

5k and Half Marathon Training

Whether you are training for a 5K or a Half Marathon, it is essential to get the proper workouts in. This training program is designed for the person who is slightly conditioned meaning that you are able to run for 45 minutes without stopping (pace does not matter) The 5k Training program runs 12 weeks long and the Half Marathon runs 15 Weeks long.

The Workouts

The following training program will consist of rest days, miles (easy, medium, long), cross training (XT), speed drills. These are all important when it comes down to a half marathon.

Rest Days

Rest days are extremely important. They are there so your muscles can have a day off and recover. They are used to ice any sore muscles or joints for injury prevention. If you notice on the calendar, it is important to rest before the actual event that you are training for. You do not want to be tired by any means the day before the race or during the race from over training.

Miles

Miles are as simple as it is written. If you run the miles for training, you can run the miles during the race at a competitive pace. Medium Miles are at RACE PACE. This is the day that you do the Speed drills (see speed drills). Long Miles are slow runs to put miles in. They are a slightly slower than competition pace. Easy Miles are to go for a run not a race pace but a comfortable pace. These miles are mainly meant for maintenance.

Cross Training

Cross training is doing another exercise that has a positive gain on the cardio vascular system but is not running. Examples would be biking, swimming, elliptical, and weight training (with weight training the proper regimen is low poundage weights with high repetitions for cardio gains). Cross training is great for the low or no impact benefits. This will give your legs a rest from the trauma and be injury preventative.

Warming Up

It is necessary to warm up doing any kind of exercise. A good warm up is starting with an 8-10 minute run (or until you feel loose). Once you have done you run, do 4 x 100 meter runs at a moderate pace, having a 100-meter jog in between each 100 run. Every day (besides rest days) require a warm up of some sort. Warming up prevents injuries and also gets your body loosened up for the workout!!!

Speed Drills/Training

Speed drills are designed from short to medium lengths that are repeated at various ranges of paces. They can be at a race pace to an all out effort pace. The essential goal of these drills and kind of training is to gain overall speed and to maintain these speed and paces over a long distance race. After a Speed drill is done, Speed drill #4 is essential. You **MUST** cool down after every speed drill. **It is not written in the calendar but is the implied!!!**

Speed Drills

1. 4 x 800 meter at a moderate pace (400 meter jog in between sets)
2. 2 x 1600 meter at a less than moderate pace (800 meter jog between sets)
3. Hills (find a hill about 100 meters long) run up hill at a moderate pace, jog back down. Do for a desired amount of at least 5.
4. Cool Down – 800 Meter jog

Shoes

Shoes are a very important factor for the prevention of injuries. When looking at a shoe for running long distances, it is important that the shoes are **comfortable**. You want a shoe that is light and have a little bit of re-bounce. A pair of running shoes can last about 300 miles. A pair of shoes that you are training with should be the pair of shoes that you race in. A new pair of shoes can develop blisters before they are broken in. It might be a good idea to purchase 2 pairs of shoes when training and alternate. This will keep the miles down on both pair of shoes and they both will be broken in by race day.

Hydration

Fluid consumption prior to performance is very essential. Dehydration can compromise performance more than poor nutrition on game day. Proper hydration begins in the morning; an athlete must consume fluids during the day. Also remember that dehydration is cumulative, that is, poor rehydration builds over days of training. An athlete should consume fluids dictated below.

Pre-Exercise hydration

- Athletes should consume 17-20 oz of water or a sports drinks 2-3 hours before an exercise bout (preferably with CHO's).
- 7-10 oz of water or sports drinks 10-20 minutes before exercise.

During Exercise

- 7-10 oz of water every 10-15 minutes during exercise.
- Feeling “Thirsty” and taking in water just doesn't cut it. Drink fluid even if you are not thirsty.

Post-Exercise

- 16 oz of fluids should be replenished for every pound lost during activity (including urination).
- 2 hours post exercise rehydration should consist:
 - Water (to replenish fluids)
 - Carbohydrates to replenish glycogen stores in the muscles.

Electrolytes to speed up hydration

Sweat Rate

Sweat rate is also important. This will tell you how much the athlete sweats mL/hour. An example was added to the chart. Row #1 shows what needs to be put in on each column. If you have any questions regarding the Sweat Rate Chart, consult the ATC.

