Train Slower to Race Faster

On the face of it this might look like one of those improbable and contradictory marketing slogans like “Spend more to save more !”, so is there really any substance in the claim of “Train slower to race faster” ?

Anyone who has ever been to a track session will probably know that the endurance coaches like myself are all fairly keen advocates of short or jog recoveries between efforts. This isn’t because we are mean and like to see people suffering, (actually we are and we do, but it doesn’t make this any less valid) but because there is sound theory behind training this way.

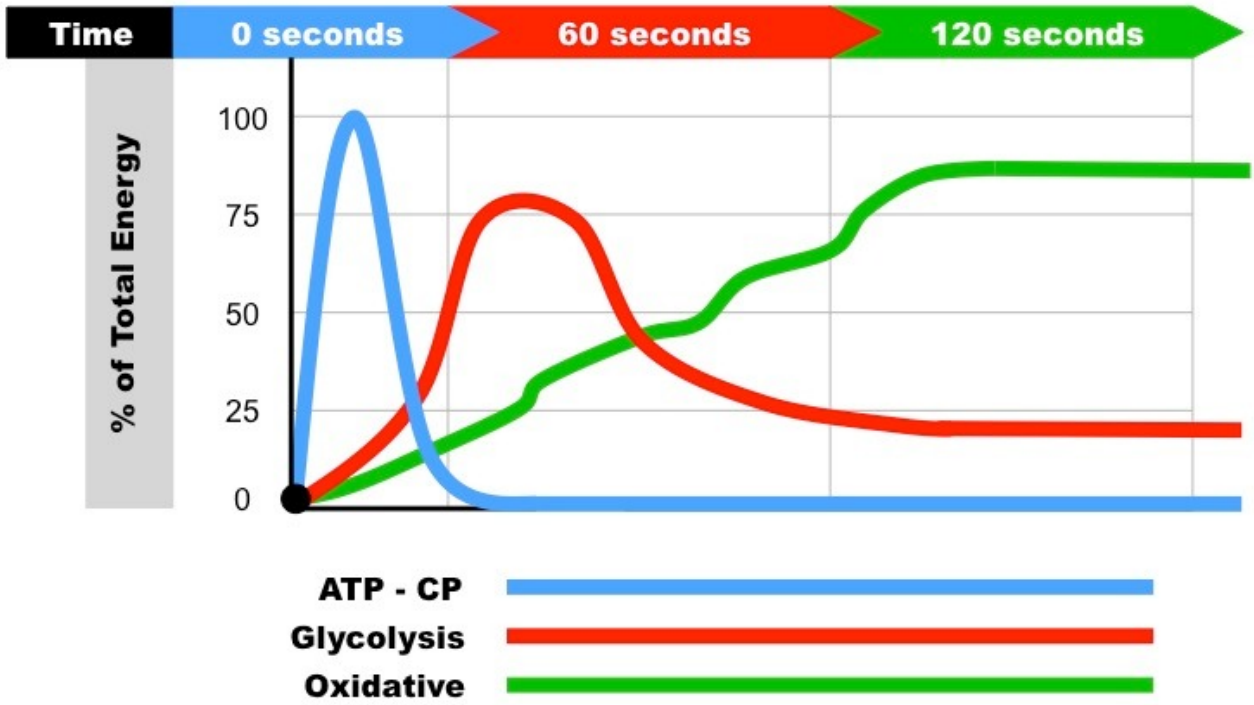
So I hear you asking

“Surely if I have more recovery I can run the efforts faster, and isn’t that the idea – to run faster ?”

This is a valid question and it is true that shorter and dynamic recoveries will mean running slower than you perhaps might on the efforts. However, to answer this fully and then address the original point, firstly we need to take a look at the body’s energy systems.

The body uses three main energy systems, and these can function for differing time lengths and at different power or intensity outputs.

Energy Systems and Durations



ATP-CP – Alactic, Glycolysis – Anaerobic, Oxidative – Aerobic.

1) The Alactic or CP System (blue on the chart)

This is the body's start up energy system or when we need short term, high force, high speed actions such as jumping, throwing or getting moving quickly. Historically this might be when under threat when a wild animal decided to turn you into dinner and you had to make a super quick start to get out of the way.
It's available for about 5 seconds (10 at the absolute max), can function without oxygen and does not produce lactate. It typically takes about 2-5 minutes to recharge/reset before it's ready to go again.

2) The Lactate or Anaerobic System (red on the chart)

This is the energy system for moderate to high intensity activity and would typically be available for 1-2 minutes. It produces lactate and is capable of operating with no oxygen although one of the limiting factors will be the athletes lactate tolerance (how much you can cope with) and increasing lactate inhibits the energy production process.
This would be used on shorter faster efforts or when you make your burst for the line at the end of a race. You will probably go into oxygen debt. The energy keeps being produced without oxygen but so does the lactate. The body can't clear the lactate fast enough and eventually your muscles scream "NO MORE !" It typically takes about 3-10 minutes for this system to recover depending on the length and intensity of the effort.

3) The Aerobic System (green on the chart)

Probably the one people are most familiar with - the endurance engine or the "keeping it going" system. This system gradually comes into action and takes over from the anaerobic system between 1-2 minutes and is then good for several hours. It needs oxygen to burn the fuel stored in muscles and produces carbon dioxide and water.

Endurance Athletes

As endurance athletes it's the third of these – The Aerobic System – that we utilise the most, so this is the system we need to train and develop. To achieve this, we need to be using the Aerobic System as much as possible in training sessions.

The Alactic System (blue) is only relevant for a few seconds at the start of a run so can be discounted, but we need to minimise Anaerobic System (red) contributions and maximise the Aerobic System (green) contributions.

To achieve this:

Run longer efforts of 2mins or more duration so that athletes get well into the aerobic zone during efforts.

Another way to achieve this and to put some variety into the training so it's not all long stuff is to run a shortish effort to burn up the Anaerobic System (red), a very short recovery then

into a longer effort. With the Anaerobic System spent from the shorter effort, athletes get into the “green” almost immediately on the longer effort, using the Aerobic System for more time. e.g. sets of 300's and 800’s or similar.

By keeping recoveries short the Anaerobic System (red) doesn't get much chance to recharge itself. Recall from above it needs somewhere between 3-10 minutes depending on the intensity of the preceding effort. Therefore, if the Anaerobic System isn't available, the only system we can use is the Aerobic System – exactly the one we want to be using.

There is certainly a time and place for developing the Anaerobic System as this will help with basic underlying speed and lactate thresholds but more on that at a later date.

So in summary, although longer efforts and/or shorter recoveries may mean that you are running your track efforts slower than you perhaps could with longer recovery, this type of work ensures that you are repeatedly hitting the Aerobic System more often and for longer. This will produce more rapid development and improvement of this system resulting in athletes being able to sustain a faster pace – which is what we want on race day.

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April 2020