



## **Can Garcinia Cambogia Curb Appetite? You Decide!**

Garcinia Cambogia is found naturally in India and parts of Asia, and also on the Pacific coast of South and Central America all the way from Peru up to Mexico, and likes a humid forested environment. Also known as Brindall berries, garcinia is believed to act as an appetite suppressant and allows you to lose weight by diminishing your desire for food.

The Malabar tamarind, as it is also known, is about the size of an orange resembling a small pumpkin, and an extract from the fruit and rind is used in several weight loss products. The health risks presented by synthetic diet pills render a natural product extremely attractive were it to be effective. So can Garcia curb your appetite? What is the scientific evidence for it, and what biochemical route would it take?

Although tests on animals have been very positive, human results have been inconsistent. In some double blind tests using a placebo, weight loss was up to three times that of the control, but in others there was no apparent difference between those taking garcinia, and those given a placebo. However, doubts have been raised of the validity of some of the negative tests, so what does science tell us?

The active ingredient in the cambogia extract is hydroxycitric acid (HCA), which is a powerful inhibitor of ATP citrate lyase, an enzyme that catalyzes the reaction between citrate and Coenzyme A to Acetyl CoA and oxaloacetate. Since the acetyl CoA is necessary in the synthesis of fatty acids and lipogenesis (the conversion of glucose to fatty acids), then anything that inhibits the biosynthesis of acetyl CoA must help to reduce the amount of fat stored in your body.

By inhibiting this reaction, that occurs outside the mitochondria so is not a direct part of the Citric Acid Cycle, HCA should theoretically suppress the formation of fats from carbohydrates, reduce food intake and thereby induce weight loss. But that is not the only mechanism.

A study at Georgetown University in Washington found that after 8 weeks of taking the garcinia extract, there was a 5.4% reduction in body weight and body mass index, and a significant reduction in low density lipoproteins (LDL) and triglycerides with an associated rise in high density lipoproteins (HDL). This is good news for those suffering from high cholesterol levels, since the LDL lipoproteins are those that carry cholesterol to the major blood vessels, and which when oxidized by free radicals deposit fatty plaques on the artery walls. These plaques constrict the arteries and the resultant atherosclerosis



can lead to cardiac problems and strokes. HDL lipoproteins carry cholesterol back to the liver for destruction, and is known popularly as ‘good cholesterol’.

The studies also indicated modifications to certain indicators of the status of fat deposits in the body and of appetite modifiers in the brain. In this respect they found 38% decreases in serum leptin and increases in serotonin levels of 44%, and the excretion of fat metabolites in the urine increased from between 32% and 104%.

These are significant findings, and further research has indicated that HCA helps to suppress appetite. Serum leptin is an indicator of the level of fat stores in the body, and as the leptin levels in the blood reduces, the hypothalamus is given an instruction to increase the appetite so as to increase the fat levels again. However, it is believed that HCA possesses leptin-like properties, and this signal is either not generated or is modulated.

The increase in serotonin has the same effect. It is known that serotonin controls the appetite, although the exact mechanism has not yet been established. What is known is that serotonin activates certain neurons and melanocortin-4 receptors (MC4R) in the brain, that not only curb appetite but also block the effect of other neurons that would normally increase appetite by blocking the effect of MC4Rs.

This is how the banned anti-obesity and serotonin inciting drug Fen-Phen operated, and it appears that the hydroxycitric acid in garcinia cambogia extract acts in a similar, but safer, way. The problem with drugs such as Feb-Phen was that they created cardiac problems which could be dangerous to obese people whose hearts might have been weakened.

However, now that the biological pathway by which serotonin controls weight is believed to be known, if not fully understood, the way is becoming clearer as to how safer weight loss pills, acting through appetite suppression, might be developed. It also provides a valid scientific explanation for the effect of garcinia cambogia extract which might in itself prove to be that safer way.

The biochemistry supports the evidence of its effect on those wanting to lose weight, and also bolsters the claims that those tests and trials found to be negative were in some way flawed. Until the full chemical pathway is understood, the factors that can lead to flawed tests are unknown, although one could be the use of excessive fiber in some trials that could reduce the effect of the extract.

One of the effects of HCA is to limit the ability of your body to convert carbohydrates into fat (the Acetyl CoA inhibition mentioned above). That, combined with suppression of your appetite and a higher rate of thermogenesis, prevents the body from storing excess carbohydrates as fat. Instead you will have increased energy levels, so you should



exercise to use this up while taking garcinia extract. For this reason it is popular with athletes and bodybuilders seeking an energy source that has not yet been banned from sport.

Although diet pills based on the same principle had side-effects and could make the user feel on edge, there are none known with garcinia. However, it is possible to reduce the absorption of some essential nutrients due to appetite suppression, so do not exceed the recommended dose. An excessive amount can also led to gastric discomfort, but none of these effects have been noted when the recommended doses have been adhered to.

However, if you are diabetic, pregnant or a nursing mother, you should consult with your physician or health professional before taking the extract. Garcinia Cambogia presents no specific risk to such people, and this warning should be given for all non-prescriptive treatments that your physician might be unaware of you taking.



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