HOW TO RUN A SUB 3 HOUR MARATHON, BOSTON QUALIFIER OR MARATHON PR

EXTRAMILEST
BY FLORIS GIERMAN
# TABLE OF CONTENT

**Introduction** 1

**Part 1: Training the Right Way**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Different Approaches to Marathon Training</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Heart Rate Monitor Training and MAF</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Speedwork, Long Runs &amp; Strength Training</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>Create Your Personalized Training Schedule</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>Training your mind</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>The Most Important Part of Your Training</td>
<td>18</td>
</tr>
</tbody>
</table>

**Part 2: Nutrition**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Nutrition in Training</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>Nutrition in Racing</td>
<td>21</td>
</tr>
</tbody>
</table>

**Part 3: Race Strategies**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Pre-Race Strategy</td>
<td>23</td>
</tr>
<tr>
<td>10</td>
<td>Race Strategy</td>
<td>24</td>
</tr>
<tr>
<td>11</td>
<td>Post-Race Strategy</td>
<td>28</td>
</tr>
</tbody>
</table>

**Part 4: Next Steps to Get Started**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Let’s Do This!</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Closing Thoughts</td>
<td>31</td>
</tr>
</tbody>
</table>
Many athletes want to run a fast marathon, but they do not know how to accomplish this. Several questions come up, like:

- What weekly mileage should you run in training?
- How do you increase your mileage each week?
- What pace should you run each of your runs at?
- How do you avoid hitting the wall around mile 18–22 (29km-35km)?
- What should you eat and drink during your training and on race day?
- How to avoid or deal with running injuries?
- How to use heart rate monitor training the right way?

10 years ago I ran my first marathon and bonked very hard around mile 20, it was a miserable experience. Looking back, several things went wrong: I had no clear strategy on how to train or race, I just went out and ran as far as possible, often resulting in feeling tired and low on energy.

Several years later, I trained much smarter for my next marathon, this time with a clear strategy for weekly mileage / running time, specific set days in the week to train, heart rate monitor training, improvements in nutrition and much more. My confidence as a runner grew over the following months and my next marathon was a 2:55 time, a personal best by 76 minutes! Eventually I ran a personal best of 2:44 at the Boston Marathon.

Over the years I’ve ran many sub 3 Hour Marathons and I’m excited to share my experiences. Running a Sub 3 or Boston Qualifier (BQ) takes a lot of hard work and requires sacrifices in several areas of your life. Not everyone is capable to reach this goal and many runners are not willing to sacrifice the time and effort it takes to get there. That being said, I strongly believe that with the right framework and strategic approach, many more runners are able to go the extra mile and reach their marathon running goals.

Are you ready?! Let’s dive right in!!
PART 1

TRAINING THE RIGHT WAY
Chapter 1: Different Approaches to Marathon Training

There are many different training methods to prepare you to race a marathon. Each training approach and plan has unique aspects, differentiating between the length of the plan, starting mileage based on runner’s experience, weekly mileage, fitness, ramp up, rest, days/week, longest run, intensity, etc.

For advanced runners aiming to run a marathon PR, qualify for the Boston Marathon or run a Sub 3 Hour Marathon, there are several training programs, such as Jack Daniels Plan A, Pfitzinger 55-70, 70-85, >85, Galloway Goal Sub 2:59, Higdon Advanced or Hanson Advanced.

Details for these different training programs:

Duration
The number of weeks from start to race day is typically between 18-26 weeks. Some plans start from a low fitness level, while others require a higher level of fitness.

Min/max days per week
The least amount of runs per week is 3, while some programs require 6 to 7 running days per week.

Speed work
This is the number of days that the plan prescribes speed work such as intervals or tempo runs. These are runs performed at a higher heart rate. All plans except for Galloway require 1 to 2 x speed work per week plus several programs also include some type of speed work as part of the long run.

Set Training Paces
The Jack Daniels is the only plan in this list that defines training paces based on your current fitness level, the other plans have set paces, often based on your goal race pace rather than your proven fitness. For the long runs in these plans, the training pace is specified as the number of seconds per mile slower than marathon pace or as a percentage. For example MP+10% for a 6:50 min/mile marathon should be 7:31 min/mile pace.
**Why these plans do not work for some athletes**

Every athlete is different, some have more muscles or body fat than others, some are very fit with a solid aerobic base and others lack current fitness. When a training plan tells you to train at a certain pace, for example 7:30 min/miles, but your fitness level is at 9 or 10 min/miles, you’re training at a heart rate that’s higher than your current fitness and you’re adding a significant amount of stress on your body. 9 out of 10 people I get in contact with train too often at a Heart Rate that’s too high for them; this increases cortisol stress hormone levels, slows down aerobic development and increases risk of injuries.

**You don’t need speed work to become a faster runner**

That’s right, I just said that. You can progress for many months by only running aerobic miles, so running only at a low heart rate. Most of the training plans schedule speed workouts, such as intervals or tempo runs, in week 1 of a training cycle. There is a time and place for some speed work, however you don’t need to start with 1 or 2 speed sessions per week until several months into your training cycle and you have developed a solid aerobic base.

