



### **U.S. Soccer Referee Department Referee Training Program**

The training programs presented below are designed to prepare referees for the physical aspects of officiating at the highest level. They also serve as helpful training tools for the interval test administered at professional camps and Referee Training Seminars. Before getting into the details of each training program, a few preliminary points should be considered.

1. The center referee covers as much ground as the ball during a match, or around 10,000 meters. This is consistent with the distance that most players run.
2. A referee's pattern of running is a somewhat different from a player's pattern. Referees do more lateral and backward running than the players, but fewer sprints. Also, the running pace of the referee is a bit more constant than that of the player.
3. The referee is frequently 10-15 years older than the field players playing the match.
4. Since the referee dehydrates to a similar degree as the players, but may not have anyone monitoring their hydration, the referee should adopt strategies for hydration.
5. Because the referee is doing nearly the same work as the player, the referee should follow the same nutrition guidelines as the players (not included in this report).
6. The referee fatigues just like the players and their judgment can be impaired by fatigue, so a referee's training program should be rigorous enough to delay the onset of fatigue.
7. The referee will usually have to travel to each match, so a training program must take the demands and effects of travel into account.
8. Unlike players who have coaches and trainers supervising their work, the referee usually trains alone. This means that the referee needs training options that effectively prepare them for a match, and if necessary, can be done alone.

## Training Schedules

The following training schedule is based on the assumption that a referee will officiate one game a week. Assuming the match is on Saturday with a travel day on Friday and Sunday, a basic training plan could be the following:

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
travel from and rest	light jog, supporting training	hard day	supporting training	hard day	light exercise to help get over travel fatigue	match

The idea is to get 2-3 'hard' days in a week to maintain or even improve fitness. The match counts as one of these days, so you should find 1 to 2 additional days a week for some 'hard' work. These should be non-consecutive days with 1 day off the day immediately following the match. If you have a week off, the unused match day could count as a rest day or, if so inclined, add a 'hard' day on that unused match day.

Again, assuming that Saturday is a match day, a weekly schedule could be the following:

- Sunday – rest, (or travel from match)
- Monday – supporting exercises (agility, flexibility, core strengthening, Nordic curls, 20 to 30min of easy jogging)
- Tuesday – 'hard' day
- Wednesday same as Monday (or rest as needed)
- Thursday – 'hard' day
- Friday- travel to match (consider some light exercise upon arrival to help get over travel fatigue)
- Saturday – Match, (possible travel from match)

When a game falls midweek, simply shift the schedule. If a game falls on a Wednesday, for example, treat Wednesday like a Saturday and follow the same pattern. When you have 10-14 days between matches, it is important to maintain the pattern, with 2-3 'hard' days and 1-2 'light' days per week.

You may feel that one 'hard' day a week (plus the match) is sufficient. Assuming a Saturday match, you might still perform the 'hard' day on Tuesday and either do a 'Monday' style light workout or take the day off altogether on Wednesday. This would probably maintain your level of fitness, but might not be rigorous enough to improve your fitness.

## Warm-up and Stretching

Before training, always warm-up to the point of breaking a good sweat. The times for stretching are after breaking the sweat, between sets, after the workout during the cool down and certainly on all other days. The old training line is "warm up to stretch; don't stretch to warm up."

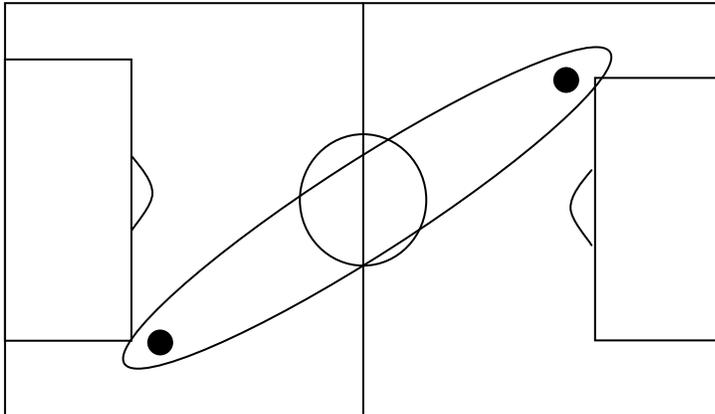
Flexibility should be directed to the problem areas in soccer: hams, quads, groin, calf, low back. At the end of this document, I list a number of options for core strengthening. Flexibility and core work can be done at home. There are a number of stretching methods and current research emphasizes dynamic stretching, but it is hard to beat 2-3 repetitions of a static stretch, each held for 30 seconds. There are other methods that require a partner that may not be available to you.