Sweat Rate Chart

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>
Name	Date	Before Exercise	After Exercise	Δ Body Weight	Drink Volume	Urine Volume	Sweat Loss	Exercise Time	Sweat Rate
1		kg	kg	$g=(C-D)$	mL	mL	$mL=(E+F-G)$	min	mL/min (H/I)
		$kg=(lb/2.2)$	$kg=(lb/2.2)$	$g=(kg \times 1000)$	$mL=(oz \times 30)$	$mL=(oz \times 30)$	$mL=(oz \times 30)$	hr	mL/hr (H/I)
Kyle Smith	2010	88kg	87kg	1000g	900mL	480	1420	60min	23.6 mL/min
		$(193.6lb/2.2)$	$(191.4lb/2.2)$	$(88kg-87kg) \times 1000$	$30oz \times 30$	$16oz \times 30$	$1000+900-480$	1hr	1420mL/hr

Environmental Factors

- Wet clothing should be replaced with dry material (sweat-suit, blanket) that is insulated from the ground and wind.
- Warm fluids should be consumed if patients are conscious, able to talk, and thinking clearly
- Patients with moderate and severe hypothermia should be insulated in a blanket and evacuated to a hospital immediately.
 - Severities
 - Mild 93°-97° F
 - Moderate 86°-93° F
 - Severe < 86°

Hypothermia [body core temperature below 97 °F] occurs when heat loss is greater than metabolic heat production (94). The most common medical complaints are weakness, shivering, lethargy, slurred speech, dizziness, diarrhea, and thirst. Dehydration is

common in cool weather. Athletes should attempt to replace fluids at a rate that matches their sweat and urine losses. Cases of hypothermia also occur in spring and fall because weather conditions change rapidly and runners wear inappropriate clothing that becomes sweat soaked during training or competition.

Signs and symptoms:

- Shivering
- Euphoria
- Confusion
- Behavior similar to intoxication
- Lethargy (sluggish feeling)
- Muscular weakness
- Disorientation
- Hallucinations
- Depression
- Combative behavior

If body core temperature falls below 31.1°C (88°F), shivering may stop and the patient will become progressively delirious, uncoordinated, and eventually comatose if treatment is not provided.

Risks

Subfreezing ambient temperatures need not be present and hypothermia may develop even when the air temperature is 10-18°C (50-65°F). Cold wind increases heat loss in proportion to wind speed; i.e., wind chill factor. The relative degree of danger can be assessed (Fig. 2) (55). Wind speed can be estimated; if you feel the wind in your face the speed is at least 16 km per hour-1 (kph) [10 miles per hour-1 (mph)]; if small tree branches move or if snow and dust are raised, approximately 32 kph (20 mph); if large tree branches move, 48 kph (30 mph); if an entire tree bends, about 64 kph (40mph).

Frostbite

- The tissue should be rapidly re-warmed in circulating warm water (104°-110°F), insulated and transported to a medical facility.

Frostbite involves crystallization of fluids in the skin or subcutaneous tissue after exposure to subfreezing temperatures [$< -0.6^{\circ}\text{C}$ (31°F)]. Frostbite may occur within seconds or hours of exposure, depending upon air temperature, wind speed, and body insulation.

Signs and symptoms:

- Appears white, yellow-white, or purple
- Hard, cold, and insensitive to touch

Re-warming results in intense pain, skin reddening, and swelling. Blister formation is common and loss of extremities (fingers, toes, ears, hands, feet) is possible.

WIND - CHILL CHART

		ACTUAL THERMOMETER READING F										
		50	40	30	20	10	0	-10	-20	-30	-40	-50
ESTIMATED WIND SPEED MPH	EQUIVALENT TEMPERATURE F											
	CALM	50	40	30	20	10	0	-10	-20	-30	-40	-50
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	
35	27	11	-4	-20	-35	-49	-67	-83	-98	-113	-129	
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	

Wind speeds greater than 40 MPH have little additional effect

DANGER FROM FREEZING OF EXPOSED FLESH

Risks for frostbite

Since winter running races are rarely postponed when environmental conditions are harsh, it is imperative that athletes be aware of the dangers. Runners risk frozen flesh within minutes if the air temperature and wind speed combine to present a severe wind chill (-20 °C (-4 °F)). Few layers, not warm enough clothes, and sweat all increase the risk factor.