**How I’ve improved from a 4:11 Marathon to 2:44 Marathon**

When I trained for my first marathon, I trained all of my runs at a pace that was too fast for my fitness level, so my heart rate was too high and my energy came mostly from burning glycogen and not enough from burning my body fat. At my first marathon around mile 20, I hit the wall and thought I was going to die, I walked for 3 miles and finished in 4 hours 11 minutes. It was a miserable experience.

In 2013 I came across Dr. Phil Maffetone’s work and this kick-started an entire different approach to training for me, which resulted in my first of many Sub 3 Hour Marathons. Dr. Phil Maffetone is a researcher, educator, clinician and author in the fields of nutrition, exercise and sports medicine. He created a non-traditional approach to training called the “Maximum Aerobic Function Methodology” (MAF). His “individualized” approach has been refined over 30 years by training and treating athletes from beginners to world champions. He recommends building a strong aerobic base for increased fat burning, sustained energy, and a healthy immune system. Good nutrition and stress reduction are also key to his approach.
Chapter 2: Heart Rate Monitor Training

The training approach that I recommend is highly influenced by elements from Dr. Phil Maffetone and his MAF training approach. I strongly believe all endurance athletes should start training with a GPS running watch with heart rate monitor. The 180 Formula created by Dr. Phil Maffetone calculates your ideal individual aerobic training Heart Rates: (see page 8 for detailed MAF calculation + page 30 for Heart Rate Monitor recommendations).

This MAF training zone is your optimal training intensity that burns mostly fat for fuel. Training at this MAF HR frequently develops your aerobic system, it improves your fat burning abilities so it teaches your body to use more energy from body fat and you improve your endurance performance.

When I first started training with the MAF Method, almost all my runs in the first three months were at a low Heart Rate. With my improved fat burning abilities I lost some weight without trying. Heart Rate Monitors are a great biofeedback device that help limit your body’s wear, tear and chances of injuries.

First experience with Heart Rate Monitor Training
“I have to run so slow, it’s frustrating”

This is a frequent response from runners first starting out with Heart Rate Training using the 180 Formula. I experienced the exact same thing: patience and trusting this approach is absolutely key here! This relative slow pace is temporarily so you’ll not be stuck here for long. There are thousands of runners who have ran PR’s by slowing down in training to eventually become a faster runner.

When I started with MAF training, my maximum aerobic heart rate was 150, so I’d train in the heart rate zone 140 to 150 beats per minute. To run at this 140 to 150 HR, I had to slow down significantly to 8:30 min/miles on the road, and often a pace of 10 to 11 min/miles on trails with slight hills. This pace felt much slower than I was used to but I wanted to build a solid aerobic base. After 2 months of slowing down the pace on all my runs, I ran 7:30 min/mile at 150HR during my MAF test. Each month this aerobic pace continued to improve at the same heart rate and before my next marathon 5 months later this was sub 7:00 min/mile.
A heart rate monitor takes the guesswork out of training and can help increase your aerobic speed significantly.

Over time it can help make you a much faster endurance athlete!
Some athletes improve aerobically faster than others. This is not only based on your training volume. There are many factors involved here, your background in running (beginner or advanced), your nutrition, stress levels at work and in your personal life, amount and types of cross training, amount of rest, recovery and sleep, etc.

**Adding in some speedwork**

After 3 months of only low HR runs, I added one anaerobic speed work out per week. The month prior to my marathon, I increased this to two anaerobic speed workouts a week. On race day I felt confident because I was running borderline aerobic, just slightly anaerobic. So I could mostly burn my unlimited supply of body fat vs burning stored glycogen with higher potential of bonking. That day I finished my first Sub 3 Hour Marathon in 2:55:05, a PR by more than 76 minutes.

For the Boston Marathon, I used this MAF method again, by training mostly at a lower heart rate (94% of my total running time at 138-148 bpm or sometimes lower). Occasionally I added intervals or speed-work at higher heart rate (6% total running time). My MAF pace dropped to 6:12 min/miles and I finished in 2:44:15, a PR by more than 11 minutes. More about this specific race training can be found here.

Most marathon runners make the mistake that they train too often at a HR that’s too high for them. Slowing down your pace to your current fitness level will make you a better fat burner, decreases cortisol levels, improves your running form, increases energy levels during and after runs, reduces injury risks and makes you a much happier runner! Once the foundational aerobic base is in place, some speedwork and intervals at higher heart rate can be added to your training program.
Calculating Your MAF Training Pace
Dr. Phil Maffetone developed the 180 Formula so athletes can find their ideal individual aerobic training heart rates. Here is the calculation:
1. Take 180 and subtract your age.
2. Update this number with the best match of your fitness and health profile:
   a. For those recovering from a major illness, surgery or hospital stay, or are on regular medication, subtract an additional 10.
   b. For those who have been inconsistent in your training or are just getting back into training, or if you’re injured, have regressed in training and racing, if you get more than two colds or flus per year, have allergies or asthma, subtract an additional 5.
   c. For those who have been training consistently (at least four times weekly) for up to two years without any of the problems in (a) and (b), keep the number (180–age) the same.
   d. For those who have been training for more than two years without any of the problems in (a) and (b), and have made progress in competition without injury, add 5.

