HOW TO IMPROVE FOOT SPEED

by Francesco Cuzzolin

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For a sport such as basketball, where the physical movements of each athlete are performed in confined spaces, pushing and shoving against bigger and quicker players, developing "strong" and "quick" feet offers a decided advantage. When feet are trained for speed, the player enhances balance and reaction on the floor. Think of it like putting the right tires on a Formula One racecar and then achieving maximum power and performance.
But, what does it mean to develop foot "speed"? And is it possible to train and enhance this attribute? Which are the best drills? Are there more specific exercises for a basketball player?
Every basketball coach has his own answer to these questions. Some prefer specific basketball drills, while others employ special drills taken from a variety of sports. I believe there are many drills from different sports that will help enhance foot speed. But to get the best results, especially when working with young basketball players, it is best to follow a specific work sequence.
I will divide my suggestions on enhancing foot speed into four phases, with each varying in intensity based on the age of the athlete and specialization level:

1. Functional

2. Proprioceptive

3. General Coordination

4. Specific Coordination

During the functional phase, each foot is evaluated. It is noted if the foot is flat, arched, pronated, supinated, or has any other particular characteristics. I then evaluate ankle mobility and strength of the main muscles.
The earlier this evaluation is performed, especially when the player is still young, the better the overall results of the training program will be.
Understanding an athlete's foot morphology is important for the coach because it allows him to understand any difficulties that the athlete might encounter in the future.
The findings of the detailed foot exam will lead to specific foot and ankle exercises, or, if necessary, the recommendation that the athlete use orthotics to improve his foot placement.
Orthotics are special shoe inserts that are intended to correct an abnormal, or irregular, walking pattern. Orthotics perform functions that make standing, walking, and running more comfortable and efficient, by altering slightly the angles at which the foot strikes a walking or running surface.
The next step is to see if there are any restrictions on ankle range-of-motion and eventually, to find out what has caused that limitation. According to many researchers, the ankle should have:

- Dorsal flexion of approximately 30°
- Plantar flexion of approximately 50°
- Inversion (internal rotation) of approximately 35°
- Eversion (external rotation) of approximately 15°

These are only some indications and considering the parameters, it's possible to arrive at some answers regarding the player's feet. If there are some limitations, it's important to understand what has

created them and then work to overcome them.
In these situations a physiotherapist, podiatrist, osteopath, or orthopedist can help evaluate each movement and alignment of the bones of the foot.
As far as muscle strength goes, it's important to create maximum muscular tension that can lead to proper mechanical motion. Therefore, it is important to test the strength of the specific muscles involved in foot movement. These include the:

- Gastrocnemius
- Soleus
- Tibia
- Peroneal muscle group

It's well known that the ankle sprain is the predominant basketball injury and that veteran players will have multiple sprains during the course of their careers. Players often practice and play with ankle braces or with heavily-taped ankles. Even so, they often have instability or poor functional limitation, and this often brings on more ankle problems. Know your players and their feet. If you don't, you may end up prescribing the wrong drills for them or have them doing drills out of proper sequence.

Proprioception is an automatic sensitivity mechanism in the body that sends messages through the central nervous system (CNS). The CNS then relays information to rest of the body about how to react and with what amount of tension. Basketball players can "train" for proprioception in the quest for efficient everyday movements with their feet. Proprioception is initially an unconscious act, but it can be enhanced with training.
Specialized sensory receptors in the muscles, joints, and connective tissues enable the body to process information from a variety of stimuli, and turn that information into action.
During the proprioceptive phase, athletes should work with muscles that control and stabilize the ankle joint and enhance their capacity to react quickly and correctly to the stimulus sent from the ligaments, tendons, and muscular and capsular receptors.
Drills that can improve proprioceptive control of the joints are usually only suggested when rehabilitation is concerned, but they can play a big role in training for fast feet. Here's a work sequence that can improve this capacity:

- Passive feet mobilization and sensitization
- Balance drills on both feet, both static and dynamic
- Balance drills on both feet and different support bases, in a static and dynamic way
- Balance drills just with one foot
- Balance drills on one foot and different support base, in a static and dynamic way;
- Balance drills in which the athlete tries to go off balance
- Drills where someone else tries to throw the athlete off balance
- Balance drills from a dynamic situation (photo 1)

HOW TO PERFORM

Each drill on the mini-trampoline lasts between 6 and 10 seconds, with a recovery period that is three to four times the working period.

Since drills on this equipment are performed at maximum speed, do not have the athlete perform too many repetitions or he will become overfatigued. Only when the player gets used to performing the exercise and his fitness improves, the number of repetitions can be increased.
These specific drills improve neuromuscular control of the feet, producing better and faster postural control, which then creates the ideal conditions for the quickness drills. Previously, only drills for basic athletic coordination, such as exercises for improving running technique or jumping rope (most boxing-specific drills are excellent), could be suggested.
A special note must be injected here about foot drills using stairs (stairs drills) or simply using a step.
The step height should not be higher than 15-20 cm.
This height is easily attainable by most and permits a short contact time contact between the step and the balls of the feet, just as if the athlete was running. If the step is too high, the athlete will use his knee and hip flexors more than the feet, and that is not recommended.
When working specifically with young players, drills emphasizing running technique will help improve their quickness.
However, when working with much more specialized athletes, drills should be more specific for basketball.
It's necessary, then, to use drills that are similar to the game and require specific basketball-type coordination. To reach this goal, I usually prefer these following drills:

- Stepping (photo 2)
- Bouncing
- Quickness (photo 3)

When performing the stepping drills, the athlete should repeat them with increasing speed, alternating his steps, while keeping the same sequence. One example could be to overstep a front line, before with the right foot and after with the left one, coming back at the starting position always in the same way.
There are a lot of "stepping" or "line step" drills that can be utilized, with many combinations.
I consider these drills very helpful when beginning a program, when the athlete may not be highly coordinated.
As he learns to do them correctly, his speed will increase and then it's time to try something else.
Bouncing drills are a stepping evolution. I like to have the athletes land on both feet at the same time.
One specific drill is to have them going from the left side to the right side and back, pushing simultaneously with both feet but close to the floor while maintaining balance.
These drills work the whole body, specifically the muscles that have to stabilize in order for the feet to have dynamic action. Perform each exercise at maximum speed for no longer than 8 to 10 seconds.
While learning stepping and bouncing drills, the athlete can watch his feet or watch in front of a mirror as he goes through the drills. As soon as drills have been learned, the athlete is no longer allowed to look at his feet. He is to "feel" his feet, understand where they are in relation to the rest of his body without looking down and while increasing the speed of the drill.
This sequence of the drills now follows a logical progression. It's not necessary to work every athlete with every drill but it's up to the coach or the conditioning coach to implement what's needed, depending on the specific needs of their athletes.