## Training Programs

A number of options for the 'hard' day are given below. These choices can be rotated to avoid monotony or repeated if a particular workout seems enjoyable and effective. Each program contains suggestions for increasing the workload as fitness improves.

For proper hydration during the workout, be sure to take in about a liter of fluids during or after each half.

### Option #1



Normally this workout is done in pairs. One person runs and the other rests by walking around the field for a 1:1 work-to-rest ratio. If done alone, keep track of elapsed time for each run and rest for an equivalent amount of time. The activity is running the diagonal course. All runs should be around 90% of maximal heart rate (if unknown, estimate as  $0.9 \times (220 - \text{your age})$ ). For most, this should be a pretty hard stride. Put water bottles at the starting cone and drink as needed. Wear running shoes to force body control while turning. Studded boots are not recommended for this kind of running.

3 clockwise runs, rest (for the amount of time it took to complete the run)

2 clockwise runs, rest

1 clockwise run, rest

1 clockwise run, rest

2 clockwise runs, rest

3 clockwise runs

Rest 2-3 minutes-

1 counterclockwise run, rest

2 counterclockwise runs, rest

3 counterclockwise runs, rest

3 counterclockwise runs, rest

2 counterclockwise runs, rest

1 counterclockwise run

Cool down.

If this program is too strenuous at first, cut back by starting with 2 laps first, then increase to 3 as fitness improves. Add a brief rest in the middle of each set, if necessary, that would be dropped as fitness improves. Monitor the heart rate. As fitness improves, the required pace will become faster.



Below are some traditional 'track' workouts. Track athletes call these 'ladders' where distance increases with each run and then decreases. All runs should be at a pace that elicits 90% of maximum heart rate. The pace will vary according to the duration.

### **Option #3**

The first option is directed more towards endurance:

30 seconds run, 30 seconds rest  
60 seconds run, 60 seconds rest  
90 seconds run, 90 seconds rest  
120 seconds run, 120 seconds rest  
(See note\*)  
90 seconds run, 90 seconds rest  
60 seconds run, 60 seconds rest  
30 seconds run

5 minutes of active recovery

Repeat the runs.

Cool down.

\*If it seems too difficult to go right into the 2<sup>nd</sup> half of the ladder without a break, rest for a couple minutes then continue. As fitness improves, drop this intermediate recovery period. Remember to watch the clock, not the distance. As fitness improves, so will the distance of each run.

### **Option #4**

This variation is a little more speed oriented

30 seconds run, 30 seconds rest  
45 seconds run, 45 seconds rest  
60 seconds run, 60 seconds rest  
75 seconds run, 75 seconds rest  
Repeat\*

5 minutes of active recovery.

75 seconds run, 75 seconds rest  
60 seconds run, 60 seconds rest  
45 seconds run, 45 seconds rest  
30 seconds run, 30 seconds rest  
Repeat the runs.

Cool down.

\* If it seems too difficult to go right into the 2<sup>nd</sup> half of the ladder without a break, rest for a couple minutes then continue. As fitness improves, drop this intermediate recovery period. Remember to watch the clock, not the distance. As fitness improves, so will the distance of each run.

## Option #5

This workout emphasizes endurance, running strength and recovery. The running distance for this program is shorter, but the repetitions are greater. Use running shoes. This is best if run on grass, such as a football or a soccer field. Run along the sideline, walk/recover across the end of the field to the next corner. Put fluids at each starting corner to avoid dehydration. Each run will be at a hard stride. The foundation of this workout is the traditional 1:3 work-to-rest ratio of interval training (15 seconds work, 45 seconds rest). It is easy to lose track of the number of runs, so keep track by watching minutes: 1 min = 1 run/recovery pairing.