For example, I’m currently 34 years old and fit into category (c), this shows 180-34=146 beats per minute, without further adjustments. My current aerobic training zone is between my max aerobic function and 10 beats below it, so 136 to 146 bpm, the closer to 146 bpm my training, the faster the aerobic progress will be. Training above this heart rate quickly shifts your body to burn more sugar and less fat for fuel.

A more detailed explanation with great FAQ in the comments can be found at Dr. Phil Maffetone’s website here.

MAF Test to Measure Your Aerobic Progress
To get an understanding of the endurance progress you’re going to be making, it’s important to measure your current aerobic fitness base; this can be used as a baseline. Dr. Phil Maffetone developed a MAF test to measure your aerobic progress. I recommend doing this test each month early in the morning, when temperatures are lower with generally less wind. Taking a MAF test on a track vs on road minimized variable outcomes due to wind and hills. If a track is not available, find a flat looped course.

Warm up for 15 to 20 minutes and slowly increase your pace towards your MAF pace. Once warmed up, run 5 miles at Max Aerobic HR as calculated with the 180 Formula. On your watch you can set mile laps, so after each mile you can see your exact splits. After your test, cool down for 10-15 minutes by jogging slowly.
My first MAF test on May 27th, 2013 at 150HR
mile 1 = 8:04
mile 2 = 8:09
mile 3 = 8:17
mile 4 = 8:30
mile 5 = 8:47
average MAF pace = 8:25
total MAF time = 41 minutes and 47 seconds

My second MAF test on June 27, 2013 at 150HR
mile 1 = 7:37
mile 2 = 7:44
mile 3 = 7:46
mile 4 = 7:46
mile 5 = 7:42
average MAF pace = 7:43
total MAF time = 38 minutes and 45 seconds

The first month it took me 41:47 to run 5 miles at 150HR, after 1 month this same
distance at the same HR took me 38 minutes and 45 seconds. That is 3 minutes and
2 seconds faster with essentially the same amount of perceived effort.

Tips for MAF Test
• Set your HR alarm at your MAF pace, this way you don’t have to constantly look at
your watch.
• When your alarm goes off, slow down your pace slightly so your HR drops 3-5
beats, then slightly increase your pace again.
• Don’t run with music since this could increase your HR and interfere with reliable
test data.
• Try to run relaxed, get into your zone of a consistent pace and listen to your breathing.

Many athletes with fast marathon times in the 3 to 4 hour range have a much slower
initial MAF pace than what they expect this to be. Don’t be surprised if you have to
slow down to 10, 12 or 14 min/mile pace, many runners starting out with MAF train-
ing have to take short walk breaks to let their HR go down to stay aerobic.
When you have to run much slower than you’re used to, leave your ego at the door. Your running friends and Strava friends might not understand your slow pace at first. Patience is key, stick to aerobic training for a few months and you should see improvements in your running pace at the same HR to become a faster runner.

There are a lot of elements that influence your HR, don’t get discouraged if you’re not making the progress you’re hoping for. This is a long-term approach to becoming a faster, healthier, injury free runner.

**Why I strongly believe this is the best approach to train**

- it is an individualize program focused on your current fitness level, not on a marathon pace of 6:51 min/miles. Using training paces based on your target goal time could depend too much on your anaerobic system resulting in higher cortisol stress hormones. Therefore you’re more likely to over-train or become injured, so it reduces the effectiveness of your training.
- by slowing down, you finish your runs feeling great with energy left in your tank, not tired or sore.
- your energy levels are more consistent throughout the day
- this approach teaches you to properly listen to your body. For most marathon training programs, there is no obvious way of adjusting the training paces for hilly terrain, wind, hot or cold temperatures, altitude, trail vs road, etc.
- if you experience a cold or recent flu, you can easily update your MAF training Heart Rate by deducting 5 beats per minute, vs sticking to a set training pace
- many athletes want results in a short period of time and ignore the long term bigger picture. High intensity training works in the short term, but over the long term the best results are achieved by specifically targeting the aerobic system with an appropriate amount of anaerobic work to keep balanced.
Chapter 3: Speed Work, Long Runs & Strength Training

Speed Work
After several months of aerobic base training, you might notice from your MAF test that your aerobic progress starts to slow down or flatten out. First find out if this regress is caused by an upcoming illness, cold, added stress, poor sleep, or poor nutrition. If that is not the case, you can add some speedwork to your training schedule.

Initially you can add 15 to 30 minutes of intervals, once a week, 3 to 4 weeks in a row. I enjoy 8 sessions of 800 meters or 4 to 6 sessions of 1600 meters on the track around 6 min/mile pace or on a slight hilly course (slower pace), with 2 minutes rest in between. My aim is to increase the pace slightly every session, ending the last one as the fastest session.

After 3 to 4 weeks of intervals, I’ll re-evaluate how my body feels. Typically I go back to aerobic runs only for several weeks, before doing more intervals. Even when I trained for my Boston Marathon in 2:44, only 6% of my running time was anaerobic. You really don’t need much speedwork to become a faster runner over an extended period of time.
If your body feels strong, you can add a second interval session per week, however use caution with this and listen well to the signals of your body.

