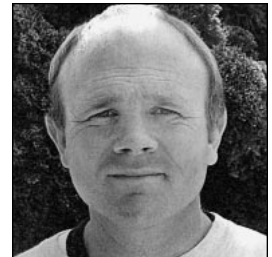


Summer Plyometric Training for Football and its Effect on Speed and Agility

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OUR HIGH SCHOOL FOOTBALL coaching staff implemented a summer program to enhance the speed and agility of their athletes. The goal of this column is to share the drills and exercises used as well as their effect on the participants' speed and agility. Keep in mind that these results were acquired without a simultaneous strength-training regimen for many of the athletes. Although a concurrent strength-training regimen emphasizing multijoint, high-power movements (i.e., hang cleans, high pulls, power cleans, or push press) was provided, the time commitment proved too great for many student athletes. An outline of the summer conditioning program and a waiver were mailed to the student athletes prior to the start of the program.

■ Program Specifics

A warm-up that consisted of a light jog for 200–400 yards was the first segment of plyometric training sessions during all weeks. The warm-up was followed by a series of stretches emphasizing increased flexibility of the gluteus,

hamstring, calf, and hip flexor musculature.

Full recovery between drills was recommended. It was emphasized to athletes and coaches that plyometric training provides a neurological stimulus and that performing these drills fatigued could increase the risk of injury.

In an effort to familiarize younger athletes with holding a football, running backs and quarterbacks held footballs whenever possible while performing the drills. Endurance training followed each plyometric conditioning session.

Speed was evaluated by the 40-yard dash test, as outlined in the *Essentials of Strength Training and Conditioning*. Agility was evaluated by the “T-Drill,” which is also detailed in the *Essentials of Strength Training and Conditioning* text (chapter 17, p. 258) (1). The pretest was completed during the first week of July, and the posttest was completed during the first week of September. The results of the training interventions on the 40-yard dash and the T-drill are shown in Table 1.

Weeks 1 and 2

During these weeks, training took place on Tuesdays. During the plyometric portion, “hot feet” were emphasized, with athletes encouraged not to let their heels touch the ground. Full recovery was allowed, and running backs and quarterbacks carried footballs while training. The following exercises were included in the plyometric portion of the training:

- Medicine ball throws (forward): 4 sets, throwing left, right, and straight.
- Explosive steps: increasing hip and leg explosion with each successive step. Five sets of 6 foot touches each, with 2–3 minute rest periods between sets, during which athletes stretched.
- Agility bag weaves: “hot” feet, with stretching during 2–3 minute rest periods.
- High-knee drills: 3 sets of 25 yards each, paying attention to mechanics and emphasizing quick foot touches.
- Butt kickers: 3 sets of 25 yards each.

Table 1
Results of 40-Yard Dash
and T-Drill Before and After
Training Programs

40-yard dash		T-drill	
Pre	Post	Pre	Post
5.5	5.0	11.7	11.2
5.9	5.5	11.7	11.0
5.7	5.3	11.5	11.2
5.6	5.6	10.8	10.7
6.4	6.2	12.8	12.0
5.8	5.4	11.4	10.8
6.6	6.4	12.5	12.1
5.5	5.4	13.0	12.7
5.6	5.5	11.8	11.1
5.1	5.0	9.9	9.8
5.3	5.0	11.3	11.0
7.0	6.9	14.0	12.9
5.4	5.3	11.1	10.9
5.6	5.6	11.2	12.1
5.8	5.8	12.0	11.8
5.2	5.2	10.7	11.0
6.3	6.3	11.5	11.5
6.1	6.3	12.5	13.2
5.5	5.3	11.9	10.9
5.6	5.6	12.2	11.9
6.7	6.7	13.3	13.5

Note: All results are given as seconds required to complete the task. Values are given for each of the athletes participating in the program.

Week 3

This week's focus was on sprint work and on active rest in order to promote good weightlifting technique. Training was conducted on Tuesday and Thursday. During the plyometric portion, athletes carried footballs when necessary and stretched during rest periods. The following exercises were included as part of the plyometric workout:

- Forty-yard sprints: 5 sets, concentrating on technical skills and hand placement.
- Alternate-leg bounds up stairs: 3 sets of 5 repetitions

each, with the emphasis on hang time and on getting each foot off the ground immediately.

- Alternate-leg bounds on the ground: 3 sets of 10 repetitions each, with the emphasis on achieving distance.
- Double-leg tuck jumps on the ground: 2 sets of 10 repetitions each, with the emphasis on quick foot touches.
- Double-leg vertical jumps: emphasis on quick foot touches.
- Plyometric push-ups with medicine ball: 2 sets of 10 repetitions.
- Plyometric sit-ups: 3 sets of 10 repetitions.

This week also included weight room work, focusing on weightlifting technique, isolation work, and stretching. Finally, endurance training was included in the form of having athletes run after the plyometric and weight-training workouts.