Nutrition

Nutrition is just as important as the workouts for the half marathon 5k training. When training for long distance running high fatty foods is not desired. The nutrition should be broken up into the following: 65% -70 % Carbohydrates, 10-15% Protein, 20-25% unsaturated fats. Again this is just a guideline.

Pre-Race Meal

Proper nutritional habits for athletes do not differ much from non-athletes. Athletes should consume 2,000 or more calories per day. The average non-athlete should consume no more than 2,000 calories per day to maintain body weight. Athletes need to consume more calories due to the caloric cost of training. For athletes these calories should come from complex carbohydrates (CHO), not fats, simple sugars, or alcohol.

Athletes will require more fuel for their muscles; this translates into a higher CHO intake. Athletes will need to consume 60% or more of their calories from CHO, while non-athletes should not consume more than 60% of their calories from CHO. In terms of body weight, athletes should consume 3—5 grams of CHO per pound of body weight per day.

Complex Carbohydrate consumption is accomplished by in taking grains such as breads, pasta, rice, and whole grain cereals. An athlete should consume **6 to 11 servings per day** from this energy supplying food group.

Fat consumption should be controlled, not eliminated. Fat ingestion is necessary for proper mental function, hair production, hormonal cycles, and finger and toe nail production, to mention a few. Fats should be unsaturated and from vegetable sources. Meat sources of fat contain high amounts of saturated fat. Saturated fat has been linked to cardio-vascular disease. Good fat sources include olive oil, vegetable oil, and the omega-3 fatty acids found in ocean fish. Avoid fats from red meats (choose lean cuts of meat), fried food, and most fast food. Fast Food is not a good source of protein. It is cheaply made because of the high fat content in the meats.

There is a widely held myth that weight lifters and body builders need more protein in their diet; the truth is that long distance runners need to increase their protein consumption more than weight lifters. This myth addresses an important issue in nutrition; nutritional concerns need to be addressed not only to type of activity but body weight. Body builders weigh more, usually, than distance runners therefore, consume more protein in terms of serving size. Distance runners, weighing less than weight lifters, will consume smaller portions however, the ration of grams of protein to body weight should be higher for runners.

An athlete should consume 2.5-4.5 grams of protein per kg of body weight per day. Runners should be in the high end of the recommendation due to the amount of protein wasting caused by long distance running.

Dairy sources need to be included in a well balanced diet. An athlete should consume **2 to 3 servings of this food group per day**. Dairy foods, low fat milk, yogurt, and cheese, are important sources of calcium. Calcium is necessary for proper neural and muscle function. Females need to be certain to consume enough calcium to prevent osteoporosis. Preventing osteoporosis begins in adolescence, not late in adulthood.

The remaining food groups are just as important and often sacrificed in an athlete's diet. Fruit and vegetable consumption provide important vitamins, minerals, and phytochemicals that we all need for proper nutrition. An athlete should consume **3 to 5 servings of vegetables and 2 to 4 servings of fruit per day**. Remember that 12 ounces of juice can be substituted for a serving of that particular fruit or vegetable. Athletes should also eat more meals per day than non-athletes. The standard "3 squares a day" will not provide enough energy during the day to promote optimal training and performance. **It is recommended that athletes consume 6 meals a day**. This provides the athlete with constantly replaced energy stores and eliminates the feeling of fullness

that three large meals produce. Smaller amounts of food can be consumed before and after exercise to help with optimal performance.

Serving sizes also differ from food “portions.” The following list is a basic indicator of food serving sizes in accordance with proper dietary recommendations.

Your fist or cupped hand = 1 Cup

A half-cup of cooked cereal, rice, or pasta is one serving. For raw leafy greens, such as lettuce, a serving is a cup. A cup of cooked or hopped raw vegetables or fruit equals 1 serving.

Your Thumb = 1 ounce of cheese

One thumb-size chunk of cheese equals approximately one ounce.

