DR. McDOUGALL'S
HEALTH & MEDICAL CENTER

Lectins: Plants' Self-Defense System Circuitously Kills People

Plants have evolved to synthesize a variety of toxic substances to cope with their environment abundant with predators (insects, animals, etc.) and microbes (bacteria, viruses, fungi, parasites, etc.) and, thereby, fight an ongoing battle for survival. Lectins are a class of these natural disease-fighters consisting of proteins. Ubiquitous found in the plant kingdom these precisely synthesized proteins (lectins) combine with specific sugars (such as those on the surface red blood cells). (The word "lectin" is derived from Latin—"Legree," which means to pick or select.)

The first such carbohydrate-binding proteins, lectins, were found in 1888 in the seeds of the castor bean. Lectins have gained the most attention since their discovery as a result of their ability to bind to and agglutinate (clump together) red blood cells, and have been used for blood typing (ABO classification and others); hence the lectins are also commonly called “hemagglutinins.” Page 2

Featured Recipes

Recipes this month are from our recipe collection as well as our Recipe App.

Summertime Chowder

Quinoa Garden Salad

Sunshine Fruit Salad Page 16

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Common dietary staples, such as cereal grains, legumes, and fruits have relatively high concentrations of a variety of different lectins. Although all foods contain some lectins, only about 30% of the foods we eat have potentially troublesome amounts. Legumes (including some beans, soybeans and peanuts) and grains (wheat is commonly singled out) have the greatest content, followed by dairy, seafood, and plants in the nightshade family (such as potatoes).

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The toxicity of lectins to people (and other animals) can vary greatly, ranging from merely anti-nutritional properties (such as producing excess bowel gas) to lethal effects. An important example of a highly toxic lectin is the phytohemagglutinin (PHA). It is found in the highest concentrations in uncooked red kidney beans and white kidney beans (also known as cannellini), and it is also found in lower quantities in green beans, broad beans (fava beans), and other common beans. Especially when consumed raw, all beans can uncomfortably affect the digestive tract, commonly with an over abundance of gas; however, vomiting, cramping, and diarrhea are experienced; fortunately, rarely requiring hospitalization.

A Little Truth Turns into Deadly Lies

The exaggeration of the frequency and severity of adverse reactions to lectins has caused these foods (grains, beans, and most other plant foods) to be deemed the major dietary issues underlying most chronic human illnesses. As expected, this has brought about the popularity of a variety of "low-lectin diet plans." Translated into the foods on your plate, lowering lectins. according to these plans means, avoiding wheat, rice, corn, potatoes, all beans; and to instead to obtaining daily calories from the two major categories of food poisons: animals and vegetable oils. The ultimate outcome of asking people to seek health by "lectin-avoidance" soon means overweight and obesity; and not long afterwards, diabetes; heart attacks; arthritis; cancer of the breast, colon, and prostate; and much more pain and suffering.

Thus, this pathway of abstaining from lectin-containing foods (grains, beans, and potatoes) **circuitously *kills people*,** by recommending for them to instead eat the only remaining foods: animals and vegetable oils. The basic fallacy has so far resulted in at least two best-selling, "low-carb-leaning" diet books: *Dr. Gundry's Diet Evolution: Turn Off the Genes That Are Killing You—and Your Waistline—and Drop the Weight for Good*, and *Eat Right for Your Type: The Individualized Blood Type Diet Solution* (based on how different ABO blood types react differently with the various specific protein lectins in commonly consumed foods).

This distracting nutritional nonsense also contributes to the real possibility of total species extinction for Planet Earth; Similar to how misinformation widely spread by two popular theories: 1) the gluten- and 2) GMO-containing-foods are our greatest threats to health. The "anti-lectin" diet joins the gluten- and the GMO- dogma to distract billions of people from recognizing the true sources of chronic epidemic human diseases and rapid destruction of Planet Earth: the livestock industries.

Lectins in Plants Are Very Healthful

While the various kinds of lectins cause different negative reactions (mostly minor in consequence), there are also health-promoting effects from these proteins that can decrease the incidence of epidemic deadly diseases. Live human population research and within the laboratory setting investigations demonstrate that lectins have protective effects against viruses and other microorganisms, and are potent modulators of immune responses, cell growth, and healing, and can cause cancer regression.

