



Why do we do speed work?

We want to get faster! The goal is to improve VO2 Max, strength, endurance, stamina at race pace, and improve form.

Brain body connection – neuromuscular – muscle memory

Where do we start? How do I know how fast to run?

Speed intervals should be 85% to 97% of current VO2max. Approximate Vo2max = current 3k to 5k pace.

Put simply, your VO2 max is a numerical measurement of your body's ability to consume oxygen. Your VO2 max occurs when your oxygen consumption redlines—this usually happens at a bit faster than your 5k race pace.

Run mile intervals 3-5% faster than race pace. Run 800 meter (1/2 mile) and 400-meter (1/4 mile) intervals 8-12% faster than race pace. And run 200-meter (1/8 mile) intervals 12-15% faster.

We will do a timed 1 mile at race pace and use this time to break down our goal times for future training sessions. We will do a final timed mile at the end to see if we have improved.

We will run different types of speed intervals each week increasing the total amount of interval work throughout.

Start with between 4-6 intervals and increase each week

Rest in between each interval is $\frac{3}{4}$ to equal time of the interval.

Warm up and cool down – 1 mile easy pace followed by drills and dynamic stretches- Because Meb Keflezighi does them!

High knees – A skip – B skip – butt kicks – fast feet – Carioca – bounces - lunges

Recovery – follow hard days with 1-2 recovery days active or completely off

Should you do speed work for longer distance race training?

Absolutely. Speed work helps improve VO2max as well as improve form, build strength, increase stamina, and improve foot speed

Are there different types of speed work for different distances?

The basics are the same for beginners. Intermediate or advanced runners utilize different speed workouts and intensity based on the distance they are training for. Common intervals are 100 meters, 200 meters, 400 meters (1/4 mile), 800 meters (1/2 mile), 1200 meters, and 1600 meters (1 mile)

Types of speedwork

Striders 15-20 seconds hard with 1 minute jog in between

200 Meter - 5k pace with full recovery ie: 1 minute 200 = 45 second recover and repeat

400 meter - 8 seconds per lap faster than your 5k pace and build up to 14 repeats

800 meter - 5k pace or slightly faster

1600 meter – 5k pace or slightly faster

On the Track

Common finish line – straight line across track

The distance around the track gets further with each lane out – lane 1 is 400 meters, lane 2 is 407, lane 3 is 415, etc.

200 Meters is halfway around the track – use white

400 meter – ¼ mile - 1 full lap

800 meter – ½ mile - 2 laps

1600 meter – 1 mile – 4 laps

Off the Track

Hill sprints on steep inclines based on repeat times. These are great for aerobic and muscle development. Example: snake hill repeats instead 200 repeats. Easy warm up 1-2 miles, drills, then sprint 40 seconds to minute uphill at very high intensity, walk back down and let heart rate settle, then repeat

Fartlek (Swedish for speedplay)- varying time intervals of 80-90% max intensity with recovery jog in between during a longer run. Example - 10 mile run – easy warm up, start 5 minutes at marathon pace, 2 minutes easy, 5 minutes marathon, 2 minutes easy, repeat. Another fun way is to mix it up with a different person leading the fartlek for different paces and periods making a game of it. This is to train your body to adapt to different speeds and environments.

Negative split – medium long to long run. Start with easy warm up then start decreasing(faster) pace every mile or 2 through the run with a mile cool down. Great training for maintaining pace late in a race.

Lactate Threshold runs – medium to long runs with blocks of half marathon pace incorporated. Example - 12 mile run with 6-8 miles at half marathon pace. Teaches your body to burn and get rid of lactic acid. Must be done by running longer blocks at high intensity.

All lines 50 mm wide and colored white. (see exceptions at right)



The distance of a race is measured from the edge of the starting line further from the finish, to the edge of the finish line nearer to the start.

110 m Hurdles Spacing:

- 13.72 m start to first hurdle
- 9.14 m hurdle to hurdle
- 14.02 m last hurdle to finish
- 10 hurdles total (red marks)

100 m Hurdles Spacing:

- 13 m start to first hurdle
- 8.5 m hurdle to hurdle
- 10.5 m last hurdle to finish
- 10 hurdles total (yellow marks)

1600 m / 3200 m Waterfall Start

Races proceed counter-clockwise (turning left):
 ½ Lap = 200 meters
 1 Lap = 400 meters
 2 Laps = 800 meters
 4 Laps = 1600 meters
 8 Laps = 3200 meters

Radius of Curves (R)

$$R = (\text{Track Length} - 2L) / (2\pi)$$

where L = Length of straight.

Typical R = (400m - 200m) / 6.283 = 31.83m
 Track length of 400 meters is measured 300 mm from inner edge of Lane 1. Remaining lanes are measured 200 mm from the edge of the inside lane lines.



Order of Events in a Typical Meet. Note: in most scholastic meets there are NO trials, only finals.

1. 100 Meter Low Hurdles	Trial	Girls
2. 110 Meter High Hurdles	Trial	Boys
3. 100 Meter Dash	Trial	Girls / Boys
4. 4 x 800 Meter Relay	Final	Girls / Boys
5. 300 Meter Hurdles	Final	Girls / Boys
6. 200 Meter Dash	Trial	Girls / Boys
7. 100 Meter Low Hurdles	Final	Girls
8. 110 Meter High Hurdles	Final	Boys
9. 100 Meter Dash	Final	Girls / Boys
10. 1600 Meter Run	Final	Girls / Boys
11. 400 Meter Run	Final	Girls / Boys
12. 4 x 100 Meter Relay	Final	Girls / Boys
13. 800 Meter Run	Final	Girls / Boys
14. 200 Meter Dash	Final	Girls / Boys
15. 3200 Meter Run	Final	Girls / Boys
16. 4 x 400 Meter Relay	Final	Girls / Boys

Common Finish Line

800 m and 4 x 800 m Staggered Start (green)
 400 m and 4 x 100 m Staggered Start (purple)

All measurements in METERS except the height of hurdles.

All lines colored White except:
 White w/Green 800m Staggered Start
 White w/Blue 4x400m Staggered Start
 Green Break Lines, 400H
 Light Blue 4x400m Relay Zones
 Yellow 4 x 100m Relay Zones, 100m Hurdles
 Orange Blue 4 x 100m Acceleration 110m Hurdles

Relay Exchange Zones:



The baton **MUST** be exchanged within these 20 m zones, which are marked with arrows pointing into the zone and which span 10 m on either side of a take-over mark at the center of the zone. For 4x100 m there are three zones in each lane, centered 100m, 200m, & 300m from the start. For 4x400 m there is one zone at start line. See crossover line note below for remainder of 4x400 m race.

300 m Hurdles Spacing:

- 45 m from start to first hurdle
- 35 m hurdle to hurdle
- 10 m last hurdle to finish line
- 8 hurdles total (blue marks)

300 m Hurdles Staggered Start

Crossover Line:
 800 m / 4 x 800m: Runners in Lap 1 stay in lanes until this point, at which they may proceed to inner lanes for the rest of the race.
 4 x 400 m: Runners in Lap 1 stay in lanes. Exchange zone is 20m centered around start positions. Runners in Lap 2 stay in lanes until this point. They may then move to inside lanes as in 800 m race.

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