Your Thumb Tip = 1 teaspoon

A small portion of peanut butter, butter, mayonnaise, or swipe of brownie batter is high in fat calories. If the amount eaten matches the size of the last joint of the thumb, it equals one teaspoon. Three thumb sizes equal a tablespoon. The tip of your index finger is approximately half a teaspoon.

A handful = 1 or 2 ounces of snack foods

One handful equals 1 ounce of nuts or small candies. For chips and pretzels, 2 handfuls equal 1 ounce.

Your Palm = 3 ounces of meat

One serving of meat is only 2 to 3 ounces. Two 3-ounce low-fat servings of meat, fish, shellfish, or poultry or a single 6-ounce daily serving are recommended.

A tennis ball = 1 serving of fruit

Meal Choices

One of the most often asked questions concerning athletic nutrition is “When should and what should I eat prior to performance?” The answer to this is complex, but easily explained. The basics are as follows:

- Eat a large meal 4 to 6 hours prior to competition;
- Eat a smaller meal 2 to 3 hours prior to;
- Snack 1/2 to 1 hour prior to;
- Snack with in 1/2 hour post performance;
- Snack again 1 1/2 to 2 hours after performance, and
- Consume adequate fluids before, during and after performance.

The large meal should be rich in CHO choices, be “tried and true favorites,” psychologically comfortable and psychologically pleasing. Common choices are pasta

with meat sauce, fruit and vegetable serving, fruit juices, and water. Other meal choices can include pancakes, lean turkey bacon, fresh fruit, fruit juice or low fat milk, and water.

The smaller meal **2 to 3 hours prior to competition should also be CHO rich.** The choices may be the same but in smaller quantities. Good choices would be fresh fruits and vegetables, bagels, rice, yogurt. Again this meal is laying the energy foundation for performance.

The evening meal the day before the competition should also be rich in CHO so the body has some glycogen stores (where your muscles find energy). This meal should include pasta or a potato with some fresh fruits and vegetables or rice.

The snack prior to competition should consist of fresh fruits and vegetables. This snack needs to be very low in fat (high fat contents at this time significantly slow gastric emptying and “rob” the muscles of blood necessary for performance.)

Post exercise snacks are essential for replacing muscle energy stores that were lost during exercise. These energy stores are best replaced within the first 1/2-hour post training or performing. Therefore, a snack should be encouraged within 1/2 hour and again within 2 hours after training. Some athletes may have problems eating this soon after competition so merely encourage these individuals to consume small amounts of CHO over a longer period of time.

Grocery List

Below is a list of groceries that will be great for certain meals. All of the following are very healthy and are full of essential nutrients, minerals and vitamins.

Proteins

- Boneless, Skinless Chicken Breast (**Lunch, Dinner**)
- Tuna (water packed) (**Lunch**)
- Fish (salmon, sea bass, halibut) (**Lunch, Dinner**)
- Shrimp (**Dinner**)
- Extra Lean Ground Beef or Ground Round (92-96%) (**Lunch, Dinner**)
- Protein Powder (Whey or Egg protein powder) (**Breakfast, Snack**)
- Egg Whites or Eggs (**Breakfast**)
- Rib eye Steaks or Roast (**Dinner**)
- Top Round Steaks or Roast (AKA Stew Meat, London Broil, Stir Fry) (**Dinner**)
- Top Sirloin (AKA Sirloin Top Butt) (**Dinner**)
- Beef Tenderloin (AKA Filet, Filet Mignon) (**Dinner**)
- Top Loin (NY Strip Steak) (**Dinner**)
- Flank Steak (Sir Fry, Fajita) (**Dinner**)
- Eye of Round (Cube Meat, Stew Meat, Bottom Round, 96% Lean Ground Round) (**Dinner**)
- Ground turkey, Turkey Breast Slices or cutlets (**Lunch, Dinner**)

- Deli cuts (**Lunch**)
- Dry beans and peas (**Lunch, Dinner**)

