Carol Rees Parrish, R.D., M.S., Series Editor

The Gluten-Free Vegetarian

Amy E. Pagano

It is estimated that approximately 1% of the U.S. population has celiac disease. Currently the only treatment for celiac disease is a strict gluten-free diet, requiring the elimination of many staple grains. For a vegetarian, who has already eliminated meat, poultry, fish, seafood and possibly eggs and/or dairy products, further limitations may be particularly unwelcome. A plant-based vegetarian diet may rely more heavily on grains to provide both macro- and micronutrients, so the elimination of wheat and other gluten-containing foods may seem especially restrictive. However, with thought and planning, a vegetarian gluten-free diet can be a healthful way to meet one's nutrient needs.

INTRODUCTION—VEGETARIAN DIETS

The term vegetarian diet is used to describe a variety of eating patterns. Though there are some self-described vegetarians who consume small amounts of animal flesh, it is generally accepted that a vegetarian diet does not include any type of meat, fowl, fish or seafood and this is the definition that will be used in this article. A sub-set of this group, known as vegan, restricts all animal products including eggs and dairy products. For a summary of the various vegetarian diets compared to the gluten-free (GF) diet see Table 1.

Amy E. Pagano, MS, RD, Outpatient Nutritionist, University of Virginia Health System, Charlottesville, Virginia.

An analysis of the USDA's 1994–1996 Continuing Survey of Food Intake by Individuals found that 1.6% of this nationally representative sample were vegetarians, however, no definition of vegetarian was provided. On examination of the food records, the researchers found that meat was included for many of these self-defined vegetarians, bringing the estimated number of true vegetarians down to 0.9% (1). A more recent poll asking Americans more specific and direct questions through the Vegetarian Resource Group in 2006 found that, 2.3% never ate meat, poultry, fish or seafood and 1.4% never ate meat, poultry, fish, seafood, eggs or dairy products (2).

Dietary practices of vegetarians vary widely; therefore individual nutrition assessment is important.

(continued on page 96)

THE CELIAC DIET, SERIES #9

(continued from page 94)

Table 1
Restricted Foods (and Their Nutrients) in Vegetarian and Gluten-free Diets

Type of diet	*Restricted foods*	*Potential nutrients of concern*
Vegetarian (lacto-ovo)	Meat, poultry, fish/seafood	Iron Zinc Omega 3 fatty acids Protein
Lacto-vegetarian	Meat, poultry, fish/seafood, eggs	Iron Zinc Omega 3 fatty acids Protein
Ovo-vegetarian	Meat, poultry, fish/seafood, dairy products	Calcium Iron Zinc Vitamin B_{12} Vitamin D Omega 3 fatty acids Protein
Vegan	All animal products including meat, poultry, fish/seafood, eggs, and dairy products	Calcium Iron Zinc Vitamin B_{12} Vitamin D Omega 3 fatty acids Protein
Gluten-free	Wheat, rye, barley and their derivatives. Possibly oats	B vitamins Iron Fiber

The elimination of meat, poultry, fish and seafood means the loss of major sources of protein, iron, zinc, omega-3 fatty acids and vitamins A and B_{12}. Avoiding dairy products and eggs removes other sources of protein as well as calcium and vitamin D. Nutrient deficiencies, as in any restricted diet, are a risk.

It is well established, however, that vegetarian diets can not only meet a person's recommended nutrient needs, but may provide health benefits over and above a non-vegetarian diet. The position statement of the American Dietetic Association states that "appropriately planned vegetarian diets are healthful, nutritionally adequate, and provide health benefits in the prevention and treatment of certain diseases" (3). Vegetarian diets typically contain less saturated fat, cholesterol and animal protein and more fiber, magnesium, folate, vitamins C and E, carotenoids and other antioxidant phytonutrients. Studies have found associations between people following a vegetarian diet and lower body mass index, cholesterol, blood pressure and decreased rates of hypertension (3). Perhaps partly

(continued on page 98)

(continued from page 96)

because of the aforementioned factors, studies have found decreased rates of heart disease as well as mortality for those on a vegetarian diet (3). Research also suggests a vegetarian diet may reduce the risk of development of type 2 diabetes mellitus (3).

These health benefits offer one reason a person might choose to follow a vegetarian diet. Other common reasons include animal welfare, religious beliefs, ecological concerns, economics and a general dislike of meat, poultry, fish or shellfish.

