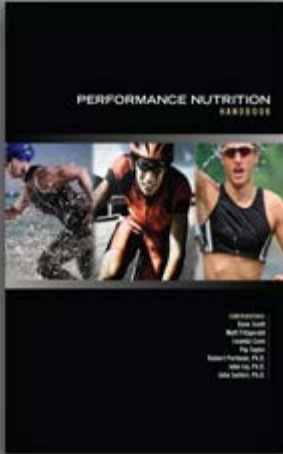




"Must read for every endurance athlete"

Dave Scott
6-Time World Champion



► **FREE DOWNLOAD**

PERFORMANCE NUTRITION HANDBOOK

Authored by leading athletes, coaches and researchers the free Handbook uses the latest science to show you how to create your own nutrition action plan.

NUTRITION *EDGE*



EDITOR: Dr. Robert Portman, a well known sports science researcher, is co-author of Nutrient Timing and Hardwired for Fitness.

RESEARCH *YOU CAN USE*

THE ENDURANCE HERB

Serious athletes looking for an edge often incorporate herbal products into their training and racing regimens. If you believe the manufacturers' claims, there are many herb-based products that deliver a performance edge. All too often, however, claims of improved performance are based on anecdotal evidence rather than hard science. When there is hard science, the claims don't hold up.

A case in point is the research on two so-called endurance herbs, Cordyceps and Rhodiola. Cordyceps received a great deal of publicity in 1993 when it was credited with the world-record performance of the Chinese track team. The problem is that 29 of these athletes were subsequently found to be taking steroids.

Cordyceps and another Chinese herb, Rhodiola, are combined in a product that is quite popular with endurance athletes. The product claims to improve endurance, decrease lactic acid and improve VO₂max. It would seem to be a magic bullet. Unfortunately, published studies paint a very different picture. Two studies conducted by different research teams and using different endurance protocols came to the same conclusion. The combination of cordyceps and rhodiola does not improve any parameter of endurance performance including endurance, peak VO₂ or oxygen utilization. However, a recent study suggests that there is at least one true "endurance herb". It's called *Eleutherococcus senticosus*, or *ciwujia*.

Ciwujia has been used in Chinese medicine for almost 1,700 years. What made this herb particularly interesting to exercise scientists were reports that it was used by Tibetan mountain climbers to improve work performance at high altitudes. Work at high altitude conditions in many ways simulates moderate to intense exercise, since in both cases muscles are operating in a limited oxygen environment. Initial studies indicated that *ciwujia* (Endurox Excel) had endurance-enhancing properties. Two recent studies substantiated this effect. The first study, published in the official journal of the American College of Sports Medicine, demonstrated that *ciwujia* lowered lactic acid levels and improved endurance in runners after 28 days of use.

The second study, conducted with cyclists, used a double-blind, placebo-controlled crossover protocol, which is the gold standard for scientific studies. The researchers found that eight weeks of supplementation with *ciwujia* produced a 23% increase in performance and a 12% increase in peak VO₂. Yet perceived fatigue levels were no higher despite this greater work capacity. The study data also demonstrated the increase in endurance performance results from an increased breakdown of fat, which creates a muscle glycogen-sparing effect. Full results of the study can be found at www.enduranceherb.com.

PERFORMANCE NUTRITION

PREVENTING THE BRAIN BOOK

Exercise science used to ignore the brain. Performance and fatigue were

thought to be controlled by the muscles and cardiorespiratory system. The brain was just along for the ride.

Now we know better. Recent research has demonstrated that fatigue is caused by perceived exertion, or how hard exercise feels, and that perceived exertion is regulated by the brain. The brain processes that affect perceived exertion are influenced by a variety of factors, including the nutrition you consume during exercise. Three nutrients in particular have been shown to improve endurance performance by reducing perceived exertions: carbohydrate, protein, and caffeine.

Carbohydrate activates special receptors on the tongue that in turn activate a “reward center” in the brain, causing exercise to feel easier. But exercise feels even easier when carbohydrate and protein are consumed together during exercise. Scientists aren’t exactly sure how protein reduces perceived exertion, but it’s possible that they do so by increasing amino acid levels in the blood, which act as a signal to the brain.

Caffeine lowers perceived exertion during exercise by blocking adenosine receptors in the brain. This prevents adenosine molecules produced during exercise from attaching themselves to these receptors, which causes feelings of effort to intensify.

Don’t leave your brain out of your refueling strategy in workouts and races. Make it easier to work hard with carbs, protein, and caffeine.

GENERAL NUTRITION

THE ART OF SNACKING

You’ve probably heard a thousand times that you should eat small, frequent meals and snacks instead of large, infrequent meals without snacks between them. This “grazing” approach to diet is purported to boost metabolism, prevent weight gain, maintain more consistent energy levels, and prevent “blood sugar” crashes.

However, there is no scientific backing for any of these benefits. For example, studies have shown that eating frequency has no effect on the body’s metabolic rate. Research has also shown that regular snacking is just as likely to promote weight gain as to prevent it.

What appears to matter is not whether or not you snack but rather the quality of any snacks you do eat and the overall context in which your snacking takes place. If you do snack between meals, those snacks should be wholesome, natural foods such as fruit, nuts, veggie sticks, and lean jerky.

But do you even need to snack at all? If you don’t experience significant hunger between meals, your energy level does not drop in midmorning or mid-afternoon, you perform to expectations in your workouts, and you’re able to move toward your ideal racing weight as your training progresses, all without snacking, then there’s absolutely no need to force yourself to snack. Snack only if it is necessary to fix or prevent a specific problem such as hunger or poor workout performance.



**Accelerade makes
your hard work easier.**

PacificHealth Laboratories

The uncompromising pursuit of science