



CAFFEINE INFORMATION SHEET

In accordance with British Rowing's Supplement Policy GB Rowing Team squad rowers should not take any supplement without the advice and supervision of your squad doctor/nutritionist.

What is caffeine?

- Caffeine is a naturally occurring stimulant which can be found in a wide variety of food stuffs, such as coffee, tea, soft drinks, chocolate, over-the-counter cough/cold and pain-relieving medications and herbal/nutritional supplements.
- Following consumption, levels of caffeine in the blood typically peak within an hour, before dropping off again in 3-4 hours. However, this timescale is extremely variable across individuals, being influenced by such factors as age, liver function and pregnancy.
- Once inside the body caffeine acts both directly and by interaction with other substances to promote readiness for mental and physical work. Caffeine's physiological action is exhibited through effects as wide ranging as inhibition of central nervous system receptors in the brain and promotion of the optimal cellular conditions for muscle contraction in the periphery.
- Caffeine sensitivity is heavily influenced by regular consumption, although habitual users can still achieve stimulatory effects by controlling both the quantity and timing of dosing for optimal outcome. The dose required to deliver an optimal physiological impact is highly individual and requires careful trialing.
- Excessive or ill-timed caffeine intake can result in a number of undesirable side effects such as nausea, headache, anxiety, muscle tremor, heart palpitations and insomnia. Likewise, the side effects of caffeine withdrawal can be equally unpleasant.
- Moderate levels of caffeine intake (about 300mg/day, 4-5 cups of tea/coffee/day, 3 cans of RedBull/day or 6 cans of Coke) do not appear to exert a diuretic effect. For the majority of the adult population there is no evidence that this level of dosing causes harm.
- There is no dose-response relationship with caffeine. Therefore more is not better and high doses (6-9mg/kg) may actually cause side effects that reduce performance.
- From 1 January 2004, caffeine was removed from the WADA prohibited substances list such that it is no longer prohibited in or out of competition. You may consider though that its use is ethically questionable.

Can caffeine enhance performance?

Physical effects:

- Although research findings are equivocal, the general consensus of available evidence indicates that moderate levels of caffeine (1-3mg per kg bodyweight) taken about 1 hour before exercise can improve endurance performance, particularly when the duration of exercise extends beyond 30 minutes. There may also be benefits of caffeine for shorter duration, higher intensity effort



although the greatest effects are seen during endurance exercise. A large degree of variation in individual response exists.

Mental effects:

- Caffeine has been shown to enhance mood, reduce perception of effort, increase alertness and improve reaction time. However, most of these observations have not been made in elite athletes. It is important to consider that caffeine intake may also increase anxiety and promote muscle tremor and loss of fine motor skill.
- Arousal management is one of the key skills in preparing for competition and the effects of caffeine in such situations are not well researched. The blanket effect of increasing arousal and activation may not be desirable.

In conclusion

It is unclear whether caffeine intake will directly affect a competitive rowing performance over 2km. However, there is evidence that caffeine can help some individuals, particularly if not habituated, to optimise performance when training over long duration (30minutes or more). Caffeine use for performance in training or competition should be weighed up against the potential and unpredictable impact on your normal pre-performance routine, particularly in those not habituated.

If you are considering the use of Caffeine discuss with your squad doctor/nutritionist before doing so.

Dr Ann Redgrave
GB Rowing Team
Chief Medical Officer

Wendy Martinson
GB Rowing Team
Lead Nutritionist

Reviewed December 2009