Marathon to Ultra-Marathon

What is an Ultra-Marathon

Marathons are the “ultimate” running goal for many runners. But, there is a small group of runners for whom the marathon is not long enough, not enough of a challenge. They feel the need to go longer, sometimes a lot longer!

These are different runners. Not your average 10 Km weekend racer. Although they can be fiercely competitive, the camaraderie of an Ultra-Marathon is legendary. The support for fellow runners during an ultra extends from encouragement to sharing nutrition and conversation.

The number of entrants in an Ultra-Marathon is significantly smaller than in a typical marathon. Ultra-Marathoners know one another from the races (and training) that they’ve done. Conversation flows during the race and people are honestly concerned about how you’re feeling and how you do.

A marathon is 26 miles 385 yards long. An Ultra-Marathon anything longer than that. Typically, 50 Km (31.1 miles), 50 miles, 100 Km, and 100 miles. There are other distances, but these are the most popular. There are also timed events: 12 hours, 24 hours, 48 hours, and Multi-day races. Some are run on roads, some on trails and some (mainly timed events) on a track.

Why do an Ultra-Marathon?

For some of us it’s the challenge of going longer. For others it’s the challenge of discovering personal limits. And for others they need to move on from the marathon to smaller and more challenging events. Whatever the reason, the challenge presented by an Ultra-Marathon is a big one and a personal one. There are probably as many reasons as there are Ultra-Marathoners.

What ever your reason for doing an Ultra-Marathon you are certain to discover two things about your self – your level of commitment to running and you personal limits, both physical and mental. Oh, you can discover your commitment and physical limits training for a 10 Km or a marathon. But, if you truly want to find out how mentally tough you are, enter, train for and complete and Ultra-Marathon.

How to Train for an Ultra-Marathon

Just about anyone can finish a marathon. Finishing an Ultra-Marathon isn’t as certain. Besides the planning, training and commitment, you must be physically and mentally strong enough to complete both the training and the race itself. Then there’s the nutrition and fueling you’ll need during the multiple hours of running. Simple energy gels and electrolyte replacement drinks aren’t enough when you’re running for 5 to 24 or more hours.

So, how do you need to train to complete an Ultra-Marathon? First, you need to set a goal – select an Ultra-Marathon and decide on your goal. That may be just finishing the distance, or you may decide to complete the distance within a certain time, or you may decide to truly race the distance and attempt to place in the top finishers.

Unless you are very experienced marathoner, your goal should be just to finish. There are many Ultra-Marathoners that have completed many Ultras and still do them just to complete them. And yes, there are Ultra-Marathoners that enter to race and win the event.

Before you start, you need to have at least three years of running experience. That means you have been running and training consistently for three years. You should also have completed at least three marathons. The time of your marathons is not important.
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Next, select a race as your goal race. Give yourself about a year to prepare. If you’ve been running marathons regularly, you can prepare in less time - say six months. But, it’s always better to allow more time. This will allow setbacks – for injury, work, family and weather. These are normal things that people usually don’t factor into their training.

Generally, training for an Ultra-Marathon is similar to marathon training, plus - increased distance. Both the weekly mileage and the distance of your long run.

There are five physiological phases to training – Base Building, Strength Building, Speed Building, Taper/Race and Recovery. From your race date, work backwards – two to three weeks for taper prior to your race. Speed Building is 6 to 8 weeks. But, if you’re attempting your first ultra, are doing an ultra just to finish and not for time or place, this phase can be eliminated. If you do skip this phase add half the time to the Base Building and half to the Strength building phases. The strength building phase is 8 weeks.

To plan your training program, start with the date of your goal race and work backwards. Count backwards for each of the phases of training. Make the Base Building Phase as long as you can.

**Base Building Phase**

Base Building is when you develop cardio and pulmonary function. This phase focuses on improving your ability to transport oxygen. The workouts during this phase are characterized by increasing distance. The important goal is to increase the amount of time you are running. Increase your weekly mileage and increase the distance of your long run. This phase should be the longest of your training. It should last at least 12 weeks and possibly up to 16 weeks.