Start at one corner

Hard stride for 15 seconds (probably 90-100 yards)

Walk 45 seconds across the field to the far corner (total elapsed time = 1 min)

Begin running when the 45 seconds has elapsed whether you feel recovered or not

Run to the other end of the field in 15 seconds

Walk 45 seconds across the field to the far corner (total elapsed time = 2 min).

Total: 2 minutes, 2 runs.

Do the following for at least 3 workouts before increasing to the next stage (strength and 'recover-ability' come slowly):

- start out doing 2 sets of 10 runs (3-5 minutes recovery between sets) x 3 days (minimum)
- next time, do 1 set of 20 x 3 days
- next time, do 2 sets of 15 x 3 days
- next time do 1 set of 30 x 3 days
- next time do 2 sets of 20 x 3 days
- next time do 1 set of 40

Work up slowly for this. No one should start right in at 40, regardless of how fit you think you are. Cool down afterward. While it appears long, and 40 runs means 40 minutes, there still is actually only 10 minutes work. The total running distance is 4000 yards at this pace. The typical player/referee covers far more distance in this work out than they do during a match so the runner builds up a significant reserve for late in the match when fatigue normally sets in. This is very effective without becoming exhausting.

## Option #6

This is a highly effective sprint training program that gets a great return for the investment, but the key word is *sprint*. All repetitions are to be done all out. Each is 30 seconds in duration with a 3-4 minute rest. This can be done on a track (each run will be about 200 meters) or on a stationary cycle. The cycle needs to be one where the resistance can be precisely set, not the typical commercial cycle that lists resistance as "1" or "2" or just as an electronic bar graph, etc. The resistance is set at 0.075kg of resistance per kg body weight. Thus, an 80kg man (176 pounds) would need to set the resistance at 6kg (if you have ever ridden a stationary cycle that is a lot of resistance!). This is normally done with a partner. The rider brings the revolutions up as high as possible, nods the OK that they are at peak revolutions, then the partner applies the calculated resistance all at once. The ride continues for 30 seconds. This is a very demanding bout of work. Do not do this soon after a meal.

For a 3 week training period (twice a week):

- day 1 would be 4 repetitions
- day 2 would be 5 repetitions
- day 3 would be 6 repetitions
- day 4 would be 6 repetitions
- day 5 would be 7 repetitions
- day 6 would be 4 repetitions

Cool down after each workout. Even on the longest day (day 5), the total amount of hard work is only 3.5 minutes. Choose other training options for a couple weeks before returning to this and repeating the same 3-week training period.

Some comments:

1. Do not attempt this without having achieved some measure of fitness. Do a good warm-up.
2. Allow a light day before and a light day or two after. Do not do this if you need to be fresh the next day.
3. Sprinting on a track is risky. In an attempt to maintain speed, people will over stride as they tire, putting their hamstrings at risk. Stay under control. Just because this is a sprint does not mean it is a race.
4. There is good evidence that this program increases both endurance and speed performance, but it is likely the hardest program any referee would ever undertake. They should not go into this lightly.

### **Option #7**

Choose one of the following for a hard workout.

120 seconds

Repeat 120 yards (110m or length of a traditional field).

Hard run for the length of the field (men, 16-18 seconds/women, 18-20 seconds) followed by a 30 second recovery jog back to the starting line, then an additional 30 seconds rest; repeat 10 times. Add repetitions and increase pace as fitness improves.

Cones:

Markers (or cones) at 5 yard intervals - 5, 10, 15, 20, 25 yards away from starting point. Out and back to each marker in 35 to 40 seconds (a total of 150 yards of running in each interval); 20-30 or even 40 seconds of rest if needed; repeat 10 times. For men, the optimal rest interval is 20-25 seconds; for women, 25-30 seconds. Add repetitions or decrease recovery time as fitness improves. Use running shoes for body control, not studs.

Adjust workouts to vary your routine. You might do the 120's during the first half of the season (for strength and endurance) and the cones for the second half of the season (for speed and agility).