The Ideal Long Marathon Training Run
A marathon race doesn’t start until mile 20, the first 20 miles is just a warm up. So how do you simulate a race experience, without having to race an entire 26.2 miles? My ideal 20 mile long training run starts with the first 75% at MAF pace, the last 25% at 15 seconds faster than Marathon Pace. For example, you run the first 15 miles aerobic at whatever pace this is for you, (for example 8:00 min/mile) then the last 5 miles at MP minus 15 seconds, so for a Sub 3 Hour Marathon this is 6:51 min/miles - 15 = 6:36 min/miles. You can decide to increase the pace a bit more gradual, so mile 1 to 12 = aerobic, mile 13 @ 7:30, mile 14 @ 7:10, mile 15 @ 6:50, mile 16 to 20 @ 6:36 min/mile.

This training run simulates the need for you to hold back at the beginning of a race when you feel strong, to finish strong with energy left in your tank to run faster than Marathon Pace. Do 3 or 4 of these long runs before your race day, and you’ll become more confident and a much stronger runner, physically and mentally.
Strength Training
There are many ways to build muscle strength outside of regular runs. Going overboard with Strength Training could negatively impact your training progress by adding extra stress on your body.

Running and hiking up steep hills and stairs are great ways to build up strength. This is done at a low heart rate and helps build different types of muscles.

Kettlebell swings are a great full body workout. In my office, next to my desk, I have a 45 lb kettlebell. Several times during the day I walk by and do 8 quick double handed swings, only takes about 20 seconds. I’m not a gym type of guy, but doing daily kettlebell swings has made a noticeable difference.

Standing desks are another great way to build strength in your entire body, in particular your legs and back. I currently stand behind my desk for 4 to 10 hours a day and this has helped significantly to become a stronger athlete.

If you have limited time available to train, focus mostly on increasing your running volume and add some strength training. I’ve ran several sub 3 hour marathons with zero strength training other than stairs or hills.
Chapter 4: Create Your Personalized Training Schedule

Every athlete has different life circumstances, whether you work full time, go to school, have a boy friend, girl friend, kids, etc, a training schedule only works if it fits within your other priorities. I do not believe a set training schedule of 18 to 26 weeks work for most athletes. Listening fully to your body and adjusting your training accordingly is key.

The MAF low heart rate approach by Dr. Phil Maffetone does not come with any training programs. Below are the fundamentals to create your own personalized training schedule from beginner to advanced runner:

- Buy a running watch with Heart Rate Monitor and HRM alarm (page 30).
- Calculate your Max Aerobic Function (MAF) using the 180 Formula as described on page 8. This is the heart rate at which you burn your optimal amount of body fat.
- Run a MAF test (page 8) and see what your base line is, to start measuring progress.
- For the next 3 to 6 months run all your runs in the zone of Max Aerobic Function (MAF) and MAF minus 10. The closer to your Max Aerobic HR you run, the faster you will improve. During this aerobic base building period you teach your body how to properly burn body fat for energy.
- During these 3 to 6 months you do not do any speedwork, so no intervals or tempo runs, to minimize the amount of stress on your body and limit risk of injuries.
- If you feel like running fast, slowly jog up a steep hill and run down aerobically. Or do some short 10 second sprints downhill to keep HR low.
- Every month you do a MAF test to determine your aerobic progress.
- After at least 3 months of aerobic only runs, once you notice a slow down or regression in your aerobic progress, and this is not caused by a cold, upcoming sickness or injury, then you can add some minimal speed work: 15 to 30 minutes in total, 1 to 2 times a week for 3 to 4 weeks in total.
- After 3 to 4 weeks of speed work, you go back to aerobic runs only for the next few months, until you notice your aerobic progress slowing down again.
- After the first 3 to 6 months base building period, it is ok to run some shorter races, or some miles at marathon pace, but keep it to a minimum. No more than 2 high HR runs a week.
- Other fundamentals from his program are focused on good nutrition (page 20) and stress reduction to maximize your athletic potential.
- By training this way, some runners will be in marathon PR shape in only 4-6 months, while other runners may need 12-24 months or more to improve their aerobic pace and be ready for a marathon PR, Boston Qualifier or Sub 3 Hour Marathon.
Remember it’s a marathon, not a sprint. Many people have a hard time slowing down their training pace significantly and being patient for several months.

