

**Coconut Flour**  
**A Low-Carb, Gluten-Free Alternative to Wheat**  
By Bruce Fife, ND

I love wheat and all the things that are made from it—cakes, cookies, pies, pizza, pasta, pancakes, muffins, the list goes on and on. Wheat products are the most popular foods in our American diet. Wheat, in one form or another, is eaten in just about every meal.

Some people, however, are allergic to wheat or cannot tolerate gluten—the protein in many grains. Others avoid wheat and grains to cut down on their carbohydrate intake to improve their health or lose excess weight. For whatever reason, planning meals without wheat is a challenging task.

In an attempt to solve this problem food manufacturers have developed a variety of wheat-free or low-carb breads and flours made from soy, beans, and nuts. Most low-carb and gluten-free alternatives to wheat are expensive and, honestly, don't taste that good, unless they are loaded with flavour enhancers and sweeteners of one type or another.

Coconut flour provides a suitable solution. Coconut is naturally low in digestible carbohydrate, contains no gluten, is cheaper than most other nut flours, is loaded with health promoting fibre and important nutrients, and tastes terrific. Coconut flour is made from finely ground coconut meat with most of the moisture and fat removed. This flour can be used much like wheat flour to make a multitude of delicious breads, pies, cookies, cakes, snacks, and desserts as well as main dishes. Coconut flour contains less carbohydrate than soy or other nut flours. It contains more calorie-free fibre than other wheat alternatives. Coconut flour also provides a good source of protein. While coconut flour does not contain gluten—the type of protein found in many grains—it does not lack protein. It contains more protein than enriched white flour, rye flour, or cornmeal and about as much as whole wheat flour.

**High-Fibre, Low-Carb**

There are two types of carbohydrate in foods: digestible and non-digestible. The type of carbohydrate that is of concern to most people is digestible carbohydrate—the starch and sugar in our foods. These are the carbs that the body converts into fat and packs into our fat cells. These are the carbs that, when eaten in excess, contribute to an assortment of health problems such as insulin resistance, obesity, and diabetes. These are the carbs that people on low-carb diets try to avoid.

Non-digestible carbohydrate, on the other hand, is composed of fibre and passes through the digestive tract without being broken down or absorbed and is passed out of the body essentially unaltered. Instead of contributing to health problems like starch and sugar do, fibre promotes good health. Most of us don't eat enough fibre and nutritionists encourage us to increase our fibre intake. The best way to do this is by eating foods rich in fibre such as whole grains, vegetables, and fruits.

Whole grains such as wheat and rye are some of the richest sources of fibre. Grains contain more fibre than fruits and vegetables. However, for people who cannot tolerate gluten, this isn't an option.

Coconut is a natural low-carb, high-fibre food ideally suited for low-carbohydrate diets. One cup of shredded fresh coconut (80 grams) contains a mere 3 grams of digestible carbohydrate and 9 grams of fibre. The remaining 68 grams consists primarily of water, fat, and protein. Although a piece of fresh coconut may taste sweet, its digestible carbohydrate content is lower, and its fibre content higher than most fruits and vegetables. Coconut has three times as much fibre as it does digestible carbohydrate. In comparison, a similar volume of green beans contains 7 grams of digestible carbohydrate and only 3 grams of fibre. A carrot has 8 grams of digestible carbohydrate and only 4 grams of fibre.

**Weight Management**

Since you cannot digest dietary fibre, you do not derive any calories from it. Dietary fibre is calorie-free. You can eat as much as you like without worrying about gaining weight—good news for those who are concerned about their weight.

Fibre absorbs water like a sponge. For this reason, it aids in filling the stomach and producing a feeling of fullness. It provides bulk without supplying fat-promoting calories. Fibre also slows down the

emptying of the stomach, thus maintaining the feeling of fullness longer than low-fibre foods. As a result, less food and fewer calories are consumed.

Studies have shown that consumption of an additional 14 grams of fibre a day is associated with a 10 percent decrease in calorie intake and a loss in body weight. The observed changes occur both when the fibre is from high-fibre foods, like fresh vegetables or coconut, or when it is from products made with high-fibre flours, such as coconut flour.