Weeks 4 and 5

During these 2 weeks, training was conducted twice a week. On Tuesday, the plyometric portion was conducted in order to allow full recovery, with stretching during rest periods, and the exercises were as follows:

- Forty-yard chute sprints: 3 sets.
- Forty-yard sprints: 2 sets.
- Alternate-leg bounds on the ground: 3 sets of 10 repetitions, with emphasis on attaining height.
- Double-leg tuck jump: 2 sets of 10 repetitions, with the emphasis on quick foot touches.
- Plyometric push-ups with a medicine ball: 2 sets of 10 repetitions.
- Plyometric sit-ups: 3 sets of 10 repetitions.

On Thursday, athletes stretched

during rest periods, and the plyometric exercises were as follows:

- Medicine ball throws: 3 sets of 5 repetitions, including both the vertical and underhanded types.
- Agility bag weaves: 5 sets, with medicine ball throw.
- High-knee drills: 4 sets of 10 yards, emphasizing speed.
- Butt kickers: 3 sets, emphasizing number of touches.

Week 6

Exercises this week were again done on 2 days. On Tuesday, the plyometric portion was conducted in order to allow full recovery, with stretching during rest periods, and the exercises were as follows:

- Forty-yard chute sprints: 4 sets.
- Forty-yard sprints: 4 sets.
- Alternate-leg bounds on ground: 3 sets of 10 repetitions, emphasizing distance.
- Medicine ball throws: 5 sets of 2 repetitions with vertical emphasis with chest pass.
- Medicine ball throws: 5 sets of 2 repetitions with distance emphasis.
- Plyometric push-ups with medicine ball: 3 sets of 5 repetitions.
- Plyometric sit-ups: 3 sets of 10 repetitions.

On Thursday, the plyometric exercises were as follows:

- Double-leg zigzag hops: 2 sets of 10 repetitions.
- Pike jumps: 2 sets of 10 repetitions.
- T-drills: 4 sets.
- Agility bag weaves: 5 sets, with medicine ball throw.
- Lateral sprints: 3 sets.

Week 6

Exercises this week were again done on 2 days. On Tuesday, the

plyometric portion was conducted in order to allow full recovery, with stretching during rest periods, and the exercises were as follows:

- Box jumps: 2 sets of 10 repetitions, with 12-inch box.
- Forty-yard sprints: 4 sets.
- High-knee drills: 4 sets of 15 yards, with super-fast knees.
- Butt kickers: 4 sets of 15 yards, with super-fast knees.
- T-drills: 4 sets.
- Drop push-ups: 4 sets of 3 repetitions, explosively.
- Scissor sit-ups: 4 sets of 3 repetitions, explosively.

On Thursday, the plyometric exercises were as follows:

- Box jumps: 4 sets of 2 repetitions, with medicine ball toss off the first box.
- T-drills: 2 sets.
- Agility bag weaves: 3 sets.
- Medicine ball push-ups: 3 sets of 5 repetitions.
- Plyometric sit-ups: 5 sets of 2 repetitions, explosively.

Week 8

On Tuesday, the plyometric portion was conducted in order to allow full recovery, with stretching during rest periods, and the exercises were as follows:

- Box jumps: 5 sets of 2 repetitions.
- Twenty-yard sprints: 6 sets.
- T-drill: 2 sets.
- Butt kickers: 5 sets of 15 yards, with super-fast feet.
- High-knee drills: 5 sets of 10 yards, with super-high knees.
- Drop push-ups: 5 sets of 2 repetitions, explosively.
- Scissor sit-ups: 5 sets of 2 repetitions, explosively.

On Thursday, the plyometric exercises were as follows:

- Medicine ball jump tosses: 6 sets of 2 repetitions, performed vertically from the

chest and caught and tossed on rebound.

- T-drills: 5 sets.
- Medicine ball push-ups: 5 sets of 3 repetitions.
- Scissor sit-ups: 5 sets of 2 repetitions, explosively.

Coaches' Observations

The coaches noted that the athletes who lifted weights and performed the plyometric drills made better gains in speed and agility versus those who only performed the plyometric drills. Also, those who missed sessions of either strength training or plyometrics during the middle weeks tended to stay the same or get slower. This lack of gain may be attributed to the fact that some participants attempted to cram additional workouts into the last 2-3 weeks, resulting in fatigue and thus in poorer scores. The effectiveness of the program may certainly be enhanced by more consistent attendance for both strength-training and plyometric workouts. The younger athletes, who will have 2-3 years of this training, should benefit greatly.

Summary

In an effort to keep participation and intensity at the highest levels, the plyometric drills were kept short and simple. A conscious effort was made to introduce plyometric drills slowly so that excessive soreness would not result. When designing high school training programs, participation and enthusiasm are crucial. Strength-training professionals and coaches alike need to dedicate time to both training specifics and motivational ideas. We feel that this program was successful in improving performance of the athletes and also in keeping the athletes motivated. ▲

References

1. Baechle, T. R. *Essentials of strength training and conditioning*. Champaign: Human Kinetics, 1990. p. 268.

Gregory John Renfro is a former strength intern at the United States Olympic Training Center. He has published extensively in the fields of strength, fitness, and nutrition. He is featured monthly in *Silent Sport* magazine and on a local radio fitness forum. He is currently attending Northeast Technical College of Green Bay, Wisconsin, in the Physical Therapist Assistant program and serving as the Strength and Conditioning Specialist at Antigo Athletic Club.



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