Cool down

### **Option #8**

As a referee, you do not sprint nearly as often or as far as players do. But here is an option for training for repeated sprints.

Measure out 30 meters. After warming-up, perform sets of six 30 meter sprints, starting every 30 seconds. So start at time "0" and sprint the 30 meters (probably 5-6 seconds), run out 10 meters beyond the finish (don't jam on the breaks at the finish line), trot back around to the start and begin again at the 30 seconds mark. After 6 sprints, active recovery for 2-3 minutes, then repeat. Do as many sets as comfortable. Don't get so exhausted that running form fails. Add sets as fitness improves.

Cool down

## Core Exercises

1. **Plank.** Lie prone on the stomach. Lift the body off the floor supported by the forearms (elbows at 90° degrees) and the toes. Keep the body in a straight position (without arching the back or flexing the hips) and hold for 15 to 30 seconds. Lift one foot in the air for added difficulty. Or lift one arm for added difficulty. For maximum difficulty, raise one leg and the opposite arm (very challenging). Add time and repetitions as fitness improves, up to 10 reps for 30 seconds each.
2. **Pushup plank.** This exercise is the same as the plank, except this is in a pushup position. This is a good exercise at the end of a workout as it challenges muscles in the arms, shoulders, and upper back.
3. **Twisting crunch.** Assume a standard crunch position (lying supine, knees flexed, feet flat on the floor, fingers locked behind the head), raise the trunk to about a 45° angle and then twist from side to side. Make tougher by extending the legs and pretend to peddle a bicycle while twisting.
4. **Ball roll-ins.** Place the hands on the ground and the top of the feet on top of the ball. Keep the hands in place and bend at the knees to bring the ball toward the trunk. Hold this position for a second and then roll back out. Do not use the hip flexors to accomplish the task. Add repetitions as fitness improves.
5. **Lying windmills.** Lie supine with the arms extended to the side and raise the legs until they are perpendicular to the floor. Slowly lower both legs to the side as slow as possible while keeping shoulder and back contact with the floor. Bring the legs back up to center and repeat on the opposite side. Add repetitions as fitness increases.
6. **Supermans with a twist.** Lie prone and raise the trunk off the floor with arms extended in front (beginners may place their hands behind their head). At the top of the raise, twist to one side, return to the center and twist to the other side. Lower the trunk to the ground to complete one repetition. Make this harder by holding a 2-5 pound weight behind the head or out in front, if strength allows.
7. **V-sit hold.** Lie supine and bend at the waist extending the legs and arms into the air to form a "V." Hold this position for as long as possible, return to starting position, rest and repeat. Add repetitions as fitness improves.
8. **Plank on a Swiss ball.** Place the forearms on a Swiss Ball with the feet on the ground or place the feet on the ball with the forearms on the ground. Keep the abdominal and gluteal muscles tight with no arch in the back or flexion at the hips. Hold the position as long as possible. Make it harder by moving the ball slightly from side to side.
9. **Stiff legged V Bends.** This is identical to the previous exercise, except you should keep your knees straight and move the hips toward the ceiling. The focus of this tough drill is completely on the abdominal muscles. Add repetitions as fitness improves.
10. **Lying gluteus pushup.** Lie supine with the feet resting on top of a Swiss ball. Push through the heels to raise the buttocks off the floor as high as possible. Make the body a straight line from the knees to the shoulders. Hold this position for up to 60 seconds. Add time and repetitions as fitness improves.
11. **Nordic Curl.** To increase hamstring strength, kneel down (padding for your knees is okay). A partner behind anchors your feet to the floor. From this erect, kneeling position, slowly lower the trunk toward the floor keeping the back and hips straight. When the movement can no longer be controlled, use the hands to cushion the impact with the floor. Return to the starting position. As one gets stronger, the movement is controlled closer and closer to the ground and more repetitions are performed. Start out with 5-10 repetitions then increase control and repetitions as strength improves. As strength improves even more, have the partner give a gentle push to start the movement. The Nordic Curl is highly effective at preventing hamstring strains.