When you eat high-fibre foods that are generally low in calories, you crowd out higher calorie foods. Simply adding high-fibre foods into your diet will lower your calorie intake even if you eat the same volume of food as you normally do.

### **Blood Sugar and Diabetes**

Blood sugar is an important issue for anyone who is concerned about heart disease, overweight, hypoglycaemia, and especially diabetes because it affects all of these conditions.

Carbohydrates in our foods are broken down in the digestive tract and converted into glucose (blood sugar). Meals that contain a high concentration of carbohydrates, particularly simple carbohydrates such as sugar and refined flours, cause a rapid rise in blood sugar. Since elevated blood sugar can lead to a coma and death, insulin is frantically pumped into the blood stream to avoid this. If insulin is produced in adequate amounts blood sugar is soon brought back down to normal. This is what happens in most individuals. However, if insulin is not produced quickly enough or if the cells become desensitized to the action of insulin, blood glucose can remain elevated for extended periods of time. This is what happens in diabetes.

Dietary fibre helps moderate swings in blood sugar by slowing down the absorption of sugar into the blood stream. This helps keep blood sugar and insulin levels under control. Coconut fibre has been shown to be very effective in moderating blood sugar and insulin levels. For this reason, coconut is good for diabetics.

Diabetics are encouraged to eat foods that have a relatively low glycaemic index. The glycaemic index is a measure of how foods affect blood sugar levels. The higher the glycaemic index, the greater an effect a particular food has on raising blood sugar. So diabetics need to eat foods with a low glycaemic index. When coconut is added to foods, including those high in starch and sugar, it lowers the glycaemic index of these foods. This was clearly demonstrated by T. P. Trinidad and colleagues in a study published in the British Journal of Nutrition in 2003. In their study, both normal and diabetic subjects were given a variety of foods to eat. Some of the types of food included cinnamon bread, granola bars, carrot cake, and brownies—all foods that a diabetic must ordinarily limit because of their high sugar and starch content. It was found that as the coconut content of the foods increased, the blood sugar response between the diabetic and non-diabetic subjects became nearly identical. In other words, coconut moderated the release of sugar into the bloodstream so that there was no spike in blood glucose levels. As the coconut content in the foods decreased, the diabetic subjects' blood sugar levels became elevated, as would normally be expected from eating foods high in sugar and white flour. This study showed that adding coconut to foods lowers the glycemic index of the foods and keeps blood sugar levels under control. Sweet foods such as cookies and cakes made using coconut flour do not affect blood sugar levels like those made with wheat flour. This is good news for diabetics who want a treat now and then without adversely affecting their blood sugar.

### **Cancer**

Fibre acts like a broom, sweeping the intestinal contents through the digestive tract. Parasites, toxins, and carcinogens are swept along with the fibre, leading to their timely expulsion from the body. This cleansing action helps prevent toxins that irritate intestinal tissues and cause cancer from getting lodged in the intestinal tract. Colon cancer is second only to lung cancer as the world's most deadly form of cancer. Many studies have shown a correlation between high-fibre diets and a low incidence of colon cancer. For example, in one of the most extensive studies to date, involving over 400,000 people from nine European countries, it was found that those who had the highest fibre intake were 40 percent less likely to develop colon cancer.

Fibre readily absorbs fluids. It also appears to absorb harmful carcinogens and other toxic substances. Researchers at the University of Lund, Sweden, found that fibre in the diet can absorb toxins that promote cancer. Various types of fibre were examined for their absorption capacity and found to absorb 20 to 50 percent of these carcinogenic compounds.

Dr. B. H. Ershoff of Loma Linda University summarized studies reported by the Committee on Nutrition in Medical Education. The studies compared groups of rats and mice, some given high-fibre diets and others given low-fibre diets. The animals were fed various drugs, chemicals, and food additives. These substances proved to be poisonous to the animals on the low-fibre diets, yet those given high-fibre diets showed no deleterious effects.

Logically you can see the relationship between dietary fibre and its protective effect in the colon, but studies also show it protects against breast, prostate, and ovarian cancers as well. One explanation for this is that toxins lingering in the colon are absorbed into the bloodstream, and the blood then carries these toxins to other parts of the body where they can cause cancer.

