

Getting High: Training at Altitude

By Cathleen Calkins

There is an air of mystery surrounding towns where professional athletes live and train during the off-season; places like Mammoth Lakes, California, Flagstaff, Arizona, or Boulder, Colorado. Even Southern California's own Big Bear Lake is home to world class adventure racers Paul Romero and Karen Lundgren. The thinner air at these elevations, which makes most of us gasp, is thought to have beneficial qualities for the endurance athlete.

This past summer, Olympic marathoners utilized altitude as an edge. In preparation for the Olympic Games, runners participated in Nike's stealth Oregon Project based in Eugene. The premise: Live high, train low. Athletes lived in a five room bungalow where filters inside the house removed oxygen, creating the thin air found at 12,000 feet. By sleeping in the house, athletes grew accustomed to living in the rarefied air - at sea level (the altitude of Eugene, Oregon).

Let's face it: artificial altitude training is not within most of our budgets. But training in the local mountains surrounding the Los Angeles basin may hold some of the same benefits for those of us without a Nike-sized trust fund.

Why is altitude beneficial?

At altitude, oxygen levels are lower than those found at sea level. This in turn stresses the cardiovascular system's ability to deliver oxygen to the muscles during high level aerobic performance, or events lasting longer than seven minutes. Because of these stresses, the production of red blood cells is stimulated. Since red blood cells carry oxygen to the muscles, it goes to follow that this results in better than normal endurance when returning to sea level.

Keeping in mind that muscles are forced to work harder at altitude, the impact of training in a harsher environment results in an increase in physical stamina as well. Psychologically, the added stress requires more mental focus and toughness. Training at altitude will improve your ability to center yourself, boosting your confidence during a race.

What are the initial effects felt at altitude?

Training feels harder at altitude: Heart monitors will be singing. Both breathing and heart rate will show an increase, and without acclimatization (the time it takes the body to become accustomed to a new environment) you won't be used to the lean air and your oxygen exchange will be off. With this increase in ventilations comes the risk of dehydration. Appetite may also be influenced by the loftier heights - you won't feel as hungry. Finally, recovery takes a bit longer at altitude: Rest is important to battle lingering fatigue.

How long does it take to acclimate and how long do the benefits last?

A generally accepted rule for acclimatization is 14 days when training at 6,500 feet and 28 days above 8,000 feet. Although, acclimatization will vary depending on fitness level, the effects of altitude training can last up to 2 to 3 weeks after returning to sea level. That said, even if you can only dedicate a weekend a month for training at a higher elevation, you will benefit from the familiarity of the surroundings and climate, and the additional strain on your muscles results in an increase in their strength.

How high should you go?

At an altitude of 4,000 feet, the stresses placed on the endurance athlete are a little greater than those found at sea level, but not so taxing that the intensity of a workout and recovery time is impacted. Above 6,000 feet, altitude begins to affect exercise performance. Here, the decreased oxygen in the air becomes more noticeable.

Where should you train?

With easy access to local mountain ranges, Angelinos have ample training ground at varying altitudes. Each of the following suggested destinations boast miles of backcountry fire roads, connected trail systems and single track, while some even offer the occasional swimming hole.

If you don't have the time to acclimate to elevations above 6,500 feet, try one of these areas.

Santa Susanna Mountains. Located in the northeast corner of the San Fernando Valley, elevations here reach 2,700 feet.

Topanga State Park. While the ocean is a perpetual companion, elevations in the park soar to 2,126. (Popular Eagle Rock is at 1,957 feet.)

Verdugo Mountains. Standing above Glendale, namesake Verdugo Peak reaches 3,126 feet.

Silverwood Lake. Located on Highway 138, east of the 15, this Lake has been host to many racing events and elevation ranges from 3,400 feet to 5,300 feet.

If you have the time to acclimate, or are just looking to test your abilities and mental tenacity, venture a little farther and try one of these elevated destinations.

Big Bear Lake. The lake sits at 6,800 feet and Snow Summit's lift served mountain bike parks tops out above 8,000 feet. Follow fire road 2N10 for spectacular views of San Geronio Mountain and continuous high altitude mountain biking.

San Gorgonio Wilderness. Located above the city of Redlands, this ranges hosts 12 peaks, 11 of which rise above 10,000 feet.

Idyllwild. Located on the edge of the San Jacinto Wilderness area, elevations here vary from 7,000 feet to 10,800 feet.

Wrightwood. Home to Mountain High Ski Resort, elevations here rise above 6,000 feet.

Altitude is a great tool that can be easily incorporated into a training cycle as stimulus for developing your aerobic stamina without having to increase your current training intensity. And training in the local mountains surrounding Los Angeles offers real advantages for the endurance athlete looking to improve on performance.

(Side bar)

Planning to Race at an event held in the Mountains: No sweat!

Some of the best races are held at higher altitudes. While every race presents challenges, altitude is one of those challenges that can be overcome through training and a little preparation. Here are some tips for racing at altitude:

1. Drink often. It's easier to become dehydrated at higher elevation, so keep hydrated and avoid alcohol.

2. Sunscreen. The sun's rays are more intense at altitude. Apply and re-apply the sunscreen.
3. Acclimate. Ideally, arrive at the location of the race four to five days early. If this isn't possible, visit the site for weekends in the months leading up to a race and take a few test runs. This will help you to familiarize yourself with the environment and see how your body handles the stresses of altitude.
4. Get anaerobic. Can't make it to altitude to train? Add some anaerobic challenges to your workout like long hill repeats or training on a single high-speed while mountain or road biking.
5. Vacation. If you have the time, take a trip to a favorite mountain town which offers a slew of training options. This is also a great approach to gauge how your body reacts to altitude.
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