

AFRISKI *altitude* sport

3222m

What is high altitude training?

High Altitude training also referred to as Hypoxic training is training by endurance athletes at an altitude of preferably above 2500m(800ft) above sea level for a period of time to enhance stamina and increase physical performance in competitions.



High altitude training is when you are going to a place which elevation above sea level is higher than you would normally live at, and where you deliberately go to train at a higher elevation to get the benefit of the physiological changes that takes place.

The higher you go the thinner the air, although it means less air resistance, it also means that there is a lot less oxygen which is not as good for endurance sports which utilizes oxygen as a source of energy.

The body is very resilient and if you stay at altitude for a while it will adapt to the shortage of the oxygen.

As you increase in altitude the barometric air pressure and the amount of oxygen decreases.

Your body adapt to this lack of oxygen through the kidneys, producing a hormone called erythropoietin (EPO), which stimulates the body in the production of the mass of your red blood cells and haemoglobin.

This enables your body to carry oxygen quicker and more efficient through your body.

What happens at altitude?

The sport that is being practiced need to last longer than 3-4 minutes and aerobic metabolism is what gets the best results. The body uses oxygen to generate energy in these types of sports that's why it is called aerobic, meaning with oxygen.

By training at high altitude your respiration and heart rate speeds up.

You will have difficulty reaching your VO2 max as well as a decrease in your maximum cardiac output and maximum heart rate.

There is an increase in hematocrit and haemoglobin concentration, the total number of red blood cells increase and mitochondria and aerobic enzymes which allows for a more efficient use of oxygen for energy production.

The chemical change that happens in the red blood cells make them more efficient at delivering oxygen to the tissues.



Benefits of high altitude training

When you return to sea level to compete your body still have a high concentration of red blood cells for up to 14 days as well as your muscles are making use of a more efficient way of utilizing the bigger amount of oxygen that is available at sea level, thus giving you an advantage.



There is a rapid increase in the amount of red blood cells and they help your body increase the amount of oxygen in the blood.

Also there is an increase in the capillaries in the muscle which provides your muscles with more blood and oxygen which gives them the ability to produce better results when utilized.

Some of the other benefits are a decrease in your average heart rate, also an increase in the production and release of Human Growth Hormone, the stimulation of fat metabolism, and a decrease in the oxidative stress from free radicals.

All of these benefits helps your body function better as a unit which makes it run more efficiently when down again at a lower altitude and therefore you have the benefit of increased performance.



Almost all athletes desire to have and seek a competitive advantage in their sports.

They will try to do almost anything to get their hands on the coveted gold medal at the Olympics or raise the next trophy or let their names be engraved in the history books for breaking the next record.

On their search for glory they will even take the risk of using performance enhancing drugs and stand the chance of being caught out and be humiliated before everyone.

With altitude training, you can make an improvement in your performance and do it legally as it is not a banned method of training. For the serious athlete every bit of enhancement they can get on their performance, they will take, and what better way to make some improvement than training at high altitude as numerous studies have shown all over the world.

Having done your training at high altitude and going down to compete will then give you the advantage and improve physical performance and might just be enough to beat that rival you always wanted to or lay your hands on the coveted and much dreamed about gold medal.

Why train at altitude?

When going down to lower altitudes again, your body has the increased red blood cells and haemoglobin and can transport oxygen more efficiently through your body because it had to work hard when you were at the high altitude, now it is easier at the lower altitude and therefore your performance is better.



Results

We've conducted a study on track and middle distance athletes from the University of Potchefstroom in 2010 where they trained for 3 weeks at Afriski and had extensive tests done on them before and after the training, all of them showed increase in hematocrit values and some as high as 52, making it a 15% increase to where it was. They all went back down and ran personal bests one after the other.

Nr	Name	Pre-Hematocrit	Post-Hematocrit	% Change
1	Samuel Sepeng	45,0	48,4	+7,5%
2	Edwin Molepo	46,9	48,6	+3,6%
3	Lucas Bothobutle	44,95	49,45	+10,0%
4	Dean Brummer	47,7	52,25	+9,5%
5	Chris Reynolds	44,6	46,4	+4,0%
6	Jacques Pretorius	40,8	47,0	+15,2%
7	Adriaan Geldenhuys	43,4	48,9	+12,7%
8	Jan Lubbe	45,25	47,95	+6,0%
9	Zwêlakhe Seboto	45,6	49,3	+8,1%
10	Dikotsi Lekopa	44,7	48,7	+9,0%
	Averages	44,9	48,7	+8,5%

"Afriski is a great venue if you are looking to do some high altitude training. It is surrounded by epic trails with no shortage of high altitude vertical meters and some breathtaking views. There is also a nice variety of 4x4 and open dirt roads giving you some variety in your training if need be. The food is great, the accommodation is super comfortable and the staff are super helpful and friendly making you feel right at home."
(Ryan Sandes – South Africa and probably world's best trail runner.)



"Training at Afriski allows you to sleep high and train time efficiently since you are right there on top of the world. The luxury accommodation makes up for the extra effort you tax to your body and the skilled sporting staff are at hand advising how to make the most of your time at altitude. This makes the venue a brilliant all in one training destination for the athlete that wants to take their training to new heights."
(Ryno Griesel - current world record holder of fastest Grand Drakensberg Traverse.)