GOING GLUTEN-FREE

For those diagnosed with celiac disease, the only available treatment at this time is a strict gluten-free diet. This diet requires the elimination of wheat, rye, barley and all ingredients derived from these grains. It may also require the avoidance of oats due to the high risk of gluten cross-contamination (4). Several companies, however, are now producing pure, uncontaminated oats including:

- Gifts of Nature Oats
  www.giftsofnature.com
  (888) 275-0003
- Gluten-Free Oats, Inc.
  www.glutenfreeoats.com
  (307) 754-2058
- Cream Hill Estates of Montreal
  www.creamhillestates.com
  (866) 727-3628
- FarmPure Foods
  www.farmpurefoods.com

Similar to a vegetarian diet, the nutritional adequacy of a gluten-free diet varies greatly according to an individual's food choices. A limited number of studies have demonstrataed people with celiac disease following a gluten-free diet often do not meet the recommended intakes for calcium, iron and B vitamins as well as total grain intake and fiber (5,6).

While there are many food restrictions for someone on a vegetarian and gluten-free diet, the two diets can actually work quite well together. The high fiber content of a typical vegetarian diet naturally complements a gluten-free diet and the inclusion of the more nutritious gluten-free whole grains and flours such as quinoa, teff, flaxmeal and garbanzo bean can provide additional sources of iron, calcium and B vitamins to a vegetarian diet.

POTENTIAL NUTRIENTS OF CONCERN

Protein

The quality of plant protein varies, but a vegetarian or vegan can easily meet protein requirements with adequate calories and a variety of plant foods. Individual plant foods, with a few noteworthy exceptions, are not considered complete protein sources, as they do not have adequate levels of all essential amino acids. For example, most grains are low in lysine. However, regular inclusion of legumes (kidney beans, pinto beans, lentils, etc.) makes up for the low level of lysine in grains. Complementary protein sources do not, however, need to be eaten at the same meal, as long as a variety of plant foods are consumed daily (3).

A gluten-free diet complicates the natural balance between grains and legumes, because while legumes are naturally gluten-free, the staple grain in the U.S., wheat, must be eliminated as well as rye, barley and most sources of oats. The majority of gluten-free substitutes for wheat products are made of a combination of white rice flour, cornstarch, potato starch and/or tapioca starch. These starch-based products are mostly carbohydrate and do not have the protein (or vitamin, mineral and fiber) content found in whole or refined enriched wheat based products. Gluten-free whole grains, while unfamiliar to most Americans, are nutritious, delicious and easy to use. Many of these grains, including amaranth, buckwheat, millet, quinoa, sorghum, teff and wild rice, actually contain higher levels of protein than wheat. Quinoa, in particular, has an exceptional amino acid profile and is considered a complete protein. These grains can be used in their whole form or the flour can be used to create a variety of gluten-free products, all of which are readily available in natural food stores and over the Internet. For more detailed information on gluten-free whole grains, how to use them and where to get them, see "Whole Grains in the Gluten-Free Diet" in the October 2006 issue of *Practical Gastroenterology* (7).

Table 2
Gluten Status of Soy Products and Meat Alternatives

Food item	*Gluten status*
Edamame (green soybeans)	Gluten-free
Miso	Some varieties contain barley—check ingredients
Mycoprotein products (Quorn™)	All products contain gluten except for chicken style tenders and turkey style roast. They are produced in a facility that processes gluten-containing foods
Rice milk	May have barley malt as a sweetener—check ingredients
Seitan	Contains wheat
Soy cheese	Check ingredients
Soy milk	May have barley malt as a sweetener—check ingredients
Soy yogurt	Check ingredients
Tempeh	Some styles may contain grains (i.e. 5 grain)—check ingredients
Tofu	Check ingredients on pre-seasoned tofu—may be seasoned with wheat containing soy sauce or barley malt
Vegetable burgers	May contain grains as a binder—check ingredients

Table 3
Calcium Content of Selected Gluten-free and Vegetarian Foods

Food	*Calcium (mg)*
Amaranth, dry, 1/4 cup*	75
Blackstrap molasses, 1 Tbsp	172
Bok choy (Chinese cabbage), 1 cup cooked	167–188
Broccoli, 1 cup cooked	79
Collard greens, 1 cup cooked	239
Cow's milk, 1/2 cup	137-158
Cheddar cheese, 3/4 oz	153
Figs, dried, 5	137
Kale, 1 cup cooked	99
Mustard greens, 1 cup cooked	109
Sesame tahini, 2 Tbsp	128
Soybeans, green (edamame) 1/2 cup	130
Soymilk, fortified, 1 cup	100–159
Teff, dry, 1/2 cup*	82
Tempeh, 1/2 cup	92
Tofu, firm, calcium-set, 1/2 cup	120–430
Yogurt, 1/2 cup	137–230

Data obtained from: Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets. *J Am Diet Assoc,* 2003; 103(6): 748-765.
* These grains typically double or triple in size when cooked.