High Lectin-containing Starches Promote a Healthy Life

* A recent review (2012) of 45 prospective cohort studies and 21 randomized-controlled trials (RCT) compared people who rarely or never consume whole grains with those reporting an average consumption of three to five servings per day, and found by comprehensive meta-analysis that those consuming the grains had a 26% reduction in the risk of type-2 diabetes and a 21% reduction in the risk of heart disease (independent of known CVD risk factors). Furthermore, there is an inverse relationship between whole grain intake and weight gain. Examples of whole grains included whole wheat, dark bread, oats, brown rice, rye, barley, and bulgur.

* *Whole Grains—Summary of American Society for Nutrition 2010 Satellite Symposium* concluded, "There is consistent epidemiological evidence that whole grain foods substantially lower the risk of chronic diseases such as CHD, diabetes, and cancer, and also play a role in body weight management and digestive health."

* *The Journal of Cereal Science* in 2014 reported their review on the health effects of dietary lectins: "... as consumed in cooked, baked, or extruded foods do not support negative health effects in humans. In contrast, consumption of WGA (wheat germ agglutinin) containing foods, such as cereals and whole-grain products, has been shown to be associated with significantly reduced risks of type 2 diabetes, cardiovascular disease, some types of cancer, as well as a more favorable long-term weight management… Despite numerous speculative assumptions that wheat germ lectins cause intestinal damage and disease, there is at present neither evidence that this is the case nor reason to recommend the healthy population to abstain from whole-grain food products."

The same review concluded, "Hitherto, the consumption of most whole-grain foods prepared for human consumption (cooked, baked, extruded) has been associated with numerous health benefits. It is therefore recognized and advised to consume breakfast cereals and a variety of whole-grain foods. Although this advice is contradicted by some health professionals based on their lectin contents, it can be concluded from the current available scientific evidence that there are no data to generalize this negative opinion to consumption of whole grain products."

* Lectins have also drawn a lot of attention because of their possible anti-tumor activities. The anti-tumor activities of different plant lectins has been shown for several cancer cell cultures, such as, human hepatocarcinoma cells, human bladder cancer cells, human melanoma cells, and rat pancreatic cells. It has also been suggested that some lectins induce apoptosis (death) and/or autophagy (eating and destroying) of cancer cells.

* Based on the existing evidence, there are four consensus authoritative statements from national organizations, namely the U.S. FDA, the U.K. Joint Health Claims Initiative, and the Sweden and Danish Dietary Recommendations that link consumption of whole grains with improved heart health. For example, U.K. products composed of whole grains can claim, "People with a healthy heart tend to eat more whole grain foods as part of a healthy lifestyle." In Sweden, products with at least 50% whole grains can state, "A healthy lifestyle and a balanced diet rich in whole-grain products reduce the risk of heart disease."

Note: Lectins are not gluten proteins and should not be confused with them. Gluten intolerance is uncommon (fewer than one in a hundred people) but very important for those who have celiac disease.

Lectins Are Health-promoting, Not Health-harming

The healthfulness of plants, especially grains and beans, must be considered when planning a starch-based diet. But at the same time, the risk of adverse side effects, even as common as little as extra bowel gas (flatus), must be minimized for enhancing the popularity and consumption of these important food groups. Research shows that by cooking (at temperatures above 176 F or 80 C), soaking (for 12 hours in water), sprouting, and/or fermenting foods that are high in lectins can easily reduce their lectin content to negligible amounts. My August 2002 McDougall Newsletter will teach you plenty about taming bad cramps and reducing socially unpopular gas.

Bad Farts? Meat Stinks!

(From the August 2002 McDougall Newsletter)

By about the fourth day of each McDougall Live-in Program participants have become close friends. As they loosen up with each other they begin to discuss one noticeable side effect of my diet. They make jokes, like, "When we walk, we talk," or "Have you heard a good McBugle lately?" I must admit that one unavoidable change that comes with the diet I recommend is the production of more bowel gas – but that's not all bad as you will learn when you read this article.