This phase is all about building Aerobic Fitness. Your weekly mileage and the length of your long run should be increased gradually. Run the same weekly mileage for at least two weeks before increasing your mileage. Only advanced runners should do a long run every week. All others should do one long run every two or three weeks.

You should not race during the **Base Building Phase**. If you choose to race, your effort should not exceed 85% maximum heart rate. You should not have to take time off, either before or after a race during the **Base Building Phase**.

Work in four week cycles. Week one is your “base” week. Week two your increase your weekly mileage by about 10%. Week three you increase the distance of your long run, but keep the total weekly mileage the same as week two. Week four is your recovery week - return to “base” week mileage.

<table>
<thead>
<tr>
<th>#</th>
<th>Week</th>
<th>Weekly Mileage</th>
<th>Long Run</th>
<th>Hills</th>
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<td>Base</td>
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<tr>
<td>6</td>
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<td>7</td>
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<tr>
<td>8</td>
<td>Recovery</td>
<td>45 miles</td>
<td>12 miles</td>
<td>1 session</td>
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<td>16</td>
<td>Recovery</td>
<td>50 miles</td>
<td>15 miles</td>
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</table>

This plan gives you 4 long runs, from 20 miles to 30 miles in a 16 week period. This will prepare you to finish your first ultra-marathon.

If you are experienced as a marathoner, you may increase that number by adding a long run on your “Mileage” week - increase the long run that week to the same distance as your “Long” week.

Very experienced runners may also add a back-to-back long weekend. Run a long run on Saturday and another long run on Sunday. This should only be attempted by the most experienced marathon runners.

Goals of the **Base Building Phase**:
- Build cardiovascular and muscular endurance.
- Increase Aerobic Fitness
- Increase weekly mileage
- Increase length of long run
- Improve VO₂max.

**Strength Building Phase**

The Strength Building Phase is when you build muscle strength. You increase the number of muscle fibers in your leg muscles, you increase the mitochondria and the enzymes needed to breakdown lactates during exercise. This phase focuses on your ability to produce energy. It also raises your lactate threshold. Workouts during this phase are characterized by hills – hill running and hill drills. The goal is to get stronger. This phase should last about 8 weeks.

If your goal race is a very hilly course, you may want to increase the number of weeks in this phase to 12. If you are an experienced runner (If you have been running for over 3 years without injury or you have completed 3 marathons, you can start doing hills (strength building) in second half of Base Phase), you should include hill workouts during the Base Building Phase. Do one Hill workout per week after the first 2 weeks of the Base Building Phase. You can do up to 2 Hill workouts per week during the Base Building Phase, but you should not do a second Hill workout if you are running a race that weekend.

I had the opportunity to meet with Arthur Lydiard in 1979. We talked about training and he emphasized the importance of **Hill Training**. Lydiard had all his athletes, from marathoners like Barry Magee, 5,000 meter runner Murray Halberg, to 800 meter runners like Peter Snell, run hills during both the **Base Building** and **Strength Building** phases of their training.
This phase is all about building strength. Your weekly mileage should not increase during this phase and the length of your long run should remain constant through the Strength Building Phase. You should increase the number of Hill workouts you do each week and you should increase the number of hill repeats you do each session. As in the Base Building Phase, increase the number of repeats in your Hill workouts one week. Remain at that level for a second week. Then increase the number of Hill workouts you do for the week. Do not do more than 3 Hill workouts per week and do not do more than 12 hill repeats per workout.

You can race during the Strength Building Phase. If you choose to race, reduce the number of Hill Workouts by one for the week you race. You should not have to take time off, either before or after a race during the Strength Building Phase.

Lactate Threshold Workouts -

Hill Training is an excellent form of a Lactate Threshold (LT) workout. The LT workout a critical workout of the week. The purpose of this workout is to build leg muscles, develop extra capillaries and improve the energy production system in your muscles. It is designed to raise your heart rate up to 95% for at least 2 minutes at a time. Allow your heart rate to drop down between these hard efforts. Start with four – two minute hard efforts and increase that number each week. Running hills is the best way to raise your heart rate. Don’t worry about speed during these hard efforts.

