

High School Cross Country Training Program



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Important Terms

- **Aerobic exercise: (with oxygen)** The body's ability to use oxygen during exercise at a rate in which the cardio respiratory system can replenish that oxygen in the working muscles.
- **Anaerobic exercise: (without oxygen)** It is a brief, high intensity activity preventing the circulatory system to supply enough oxygen for a given run resulting in a deficit.
- **Anaerobic Threshold (AT) also called (Lactate Threshold):** A point in exercise where blood lactate (lactic acid) starts to accumulate at a faster rate than it can be eliminated from the muscles.

Important Terms (cont.)

- **Blood-lactate accumulation:** A function of how much lactic acid is being produced by the exercising muscles and the rate at which it is being cleared by the muscles, the heart, and the liver.
- **Date pace:** Intervals run at current race pace based on recent race performances.
- **Goal pace:** Intervals run at a pace one hope to race at by the end of the season in a particular event.

- **Intervals:** Referred to as a workout with short fast bouts of running broken up by periods of rest. Also referred to as the rest portion between bouts of running.
- **Lactic acid:** It is a chemical produced and released into the bloodstream by red blood cells, intestines, and skeletal muscles. It is the byproduct of anaerobic respiration in muscles.
- **Maximum Heart Rate (max hr):** This is the heart rate at which increased intensity of exercise does not cause an increase in heart rate.
- **Oxygen Debt:** The point, through vigorous training, the lungs can not supply all of the oxygen the muscles need in order to continue with that particular activity.

- **Percentage (%) of heart rate:** Referred to as a percentage of one's exercise intensity compared to their maximum heart rate.
- **Rep: Short for repetition.** Referred to as the running segment of a workout.
- **VO2 Max (Maximal Oxygen Intake):** This is the highest rate at which your body can transport oxygen to your muscles, which your muscles can then use to produce energy aerobically; ones aerobic limit.

2017-18 Mileage Chart for MSHS Mavs



Five steps to success

• Pre-season conditioning

- **Aerobic Conditioning (Endurance)**
- **Purpose:** To build endurance, increase stroke volume, stimulate muscles to store more glycogen, prepare the body for more strenuous training, increase the lungs capacity to deliver oxygen, and increase in the number and efficiency of mitochondria.
- Types of aerobic conditioning runs
- Pool running (YMCA – lazy river)
- Recovery
- Easy

Aerobic workout

- **% max hr:** 60-80%
- **Time/Distance Duration:** 60 min/8 - 10 miles max
- **Speed/Pace:** 1 1/2-2 min slow of 5k pace
- **Weekly Amount:** 30-50 miles
- **Effort Felt:** Easy

Aerobic Threshold (high end aerobic training)

- **System:** Aerobic
- **% max hr:** 75-80%
- **Time/Distance Duration:** 45 min/ 8 miles max
- **Speed/Pace:** one min. slower than 5k pace
- **Weekly Amount:** 2 x wk as part of aerobic conditioning
- **Effort Felt:** Medium

Late Pre-Season to Early Season training

Anaerobic Threshold

Purpose: The purpose of threshold training is to raise ones AT delaying blood lactate levels. Enables one to run faster and faster without an increase in lactate levels causing one to race faster. Prepares the body to run intervals.

- Aerobic to Anaerobic
- Threshold Training – Fartlek workouts
- Pool running (YMCA – lazy river)
- Tempo runs

Tempo runs/Progressive runs

System: Aerobic with some anaerobic

- **% max hr** 85-90
- **Time/Distance Duration:** 20-30 min.
- **Speed/Pace:** 25-30 sec slower than 5k pace
- **Weekly Amount increase:** 10% or 8 miles max
- **Effort:** Felt Comfortably Hard
- **Threshold Repeats (Cruise Intervals)**

• Fartlek workouts

System: Aerobic with some anaerobic

- **% max hr** 90
- **Work/Rest Ratio:** 60-90 sec.
- **Time/Distance Duration:** 10-15 min.
- **Speed/Pace:** 10-15 sec slower than 5k pace
- **Weekly Amount increase:** 10% or 8 miles max
- **Effort Felt:** Comfortably Hard

Early to Mid-Season training

Intervals (VO2 Max)

Purpose: Continuing to raise one's anaerobic threshold at faster speeds.

Prepares one to race at a high level. Improves short distance racing speed and strength.