Intestinal gas, called flatus, when released from the lower bowel can be a social problem. On the average gas is passed 10 to 20 times a day, and the volume averages 3 ounces (90 ml) of gas per passage on the usual American diet (range from 17 to 375 ml).1 The average daily volume of flatus is 705 ml (24 ounces) (range of 476 to 1491 ml). At the very lower limit of gas production, a liquid diet devoid of all complex sugars has been found to produce an average of 1.5 flatus passages in 24 hours with a total output of 214 ml/24 hours.2 (Yes! Research dollars actually are spent to study this.) You can safely assume the upper levels in frequency and volume for anyone on the McDougall Program.

Unfortunately, some people avoid a healthy plant-based diet because they have discovered that all that fiber found in plant-foods and especially beans, causes more

gas, even though they realize these same foods relieve constipation and irritable bowel syndrome, and help prevent heart disease and cancer. This is just another example of how our decisions about the way others perceive us often are more important than decisions for our health.

I submit two lines of defense for my Program: First, when human beings were designed, millions of years ago, we lived outdoors, with few confining walls – so bowel gas was unnoticeably dispersed into thin air. Second, bowel gasses produced from a plant-based diet are much less malodorous than are those from a diet rich in animal products.

The Business of Flatology:

Flatus, more commonly known as farts, and delicately referred to as "passing wind or gas," is a source of discomfort and embarrassment for many people, particularly women.3 *Flatulence* is the condition of the bowels being overdistended with gas. *Flatology* is the scientific study of flatus. In order to study flatus, dedicated men and women have tubes placed in their rectums, attached to impermeable plastic bags, which they wear all day long to collect the gas. The judges who personally evaluate the odor of the gases with their noses must be especially admired for their dedication to the science of flatology (I'm serious).

Two Main Gas Sources:

1) **Swallowed air.** Aerophagia is the swallowing of air and is usually followed by eructations (burping). For some people the amount of gas swallowed can cause flatulence. Swallowed air can be determined to be the source of the excess bowel gas by finding a large amount of nitrogen in the flatus sample. About 80% of air is nitrogen. Determining that the excess bowel gas is due to swallowed air, rather than a problem with the bowel itself, can save an expensive and uncomfortable series of tests for the patient.

2) **Bowel Produced Gas.** The major source of gas in the bowel for almost everyone is the normal metabolic activity of colonic bacteria on our partially digested

foodstuffs. Carbohydrates that have not been absorbed by the processes of normal digestion with enzymes in the small intestine are commonly known as dietary fiber. These undigested fibers move into the large intestine (colon) where bacteria break them down by the process known as fermentation into a gaseous mixture consisting primarily of: nitrogen (N_2), oxygen (O_2), carbon dioxide (CO_2), hydrogen (H_2) and methane (CH_4). These gases are all odorless and colorless. There are also small amounts of odoriferous sulfur-containing substances produced, like hydrogen sulfide, methanethiol, and dimethyl sulfide.

The most common source of undigested carbohydrate in the American diet is lactose from dairy products, such as milk, skim milk, and yogurt (cheeses contain little lactose). The second leading gas-producing foods are legumes (beans, peas, and lentils). Whether they are served as "beans with hot dogs," or in a "low-fat vegetarian chili," legumes all cause gas because they contain two relatively indigestible sugars, raffinose and stachyose, that end up in the large intestine.

All unrefined plant foods, including grains, fruits, and vegetables, contain undigestible fibers that end up being fermented in the large intestine by bowel bacteria into odorless gas. Refining grains into white flour and rice removes most of the indigestible carbohydrates (dietary fiber). White rice has been shown to be one complex carbohydrate that is nearly completely absorbed by the small intestine resulting in almost no indigestible carbohydrate for bacteria to turn into flatus.4

The Sulfur Stinks!

The offensive odors of flatus are caused by tiny amounts of sulfur-containing gases. Sulfur gases are detected by our noses in concentrations as low as 1 part in 100 million and are often described as smelling like "rotten eggs." This may or may not surprise you, but the flatus from women was found to have higher concentrations of hydrogen sulfide and greater odor intensity than from men.5 In a scientific experiment on flatus, odor was rated from 0 (no odor) to 8 (very offensive) by the highly trained noses of two separate judges. Women were rated with an average score of 5.45 and men an average of 3.95. However, men passed higher volumes of

gas than did women (119 ml vs. 88 ml/passage). As a result the volume of sulfur gasses in each passage did not differ between men and women.