Once you start seeing aerobic progress by becoming faster at the same Heart Rate, you know you’re on the right track. Patience is absolutely key here.
**Additional Fundamentals I use to create training schedules**

- My training volume increases only with 10% per week maximum.
- Every 4th week is a step back week with 30-40% less training volume.
- To train for a marathon PR, Boston Qualifier or Sub 3 Hour Marathon, I recommend training at least 4, 5 or 6 times a week.
- Training volume depends on your available time to train. For a BQ or Sub 3 Hour Marathon, aim to peak at 50 to 60 miles a week, depending on your aerobic pace and what your body is able to handle. For some athletes this is 50 miles/week, for others this could be much higher at 100+ miles a week.
- I prefer running more runs a week at shorter distance, than less days with longer distance runs.
- My long training runs are typically not longer than 2 to 2.5 hours. The benefits beyond this time become minimal and injury chances increase. If you’d like to run much longer, split it up in 2 runs, morning and night, or night and next morning.
- A training schedule with set days and times, helps keeps you accountable. It’s like you’re making an appointment with yourself vs having other priorities come first.
- Listen to the signals of your body. If you’re very tired and unmotivated to run, find out why. If needed, take a rest day.
- Keep track of your runs to see your progress. Apps like Strava are great free tools.
- Pick your training days and rest day(s) wisely. For example, I currently have very limited time to train while working full time, raising 2 young kids with my wife and creating content for my running site [www.extramilest.com](http://www.extramilest.com).

My current training plan to run a Sub 3 Hour marathon in 5 months from now is about 35 to 53 miles per week, first 3 months pretty much all aerobic:

- Monday: rest day
- Tuesday @ noon: 45 minute run during lunch break
- Wednesday @ 6pm: Run commute home, about 13 to 15 miles
- Thursday @ noon: 45 minute run during lunch break
- Friday: rest day
- Saturday @5:30am: MAF test on the track, 8 miles with warm up and cool down
- Sunday @5:30am: potential long run, 4 to 20 miles, depending of training cycle

All my training runs and races can be found on [my Strava account](https://www.strava.com).

Based on these fundamentals and guidelines, I recommend you create your own personalized training schedule.
Chapter 5: Training your Mind

“When something doesn’t go how you want it to go, change it. If you can’t change it, change your attitude. Do not complain!”

– Maya Angelou
You can Train Your Mind
Training and racing for a Marathon PR, Boston Qualifier or Sub 3 Hour Marathon is hard! A lot of time is focused on getting physically in the best shape possible. One area that many athletes do not focus on enough is Training Their Minds.

Key tips here:
• When you’re close to race date and in doubt about if you can accomplish your race goal on race day, realize that the hard work has been done. There is nothing left to change about your training, it’s now all about executing.
• Realize that on race day you are going to run into obstacles and that unexpected situations will occur, you might not sleep well the night before your race, the race might start 30 minutes later, your Heart Rate Monitor might stop working. Whatever happens, stay calm, you got this, be flexible and focus on what you can control.
• Accept in advance that there will be tough spots that you feel uncomfortable and possibly in some type of pain. In the times of the low, remember it will only get better, stay strong and you will work through it.
• During the tough moments, you have to divert your mind to fixing the problems at hand. Try some more calories or salt or water, create small goals like “just run a ¼ mile good”.
• Run from “aid station to aid station” ie. digest the race into small chunks at a time to not get overwhelmed by the enormity of the distance you still have left to cover. Focus on your running form, take small steps, make sure your chest is open, breath out hard.
• In training and racing try to develop the ability to quiet your mind. So at any point, you can try to find that quiet place. When you start to get into the part of your workout that it is starting to get tough and long, you’re not starting to feel as good as you had hoped, that little voice starts to go off in your head, that’s when you should try to pull everything back, take that one breath to get into the quiet place, and then keep going again.
Chapter 6: The Most Important Part of Your Training

The most overlooked part of marathon training is getting enough rest to recover properly. Many athletes don’t sleep and rest enough, so it becomes harder for your body to recover from workouts and improve in your training.

Healthy sleep is about seven to nine hours of uninterrupted sleep. For athletes running 50–60 miles per week, 7 hours of sleep is probably not enough. Top athletes training 20+ hours a week will need closer to 9 hours to get the recovery. We get more training benefits from the recovery phase than the actual training. We need that recovery to allow our body to naturally progress.

I had a long conversation with Dr. Phil Maffetone on this topic and he explains this further: “Humans should naturally get faster over time, if we aren’t, something is blocking that. It’s like people starting an HR training program using the 180 Formula and they have to run slow and a month later they’re still running slow, and they say that this doesn’t work. Well, it doesn’t work because something is blocking that progress, you’re eating too much sugar, your stress levels are too high, or you’re not sleeping enough, recovering enough, of course you won’t make progress. A 5 minute power break, eating right and training in a balanced way, those will all lower the hormones and help you be a healthier, more fit athlete.” See 1 hour video interview with Dr. Phil Maffetone on my site.

The best runners understand that hard training needs to be followed by enough rest and recovery. East African and Kenyan runners are not afraid to take it easy when needed and their recovery runs are at a very mellow pace. Many recreational runners are afraid to lose fitness so they don’t run their slow runs easy enough or take days off, which could result in never properly recovering and additional injury risk. This would set you back for several weeks or months. So remember, rest and recovery is absolutely crucial to become a faster, healthier, happier athlete.
Chapter 7: Nutrition in Training

In order to run a Sub 3 Hour Marathon, Boston Qualifier or Marathon PR, you will need to dial in your nutrition in training and racing.

One of your key goals with low heart rate training is to improve your fat burning abilities. If you train very well, but you eat a lot of junk processed food, your aerobic progress will be limited. There are many different nutritional recommendations, even within the running communities. Some coaches recommend a diet high of carbs, while others swear by low carb diets. There are also vegetarians, vegans, fanatics about paleo, ketogenics, fruitarians, etc.