In addition to whole grains, other highly nutritious flours can be used in the formulation of gluten-free baked goods including flours made from nuts and seeds like flax, almond and hazelnut, and legumes such as garbanzo beans, fava beans, navy beans, etc. In gluten-free baking, a combination of flours is required to create an acceptable product; gluten-free flours cannot be substituted one-for-one for wheat flour unless it is used only as a coating or thickener. Mixing nut, seed, legume and whole grain flours in baked goods is another way to add variety and nutrients to one's diet.

The soybean is a versatile food recognized for its health benefits, nutrient profile and exceptional protein quality for a plant food. This naturally gluten-free legume is, therefore, widely used in many vegetarian diets. As foods become more processed, however, there is more of a chance that the product will contain gluten through additives or seasonings. Processed soy products, as well as other 'meat alternative' products, are now readily available in natural food stores and some supermarkets. Label reading, as always in a gluten-free diet, is absolutely necessary to determine if a product does or does not contain gluten. See Table 2

Table 4
Dietary Reference Intakes

		Recommended Dietary Allowances (RDA) or Adequate Intakes (AI)				
Category	*Age group*	*Calcium AI (mg)*	*Iron RDA (mg)*	*Zinc RDA (mg)*	*Vitamin B_{12} RDA (mcg)*	*Vitamin D AI (mcg)*
Children	1–3	500	7*	3*	0.9	5
	4–8	800	10*	5*	1.2	5
Males	9–13	1300	8*	8*	1.8	5
	14–18	1300	11*	11*	2.4	5
	19–30	1000	8*	11*	2.4	5
	31–50	1000	8*	11*	2.4	5
	51–70	1200	8*	11*	2.4	10
	70+	1200	8*	11*	2.4	15
Female	9–13	1300	8*	8*	1.8	5
	14–18	1300	15*	9*	2.4	5
	19–30	1000	18*	8*	2.4	5
	31–50	1000	18*	8*	2.4	5
	51–70	1200	8*	8*	2.4	10
	70+	1200	8*	8*	2.4	15
Pregnancy	≤18	1300	27*	12*	2.6	5
	19–30	1000	27*	11*	2.6	5
	31–50	1000	27*	11*	2.6	5
Lactation	≤18	1300	10*	13*	2.8	5
	19–30	1000	9*	12*	2.8	5
	31–50	1000	9*	12*	2.8	5

Data obtained from: Dietary reference intakes: Elements. National Academy of Sciences, Institute of Medicine Food and Nutrition Board. http://www.iom.edu/Object.File/Master/7/294/0.pdf
*"Zinc and non-heme iron absorption is lower for those consuming vegetarian diets than for those eating non-vegetarian diets. Therefore, it has been suggested that the zinc and iron requirements for those consuming a vegetarian diet is approximately 2-fold greater than for those consuming a non-vegetarian diet" (9)

to check the gluten status of some of these items and always be sure to read food labels carefully.

Calcium and Vitamin D

Lacto-ovo vegetarian and gluten-free diet restrictions should not significantly affect the calcium content of the diet. Inadequate calcium intake, however, is a concern for all Americans and studies have demonstrated inadequate calcium intake in groups following gluten-free and vegetarian diets (1,5). Malabsorption of vitamin D and calcium is a common manifestation of untreated celiac disease and can lead to osteopenia, osteoporosis or osteomalacia. An adequate intake of calcium and vitamin D, therefore, is especially important to replete stores after a gluten-free diet has been instituted.

