situations. By doing so the forces incurred are the same as during competition.

Figure 1. The Cross-Over Step



Figure 2. The V-Cut



Shuffle to a Run:

With a partner in front of you, shuffle in the direction they point. Have your partner call you to run back to the start. The angle at which you cut off at can vary depending on which way your partner points.

Side Shuffle(Figure 6):

Shuffle through a series of cones or low bags placed about five yards apart. Toss a medicine ball back and forth to your partner as you are going through the cones. The medicine ball adds difficulty by the need for hand eye coordination while shuffling.

Addition Drills:

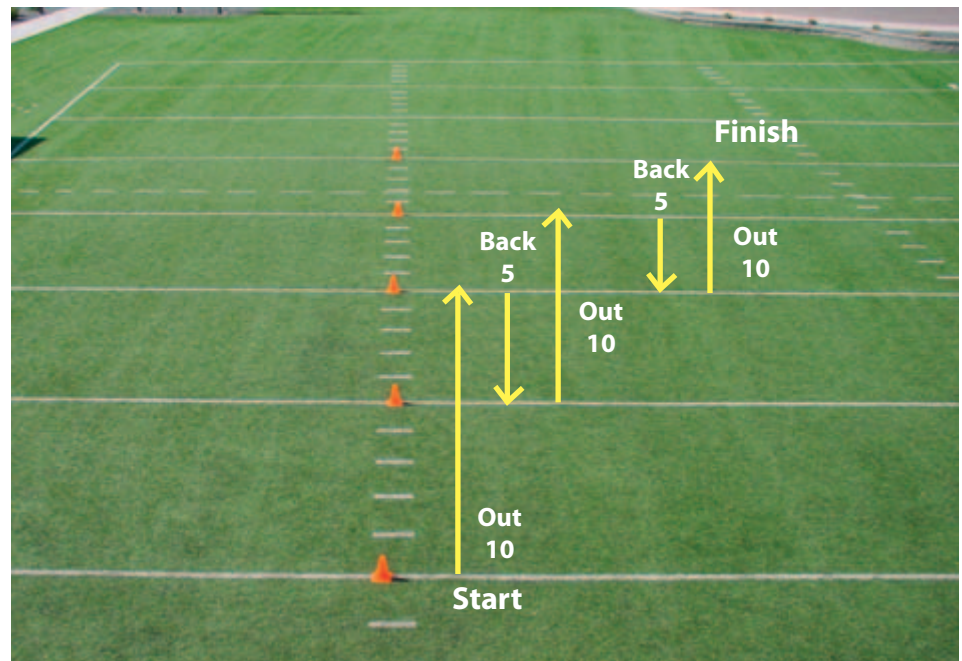
Receivers can use any pattern that they would run in an offense. Their position requirements usually require them to run in a predetermine route and potentially catch a ball. Once you have identified specific patterns you can add a ball catch to the drill as well.

Take Home Message

It is fairly simple to have a logical and methodical plan in place to incorporate agility training. Keep in mind the scientific foundations and principals of training while incorporating the agility plan. Here are the take home messages:

- Train quality of movement
- Use a progression – simple to complex
- Train specific motor/ movement patterns
- Incorporate reactive stimulus when appropriate

Figure 3. Out Ten Back Five



- After mastery of movement, and when appropriate, incorporate metabolic conditioning by controlling the rest interval and intensity
- After mastery of movement execute movements at 100 percent intensity

References

1. Schmidt, R. *Motor Learning and Performance, From Principals to Practice*, 1991. Human Kinetics Books, Champaign, IL.
2. Young, W., McDowell, H and Scarlett, B, Specificity of sprint and agility training methods. *Journal of Strength and Conditioning Research*. 15:315 – 319. 2001.

About the Author

Michael earned his Masters degree in Human Performance from Auburn University. Mike is presently the Education Director for the National Strength and Conditioning Association and is certified with distinction as a Certified Strength and Conditioning Specialist and a National Strength and Conditioning Association Certified Personal Trainer. Previous work experience includes, a Division I Strength and Conditioning Coach, Strength and Conditioning Coach for USA Rugby and seven years as the Strength Development Coordinator for the San Francisco Forty-Niners. Mike is a popular national speaker on strength and conditioning and has authored numerous publications as well.

Figure 4. The Z Pattern Run

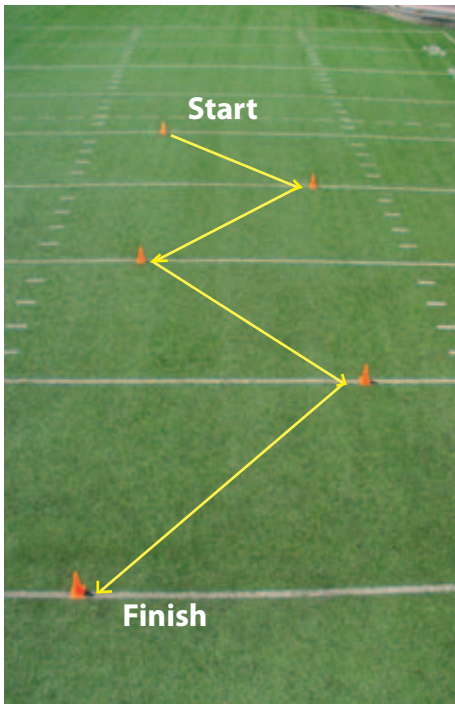


Figure 5. Figure Eight Shuffle



Figure 6. Side Shuffle