Hill Training -

Hill Training workouts are excellent LT workouts. In addition, they are not as hard on your body (specifically your legs) since running up hill is not as jarring. Research has shown that periods of near maximum Heart Rate effort for two to six minutes produce the optimal gains and that Hill Training produces significant gains in four key measures

- Improved Running Economy.
- Increased VO2max.
- Improved vVO2max (running speed at VO2max).
- Increased Lactate Threshold (the ability of muscles to clear lactate from the blood).

There are two parts to Hill Training: Hill Running and Hill Drills.

Hill Running -

Find a hill that is reasonably steep - around 6% grade is fine. It should take you at least two minutes to run up the hill. You should focus on your body position going up the hill and going down the hill. On the way up: shorten your stride slightly, increase your knee lift and arm action and run up on you toes - getting a good push from your hips, knees and especially your ankles and toes. On the way down the hill: lengthen your stride slightly by increasing your follow through (high foot in the back of your stride), drop your hands so they are near your hips/waist, lean down the hill, focus on landing on the mid-foot or forefoot, not on you heel (which will cause a braking action and tremendously increase the impact as you run down the hill).

Run the hill emphasizing lift off the ground. It is not as important to run fast up the hills as it is to run with good form and a powerful stride. Your heart rate should be at or near maximum when you reach the top of the hill.

After running up the hill, turn around and run down the hill. This is your recovery period, so run relaxed and allow your legs to stretch out. Allow gravity to carry you down the hill, do not accelerate when running down the hill, and remember this is your recovery.

Hill Drills -
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These are Lydiard Hill Drills. All are done at a slow pace. The goal is to get lift off the ground and not to move forward at a rapid pace. Your progress up the hill should be slow. It should take up to six minutes to reach the top of the hill. All drills are to be SLOWLY!

**Bounding** - elongate your stride and emphasize arm action. Focus on getting off the ground. This is like jumping over puddles with a long stride.

**Skipping** - skip slowly up the hill, emphasizing knee lift and arm action. Focus on getting high off the ground.

**Springing** - emphasize knee lift and getting high up off the ground. Do not emphasize forward movement. This is like jumping over logs.

The Strength Building Phase should last for at least 6 weeks and no more than 12 weeks. For Example:

<table>
<thead>
<tr>
<th>Week</th>
<th>Hills</th>
<th># Repeats</th>
<th>Long Run</th>
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<td>1</td>
<td>2 Sessions</td>
<td>8</td>
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</tr>
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<tr>
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<td>1 Session</td>
<td>10</td>
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</tr>
</tbody>
</table>

Goals of the **Strength Building Phase**:
- Build muscular strength.
- Increase capillary beds.
- Build mitochondria.
- Improve Lactate enzyme response.
- Raise Lactate Threshold.
- Maintain Aerobic Fitness.
- Maintain and increase VO₂max.
- Maintain cardiovascular and muscular endurance.
- Maintain base mileage and distance of long workouts.

**Speed Building Phase**
Only experienced ultra-marathoners should attempt a Speed Building Phase. Even experienced ultra-marathoners that are not attempting to “race” an ultra-marathon, including those that are looking to improve their time, would do well to skip the Speed Building Phase.

If you do use this phase, maintain your long runs, reduce your weekly mileage slightly and add time trials and races as speed work. Conventional speed work is inappropriate for ultra-marathoners. Instead, on weeks you do not do a long run, run a race – 10 Km or longer – or do a time trial – again 10 km or longer. Your longest race or time trial, will depend on two factors. First, your ability do a race at less than maximum effort. If you are capable of doing a race at 85% to 90% maximum effort, they will help you. If you do them at a greater effort they will hurt you, by limiting your ability to train after the race. The second factor is your ability to recover after a hard effort. If you need to take two or three days off (or easy) after a race, do NOT race. You will loose too much training time and jeopardize your goal race. (See Nutrition and Fueling below for advice of speeding up recovery from hard efforts.)

**Keys**

The key to successfully preparing for your first ultra-marathon are:

- **Long runs** - time on your feet – you need to adapt to spending long periods of time on your feet and moving forward. Longer runs – over 4 hours can be broken up with walking breaks. In fact, learning to walk and then start running again is a key to success in Ultra-Marathons.