To make odor matters worse, a large portion of the sulfur that does not leave with the feces and flatus is absorbed through the intestinal walls, into the blood stream where it is excreted in the urine or into the breath and sweat as foul breath and body odor.6 Body odor, as the perfume industry knows well, is a primary source of communication between people, effecting our emotions, and causing feelings of physical attraction (or repulsion) and love.7

Animal Foods Produce Sulfur:

The main source of sulfur in the feces and intestinal gas is from animal foods, and more specifically, the sulfur-containing amino acids found in animal proteins. All proteins in nature are made from the same 20 amino acids arranged in different sequences – just as the 26 letters of the alphabet make up all the words in a dictionary. Methionine, cysteine, cystine, and taurine are the amino acids that contain sulfur in their structure.

Small amounts of sulfur also come from additives and vegetable foods. Inorganic sulfur, as sulfites, sulfur dioxide, bisulfate, or metabisulfite, is used routinely in the preservation of processed foods and beverages – like a common practice in salad bars. Most vegetable foods are low in sulfur, except for a few like garlic, broccoli and cauliflower.

The proof that animal products are the main source of these offensive gases comes from an experiment on five healthy men on 5 different diets for 10 days each.8 The meat intake ranged from 0 grams/day to 600 grams/day (20 ounces). On the vegetarian diet, 0.22 mmol/kg of fecal sulfur material (sulfides) was detected and on the meat diet, 3.38 mmol/kg was found. Therefore, more than 15 times more sulfur was produced with the meat diet, than with the no-meat diet.

Animal products are the main sources of the sulfur-containing amino acids.
9 Compare the relative amounts of methionine in these foods (based on calories):

- Beef provides 4 times more than pinto beans
- Eggs have 4 times more than corn
- Cheddar cheese has 5 times more than white potatoes
- Chicken provides 7 times more than rice
- Tuna provides 12 times more than sweet potatoes (Giving a whole new understanding of "fish farts.")

Sulfur is Also Toxic:

The foul odors of sulfur gases should be a clear message for the perpetrators that something is terribly wrong down below and deserves our immediate attention. These sulfur-containing gasses are extremely toxic to the tissues and they may play a role in a life-threatening inflammatory bowel disease, called ulcerative colitis.10-11

Levels as low as 0.5 – 1.0 mmol/L have shown deleterious effects on the human colon.12 Therefore, small amounts of beef (or the protein in any animal product) can produce levels of sulfur known to be toxic to the cells of your colon.

Gas Solutions:
For people following the McDougall Program, adjustment to the new high-fiber foods occurs in time, and the amount of gas produced diminishes in about 2 weeks. Much of this adjustment comes as a result of changes in kinds and numbers of bowel bacteria.13

Avoid Gassy Foods: Milk products are troublesome for most non-Caucasian people (Asians, Blacks, Hispanics, Indians, Eskimos, etc.) who can't digest lactose; about 20% of Caucasians also have this trouble. All legumes--beans, peas, lentils, etc. – bother all races of people indiscriminately. You do not need to consume beans on the McDougall diet – all the protein you need comes from the other less gassy starches and vegetables you may choose. Some individuals notice trouble with onions, bagels, pretzels, prunes, apricots, cabbage, carrots, celery, green peppers, broccoli, cauliflower, bananas, Brussels sprouts, and wheat germ. But this list of offenders depends on personalized sensitivities and, therefore, could incriminate almost any food.

Become a Pure Vegetarian: With the elimination of all animal products the primary source of the offensive odors – the sulfur-containing amino acids – is removed.8 Within a few days you could change from "silent but deadly" to "still silent but lightly fragrant."