Another explanation involves oestrogen. Oestrogen is required for the early growth and development of breast and ovarian cancer. The liver collects oestrogen and sends it into the intestines where it is reabsorbed into the bloodstream. A high-fibre diet interrupts this process. Less oestrogen is allowed back into the bloodstream because the activities of bacterial enzymes in the intestine are reduced. Studies show that serum oestrogen can be significantly reduced by a high-fibre diet. Progesterone, which is an antagonist to oestrogen and helps protect against cancer, is not affected or reduced by fibre.

One of the primary reasons given to explain why dietary fibre protects against colon and other cancers is that it increases intestinal transit time. If carcinogenic substances, hormones, and toxins are quickly moved through the digestive tract and out of the body, they don't get a chance to irritate tissues and instigate cancer. Coconut fibre not only absorbs and sweeps carcinogenic toxins out of the intestinal tract, it also helps prevent the conditions that promote cancer. Evidence suggests that coconut fibre may also prevent the formation of tumours in the colon by moderating the harmful effects of tumour-promoting enzymes.

### **Coconut Dietary Fibre and Coconut Flour**

Nutritionists recommend that we get between 20 to 35 grams of fibre a day. This is 2 to 3 times higher than the average intake, which is about 10-14 grams a day. Adding coconut dietary fibre or foods made with coconut flour to your diet can significantly improve your daily fibre intake. Coconut fibre is sold as a dietary supplement. Coconut flour is sold as a grocery item like other flours. Both coconut dietary fibre and coconut flour are made from ground coconut. The difference between them is subtle, however, they may differ slightly in particle size and nutrient content.

You can increase the fibre content of your meals and enjoy many of the health benefits of coconut by simply adding a little coconut dietary fibre into the foods you normally eat each day. Research shows that adding even a little fibre to the diet can have a significant influence on health. For example, in a study on cardiovascular disease, a high-fibre diet was associated with a 21 percent lower risk of heart disease. The difference in fibre intake of the subjects wasn't great. The highest intake was only 23 grams, only about 9 or 10 grams above average. You can easily increase the fibre in your diet by 9 or 10 grams by simply adding a few tablespoons of coconut dietary fibre into the foods you normally eat each day.

You can do this by adding a tablespoon or two of coconut fibre to beverages, smoothies, baked goods, casseroles, soups, and hot cereal. This is a simple and easy way to add fibre into your daily diet without making drastic changes in the way you eat. Another way to add coconut fibre into your diet is by using coconut flour in your baking.

Up until recently coconut flour has not been used much for making baked goods. Since coconut flour lacks gluten and is highly absorbent it cannot be substituted entirely for wheat flour in standard recipes. If you tried to make a chocolate cake by replacing all the wheat flour with coconut flour using a standard cake recipe you would fail completely. Your cake would be hard and crumbly and taste terrible.

In most cases, coconut flour cannot be substituted completely for wheat or other flours in typical bread recipes. You need to combine it with wheat, rye, or oat flour. When making quick breads, you can generally replace up to 25 percent of the wheat flour with coconut flour, but 10 to 20 percent is better. This still increases the fibre content considerably.

If you are allergic to wheat or sensitive to gluten you won't want to use standard bread recipes. In that case, my new book *Cooking with Coconut Flour: A Delicious Low-Carb, Gluten-Free Alternative to Wheat* will be of great value to you. All of the recipes in this book are completely wheat free, using only coconut flour. No other flours are needed. Recipes include breads, muffins, cakes, cookies, crackers, pies, and even main dishes like chicken pot pie and chicken and dumpling stew. You will love the German chocolate cake and the blueberry muffins. If you're concerned about sugar you don't need to worry, all sweet recipes include low sugar versions. These foods taste so good you would never know they are made with coconut flour rather than wheat.

Bruce Fife, ND is a certified nutritionist and naturopathic physician. He is the author over 20 books including *Cooking with Coconut Flour* and *Coconut Cures* and serves as the director of the Coconut Research Center [www.coconutresearchcenter.org](http://www.coconutresearchcenter.org).

Niulife Coconut Flour is available in Australia from **Kokonut Pacific Pty Ltd**

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