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As I mentioned in my previous talk, one of the goals of a coach should be to get his/her athlete to the starting line with the best chance of success. This will be achieved through optimal, not necessarily perfect, preparation. However, oftentimes this lack of perfect preparation is due to the fact that my athletes are not professionals, and they have multiple stressors in their lives in addition to the physical stress I ask them to accept. That being the case, keep in mind that frequently the best physical workout, is some lesser percentage of what was originally planned.

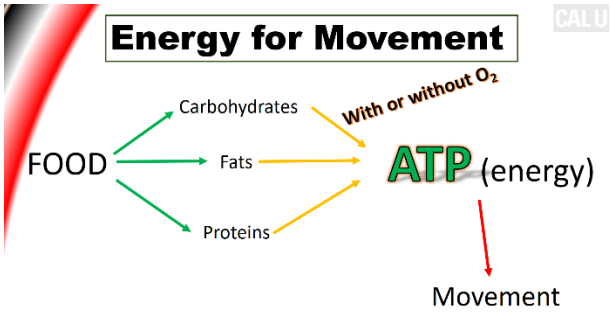
One final note before we continue, I personally believe that athletes rarely over-train. Instead, I believe they usually under-recover. As a result, at Cal U, we train as much as we can providing the athlete is 'happy and healthy'. With a few of our All-American athletes, that philosophy occasionally changes to 'just because we can, doesn't mean we should'!

[During the clinic session, my goal is to give you something of benefit, so the following is just some basic information regarding 1600m and 3200m training and racing]

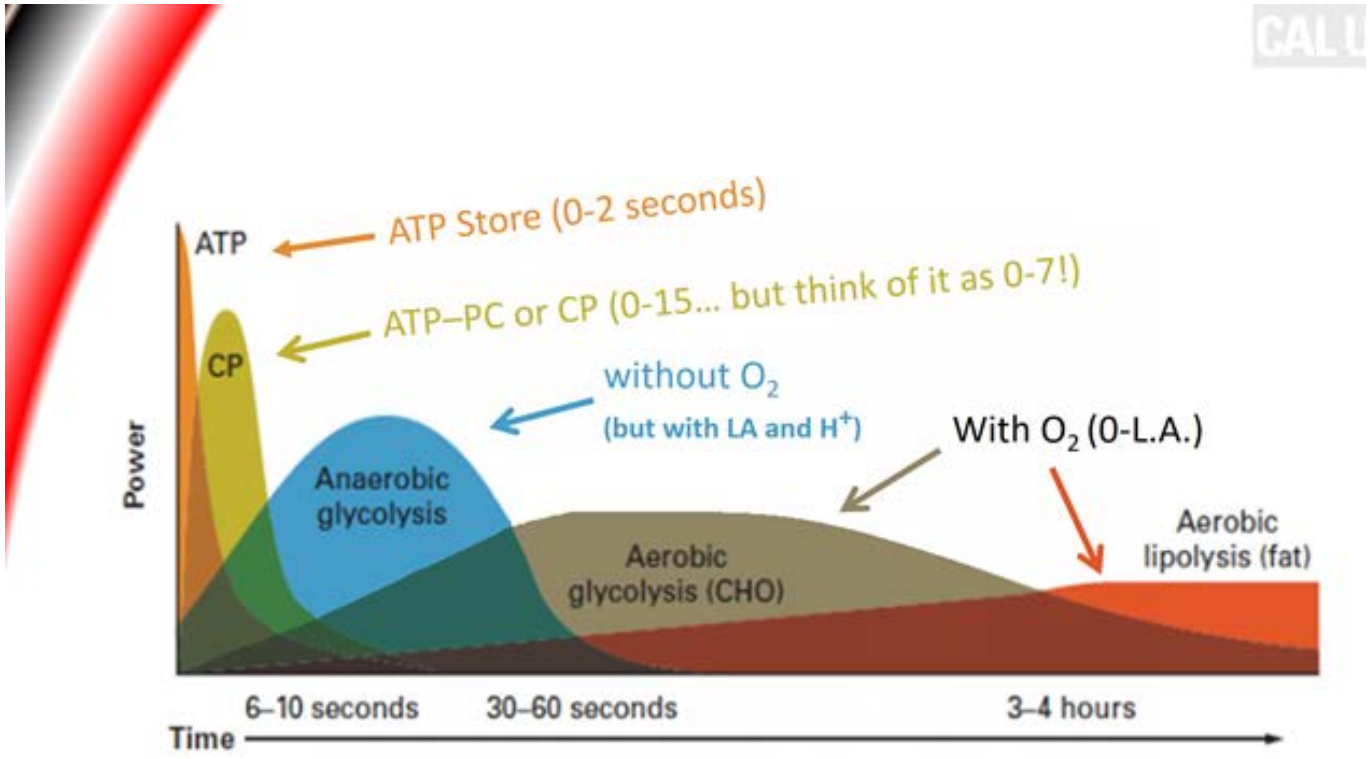
Like all races, the 1600m and 3200m races have similarities and differences to many other events, and therefore they have similarities and differences in its training.