Thorough cooking: Almost everyone seems to have a method of "de-gassing" beans. Many cooks claim to have inherited the secret process from an authoritative grandmother. Thus, I've heard some say "add potatoes to beans during cooking," or "soak beans first, then discard the rinse water." Our personal experience has been these methods are of no benefit. Soaking helps, whether or not you discard the original rinse water, simply because soaking starts the breakdown of the carbohydrates and assists cooking. Thorough cooking helps by breaking down indigestible complex carbohydrates into simpler, more digestible forms. Even though cooking will break down many of the gas forming complex carbohydrates found in grains and vegetables, the ones in legumes are heat stable and resistant to cooking. 14 However, germination (sprouting) for 1 to 4 days results in utilization of the bulk of these legume sugars.15

Sprouting beans: One reliable way to "de-gas" legumes is to sprout them first. Cover beans with water for 12 hours, drain off water, lay damp paper towels on the bottom of a baking dish, spread out beans on the moist towels in a single layer, and then let them sprout for the next 12 hours. When you notice tiny white shoots (1/16") beginning to appear they are ready to cook. The tiny plant is utilizing the indigestible sugars for growth.15 Needless to say, beans will take less time to cook after sprouting.

Beano: A product on the market, Beano, in the form of liquid drops and tablets, contains enzymes that are capable of breaking down the indigestible sugars in beans, peas, and lentils. You add a couple of drops to the first bite of food and then you can eat the rest without the problem of bowel gas.16 (Or so the label says ….) **We do not use the actual brand Beano because it is derived from fish. Choose other "vegan" products with the same enzymes (such as Vegan-zyme, a digestive enzyme brand with the active ingredient, alpha-galactosidase).**

Activated Charcoal: Activated charcoal has been used to treat intestinal gas in India and Europe for many years, and has only recently been gaining acceptance in the United States. In the laboratory, activated charcoal was found to bind and deactivate sulfur gases. Unfortunately, this benefit was not found when human subjects were asked to take 0.5 grams of activated charcoal four times a day.17-18 This failure is probably because all of the active binding sites on the charcoal are filled with substances in the feces long before the charcoal reaches the large intestine where the sulfur gas is present.

*Pepto-Bismol (Bismuth subsalicylate)***:** Four tablespoons **(**524 mg) four times a day for 3-7 days produced a greater than 95% reduction in fecal hydrogen disulfide release. 19 (Pepto-Bismol contains substances similar to aspirin which may cause problems in those who have warnings to stay away from aspirin.)

Avoid Medications: Acarbose for diabetes, and lactulose for constipation can cause flatus because they cause an increase in sugars in the large intestine. Many other medications are also known to cause flatulence and therefore any medication should be suspect if you notice a problem with excess bowel gas after starting a new medication.

Probiotics: A change in the kinds of bacteria in the large intestine – the intestinal microflora – can result in a reduction in flatus. In a controlled study, volunteers with irritable bowel syndrome (IBS), were fed a drink with Lactobacillus plantarum – a friendly form of bowel bacteria – for four weeks. Flatulence was rapidly and significantly reduced in the test group compared with the placebo group (number of days with abundant gas production was 6.5 before and 3.1 after the intervention for the test group vs. 7.4 before and 5.6 after for the placebo group).20

Antibiotics: Nonabsorbable antibiotics (like Rifaximin) which kill the anaerobic gut bacteria can reduce the amount of flatus and improve symptoms in very gassy people as a last resort effort.21

My advice: Meat makes farts stink – become a pure vegetarian. Gas is natural – have you ever ridden a horse? Enjoy the gas. The horse seems to.

References:

1) Levitt M. The relation of passage of gas an abdominal bloating to colonic gas production. *Ann Intern Med*. 1996 Feb 15;124(4):422-4.

2) Tomlin L. Investigation of normal flatus production in healthy volunteers. *Gut*. 1991 Jun;32(6):665-9.

3) (For a complete discussion of flatus terminology visit:http://www.sillyjokes.co.uk/fart_machine/fart_slang.html.)

4) Levitt M. H2 excretion after ingestion of complex carbohydrates. *Gastroenterology*. 1987 Feb;92(2):383-9.

5) Suarez F. Identification of gases responsible for the odour of human flatus and evaluation of a device purported to reduce this odour. *Gut*. 1998 Jul;43(1):100-4.