Complex Carbohydrates

- Oatmeal (Old Fashioned or Quick Oats) (**Breakfast**)
- Sweet Potatoes (Yams) (**Dinner**)
- Beans (pinto, black, kidney) (**Lunch, Dinner**)
- Oat Bran Cereal (**Lunch**)
- Brown Rice (**Lunch, Dinner**)
- Farina (Cream of Wheat) (**Lunch**)
- Multigrain Hot Cereal (**Breakfast**)
- Whole grain cereals (Shredded Wheat, Grape nuts, Special K, Smart Start) (**Breakfast, Snack**)
- Pasta (**Lunch, Dinner**)
- Rice (white, jasmine, basmati, Arborio, wild) (**Lunch, Dinner**)
- Potatoes (red, baking, new) (**Lunch, Dinner**)
- Sandwich breads, bagels, pita bread, English muffins (**Breakfast, Lunch, Dinner**)
- Soft corn tortillas, low fat flour tortillas (**Breakfast, Lunch, Dinner**)
- Low fat, low sodium crackers (**Snack**)
- Plain cereal, dry or cooked (**Breakfast**)
- Rice, pasta (**Lunch, Dinner**)
- Non-fat crackers (Saltines, Wheat Thins, Ritz, or Triskets) (**Snack, Lunch**)
- Pretzels (**Snack, Lunch**)

Fibrous Carbohydrates

- Green Leafy Lettuce (Red Leaf, Romaine, Spinach) (**Lunch, Dinner**)
- Broccoli (**Lunch, Dinner**)
- Asparagus (**Lunch, Dinner**)
- String Beans (**Lunch, Dinner**)
- Bell Peppers (**Lunch, Dinner**)
- Cauliflower (**Lunch, Dinner**)
- Celery (**Lunch, Dinner**)

Produce and Fruits

- Cucumber (**Lunch, Dinner**)
- Green or Red Pepper (**Lunch, Dinner**)
- Onions (**Lunch, Dinner**)
- Garlic (**Lunch, Dinner**)
- Tomatoes (**Lunch, Dinner**)
- Zucchini (**Lunch, Dinner**)
- Fruit (if acceptable on diet): bananas, apples, grapefruit, peaches, strawberries, blueberries, raspberries (**Breakfast, Lunch, Dinner**)
- Lemons or Limes (**Lunch, Dinner**)
- Fresh juices (orange, pineapple, grapefruit, apple) (**Breakfast, Lunch, Dinner**)

- Fresh fruit (oranges, apples, bananas, grapes) (**Breakfast, Lunch, Dinner**)
- Tomato and V-8 juices (**Breakfast, Lunch, Dinner**)
- Frozen vegetables (corn, peas) (**Lunch, Dinner**)
- Avocado

Healthy Fats/Oils

- Natural Style Peanut Butter (**Breakfast, Lunch, Dinner**)
- Olive Oil, Safflower Oil, Canola Oil, Virgin olive oil (**Lunch, Dinner**)
- Nuts (peanuts, almonds) (**Snack, Lunch, Dinner**)
- Flaxseed Oil (**Lunch, Dinner**)
- Omega-3 (from fish) (**Lunch, Dinner**)

Dairy/Eggs

- Low-fat cottage cheese (**Breakfast, Lunch, Snack**)
- Eggs/Egg Substitutes (**Breakfast, Lunch**)
- Low or Non-Fat Milk (**Breakfast, Lunch, Dinner**)
- Smart Balance (Margarine) (**Breakfast, Lunch, Dinner**)
- Non-fat yogurts (plain, vanilla, lemon or other favorite flavors) (**Breakfast, Lunch, Snack**)
- Non-fat cheeses (cream, cheddar, mozzarella, pepper jack) (**Breakfast, Lunch, Dinner**)

Beverages- (see hydration handouts for proper guidelines)

- Water
- Gatorade or PowerAde
- Crystal Light or Propel (can be the packets to add to water bottles).

Condiments and Misc

- Fat Free Mayonnaise
- Ketchup
- Reduced Sodium Teriyaki Sauce
- Salsa (mild, medium and/or hot)
- Mrs. Dash
- Steak Sauce
- Sugar Free Maple Syrup
- Chili Paste
- Mustard
- Extracts (almond, vanilla, etc)
- Low Sodium beef or chicken broth
- Plain or reduced sodium tomatoes sauce, puree, paste
- Non-fat salad dressings (Italian, French, Ranch or other favorites)
- Spices (garlic and basil in oil, oregano, black pepper, Italian seasoning, thyme)

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