Block Absorption of Killer Carbohydrates

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Seaweed Extracts

Extracts from several seaweed species (actually the complex algae known as kelp) are potent inhibitors of amylase and another digestive enzyme called alpha-glucosidase. They have proven to be cost-effective means of preventing the progression of diabetes in pre-clinical models. In particular, extracts of Fucus vesiculosus and Ascophyllum nodosum are known to help lower blood glucose in normal and diabetic animals.

A recent detailed study of a seaweed compound containing extracts from both Fucus and Ascophyllum offers insights into their mechanisms and benefits. The combination was given to laboratory rats prior to a meal with a high glycemic index. Such meals typically produce a rapid rise in both glucose and insulin levels in the blood, with an equally rapid drop within 60 minutes. The glucose spike contributes to excessive formation of dangerous advanced glycation end-products (AGEs). The insulin spike contributes to paradoxically low blood sugar at about 90 minutes, which can create a sensation of hunger, prompting excess food consumption.

The seaweed combination cut postprandial sugar spikes by 90% compared with untreated animals. That in turn reduced the insulin spike by 40%, which completely eliminated the period of low blood sugar that followed the meal in untreated rats.

In response to this seaweed combination, postprandial glucose and insulin profiles were modified to levels resembling meals with a much lower glycemic load. Blood sugar rose more slowly, achieved a shorter and more modest peak level, and then declined more gradually without ever “bottoming out” at an abnormally low level.

A recently completed human clinical trial produced similarly promising results. In this randomized, crossover, placebo-controlled, double-blind study conducted at Laval University, 23 healthy volunteers consumed 500 mg of a Fucus-Ascophyllum combination along with a high-glycemic index meal of white bread. The seaweed combination produced a 44% reduction in the glycemic response that normally follows ingestion of such a meal. The seaweed combination also produced a 22% reduction in the initial insulin production following the meal, and an overall 5.9% reduction in the area under the curve of the insulin response. The study results will be presented at the Experimental Biology meeting in Anaheim in April, 2010.

The findings suggest that in humans, the Fucus-Ascophyllum compound may lead to earlier satiety, longer intervals between meals, fewer urges to snack, and lower total calorie intake.

Green Tea Extract

Raising basal metabolic rate is another effective mechanism for offsetting excess carbohydrate intake. Green tea extract boosts the “resting” metabolism by inhibiting an enzyme called catechol-O-methyl transferase or COMT that breaks down noradrenaline, an adrenaline-like hormone that sustains energy production. The resulting higher levels of metabolic activity help to burn off excess calories.

In a large clinical trial, a patented green tea phytosome extract produced exceptional weight loss in obese individuals. Supplemented subjects lost almost 31 lbs over 3 months, while controls lost just 11 pounds! Both groups followed a low calorie diet. Multiple studies of overweight and obese adults indicate that green tea extracts can reduce abdominal fat as well as total cholesterol, LDL, and fasting triglyceride levels.

Green tea provides another benefit in helping to alleviate the metabolic burden imposed by excess calorie ingestion. It has been shown to inhibit the lipase digestive enzyme that breaks down dietary fats for absorption into the blood.

SUMMARY

Roughly 1 in 5 Americans are pre-diabetic, a result of excess calorie consumption and normal aging. Sucrase, amylase, and glucosidase are digestive enzymes that break down carbohydrates, and lipase is a digestive enzyme that breaks down fat,
facilitating absorption of excess calories into the blood.

As humans age, the impact of chronic caloric overload enabled by these digestive enzymes can lead to an array of life-threatening conditions ranging from high blood sugar and insulin to type 2 diabetes, obesity, and metabolic syndrome.

Natural compounds have been shown to effectively inhibit these digestive enzymes and impede the absorption of excess carbohydrate. L-arabinose neutralizes sucrase, reducing uptake of sugar (as sucrose) into the blood. Extracts of white bean, *Irvingia gabonensis*, and certain seaweeds block amylase and glucosidase activity, further reducing the number of ingested carbohydrate calories that are absorbed. Green or black tea extract can help reduce the activity of lipase, a digestive enzyme that helps break down fat in the gastrointestinal tract.

These natural compounds have been shown to effectively lower excess calorie absorption while reducing postprandial (post-meal) blood sugar and blood fat (triglyceride) spikes.

*If you have any questions on the scientific content of this article, please call a Life Extension® Health Advisor at 1-866-864-3027.*

**References**


34. Ngondi JL, Oben JE, Minka SR. The effect of Irvingia gabonensis seeds on body weight and blood lipids of obese subjects in


37. Oben JE, Ngondi JL, Blum K. Inhibition of Irvingia gabonensis seed extract (OB131) on adipogenesis as mediated via down regulation of the PPARgamma and leptin genes and up-regulation of the adiponectin gene. Lipids Health Dis. 2008;7:44.


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