I’ve experimented a lot in the area of nutrition, inspired in particular by Dr. Phil Maffetone, Mark Allen, Rich Roll and Tim Ferriss. In summary, I eat a diet that consists of healthy unprocessed meals. Several years ago I cut out all refined carbohydrates, no more bread, pasta, pizza, chips. etc. After this I also cut out milk, coffee, (most) alcohol, soda, fruit juices, sweets, potatoes, rice and limited fruit intake.

This changed my metabolism to burn fat for energy instead of glycogen. When you eat refined carbs, your body produces a hormone called insulin, which slows down fat burning. As soon as you get rid of refined carbs, it takes your body 2 meals before it shifts into a high fat burning metabolism. My energy levels increased, I slept much better and didn’t have fatigue headaches anymore, this change happens very quickly.

Nowadays my meals consist of: veggies like spinach, kale, broccoli, cauliflower, carrots etc, salads, tuna, salmon, chicken, beef, burrito bowls, guacamole, avocados, eggs, black beans, pinto beans, lentils, bananas, nuts and seeds (almonds, cashews, flax seeds, chia seeds), green tea and a lot of water. One way to eat a lot of vegetables is to blend them in a good blender like a Vitamix.

I usually eat 4 to 5 meals and snacks a day: breakfast, early lunch, afternoon snack, dinner, evening snack. I eat a pretty balanced combination of fats, proteins, fiber, some unprocessed carbohydrates, vitamins and minerals. This way your body does not crave sugars for energy fuel. This diet in combination with proper Aerobic HR training significantly improves your metabolic efficiency. Do yourself a favor and take 1-hour to listen to this great Trail Runner Nation Podcast about fat burning and nutrition.
Chapter 8: Nutrition in Racing

Marathon runners burn a high amount of calories per hour, depending on many aspects such as body weight, exercise intensity (heart rate), gender, age, body weight, duration, air temperature, wind conditions, elevation, sleep status, etc.

For example an athlete of 155 lb running a marathon in 3:00, burns about 3000 calories, so 1000 calories per hour. Your body can only handle a limited calorie intake and your body fat stores will have to fill in the gaps, eliminating the need to overcompensate with calories.

For a marathon race, 240-280 calories per hour is sufficient for the average size endurance athlete. Taking in more calories can cause stomach issues and works counter productive, so it is about finding the right balance that works best for you. Practicing your nutritional strategy several times in long training runs is absolutely important to be confident for race day and avoid unpleasant surprises.

On race day I do not rely on aid stations, other than for water. If I train for many months to run a great race, I want to limit whatever can go wrong. If a race describes there will be GU or Gatorade at specific aid stations and they run out, this can throw you off mentally and physically. This has happened to me more than once, so I now bring my own GU energy gels. I pin 6 of them onto my running shorts, for easy access. Do whatever works best for you.

**My Sub 3 Hour Marathon Nutrition Strategy**

- 15 minutes before start of the race I take 1 GU Plain gel (includes 100 calories, 60 mg of sodium, 20mg of caffeine, amino acids)
- From race start every 25 minutes: 1 GU Plain gel, so at minutes 25, 50, 75, 100, 125 and 150.
- Every 50 minutes: 1 SaltStick Electrolyte Salt Capsules, so at minutes 50, 100 and 150.
- Every aid station: several sips of water, enough but not overdoing it

This is what works best for me, based on many experiments. Some of the training runs with home made energy bars resulted in stomachaches and sprints to the nearest bathrooms. That is why you test all your strategies in similar conditions to race day, I can not emphasize this enough!
PART 3

RACE STRATEGIES
Chapter 9: Pre-Race Strategy

The night before a race, eat a regular dinner of what you normally eat before a long training run. Do not try anything different on race day or the day before, no new food, drinks or running gear, stick to what you’ve trained with. I typically eat a normal size dinner with a lot of veggies and a steak. It works well for me, I train with that, and it has worked several times. I don’t carb load on pasta, pizza or anything like that.

The day before a race get your running gear ready, to avoid last minute scrambling.

The morning of the race, give yourself plenty of time to get ready, eat some breakfast, put on all your gear, use the bathroom, have a proper warm up and get to the start line. You want to be as relaxed as possible.

My pre-race breakfast includes 3 fried eggs, with a banana and some water. That’s my magic formula. See what works for you before long training runs and eat that before your race.

Most races start early in the morning to keep temperatures low. Many runners race in clothes that are much too warm for them, heating up their body, using unnecessary energy and slowing them down. I like wearing as little as possible. For the first 10 minutes of a race, I like to be cool, kind of cold even. This way you limit your chances of overheating later in the race.

One way to overcome cooling down too much prior to the race, is to wear an old hoodie and long pants (if needed buy from thrift store), and donate this on the sidelines just before the gun goes off.

