Proper preparation for a soccer game is crucial and a well organized warm-up sharpens an athlete’s mind and body to enable maximum effort as soon as the whistle blows. A warm-up should increase body and muscle temperature, activate muscle groups, stimulate the nervous system, and increase joint mobility thereby preparing the player for optimal performance while minimizing risk of injury (5, 9). One way to help insure that this occurs is through an active and dynamic warm-up. The warm-up should be intense enough to increase the body’s core temperature but not so intense that the athlete becomes fatigued. It should be noted that flexibility training, while an important part of this warm-up program, is not the only component. Static stretching has its place and purpose in improving flexibility, but the instances of stretching for 20–30 minutes before a game as a means of warming up are very rare today. In recent years, the importance of stretching a muscle with movement (dynamic stretching) has been emphasized (3, 7), and it has been noted that an active warm-up may improve certain types of performance by increasing muscle contractile performance prior to use (1, 8, 10). The warm-up described here has 3 distinct outcomes: general mobility, transit mobility, and skill preparation.

**General Mobility**

You never want to start a warm-up totally cold, so an easy jog across the soccer field and back a couple of times will get the heart pumping and the blood flowing. Starting at the neck and working down through the body, general mobility warm-ups begin with basic movements to loosen up the muscles and increase isolated joint mobility. Most of these general mobility movements are closely associated with some typical static stretches, but in this instance, no position is held for more than 2 or 3 seconds. Additionally, the movements isolate the specific joints being used while incorporating a full range of motion. There are a multitude of movements that can accomplish the general mobility goal, but we have found the following movements, listed in Table 1 and described in detail here, to be time efficient while accomplishing the task. Each exercise is repeated 5 times, with each position held for 2–3 seconds, before moving on to the next exercise. Completion of the general mobility phase of the warm-up should take about 5 minutes.

**Upper Extremities**

The neck clock is performed in a series of 4 movements: neck flexion, lateral flexion to the left, neck extension, and lateral flexion to the right. This takes the place of the traditional rolling motion to stretch the neck. The neck clock presents a more active stretch than the passive circular movement of a relaxed neck. Follow the neck clock with the shoulder roll, moving the shoulders in large circular motions both forward and backward.

The next movement is the arm hug. Cross both arms across the front of the chest in horizontal adduction as far as possible, and then swing back in hori-
Horizontal abduction. Each time the arms are adducted, the arm that goes above the other should switch.

The last movement for the upper body is the windmill. The hands are in opposition of each other as they both move in a large circular motion with a straight arm for 5 to 10 rotations, followed by the same motion in reverse rotation (Figure 1). By now, the athlete has stimulated every muscle around the neck and shoulder and has moved the joints in each plane.

Midsection
Moving on to the midsection, the truck circle mimics the movement of the neck clock by flexing the hips forward, then laterally to the left, extending backward, and laterally to the right side. Follow this with the trunk twist in the standing and bent-over positions, requiring the whole upper body to turn as the hips and lower body stay in a neutral forward facing position (Figure 2). The athlete should bend at the waist, keeping the back flat and eyes up, for the bent-over twisting movement. Twist 5 times to each side in the upright and bent-over position.

Lower Extremities
Next the warm-up moves on to stimulating the large leg muscles and loosening the hip joints. The lateral lunge and...
body-weight squat both require the same basic movements. For the body-weight squat, keep the toes, hips, and shoulders facing forward, while the hips move back. Pressing the hips back keeps the knee directly above the heel, preventing the heel from lifting and shifting the body weight towards the toe. Coach the athlete to press down on the heels and to bring the top of the thighs to a position parallel to the ground. Perform 10 repetitions of the body weight squat to adequately warm up the hip and leg muscles.

