

# THE DOCTOR IS IN:

## Cinnamon – The Spice that Makes Blood Sugar Nice

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For more than 5,000 years, there has been a spice that has lured humans with its ability to stimulate the senses: Cinnamon. The name alone evokes thoughts of home, where the smell of savory stews and scrumptious deserts fills the air and calms the mind. The desire to experience cinnamon's exotic aroma, taste its sweet sensation, and employ its health benefits has spawned wars and, according to some, was an inspiration for Christopher Columbus' world exploration. Today, there is renewed enthusiasm for this ancient botanical which emerging science suggests may help maintain healthy blood sugar levels already within a normal range and help prevent unwanted weight gain when accompanied by diet and exercise.\*

### Not Your Average Tree Bark!

Cinnamon has been used as a culinary and health promoting spice for over 4,000 years. It is mentioned in ancient Chinese texts and was part of a holy anointing oil described in the Bible. There are two main varieties of cinnamon, *verum* and *aromaticum*, which are native to Sri Lanka and China respectively. The bark of these evergreen trees has been used throughout history to flavor and preserve foods as well as warm the body, ease childbirth, and provide relief from digestive complaints.

### The USDA's Sweet Surprise

The recent revival of cinnamon as a prized health promoting herb with particular benefits for the metabolic system can be largely attributed to work done by researchers at the US Department of Agriculture's Beltsville Human Nutrition Research Center more than a decade ago. In studying the effects of different foods on blood sugar levels, the researchers made a surprising discovery. Good old-fashioned apple pie, despite its high sugar content, did not dramatically alter blood sugar levels. Through process of elimination, cinnamon was identified as the ingredient in the pie responsible for the desirable effect. Further research from the USDA and other prestigious institutions has since elucidated several impressive mechanisms by which this effect occurs. But, first, a biochemistry lesson. . .

### The Importance of Healthy Insulin Response

All cells in the body are required to have a constant source of fuel for energy production. For most cells, the preferred fuel is glucose, which is easily obtained from sugars and starches in the diet. Since excess glucose in the blood can wreak havoc on the cardiovascular system, nerves, kidneys, and eyes, the body has developed a metabolic response system that ensures blood sugar levels are kept relatively stable. Crucial to this balancing act is insulin, a hormone produced by the pancreas and released in response to a meal. Insulin delivers a message to the body's cells to absorb glucose from the bloodstream and use it for energy production. The ability of cells to respond to insulin is critical for not only for maintaining healthy levels of blood sugar, but for preventing excessive fat production, inflammation, food cravings, and fatigue.

Now, back to cinnamon. . .

### Cinnamon's Key Chemistries

Cinnamon contains a unique group of phytonutrients known as polyphenol polymers which have been shown in laboratory studies to both enhance and mimic insulin activity, increasing insulin-dependent glucose metabolism roughly twenty times. In other words, these laboratory studies indicate that, in the presence of these phytonutrients, glucose may convert more efficiently into energy rather than be stored as potential energy in the form of fat. Additional research conducted at Iowa State University suggests that the polyphenol polymers actually up-regulate the expression of genes involved in activating the insulin receptor on the cell surface, and thus may enhance glucose absorption and utilization.

Cinnamon's polyphenol polymers can't take all the credit though. A phytochemical present in the fat-soluble fraction of cinnamon called cinnamaldehyde has also been shown to support blood sugar and cholesterol metabolism in animals prone to blood sugar imbalances, most likely via its ability to modulate inflammation and quench free radicals, both of which can affect insulin sensitivity.\* Taken together, these studies underscore the importance of using whole cinnamon rather than its isolated constituents for optimally supporting a healthy blood sugar response.\* Moreover, almost all of the human clinical studies demonstrating the healthy blood sugar metabolism benefits of cinnamon have featured whole cinnamon or a whole herb extract of it. One study found that as little as 1 gram (1/4 teaspoon) a day of whole cinnamon for forty days significantly improved markers of blood sugar metabolism and cholesterol metabolism. What's even more impressive is that the subjects continued to experience the benefits nearly three weeks after stopping the cinnamon, suggesting a sustained mechanism of action. In other words, it is okay if you miss a serving every now and then.

In addition to supporting normal insulin sensitivity, a recent clinical study suggests that taking cinnamon with a meal high in carbohydrates may lessen the meal's impact on blood sugar metabolism by helping to slow the rate at which the stomach empties after meals. The slower the stomach empties, the slower sugar is released into the bloodstream, and the easier it is to utilize. In the study, researchers gave 14 healthy subjects 300 grams (1.2 cups) of rice pudding alone or seasoned with 6 grams (1.5 teaspoons) of cinnamon. The addition of cinnamon lowered the rate at which the stomach emptied from 37% to 34.5% and resulted in more stable blood sugar levels after eating.

### Cinnamonforce® – Support for Blood Sugar\*

Whether your health goal is to maintain normal blood sugar balance already within a normal range, healthy weight, or support cardiovascular health which is linked to both of these things, this ancient spice may be your best herbal ally.\* But don't worry, you need not sprinkle it on everything you eat. A product called **Cinnamonforce** offered by **New Chapter**® (newchapter.com) features a unique blend of *verum* and *aromaticum* cinnamon, both of which are Potency Assured™ for bioactive polyphenols and cinnamaldehyde. **New Chapter's** unique supercritical extraction process gently concentrates the full spectrum of phytonutrients available in cinnamon without the use of harsh solvents or heat. Two capsules provide the equivalent of 1 gram of the world's finest cinnamon blend. Now you can have your sugar and use it too!

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