

# The Rooibos Connection

## Potential Benefits of **Rooibos for Exercise** and/or **Acute Mountain Sickness**

One of the hottest topics in sport and exercise science is the role that Rooibos tea can play in controlling the effects of fatigue during exercise and furthermore ease the onset of acute mountain sickness at altitude.

"In gist, oxidative stress can be defined as an imbalance between oxidants and antioxidants in favour of oxidants – also known as free radicals. Since oxidants are unstable molecules, they can cause damage to vital cell components, such as genetic material, lipids and proteins. Free radicals are derived from organisms and cells inside the body and the outside environment, such as cigarette smoke, heavy metals, pesticides and certain medication, but can also occur as a result of strenuous exercise when our bodies use oxygen to produce energy.

"To prevent free radical damage, the body has a natural defence system of antioxidants that can combat the damage caused by oxidants, but it's often not sufficient under certain conditions such as strenuous physical activity.

"The initial oxidative stress study already showed that drinking Rooibos in a concentrated form – equivalent to six cups a day – boosted performance during repeated arm flexion/extension work by around 5%, which may have interesting implications for usage in elite sports where every percentage point counts during competition, but may also allow for improved training that could in itself elevate competition times," says Prof Simeon Davies.



The degree of oxidative damage is controlled by the body's sophisticated antioxidant defence system, which is armed with a plethora of chemical compounds and enzymes capable of either "quenching" or stabilising the radical species. However, recent evidence suggests that these defence mechanisms are to some extent overwhelmed during an ascent to high altitude.

Many people travel to high altitude for work or recreation, exposing themselves to chronic or intermittent hypoxia and the associated risk of acute mountain sickness (AMS).

In a study done by Prof Davies, antioxidant supplementation decreased both the incidence and severity of AMS during a 10-day ascent to Base Camp Everest. All subjects in the placebo group experienced AMS (9/9), whereas only 5/9 subjects developed AMS in the antioxidant group. Rooibos unequivocally has excellent antioxidant properties; however it will require high quality research to establish whether Rooibos can act as an effective antioxidant supplement for athletes and/or sojourners to high altitude.

Prof Davies says if Rooibos proves successful in the studies that are to follow, it could become a staple food supplement for elite athletes the world over.

"As a scientist, I continue to be surprised by Rooibos' health benefits. Of particular interest to the scientific community is the flavonoid, aspalathin, which is unique to Rooibos and is what gives it its powerful antioxidant punch. Aspalathin is known to reduce excessive fat production, balance blood sugar, improve glucose absorption in the muscle and increase insulin secretion in the pancreas," he says.

"It's exciting to think that a South African indigenous plant such as Rooibos may become athletes' next must-have supplement," says Prof Davies. "In the not so distant future, concentrated Rooibos may also become available to consumers in tablet or tonic form to naturally elevate antioxidant levels in the body to help reduce one's risk of other chronic diseases such as cardiovascular disease and diabetes."