One tip for guys waiting anxiously at the start line before the gun goes off: bring an empty Gatorade bottle and put it inside your long pants, empty your bladder in the bottle and throw this out in a trash can on the sides. This avoids potential last minute bathroom stress. Sorry ladies, this might not work well for you.
Chapter 10: Race Strategy

For your specific marathon race goal, aim to have 3 minutes extra in case the course is a bit longer when you run the marathon, or if you have to zigzag in between people. It’s also nice if there is some room for error in case you get it really tough at the end. For example for a Sub 3 Hour Marathon, aim to run a 2:57 marathon, that is a 6:45 min/mile pace or 4:12 min/km pace.

AT THE BEGINNING OF YOUR RACE SLOW DOWN!!

A lot of people start very fast, especially at the beginning of the race. They see other people start fast. They have all their race excitement kick in, probably have done some sort of taper so they are really hungry to run. Start slow! If you shave 1 minute off at the beginning, it might cost you 5 minutes later on if you start cramping.

For any marathon race, drink at the aid stations. Carrying a water bottle or water pack the entire race is heavy and the additional weight will require more energy. Practice to run through some water stations because a lot of runners experience issues drinking and running at the same time. Try to grab a water and drink it without choking. Maybe set up a little table in your front yard, get some weird looks from your neighbors, wondering what you’re doing. Give it a go!!

Your Watch is Your Secret Weapon

The 4 settings I have up on my watch display are:
• average pace per mile
• overall time
• overall distance
• HR

Average pace per mile is a great function, it gives you a great idea how you break down each of your miles. You can really tell how you are doing compared to your schedule. Try running even splits, which often means having to hold back significantly at the beginning of the race when you’re feeling great. You will thank me at mile 20 when you will dig deep to find energy in your reserve tank.
The Time Alert is another great watch setting. I take a GU gel every 25 minutes, the alarm reminds me when it’s time for another gel. This is what works for me and I have trained with this on several long runs. Please do not just copy exactly what I do, everyone is different, so experiment and draw your own conclusions on what nutritional strategy works best for you.

Every 50 minutes or every hour I take a salt and electrolyte pill (SaltStick Electrolyte Salt Capsules). Although this has not been scientifically proven to reduce cramping and bonking, in my mind it reduces these risks and even if it is a placebo effect, I will take it! Once again, test in training!

Race Pace
A guideline for marathon race pace can be calculated from your MAF test: take the 1st mile speed of your MAF Test minus 15 seconds. So if your first mile MAF test is 7 min/mile, your marathon race pace on a flat course in good weather conditions can be 6:45 min/miles. This is under the condition that your drop off after your 1st mile MAF test is pretty small, for example MAF test mile 1 = 7:00 min/mile, mile 2 = 7:07 min/mile, mile 3 = 7:12 min/mile, etc.

When there are hills on the course, try not to go too fast up the hills. This keeps your heart rate under control and you will not burn too much energy up the hills. When you go downhill, you can really let go and make up for some of that ‘lost uphill time’. An example during a 2:57 marathon goal, instead of running 6:45 min/mile, I might run 7 to 7:15 min/mile uphill, and 6:15 to 6:30 min/mile down hill. Use those hills to your advantage.

Race Heart Rate
A frequent question is “what HR should I race my marathon at?” A guideline is to race your marathon at about 10 to 15 beats above MAF. For a Sub 3 Hour Marathon goal, this is under the assumption that you have trained for several months and you are comfortably running at least 50-mile weeks.

If you race at a heart rate higher than 10 to 15 BPM above MAF, you will have a much higher chance of hitting the wall: premature depletion of stored liver and muscle glycogen. This means you can only use a small part of your anaerobic system (10 to 15 BPM) because as soon as your glycogen is depleted, your target pace is not possible to maintain. Untrained and unfit aerobic systems deplete your glycogen levels much faster, which results in hitting the wall earlier in the race.
After a lot of HR training and experimentation, I ran my last Boston marathon mostly focused on Heart Rate, with pace coming in as second priority. My MAF HR going into the race was 148 bpm. My Boston race strategy:

- **Mile 1 to 13**: Start at goal race pace and not go over 156-159HR. Run the Boston down-hills pretty fast because my HR should will be pretty low running downhill.
- **Mile 13 to 21**: Do not go over 160 HR (occasionally briefly up to 165HR on the steep up-hills)
- **Mile 21 to 26.2**: Leave enough energy in the tank to finish strong, with a HR in the 160-170 zone.

This way you hold back at the beginning of your race, to have energy left for the last miles. My race went according to plan and I was able to have a strong finish and reach my race goal.

**Virtual Pacer**

A virtual pacer is a great tool to see if you are on track to reach your goal finish time and pace. You can set this virtual pacer for any pace, for Sub 3 Hour marathon this is 6:45 min/miles (again keeping 3 minute buffer).

This tool comes in particularly handy for piece of mind during the second part of a race. If you are several minutes ahead of schedule early in the race, this should be a warning sign to SLOW DOWN!!!