For those following a vegan diet, the elimination of dairy products does have the potential to greatly reduce calcium intake. Non-dairy vegetarian sources of calcium do exist and include dark, leafy greens, calcium-set tofu, nuts, seeds and certain gluten-free grains (Table 3). In fact, leafy greens (except those with high oxalate content like spinach and Swiss chard) provide calcium with a greater bioavailability than most other

(continued on page 102)

(continued from page 100)

Table 5
Iron Content of Selected Gluten-free and Vegetarian Foods

Food	*Iron (mg)*
Amaranth, dry, 1/4 cup*	3.7
Adzuki beans, cooked, 1/2 cup	2.3
Almonds, 1/4 cup	1.5
Apricots, dried, 1/4 cup	1.5
Black beans, cooked, 1/2 cup	1.8
Bok choy, cooked, 1/2 cup	0.9
Broccoli, cooked, 1/2 cup	0.7
Cashews, 1/4 cup	2.1
Chickpeas (garbanzo beans), cooked, 1/2 cup	2.4
Figs, dried, 1/4 cup	1.1
Kidney beans, cooked, 1/2 cup	2.6
Lentils, cooked 1/2 cup	3.3
Mushrooms, cooked, 1/2 cup	1.4
Potato, baked with skin, 1 medium	2.3
Pumpkin seeds, 1/4 cup	5.2
Quinoa, dry, 1/4 cup*	3.9
Raisins, 1/4 cup	1.1
Sesame tahini, 2 Tbsp	2.7
Sorghum, dry, 1/4 cup*	2.1
Sunflower seeds, 1/4 cup	2.3
Teff, dry, 1/4 cup*	3.0
Tempeh, 1/2 cup	2.2
Tofu, firm, 1/2 cup	6.6

Data obtained from: Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets. *J Am Diet Assoc,* 2003; 103(6): 748-765.
* These grains typically double or triple in size when cooked

Table 6
Zinc Content of Selected Gluten-free and Vegetarian Foods

Food	*Zinc content (mg)*
Amaranth, dry, 1/4 cup*	1.5
Almonds, 1/4 cup	1.2
Black beans, 1/2 cup cooked	1.0
Buckwheat, dry, 1/4 cup	1.0
Cashews, 1/4 cup	1.9
Chickpeas/garbanzo beans, 1/2 cup cooked	1.3
Lentils, 1/2 cup cooked	1.2
Navy beans, 1/2 cup cooked	2.3
Peanuts, 1/4 cup	1.2
Pumpkin/squash seeds, 1/4 cup	2.6
Quinoa, dry, 1/4 cup*	1.4
Sunflower seeds, 1/4 cup	1.8
Teff, dry, 1/4 cup*	2.2
Tempeh, 1/2 cup	0.9
Tofu, 1/2 cup	1.0
Wild rice, dry, 1/4 cup*	2.3

Data obtained from: Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets. *J Am Diet Assoc,* 2003; 103(6): 748-765.
* These grains typically double or triple in size when cooked

sources including cow's milk. It is recommended that all people, regardless of their eating habits, meet the daily calcium amounts listed in the U.S. Dietary Reference Intakes (Table 4). If unable to do so with foods, then supplementation, either through fortified foods or calcium supplements, may be necessary.

Sunlight exposure can provide adequate synthesis of vitamin D under certain conditions, but sunlight is not reliable during winter months, especially at northern latitudes (3). Other factors, such as skin color, smog and sunscreen use, may also affect the adequacy of sunlight exposure to provide vitamin D (3). Food sources of vitamin D are limited and most of those are fortified. Since dairy products and ready to eat breakfast cereals are some of the most common foods fortified with vitamin D, a gluten-free vegan is left with minimal options and will likely need supplementation if sunlight exposure is inadequate. Studies have shown low vitamin D levels and reduced bone mass in some vegans, who did not use fortified foods or supple-

Table 7
Vitamin B_{12} Content of Selected Gluten-free and Vegetarian Foods

Food	*Vitamin B_{12} content (mcg)*
Cereals, ready to eat, fortified, 1 oz	0.6–6.0
Cow's milk, 1/2 cup	0.4–0.5
Egg, large, 1	0.5
Nutritional yeast, Red Star Vegetarian Support formula, 1 Tbsp	1.9
Soymilk, fortified, 1/2 cup	0.4–1.6

Data obtained from: Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets. *J Am Diet Assoc,* 2003; 103(6): 748-765.

Table 8
Vegetarian Resources

- Vegetarian Resource Group
  www.vrg.org
- American Dietetic Association Position Paper on Vegetarian Diets and *A New Food Guide for North American Vegetarians*
  www.eatright.org
  (Position papers link)
- Vegetarian Nutrition Dietetic Practice Group
  www.vegetariannutrition.net
- Vegetarian Cooking for People with Allergies
  www.vrg.org/catalog/order.htm

ments, living at northern latitudes (3). Appropriate sources of vitamin D for gluten-free vegans include fortified gluten-free soymilk and vitamin D_2 (ergocalciferol) supplements. Recent evidence has found vitamin D_2 to be a much less potent form when compared to vitamin D_3, which is of animal origin (8). Recommended amounts for supplementation may need to be higher if using the D_2 form.

