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Running at altitude

The benefits and risks of running at altitude

Most of the very best runners on the planet spend large chunks of time training at altitude. Why? Because this type of training pushes the body to new limits of fitness and aerobic capacity and the benefits of that can be really felt in competition back at sea level. For most club runners or enthusiastic devotees of the sport, it isn't something that will ever be a huge factor. But if a mountain race suddenly takes your fancy, or an ultra that involves a change in elevation, you may well need to train or compete at altitude.



Why is running at altitude so much harder?

The lack of oxygen the body experiences at elevation is the key factor for elite and non-elite athletes because put simply, it forces you to work harder. One of the first differences you will notice is that it is harder to breathe. The change in atmospheric pressure means a decrease in the amount of oxygen that you are able to inhale and that deficit is what starts to make life difficult. It is noticeable when you are just walking in the high mountains never mind running, so your breathing patterns will need to be adjusted. You will probably initially feel like you are gulping for breath and running will definitely feel like much harder work and that's because it is.

Not only is your breathing affected but the limited oxygen in your body means less O₂ is getting to your muscles. As a result your body is forced to make new red blood cells to equalise that difference. You must take on board more fluid to compliment this process but determining how much you should drink can be tricky, as it's harder to tell how much you are sweating at altitude because it evaporates much faster.

Dehydration can have a serious impact on a body that is struggling to cope with the change in atmosphere. Altitude sickness is a danger and the initial signs are headaches, nausea, possibly vomiting and swelling of the extremities. An acute manifestation of this illness can result in the pooling of fluid around either the lungs or the brain and can have catastrophic effects. As a result it's extremely important to keep checking in with yourself on how you feel and if you notice any of the symptoms, then medical intervention may well be necessary.

Altitude training tips

If you are training in the mountains for any period of time you must give your body time to adjust. Don't throw yourself into an insane workout the day you arrive. Take your time and train gently at first, only building up to higher working stress levels after a couple of weeks, as you become used to the conditions.

A lot of athletes say that you need to run more by feel than pace. That means don't be a slave to the stopwatch, but focus instead on the effort levels required and alter your pace accordingly. Running at altitude is slower, it's just a fact and accepting and working with that concept rather than fighting it will make the transition so much easier.

Recovery periods are essential as the physiological demands on your body take their toll, so make sure you recover properly, by resting and eating and drinking sensibly. Runners who don't can be susceptible to illness, anaemia and muscular soreness.

Benefits of altitude training

Having outlined some of the more negative aspects of training in the mountains, runners who do spend time up there say they feel rejuvenated when they return and this could be for several reasons. A happier psychological place could be one explanation. The fact that your normal routine has been broken by a complete change of scenery in a breathtaking environment could also account for your newfound rejuvenation. You may be focusing solely on your running which will probably be another departure from a regular routine, so again you will feel refreshed. Plus you'll be running on new routes in a different place, and you'll be practicing for specific conditions, so it's all good stuff.

Some runners also talk of improved running form and fitness as soon as they return. Although the physiological changes in your body return to normal as you return to sea level and conventional oxygen intake and production, many runners suggest that the fact that they have become used to working so much harder translates to a higher work rate, and as result they simply run faster.

How to prepare for running at altitude at sea level

If you can't get to a significantly high altitude before the race, you could try to compensate by running lots of hills. Hill running makes different and specific demands on the body because it increases leg strength, overall fitness and VO₂ max levels (that's the maximum amount of oxygen your body can use during exercise). Alternatively the more enthusiastic runners could try to simulate altitude by using an oxygen tent in preparation.

Another factor to think about is the time of arrival for your race. If you haven't got three weeks to spare to truly acclimatize, and let's face it, most people don't, you might want to arrive the night before. Everyone is different and their reaction to altitude can manifest itself in different ways, but the initial signs of stress/altitude sickness often appear after a few days. Nausea, sleeplessness, irritability and loss of appetite are some of the first symptoms, all of which are disastrous for a runner. If you time your arrival as late as possible, in theory you can launch yourself into the race before the first symptoms hit.