The lateral lunge requires a large step directly to the side. As the athlete steps out and bends, he or she should keep the knee directly over the toe with the chest facing forward directly above the knee. The leg that remains in place should be relaxed, as all the athlete’s body weight should be directed over the stepping leg. Perform the lateral lunge exercise 10 times on each leg. This exercise requires quite a bit of hip flexibility and may take a few weeks of practice before it can be completed correctly. When teaching this warm-up, make sure that the athlete does not allow his or her body weight to move beyond the reach of the step, which could place undue strain on the anterior cruciate ligament.

**Transit Mobility**

The next phase of the warm-up increases the level of intensity and focuses more on transit movements that require the athlete to travel a certain distance. These are specific drills that have a direct relationship to the game of soccer. The average soccer player is in direct contact with the ball for no more than 60 seconds during a 90-minute game (2). Because of the dynamics of soccer, certain position players will have more time controlling the ball; at the same time, the other players are moving in multiple directions to gain position for the ball. Limited substitutions at the elite and professional levels also increase the amount of time a player may spend on the field. According to the principle of specificity, the movements in a warm-up should mimic game movements and focus on muscles utilized during the game (6). The movements for this portion of the warm-up are listed in Table 1 and described later in this feature. Each movement should be performed for 10 to 20 yards and repeated.
twice. With the athlete performing each exercise at a slow to moderate pace, the entire transit mobility phase should last no more than 15 minutes.

The crossover toe touch (Figure 3), lunge forward, lunge forward with rotation, trail leg walking (Figure 4), and elbow-to-instep walking (Figure 5) are all exercises that continue to dynamically stretch the muscles while mimicking game-like movements. These are technical build-ups that can be increased in speed to get the athlete ready to work at full speed, as well as making the athletes actively think about their running technique. In addition, these movements build upon the flexibility increases from the general mobility phase by increasing the range of motion of each exercise, especially in the hip.

In addition to linear running, 20% of game movements are performed at high intensity (2). High-intensity activities include all multidirectional movements except for forward running at a speed of at least 11.0 miles per hour and above (2). To prepare the athlete for high-intensity activities, side slides, skip, skip and scoop, low walk, backward skip, lateral shuffle, and carioca runs are included in this portion of the warm-up.

Skill Preparation

The last phase of the warm-up is skill preparation. Here the players work on their own or with a group while focusing on the needs of their position. Typically, before a soccer game, team members practice individually, then together with their respective positions, and finally together as a team. There are many types of drills that can be used to facilitate each component. Individually, players should spend about 10 minutes becoming familiar with the ball, working on their touch, explosiveness, and footwork. Juggling, cutting drills, and dribbling with changes of pace and direction can be used for this warm-up. Dedicate about 10 minutes for an individual skill warm-up.

Within the position groups, forwards and midfielders may shoot on goal or play a small possession game, while defenders practice long kicks of 40 or 50 yards. Goalkeepers spend most of their time in the goal, taking shots and working on positioning, but they need to put a few balls in the air themselves from a goal kick and punt position. Position drills should last around 15 minutes. Finally, the team comes together as a whole to shoot on goal for the last 15 minutes of the warm-up. This can be accomplished with the coach or a teammate receiving a pass and laying the ball off to the side to set up a shot, thus replicating common game situations. Drills of 2-on-2 or 3-on-3 can also be used to simulate certain plays and game situations. At this time, the individuals should be feeling very sharp, making accurate touches on the ball and quick decisions.

The last component of the warm-up is a series of short sprints (20–30 yards) to ensure that players have reached full speed before it is required of them in the game. This puts the players into the proper mindset and allows them to focus on the speed of play they are about to encounter.

Conclusion

This hour long warm-up is not by any means all-inclusive. There are many ex-
ercises that can be used in addition to what has been listed here. The head coach or strength coach should use his or her own discretion to determine the needs of the team and how best to prepare them. It is important to keep the exercises at a level of difficulty that are comfortable. If athletes struggle to perform the warm-up correctly, it will probably be difficult for them to perform during actual play. An easy rule to follow is one shared by Vern Gambetta: “Warm up to play; don’t play to warm up” (4).

References

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