

## Coffee and Exercise Performance

### Overview

Exercise plays an important part in our daily lives; whether we are playing the occasional game of football with the children, walking the dog, using exercise to help keep us in shape, or enjoying our favourite sports activity.

Caffeine is found naturally in a number of plants; the most common of which are coffee, tea and cocoa. Caffeine is also added to soft drinks and sports drinks. These products are all common dietary sources of caffeine and the caffeine content of various food and drinks is given in the table below.

**Table. 1. Caffeine content of various foodstuffs**

Foodstuff	Serving size	Caffeine content (mg)
Coffee*	150 ml	50-120
Tea*	150 ml	15-50
Chocolate Drink	250 ml	10
Milk Chocolate	50g	40
Caffeinated Soft Drinks	330 ml	40-100

(From Maughan 1999)

\* Values for coffee and tea vary widely depending upon the strength of brew and method of preparation

### So what is the effect of caffeine on different types of exercise?

There is a considerable amount of research that demonstrates the beneficial effect of caffeine, from coffee and other sources, on physical performance. Its effect seems to extend across a diverse variety of sports and exercise routines. Studies have looked at the effect of caffeine on well trained, elite athletes as well as individuals participating in recreational activities, in both sexes and different age groups. The mechanism whereby caffeine may improve performance is, however, not fully understood. Research shows that caffeine is an ergogenic aid and helps to improve muscular work capacity in most if not all exercises. (Graham 2001)

Doherty et al. (2004) reviewed 39 previously published studies investigating the effects of caffeine on endurance exercises, short-duration and high intensity exercises, and graded

exercise tests. Caffeine was shown to improve performance by 12.4% relative to the placebo trial in all these data, with the greatest effect in those who undertook exercise for a longer duration at any one time. In addition to this review there have been several papers published in recent years that demonstrate that caffeine can help us to exercise for longer before we become tired. The effect has been seen across a diverse variety of sports and exercise, in both recreational and well-trained athletes and observed among individuals who consumed low amounts of caffeine, equivalent to 1-2 cups of coffee. (Wiles 2006., O'Rourke et al. 2008., Sorkmen et al. 2008., Foad 2008., Walker 2008., Jones 2008)

### **Caffeine and Fluid Requirements**

Athletes competing in hot climates, where the risk of dehydration is high, are often advised to increase their intake of fluid, but to avoid caffeinated beverages such as tea and coffee because of their diuretic effect. However, the negative effect caused by cutting such drinks from the diet may in fact have adverse consequences. (Maughan et al. 2003) In 2007, research presented a fresh perspective on topics related to hydration, fluid balance and exercise in the heat. Hydration status does affect exercise performance in the heat. For many years recommendations have been published advising active individuals to avoid caffeinated beverages. However, consumption of caffeine levels of 300 mg or less does not promote dehydration at rest or during exercise. These researchers conclude by saying that 'There is no evidence to support caffeine restriction on the basis of impaired thermoregulation or changes to hydration status at levels less than 300-400 mg/day'. (Ganio 2007)

### **Conclusion**

It can be concluded from the widely available research, that a cup of coffee provides useful amounts of caffeine, which may help you to increase your performance as well as exercise for longer before exhaustion. Furthermore, enjoying coffee in moderation contributes to your daily fluid intake, which is essential to both well trained and recreational sports men and women.

### **Frequently Asked Questions**

#### **Q. Is coffee stimulating?**

A. Caffeine, found naturally in coffee, is a mild central nervous system stimulant.

#### **Q. I have heard that coffee leads to better physical performance, is this true?**

A. Yes. Several published research papers over many years have shown that caffeine in coffee is an ergogenic aid – ergogenic means 'something that can increase muscular work capacity'.

**Q. How long does the beneficial effect last?**

A. Once consumed the effect of caffeine will be experienced after about 20 minutes and can last for several hours.

**Q. How much coffee do I need to drink to experience this effect?**

A. The amount is relatively small, with benefits on performance being seen after one large cup of coffee containing approximately 90 mg of caffeine.

**Q. How does coffee help to boost my physical performance?**

A. Whilst the beneficial effect is well documented in scientific literature, the exact mechanism of action is not yet fully understood.

**Q. I had heard that coffee is a diuretic and that I should avoid coffee and other caffeine containing drinks before or during exercise – is this good advice?**

A. It is not necessary to exclude caffeine containing beverages from your diet before or during exercise. There is no evidence to support caffeine restriction on the basis of impaired thermoregulation or changes to hydration status at levels less than 300 – 400 mg per day, equivalent to 3 to 4 regular size cups of coffee a day.

**Q. So is it fair to say that the 3 to 4 cups of coffee I enjoy can be part of a healthy diet and lifestyle – whether I exercise or not?**

A. Yes. Coffee drinking in moderation is safe and can be an enjoyable part of a healthy balanced diet.

**References**

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