Iron

A vegetarian, gluten-free diet eliminates many of the major sources of iron in the American diet, including meats, poultry and enriched wheat based products like cereals. Plant foods contain nonheme iron, a form that is significantly less bioavailable than the heme iron found in animal sources. Nonheme iron is also more susceptible to absorption inhibitors including phytates, coffee, tea, calcium and fiber. Vitamin C and organic

Table 9
Sample Gluten-free Vegetarian and Vegan Meal Plans

	Vegetarian	*Vegan*
Breakfast	Hot quinoa cereal with blueberries, ground flaxseed and 1 cup milk (cow's or soy)	Hot quinoa cereal with blueberries, ground flaxseed and 1 cup fortified soymilk
Lunch	Lentil soup GF whole grain crackers with cheese Spinach salad with hard boiled egg, tomatoes, peppers and vinaigrette dressing	Lentil soup GF whole grain crackers Spinach salad with pumpkin seeds, raisins, tomatoes, peppers and vinaigrette dressing
Dinner	Tofu stir-fry with bok choy, carrots, onions and ginger over brown basmati rice	Tofu stir-fry with bok choy, carrots, onions and ginger over brown basmati rice
Snacks	Apple and almonds GF corn tortilla chips and salsa	Dried figs Popcorn with nutritional yeast and olive oil

Table 10
Gluten-free Vegetarian Recipes

Bok Choy and Buckwheat Noodles in Seasoned Broth
Reprinted with permission from *Feeding the Whole Family* by Cynthia Lair (Moon Smile Press, 1997)
www.feedingfamily.com

1 package 100% buckwheat soba noodles
2 teaspoons toasted sesame oil
1 onion, cut in thin half moons
2-3 cloves garlic, minced
1 carrot, cut into matchsticks
5 shiitake mushrooms, cut into bite size pieces
2 cups chopped bok choy
4 cups water
1/3-cup gluten-free soy sauce/tamari
1/2 pound firm tofu, cut into 1/2 inch cubes
1 tablespoon freshly grated ginger
2 scallions, cut into thin slices

Prepare soba noodles according to package directions. Drain and set aside.

Heat oil in a 4-quart soup pot. Add onion and garlic; sauté over medium heat until onion begins to soften. Add carrot and mushroom pieces; sauté a few minutes more. Add bok choy, water, tamari, tofu and ginger. Bring heat up until mixture begins to simmer. Cover and let simmer for 10 minutes. Serve this dish by placing a handful of noodles in each serving dish. Ladle broth and vegetables over the noodles. Garnish with scallions.

Red Bean and Quinoa Chili
Reprinted with permission from *Feeding the Whole Family* by Cynthia Lair (Moon Smile Press, 1997)
www.feedingfamily.com

1 cup dried kidney beans, soaked
1-teaspoon cumin
3 cups water
2 teaspoons extra-virgin olive oil
1 medium onion, chopped
2 teaspoons salt
1 large green pepper, chopped
2 cloves garlic, minced
1-2 teaspoons cumin
1 teaspoon dried oregano
1/8-teaspoon cinnamon
1/8-teaspoon cayenne
2/3 cup quinoa, rinsed in warm water and drained
1-cup fresh or frozen corn
1-2 cups tomato sauce
1-cup water
A few tablespoons of grated cheese (optional)

Drain soaking water off beans. Place beans in a large pot with cumin and water; bring to boil. Simmer over low heat, covered, until tender (about 60 minutes) or pressure-cook using 2 cups water (45 minutes).

Heat oil in skillet on medium heat. Add onion, salt, garlic, pepper and spices; sauté for 5-10 minutes. Add rinsed quinoa and stir in. Add corn, tomato sauce, and water to onion/quinoa mixture. Simmer together 20 minutes. Add cooked beans to other ingredients; simmer another 10 minutes. Top each bowl with a sprinkle of grated cheese if desired.

acids found in fruits and vegetables, however, can enhance the absorption of nonheme iron, so it is beneficial to eat fruits and vegetables like oranges, bell peppers and broccoli with vegetarian iron sources such as garbanzo beans, pumpkin seeds and quinoa. While many plant foods contain relatively high amounts of iron (Table 5), the current Recommended Dietary Allowances assume that 75% of iron intake is from heme sources. It has therefore been suggested that the iron requirements of vegetarians are twice as high as those for non-vegetarians (9).

