

# Diabetes

## Life Lines



October-November, 2011

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### **Diabetes - the Medical Perspective**

Anemia is a condition where there is not enough red blood cells. With too few red blood cells not enough oxygen gets carried to organs. Being tired is a symptom of anemia, but not everyone who is tired has anemia.

Diabetes does not cause anemia. Kidney disease can be caused by diabetes. In kidney disease there is increased risk for anemia. The kidneys secrete a hormone to stimulate red blood cell production in the bone marrow. In kidney disease enough of this hormone might not reach the bone marrow.

Metformin is a common drug for those with type 2 diabetes. Metformin may lead to anemia by causing a malabsorption of vitamin B<sub>12</sub>. Red blood cells need vitamin B<sub>12</sub> to develop correctly. You normally have vitamin B<sub>12</sub> stored

in your liver. So even if you have been taking metformin for years, and it has caused a malabsorption of the vitamin, you may not have a vitamin B<sub>12</sub> deficiency or anemia.

A simple blood test can check for anemia. Your doctor will look at your hemoglobin and hematocrit, and the size of your red blood cells. In vitamin B<sub>12</sub> deficiency the red blood cells grow larger than normal, but are not functioning well. If you have been taking metformin for many years, ask your doctor your hemoglobin and hematocrit are normal, especially if you have been unusually tired. Or just ask your doctor if your blood is anemic.

There are many causes for anemia besides kidney disease or vitamin B<sub>12</sub> malabsorption. They can all be diagnosed by the blood tests your doctor may order.

Treating anemia depends on the cause of the low red blood cells. The treatment will be different for people with kidney disease than for those who may have a vitamin B<sub>12</sub> deficiency.

## Diabetes and Food

Vitamin B<sub>12</sub> is found in all meats. That includes pork, beef, and seafood. There is also vitamin B<sub>12</sub> in milk, cheese, poultry and eggs, although in lower amounts. These foods have vitamin B<sub>12</sub> bound to protein. The acid in the stomach helps to cleave the protein from the vitamin B<sub>12</sub> so it can be absorbed. People with low stomach acid may not be able to use animal forms of vitamin B<sub>12</sub> well. Older people sometimes have less stomach acid production and may be at a higher risk for being unable to use the vitamin B<sub>12</sub> in animal products.

Foods that are fortified with vitamin B<sub>12</sub> have vitamin B<sub>12</sub> in a form that does not bind to protein.

Many ready-to-eat breakfast cereals are fortified with vitamin B<sub>12</sub>. Frozen waffles and pancakes, and breakfast bars may also be fortified with vitamin B<sub>12</sub>. Not all of these foods are fortified, so be sure to read the Nutrition Facts label.

Supplements may also contain vitamin B<sub>12</sub>. Again, not all do, and you will need to read the supplement label.

## Medication Update

Some medications used to treat peptic ulcer disease or gastric reflux may interfere with vitamin B<sub>12</sub> absorption. These medications are called proton pump inhibitors. Common types are omeprazole (*Prilosec*) and lansoprazole (*Prevacid*).

Although it is known that histamine H<sub>2</sub> receptor antagonists for treating peptic ulcer disease can slow the release of acid in the stomach and inhibit with vitamin B<sub>12</sub> absorption, no cases have been found where this is true. If you take these, cimetidine (*Tagamet*), famotidine (*Pepcid*), and ranitidine (*Zantac*), you may want to check with your doctor about whether your blood is anemic or not.

The possibility of metformin causing vitamin B<sub>12</sub> malabsorption has already been discussed.

If you take any of these medications on a regular basis, ask your doctor about your hemoglobin status and your vitamin B<sub>12</sub> levels. Vitamin B<sub>12</sub> deficiency not only can lead to anemia but also to mental changes.

## Recipes to Try

### Carrot Mushroom Loaf

1 small onion, chopped  
8 ounces mushrooms, chopped  
1 tablespoon olive oil  
2 cups grated carrots, chopped  
2 eggs

### 6 servings

.5 cups plain bread crumbs  
.5 cups shredded cheddar cheese  
.5 teaspoon garlic powder  
dash dried basil  
cooking spray

1. Preheat oven to 350 degrees. Spray loaf pan with non-stick cooking spray.
2. Sauté onions and mushrooms in olive oil over medium heat. Cover to prevent drying.
2. Combine remaining ingredients with mushrooms and onions, saving .25 cup bread crumbs and .25 cup cheese for top.
3. Spread into loaf pan. Top with remaining bread crumbs and cheese.
4. Cover. Bake to 30 minutes; uncover and bake for 10 additional minutes.

#### Nutrition facts per serving

Calories	150	Fat	8 grams
Protein	7 grams	Calories from fat	45%
Carbohydrate	14 grams	Cholesterol	80 mg
Fiber	2 grams	Sodium	172 mg

*Preparation time 20 minutes; cooking time 40 minutes*

### Peach Raisin Tart

1 cup raisins  
1/3 cup Splenda®  
2 tablespoons flour  
½ teaspoon cinnamon  
¼ teaspoon salt

### 16 servings

1 bag (16-ounce) frozen,  
unsweetened peaches, thawed  
1 tablespoon lemon juice  
1 (9-inch) unbaked pie shell

1. Preheat oven to 425 degrees.
2. Combine raisins, Splenda®, flour, cinnamon, and salt.
3. Combine peaches and lemon juice. Toss peaches with raisins/flour mixture.
4. Put peach mixture in middle of pie shell. Fold edges toward center of pie and crimp together.
5. Bake for 10 minutes. Reduce heat to 350 degrees and bake 20-25 minutes more until crust is golden brown.

#### Nutrition facts per serving

Calories	167	Fat	5 grams
Protein	2 grams	Calories from fat	27%
Carbohydrate	30 grams	Cholesterol	0 mg
Fiber	2 grams	Sodium	178 mg

*Preparation time 20 minutes; baking time 30 minutes.*

<b>BREAKFAST</b>		<b>Amount/Portion</b>
1 cooked egg or egg substitute		1 egg
Cranberry scones <sup>†</sup>		1
Margarine, whipped		1 tablespoon
Cranberry juice		6 ounces
Skim milk		8 ounces
439 Calories, 59 Carbohydrates, 4 Carbohydrate Choices		
<b>SNACK</b>		
Low-fat cottage cheese		.5 cup
Pineapple chunks		.5 cup
142 Calories, 18 Carbohydrates, 1 Carbohydrate Choice		
<b>LUNCH</b>		
Carrot mushroom loaf <sup>†</sup>		1 slice
Tossed salad with turkey slices		1 cup; 2 ounces
Low fat salad dressing		1 tablespoon
Soft breadsticks		2
Skim milk		8 ounces
589 Calories, 70 Carbohydrates, 4.5 Carbohydrate Choices		
<b>DINNER</b>		
Pork chop, broiled		3 ounces
Red beans and rice		1 cup
Broccoli, steamed		1 cup
Peach raisin tart <sup>†</sup>		1 serving
612 Calories, 80 Carbohydrates, 5 Carbohydrate Choices		
Total: 1782 Calories, 227 Carbohydrates, 15 Carbohydrate Choices		

<sup>†</sup> recipes from *Diabetes Lifelines* or *Recipes for Diabetes* at  
<http://urbanext.illinois.edu/diabetesrecipes/intro.cfm>



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