

A Scientific Method for Race Planning

This article describes a method for developing a race plan based on the principle factors that can affect one's finish time.

Having a good race plan, as compared with winging it, can be highly beneficial to insure you achieve your goal. In general, the longer the race, the more important it is to have a good plan; it doesn't matter much for 5Ks, poor or no planning for a marathon can be disastrous. This method will only take you a few minutes and will typically produce very good results. Considering you've spent months training, it makes sense to spend a little time developing your race plan. Can't find the time? Skip a training run and do your plan; it will help more than one more training run.

The method is not particularly useful for very experienced racers who frequently run races of a similar distance and terrain. They already know their best pace from previous experience.

However, it can be very advantageous for new racers, those who have not raced for a while, a significantly different race distance, very young and senior runners on the steep portion of the age-curves, etc.

First step:

Make a table [A spread sheet is good] with rows for your last 6 or so races, with the distance as close to the new race as possible. [No marathons or years ago? Use 1/2 marathons, 10Ks etc.] Label the columns as:

- Race Name
- Date
- Distance, 5K, 10K whatever
- Time, Your net finish time, not gun time.
- WAVA%, See WAVA% below
- Terrain difficulty; 1= flat, 5= hills so steep couldn't even run up them. Include severe weather conditions.
- Your state of training. 1= New runner or haven't even been training; 5= Best condition ever.

Include a row for your new race. Fill in all the data except the time and WAVA% value.

If you do not have a good record of your races, use the Athlinks data base for a super race history log to work with.

- To get started go here: <http://athlinks.com> and sign up to become a member.
- Then "claim" your results. Instructions are clear how-to.

WAVA% Calculations

The WAVA% tables normalize an individual's age and race distance for any of the standard road distances [e.g. 5K, 8K..10mi, half and full marathons, etc] 100% is assigned to the fastest recorded time for a particular distance and age. Essentially, it is the all-time world record. To illustrate: Assume a male with a WAVA% of **62%** ran a **10km** race with a time of: **0:48:44**, when he was 38. He is now 58 and is fully trained, the race is same distance and terrain. His expected time is **0:52:54**. Try using one of these calculators and verify this result.

Calculate the WAVA% for each of your previous races in the table. Use my calculator here:

ridersite.org/SBTraining/WAVAcacal.php or the USATF calculator here: usatf.org/statistics/calculators/agegrading/

Assigning Your Basic WAVA%

Now assign a WAVA% value to your intended race by using deductive reasoning based on the races in your table. Based on this value, you can use the same calculator to predict your finish time. Keep in mind that the 100% is based on a flat course by a super trained athlete. Thus, the "Terrain difficulty" = 1 and the "state of training" = 5. So, we'll first assign a WAVA% based on the tables and then adjust it according to these two factors.

Here are some simple examples for selecting your basic WAVA% and calculating your race time.

Assume in the last year, you ran five 10K races with WAVA% values of 61.6, 63.4, 62.4, 63.1 and 62.6. You are fully trained well, the terrain is essentially the same, and you are 36 years old. 63% would be a reasonable value to use for your next 10K. You can expect a time of 43:49

Now assume the same male plans to run a marathon and he has trained very well. Given a WAVA% of 63% for a man, aged 36 and running a Marathon race, he can expect a time of: 3:18:30. Use the calculator and try this yourself.

A word of caution regarding predictions for senior runners [i.e., 65 plus] who have raced for 15 or 20 years. Even though the WAVA% tables are based on the fastest recorded time, the methodology fails to account for a well documented aging affect by very long term runners. Use a reduced WAVA% for intended race predictions, say -2% for a 65yr old and -5% for a 75yr old.

Refining your WAVA% and Predicting Your Race Time

Now we'll address how to refine your WAVA% to account for Terrain Difficulty and Your State of Training.

First to illustrate a simple point: If your intended race is the same as several of the races in your table, and the Terrain Difficulty and Your State of Training are the same; then obviously, the WAVA% you selected needs no adjustment since these factors are already accounted for.

There is no mathematical formula for adjusting WAVA% by Terrain Difficulty [TD] and Your State of Training [ST] values. So, if either or both the TD and ST are different, you'll need to do a little extra deductive work. Both factors are treated with the same logic; so we'll just use TD for convenience.

Look over the races in your table and see if there are any races with a TD value close to your intended race. Lean towards using its WAVA% if the ST is about the same. E.g., You plan to run a 1/2 marathon with a TD= 5 and there is an 8K race in your table with a TD= 5 and it has a WAVA% of 54%. You assigned WAVA%= 60% for your intended race because that was the average for the races in your table. Obviously, you should be conservative and use 54% instead of 60%.

Here is a handy calculator for converting your intended finish time to the equivalent pace. "A Race Pacing Calculator for Runners" ridersite.org/SBTraining/PaceCal.php

Dealing with Hills

There is no practical, mathematical method for dealing with hills. Experience will teach you how much to adjust your time for up and down grades. Here are a couple of pointers.

The general rule says that you can only make up about 1/2 the time lost going up a steep hill by an equal down hill grade. Thus, if you lost 2 minutes going up, then you will only make up about 1 minute on the downhill side, assuming about the same length. E.g., your average race pace is 8:00 and you climbed a 1/4 mile steep hill at 10:00. Downhill you'd need to do a 6:00 pace to make up the difference, which would be dumb even if you could.

Thin runners handle hills better. It's the % body fat you carry up hills that counts. Assume two equally fast, 150lb runners on the flat; but, one has a 10% body fat and the other 20%. The 10% fat runner will be carrying useless 15lbs up the hill and the 20% fat runner 30lbs. And, it doesn't help much going down.

Many hilly races post an elevation profile which can be helpful for dealing with hills in your plan.

A Strategy For Dealing With Unknowns

If you are not sure about your current fitness, it's your first marathon, haven't run marathon in a long time, a very difficult, unfamiliar terrain, very bad weather, etc., there is a nice strategy for dealing with unknowns in my article "How To Choose An Optimal Race-Pace For Your Spring Marathon". This strategy is also applicable for other distances, generally 10K and up. ridersite.org/Coach/Articles_pdf/RacePace_SpringMarathon.pdf

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