- **Hills, Hills, Hills** - whether your goal race is hilly or not, the more hills you do in training the stronger you will be and the better prepared for your goal race.

- **Middle Distance Workout** - the weekend run on weeks you do not do a long run (Distance weeks) is also key. If you keep this run around 15 miles, you will get an excellent workout and will recovery quickly from it. This distance can be done as a tempo run.

- **The speed you train at will be the speed you will race at** - don’t let your long runs drag on for hours. Keep your pace up. LSD does not stand for Long Slow Distance! It really stands for Long Steady Distance. So, when doing your long runs, do not let your pace slow down to a shuffle.

**Nutrition, Fueling and Recovery**

The following information is based on the best data I could locate, advice from experts and my personal experience. Everything I suggest here is recommended by scientific research and experts. I’ve also tried and use everything I recommend here.

A few cautions – don’t try ANYTHING new in a race! Try these suggestions and find the combination that works best for you. Finally, hydration and electrolyte balance are CRITICAL issues. Don’t neglect either.

**Pre Workout - Race Nutrition**

There are two parts of Pre Workout - Race nutrition. The first is the two weeks prior to a race and the second is the morning of the race.

**Two weeks prior:**

- Avoid caffeine, diet sodas and alcohol.
- Electrolytes – don’t let it fall below normal.
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- Increase fluid intake. Be sure that urine is a light yellow.
- Slightly increase Carbohydrates - just don’t let it drop off. Maintain a 60% carbohydrate - 40% protein ratio. There is no need for a depletion - loading cycle.
- Protein – again, keep it at your normal levels, 40%.
- Don’t do anything new.
- Be well rested. Getting a good nights sleep two nights before the race is more important that the night before the race.

Morning of the race:
- Have your last meal 3 hours prior to the start. 75 – 100 grams of carbohydrates (complex carbohydrates / maltodextrins).
- Fat is a key fuel source, but high levels of insulin inhibit your body use of it. The presence of simple sugars inhibits your body’s use of fat as a fuel source.
- Drink 10 – 12 ounces of fluid each hour for 2-3 hours before your race, up to 30 minutes prior to the start.

Race / Workout Fueling & Nutrition
- 15 minutes after you start – begin fueling. This is so that your blood sugar and insulin levels have adjusted to your exercise.
- Fluids – start taking fluids, keep up the intake throughout the race. Your body can absorb no more than 28 ounces per hour. Remember it is critical to supplement with electrolytes to avoid hyponatremia.
- Your body can only take up a maximum of 240 – 280 carbohydrate calories an hour into the energy cycle!
- Carbohydrates - complex sugars, Maltodextrin (18-24% solution), are preferred because more calories pass into the blood faster than simple sugars (6-8% solution). Studies have shown that simple sugars result in blood sugar levels below even fasting levels!
- Protein – for events longer than 1 hour (2 hours and up) supplement with protein along with carbohydrates. Use a 1:4 ratio (Protein : Carbohydrates) to increase energy levels and decrease muscle breakdown.
- Electrolytes – keep supplementing, especially during hot and/or humid weather. You should use a buffered electrolyte supplement containing sodium, potassium and magnesium. You will loose 1 to 3 liters of fluid per hour with 1,200 mg of sodium per liter of sweat per hour!

Post Workout - Race Nutrition - Chocolate Milk!
- Fluids - replenish!
- Protein – within 30 minutes of finishing consume 10-20 grams of protein.
- Carbohydrates – within 30 minutes of finishing consume 250-350 calories of carbohydrates (or more). Research has shown there is a 2 hour window during which your body will absorb the protein and carbohydrates lost during exercise. The first 30 minutes of this window are the most critical. You body will absorb 100% of the carbohydrates and proteins it needs during the first 30 minutes. The level of absorption decreases as the 2 hour window progresses.

The Cold Shower
Take a cold shower - from your hips down - after every hard workout, long run or race. This will reduce intra-muscular fluids and swelling and closes down capillaries. This reduces post exercise soreness and eliminates Delayed Onset Muscle Soreness.