

Tea B-urn: Green to Lean

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Drinking a couple of cups of green tea before exercise could help burn fat, researchers at the University of Birmingham suggest.

Scientists have found that green tea can increase fat oxidation – the rate at which fat is broken down inside the body – during moderate intensity exercise. The beverage can also improve insulin sensitivity and glucose intolerance, meaning it could have the potential to reduce the risk of type 2 diabetes.

It is believed that green tea exerts its effects on fat oxidation through the inhibition of catechol O-methyltransferase, an enzyme that degrades the hormone noradrenaline. Higher concentrations of noradrenaline could potentially result in a continuing stimulation of the mobilisation of fats from fat stores. These fats may then be transported to the muscle and used as a fuel during exercise.

Experts from the School of Sport and Exercise Sciences carried out the study, published in the current edition of The American Journal of Clinical Nutrition.

The team of researchers, led by Dr Asker Jeukendrup, carried out two studies on young healthy men, who took either Green Tea Extract (GTE) – the equivalent of 3.5 cups - or a placebo before performing in cycling trials. Scientists found that in the first group, the average fat oxidation rates were higher and that the contribution of fat oxidation to total energy expenditure was also significantly higher.

Green tea, discovered in China nearly 5,000 years ago, has long been thought to have health benefits. Dr Jeukendrup said: " Over the last 10 years we have tried to find ways to increase fat burning during exercise. Apart from exercise training none of these ways have been very successful. EGCG, the active compound in green tea, seems to be different and caused a significant increase in fat burning. This has potentially positive effects for athletes who want to increase their fat burning capacity or obese and diabetic patients who want to burn fat and lose weight."

In addition to effects on fat metabolism, green tea may have an effect on glucose tolerance and insulin sensitivity by improving glycemic control after an oral glucose load. After a meal insulin increases and this hormone makes sure that the nutrients are taken up by different tissues. In patients with type 2 diabetes tissues are insensitive to insulin. The study showed, however, that green tea extract ingestion can increase insulin sensitivity by 13 per cent and can reduce the insulin response to a glucose load of 15 per cent.

Dr Jeukendrup said: "There is indirect evidence that the capacity to burn fat is related to various health benefits. An increased ability to burn fat may reduce the risk of developing type 2 diabetes, cardiovascular disease and obesity."

"The best way to increase the capacity to burn fat is by regular physical activity. Nutrition supplements, sold as 'fat burners', are often claimed to have these effects but most of them are ineffective. Therefore the findings of this study are very exciting. The green tea extract had substantial effects on fat oxidation. We now need to study this further and find out what doses are needed and what the clinical implications are for obese and diabetic patients."

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Notes to Editor:

'Green tea extract ingestion, fat oxidation and glucose tolerance in healthy humans' will be published in the next edition of The American Journal of Clinical Nutrition.

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