Example max intervals for cross country @ 90 – 100% max effort

- 3 x 5 minutes at 5k pace with 4 minute rest between.
- 5-6 x 1k @ 5K race pace with equal or slightly less rest between.
- 6 x 800 @ 5K race pace with equal or slightly less rest.

System: Aerobic/Anaerobic % max hr: 95-100

- **Work/Rest Ratio:** equal or slightly less
- **Time/Distance Duration:** 1-5 min.
- **Speed/Pace:** 1 mile to 5k pace
- **Weekly Amount:** 8% or 6 miles max
- **Effort Felt:** Hard

Step Four - Speed

Purpose: Improves anaerobic pathways, teaches one to run fast, relax and more economical. It is also used to build one's tolerance to lactate, which is to increase your ability to run long and fast with a high level of blood lactate. The body also improves its ability to quickly remove lactic acid. It brings one to a peak.

- Different philosophies

Ex.: 10 minute 2 miler

- 8 x 600 @ 1:44-1:47 with 3-4 minutes between.
- 1 x 600 @1:48, 1 x 500 @ 1:28, 1 x 400 @ 67. 2-3 sets
- 3 x 800 at date pace, 2 x 600 at goal pace.
- 4-6 x 800 @ 2:30 with an 400 jog between.

Step Five - Tapering

Purpose: Fully charge the batteries. Peak at the right time for the championship meets.

Duration: 2 – 3 weeks. Different philosophies.

Process: Decrease weekly mileage 15 – 20% each week.

Putting it all together!

- When designing a workout ask “what system are you working on”, “what is it you are trying to achieve”.

Summer:

- **June:** Easy paced distance 25-35 miles per week
- **July:** Medium/easy pace distance 35-45 miles per week
- **August:** Medium paced distance 45-55 miles per week

Sample 11 week XC training**Early season (3 weeks):**

- Monday: Tempo/Progressive run
- Tuesday: Easy long run, 6 – 8 miles
- Wednesday: Fartlek/Interval workout
- Thursday: Easy long run, 6 – 8 miles
- Friday: Short distance run/Pre-meet workout
- Saturday: Race or distance run (progressive run)
- Sunday: Optional 30-60 minute distance run or Cross training

Middle season (3 weeks)

- Monday: Tempo runs, 30 – 35 minutes.
- Tuesday: Medium Distance run, 6 – 8 mile run
- Wednesday: VO₂ max intervals
- Thursday: Medium Distance run, 6 – 8 mile run
- Friday: Short Distance run/ Pre-meet run
- Saturday: Race or Progressive run (8-10 miles)
- Sunday: Optional 30-60 minute distance run or Cross Training

Late season (3 weeks)

- Monday:** Tempo Run (4-5 miles)/Progressive run (8 – 10 miles)
- Tuesday:** Medium distance run
- Wednesday:** VO₂ max interval workout
- Thursday:** Medium distance run
- Friday:** Short distance run/Pre-meet workout
- Saturday:** Race day or Short distance run followed by race pace work with full rest
- Sunday:** DNR/Cross Training

Taper (2 weeks)

- Monday:** Tempo run (3 miles)/Fartlek workout
Tuesday: Medium recovery distance run
Wednesday: Interval workout (short distance: 400 m)
Thursday: Medium recovery distance run
Friday: Easy short distance distance
Saturday: Race
Sunday: DNR/Cross Training

Signs of Overtraining**Signs**

1. unusual or prolonged soreness (heaviness)
2. performance declines in training and racing
3. delay in recovery from training
4. lack motivation to train or race
5. increased colds/illnesses
6. increased blood pressure/ morning pulse (8-10 beats higher)
7. loss of weight (4-5 pounds)

Treatments

1. evaluate training
2. communication between coach and athlete
3. cutting training load
4. skip a meet
5. increase iron intake
6. eat plenty of fruits and vegetables

Promoting and Building a Cross Country Team

1. It is a year round job.
2. Competition from other sports/club teams
3. Ways to promote team
 - a. talk to kids
 - b. xc runners talk to kids
 - c. post xc results in hallway
 - d. trophy case (past meet, league, regional, and state trophies)
 - e. pictures of past individual champions, yearly plaque with accomplishments
 - f. decorate classroom
 - g. letters home to all 8th grade within district/presentation at school registration
 - h. team shirts (seasonal and state t-shirts)
 - i. traditions- team dinners, time trial/team and family breakfast, swim, and pizza