(continued on page 106)

(continued from page 104)

Zinc

Zinc absorption is enhanced by animal protein and is inhibited by phytates, which are high in legumes and whole grains. These concerns, in addition to eliminating seafood, fish, meats and poultry (significant sources of zinc), mean that a vegetarian is at risk of inadequate intake of this nutrient. Like iron, it has been suggested that the zinc RDAs for vegetarians should be twice as high as those for non-vegetarians (8). See Table 6 for the zinc content of selected foods appropriate for a gluten-free vegetarian diet.

Fiber

With the elimination of wheat-based products, a significant source of fiber in the American diet is lost. Replacement of these products with gluten-free whole grains (including amaranth, buckwheat, millet, brown rice, quinoa, sorghum, teff, and wild rice) or products made from them can help to significantly increase the fiber content of a gluten-free diet (7). Only plant foods contain fiber; fruits, vegetables and legumes are excellent sources in addition to whole grains. Most vegetarian diets, therefore, are higher in fiber content than non-vegetarian diets and are beneficial in this regard.

B Vitamins

Plant foods, including tempeh, miso and sea vegetables, do not provide a consistent or reliable source of active vitamin B_{12} (cyanocobalamin) (3). For lacto-ovo vegetarians, it is possible to meet one's vitamin B_{12} needs through regular and adequate intake of dairy products and eggs. Vegans, however, must use either fortified foods or supplements to prevent B_{12} deficiency. Common fortified foods include soymilk and some types of nutritional yeast (Table 7).

Whole grains and enriched refined wheat products are major sources of the B vitamins thiamine, riboflavin, niacin and folate. As discussed in the protein section, most processed gluten-free products are made from white rice flour and starches (potato, tapioca and corn), which are not good sources of B vitamins. The regular inclusion of gluten-free whole grains and products made from these grains is recommended to help meet thiamine, riboflavin and niacin requirements. Vegetables and legumes are excellent sources of folate. A vegetarian diet is typically high in folate and can complement the loss of fortified wheat products in a gluten-free diet. A high folate intake can mask the hematological symptoms of vitamin B_{12} deficiency and thus the above discussion of vitamin B_{12} supplementation is especially important.

CONCLUSION

While it may at first seem challenging, a gluten-free vegetarian diet can be nutritionally adequate, satisfying and healthful. Depending on the degree of restriction, some people may require the regular use of fortified foods or supplements to ensure adequate intake of some nutrients (i.e. vitamin B_{12}, vitamin D). Food choices and patterns vary widely between individuals, therefore individual assessment by a registered dietitian familiar with both the gluten-free and vegetarian diet is recommended. See Tables 8, 9 and 10 for a few important vegetarian resources as well as recipes and sample meal ideas to embark on a gluten-free vegetarian diet. ■

References

1. Haddad EA, Tanzman JS. What do vegetarians in the United States eat? *Am J Clin Nutr,* 2003; 78(suppl): 626s-632s.
2. Stahler C. How many adults are vegetarian? *Vegetarian J,* 2006; 4. Accessed February 2007 at www.vrg.org/journal/vj2006issue4/vj2006issue4poll.htm
3. Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets. *J Am Diet Assoc,* 2003; 103(6): 748-765.
4. Raymond N, Heap J, Case S. The gluten-free diet: An update for health professionals. *J Pract Gastro.* 2006; XXX(9): 67-92.
5. Thompson T, Dennis M, Higgins LA, et al. Gluten-free diet survey: are Americans with celiac disease consuming recommended amounts of fibre, iron, calcium and grain foods? *J Hum Nutr Diet,* 2005;18:163-169.
6. Hallert C, Grant C, Grehn S. Evidence of poor vitamin status in coeliac patients on a gluten-free diet for 10 years. *Aliment Pharmacol Ther,* 2002; 16(7): 1333-1339.
7. Pagano A. Whole grains and the gluten-free diet. *J Pract Gastro.* 2006; XXX(10):66-78.
8. Armas LAG, Hollis BW, Heaney RP. Vitamin D2 is much less effective than vitamin D3 in humans. *J Clin Endocrinol Metab* 2004;89:5387-5391.
9. Dietary reference intakes: elements. National Academy of Sciences, Institute of Medicine Food and Nutrition Board. Accessed February 2007 at http://www.iom.edu/Object.File/Master/7/294/0.pdf