

Benefits of Using Modified Foods: Case Examples

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Plant Sterols/Stanoles Modified Foods

Plant sterol and stanol esters block the intestinal absorption of dietary and biliary cholesterol. Studies show that an intake of approximately 2 g of plant sterols and stanols daily may lower plasma total and low-density lipoprotein (LDL) cholesterol. A wide range of foods and beverages are available which contain plant sterols and stanols. The American Diabetes Association recommends that if these products are used, they should replace, rather than be added to the diet to avoid weight gain (1).

Meet BC

- 38-year-old married man with a young child
- Worked in a highly demanding job with a Fortune 500 company
- Recently diagnosed with metabolic syndrome and impaired fasting glucose
- Advised by his physician to lose weight, exercise and consult with a registered dietitian
- BC decided to see what progress he could first make on his own
- Successfully lost 15 lb, reaching a normal body mass index (BMI) primarily through portion control and reduced fat intake
- Worked up to jogging 1 to 3 miles 3 to 4 days each week
- Continued to struggle with mildly elevated lipids and presented for nutrition guidance

BC's Meeting for Better Eating

At BC's visit with the registered dietitian, several dietary interventions to assist in improving his lipid profile were discussed. Given his demanding lifestyle, BC concluded, that he was not committed to making a lot of changes in his eating habits, but would be willing to incorporate 2 g of plant sterols into his daily diet and evaluate the effect at his 6-month lipid follow-up. He used a combination of the following to achieve a daily 2-g intake while continuing with a reduced fat intake and portion control:

- Plant stanol ester spread (0.85 g per tablespoon)
- Granola bars containing plant sterols (0.4 g per bar)
- Caramel-flavored chews containing plant stanol esters (0.85 g per chew)

BC's Success

His 6-month follow-up lipid profile showed a 10% reduction in total cholesterol and LDL cholesterol levels.

Fiber Enriched Foods

Including a variety of fiber-containing foods on a daily basis is encouraged for those with diabetes. Achieving a fiber intake of 14 g/1,000 calories, the same target for the general population, is a desirable initial goal. Research suggests that a higher fiber intake (of approximately 50 g/day) is associated with lowering blood glucose in both type 1 and

type 2 diabetes, as well as reducing hyperinsulinemia and lipids in type 2 diabetes (1). In addition to fruits, vegetables, whole grains, and legumes, a wide variety of tasty fiber-enriched foods/products are available to help individuals easily increase their fiber intake.

Meet DH

- 56-year-old married man with grown children
- Works as an architect
- Type 2 diabetes diagnosed in the past year
- Partial colectomy secondary to severe diverticular disease
- Mild hyperlipidemia
- Hemoglobin A1C level of 6.1%
- Has successfully lost 17 lb via lifestyle change
- BMI in normal range
- 30 minutes aerobic exercise 4 days per week via walking, biking, yard work
- Currently no diabetes or lipid medications
- Seeking guidance on increasing his fiber intake

DH's Meeting for Better Eating

DH had received comprehensive diabetes education, was following a consistent carbohydrate eating plan, and maintaining his weight. Food records revealed his average daily intake was 1,800 to 2,000 calories. The primary concern at the nutrition follow-up visit was increasing his fiber intake for intestinal health and assisting in lipid control. His target

fiber intake was set at 30 g/day or more. DH desired to achieve a greater fiber intake if possible. DH realized that he needed to work toward his goal by gradually increasing his fiber consumption and drinking adequate calorie-free liquids. In addition to his regular fruit, vegetable, and whole grain and bean intake, which provided 15 to 20 g of fiber daily, DH incorporated the following fiber-enriched products into his eating plan to achieve his target:

- Chewy high-fiber bars as part of a quick breakfast and/or as an afternoon snack (9 g fiber per bar)
- Fat-free fruit-flavored fiber-enriched yogurt with lunch (5 g fiber per 4 oz container)
- Sugar-free orange-flavored psyllium fiber supplement (3.4 g fiber per rounded teaspoon)

DH's Success

DH was successful at gradually achieving his fiber goal of at least 30 g/day through supplemental use of fiber-enriched foods.

Dreamfields Pasta

One prevalent myth accompanying a diabetes diagnosis is that one can no longer eat pasta. Certainly pasta can be included in a carbohydrate-controlled eating plan, but the serving size to fit within the mealtime carbohydrate target is often much smaller than desired. One cup of cooked traditional pasta provides 45 g of carbohydrate, while a comparable serving of Dreamfields pasta provides only 5 g of digestible carbohydrate.

Dreamfields pasta's unique patent-pending recipe and manufacturing process protects all but 5 g of carbohydrate in each serving from digestion. This in turn reduces the postmeal blood glucose rise compared with that seen with traditional pasta. The added fiber and protein blend in Dreamfields pasta creates a protective barrier to

reduce starch digestion in the small intestine. When the unabsorbed (or "protected") starch reaches the colon and is fermented, it provides many of the same benefits as fiber. Much of the fiber in Dreamfields pasta comes from inulin. Inulin is a 100% natural prebiotic fiber found in common foods such as Jerusalem artichokes, asparagus, garlic, raisins and chicory (2).

The Dreamfields calculation for 2-oz dry serving (3):

41 g total carbohydrate
-5 g fiber
-31 g protected carbohydrate
<hr/>
5 g digestible carbohydrate

Meet BB

- 62-year-old married woman
- Retired social worker
- Type 2 diabetes diagnosed approximately 6 months previously
- Metformin 500 mg once daily
- Faithfully following a consistent carbohydrate eating plan
- Hour-long step aerobics class three times each week
- Has successfully lost 17 lb by lifestyle changes
- Hemoglobin A1C levels decreased from 6.8% to 6.5%
- Routinely monitors her fasting blood glucose, along with premeal and 2-hour postmeal values around one meal each day
- Seeking guidance on pasta options

BB's Meeting for Better Eating

At a follow-up visit with her registered dietitian/certified diabetes educator, BB shares that, although she and her husband love pasta, she has eliminated it from her diet since she learned that she has diabetes. She realizes that pasta can fit into her carbohydrate-controlled eating plan. However, the portion size of two thirds to one cup of pasta is not satisfying to her. She likes to eat two to three cups of pasta at a meal. BB asks about Dreamfields pasta after

noticing it has twice the fiber of traditional pastas and only 5 g of digestible carbohydrate (per 2 ounce dry serving), along with a 65% lower glycemic index.

The diabetes educator suggests that because BB is already monitoring her blood glucose level before and after meals, she run a "test" to see how she responds to Dreamfields pasta. BB agrees to monitor her blood glucose, eat one cup of cooked traditional pasta with marinara, then monitor her blood glucose 2 hours later and note the results. She will follow the same procedure using Dreamfields pasta the next day.

BB's Success

BB reports back that when using Dreamfields pasta in place of the same quantity of traditional pasta, her blood glucose 2 hours after the meal is routinely about 50 "points" (in milligrams per deciliter) lower, and within her postmeal target range.

Disclosure

Tami Ross serves as a consultant for Dreamfields Pasta.

References

1. American Diabetes Association; Bantle JP, Wylie-Rosett J, Albright AL, et al. Nutrition recommendations and interventions for diabetes: a position statement of the American Diabetes Association. *Diabetes Care*. 2008;31(suppl 1): S61-S78.
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