Both races, like all human movement, needs ATP (Adenosine Triphosphate) for muscle contraction. ATP could be considered our gasoline, and it is created through various methods in our body. Racing and training for these events necessitates utilizing the following energy systems:

1. Anaerobic Alactic (ATP-PC and ATP Store)
2. Anaerobic Glycolysis (Lactic Acid)
3. Aerobic Glycolysis



ATP and the energy systems



The ATP-PC system is powerful but only lasts for a few seconds. It is the system you use when running at full speed (maximum velocity). You use it at the start of many races, and sometimes throughout.

The Lactic Acid system is next in terms of power production. It can last over a minute, but has a byproduct of lactic acid, and more importantly, hydrogen ions (H^+). This accumulation of H^+ leads to a reduction of power output and as a result, reduction of speed.

Finally, the last, and *most important* energy system involved with the 1600m and 3200m races is the Aerobic glycolytic system. This system, which can last a few hours depending on the intensity, accounts for no less than 70-90% of the energy provided in both races. As a result, the vast majority of your athletes training should be aerobically based. However, this does not mean that you should spend 6 months only doing distance runs. At no point in the year should you ever be far away from race pace or doing some anaerobic alactic work. A simple way of achieving this is by doing some form of sprints (90-98% effort) at least 2-3 times per week. The distance of these sprints can vary from 60m to 150m with the total volume being as much as 1km. Our normal variation of this is 8x100m 'strides', but we start with as little as 4x100m. We do them after an easy run, and before any harder workout. The first 4-5 may be building in intensity, whereas 6-8 are between 95-98% effort. I never say to run at 100% or go all out since the chance for injury is so much higher. Also, in general, most distance runners do not know how to run at 100% without losing form or straining.

Energy system contribution during 200- to 1500-m running in highly trained athletes (2000) - MATT R. SPENCER and PAUL B. GASTIN Human Performance Laboratory, Department of Human Movement and Sport Sciences, University of Ballarat, Ballarat, Victoria, AUSTRALIA; and Victorian Institute of Sport, Melbourne, Victoria, AUSTRALIA

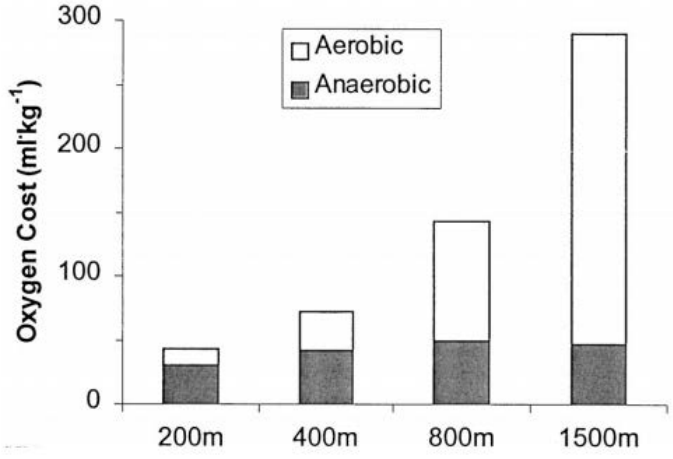


FIGURE 3—Aerobic and anaerobic contribution to the total oxygen cost of the 200-, 400-, 800-, and 1500-m runs. Data are mean values.

Types of Workouts for the 1600m and 3200m

Long Runs (Aerobic) – 20% of the athletes' weekly volume is the amount most coaches prescribe. These should be done throughout the year providing the athlete is healthy. Be aware that your athlete's stride frequency may have to dictate how far you let them run at one time.

Recovery Runs (Aerobic) – these vary from 20 minutes to 75 minutes depending on the coach/athlete. These should also be done throughout the year. With some of our individuals, these are days we cross train (bike, pool, elliptical, etc…).

Lactate Threshold or Anaerobic Threshold or Ventilatory Threshold or Steady State runs (Aerobic) – These are considered the most important workout for events from the 1600m to the marathon. They can be broken up into to short runs with very little rest (e.g. 5x4 minutes with 1 minute rest), to one longer run (e.g. 20 minutes). There is currently a shift in the belief of how beneficial these runs are, but if you are a beginning coach, I feel that there are still lots of benefits to doing this sort of work, even if it doesn't elicit the response that many people think it does. There are many ways of figuring out what pace these should be done at, but I simply tell my athletes to run at a medium-hard effort – I'll explain why at the clinic.

Below/At/Above Race Pace runs (Aerobic and Anaerobic) – these can be reps/intervals of anything from 150m to 1600m. The stress of the running pace and duration, and the rest that follows will dictate the response. As the coach, don't stress too much about getting it right. After all, Jim Ryun's coach used to make him do 50x400m in high school! Underdo it to begin with, monitor changes in heart rate, and proceed from there. [I'll give more examples at the clinic, and why I believe some work is better than others.]

Strength and Mobility work – Done in our weight room *[I'll play a video during the clinic with our exact routines]*. Our goal is to ensure that our athletes are transferring force as well as they can and staying injury free. This involves having a strong and stable core. For our women, and some of our middle distance men, we also work on leg strength while avoiding hypertrophy. Our goal is to run faster, and not to look like we're getting ready for the beach!