**Marathons can be split up in 3 parts**

1. **Mile 1 to 13**, is the part where you have to hold back, you are very excited to race, but just hold back for a bit.
2. **Mile 13 to mile 20**, is really the part to get to work, focus on your nutrition, pace and form.
3. **Mile 20 to mile 26.2**, is where the race really starts. Up to mile 20 is really foreplay, then mile 20 and on is where you have to get to work. It is the part where people either fall apart, or where people can run through and run a great race. This last part of the marathon is tricky to train and for many runners this is a pretty unknown territory. Around mile 18 or 20 is typically where your mind starts the play tricks. To run a marathon you have to be strong physically and mentally.
Training your mind is underestimated. When things get tough, start talking to yourself and focus on the little things. Run the next mile really good, run to the next aid station and you’ll be fine. Or just little pep talk, like “you’re doing good, come on, you got this!”

One thing to accept in advance when you run a marathon is that you are going to hit tough spots. At some part your mind is going to start playing tricks. You might start to feel some aching, just take it step by step. Do not think about the long distance you still have to run. Just think about the next 500 meters or ½ mile and you’re totally going to work through it.

At any point in your marathon, if you feel shit, just smile, laugh, slap a high 5 to a volunteer or someone in the audience, you will instantly feel better. So give it a go, smile and keep going!

**Video: Running a Sub 3 Hour Marathon with a GoPro**
Chapter 11: Post-Race Strategy

Try to eat and drink within 30 minutes of your race, this will help speed up your recovery. After a hard race I enjoy taking an ice bath. There is no scientific evidence to show that ice baths help speed up the recovery process, but I enjoy them.

Running a fast marathon is tough, at the end of the day it is all about having fun out there. It is totally normal to hit some tough spots, everyone runs into marathon challenges. It is a mind game to get over that.

Like I wrote earlier, break the race up in little chunks and run those miles 1 by 1. You trained really hard, believe in your training! Go out there and do it. It is totally normal that things start messing with your mind, just stay calm and go out there and have a good time, enjoy the journey.

Although you put in a lot of time and effort into your training and racing, you might not reach your race goal this time around and that is ok. Each training cycle and race is another learning experience to improve for next time. Every great runner has experienced poor race performances and DNF’s (Did Not Finish). If for any reason you do not reach your goal, do not beat yourself up over this. Write down what went well and what can be improved. Winners win, because they stand up when they fail, and they keep trying.

With consistent training and the right strategies for racing, great progress can and will happen!
PART 4

NEXT STEPS TO GET STARTED
Chapter 12: Let’s Do This!

Next Steps to Get Started:
• Buy a GPS watch + Heart Rate Monitor
  o Make sure the watch has HR alarm function, so you know when you’re going over your Max Aerobic Heart Rate.
  o Many great GPS watches and Heart Rate Monitors are available on the market like Garmin, Polar, Suunto, etc. Check DC Rainmaker for the best detailed product reviews
  o I use a Garmin Forerunner 620 (currently $157 on Amazon) and Garmin HRM ($43 on Amazon)
• Use the 180 Formula to calculate your MAF HR training pace (page 8)
• Go out on a track and perform your first MAF test. This is your baseline to measure your monthly progress from. (page 8)
• Create your personalized training schedule for next 3 to 6 months (page 13)
• Start off with aerobic low heart rate runs only at Max Aerobic HR, so no speedwork

Many athletes may have some difficulties running at this relatively low rate. After a short time you will feel more comfortable and your pace will improve at the same heart rate. Keep in mind that this relatively slow pace is temporarily so you’ll not be stuck here for long. Patience and trusting in your training is important for long-term progress.

• Every 3 to 4 weeks perform a MAF test and track your aerobic progress
• Over time increase your weekly mileage to 40-50 miles per week
• Your goal is to lower your aerobic pace, so you’ll become faster at the same HR. You should be able to improve your aerobic system significantly with low heart rate runs.
• If your MAF test does not show further progress, or even regress, and this is not related to other factors like stress, illness, nutrition, sleep, etc, it’s time to update your training schedule by adding some speedwork into your schedule (page 11)
• After 3 or 4 weeks of speedwork you can go back to aerobic only runs, or keep 1 day of speedwork in your schedule. Do whatever feels best for you, but make sure to keep your cortisol stress hormones low to develop your aerobic system further.
• Build your miles up to occasional 20 mile long runs to simulate Marathon Conditions (page 11)
• Eventually your goal is to drop your MAF pace to about 7 min/mile for your first mile of your MAF test. This MAF pace in combination with consistent high mile training (50–60 miles per week), should get you in a good shape to increase your chances to run a Sub 3 Marathon at about 6:45 min/mile.
Closing Thoughts

Remember, some runners progress faster than others. It can take several months or even years to drop your MAF pace to anywhere you want it to be. You could possibly make faster short term progress with some other training approaches, however the chances of injuries and burn-outs increase significantly. Slow down, train consistent, eat right, make sure to take time for rest and recovery, and you should experience great progress.

Running a Sub 3 Hour Marathon or Boston Qualifier is not for everyone, however I am confident that this low heart rate training approach significantly improves chances of success, while remaining injury free.

Once you’re aerobically well developed, there is no better feeling in the world to run fast and confident, while accomplishing your running race goals. Most importantly, you will have fun out there in training and racing!!

I would love to hear from you!

What challenges have you ran into when trying to reach your running goals? How will you try to overcome these challenges?

Let me know your answers to these questions or ask the community any question, here in the comments.

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Cheers,

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