6) Sabry ZI. Relationship of dietary intake of sulphur amino-acids to urinary excretion of inorganic sulphate in man. *Nature*. 1965 May 29;206(987):931-3.

7) Marchand S. Odors modulate pain perception. A gender-specific effect. *Physiol Behav*. 2002 Jun;76(2):251-6.

8) Magee EA. Contribution of dietary protein to sulfide production in the large intestine: an in vitro and a controlled feeding study in humans. *Am J Clin Nutr*. 2000 Dec;72(6):1488-94.

9) J Pennington. Bowes & Church's Food Values of Portions Commonly Used. 17th Ed. Lippincott. Philadelphia- New York. 1998.

10) Levine J. Fecal hydrogen sulfide production in ulcerative colitis. *Am J Gastroenterol*. 1998 Jan;93(1):83-7.

11) Roediger W. Sulphide impairment of substrate oxidation in rat colonocytes: a biochemical basis for ulcerative colitis? *Clin Sci (Lond)*. 1993 Nov;85(5):623-7.

12) Christl S. Effect of sodium sulfide on cell proliferation of colonic mucosa. *Gastroenterology* 1994; 106:A664 (abstr).

13) Gorbach SL. Bengt E. Gustafsson memorial lecture. Function of the normal human microflora. *Scand J Infect Dis Suppl*. 1986;49:17-30.

14) Oboh H. Effect of soaking, cooking and germination on the oligosaccharide content of selected Nigerian legume seeds. *Plant Foods Hum Nutr*. 2000;55(2): 97-110.

15) East JW. Changes in stachyose, sucrose, and monosaccharides during germination of soybeans. *Crop Sci*. 1972;12:7-9.
16) Ganiats TG. Does Beano prevent gas? A double-blind crossover study of oral alpha-galactosidase to treat dietary oligosaccharide intolerance. *J Fam Pract*. 1994 Nov;39(5):441-5.
17) Suarez F. Failure of activated charcoal to reduce the release of gases produced by the colonic flora. *Am J Gastroenterol*. 1999 Jan;94(1):208-12.
18) Potter T. Activated charcoal: in vivo and in vitro studies of effect on gas formation.
Gastroenterology. 1985 Mar;88(3):620-4.
19) Suarez F. Bismuth subsalicylate markedly decreases hydrogen sulfide release in the human colon. *Gastroenterology*. 1998 May;114(5):923-9.
20) Nobaek S. Alteration of intestinal microflora is associated with reduction in abdominal bloating and pain in patients with irritable bowel syndrome. *Am J Gastroenterol*. 2000 May;95(5):1231-8.
21) Stefano M. Non-absorbable antibiotics for managing intestinal gas production and gas-related symptoms. *Aliment Pharmacol Ther*. 2000 Aug;14(8):1001-8.
Some web sites to expand your understanding of flatus:http://www.heptune.com/farts.html
http://users.utu.fi/s/snapir/fart/

Featured Recipes

Recipes this month are from our recipe collection as well as our Recipe App.

SUMMERTIME CHOWDER

We really enjoy this soup in the summer when fresh corn and tomatoes are in season. Using the fresh corn and pulp gives this a delicious boost of flavor.

Servings: 6-8
Preparation Time: 30 minutes
Cooking Time: 45 minutes

1 onion, chopped
1 clove garlic, crushed
2 stalks celery, thinly sliced
2 carrots, thinly sliced
2 potatoes, peeled and diced
4 ears corn on the cob
3 ½ cups water
3 tablespoons soy sauce
2 teaspoons basil
½ teaspoon white pepper
3 tomatoes, seeded and chopped
3 cups rice, soy or nut milk
Chopped parsley or alfalfa sprouts for garnish

In a large soup pot, sauté onion, garlic, celery, and carrot in ½ cup of the water for about 10 minutes. While this is cooking, remove corn from cob using a sharp knife. With the back of the knife, scrape cob to extract creamy pulp. Reserve corn and pulp. (Should be about 2 cups.)

Add the remaining 3 cups water, potatoes, and seasonings to soup pot. Bring to a boil. Add corn and pulp. Mix in well, reduce heat, cover and cook about 15 minutes. Then add tomatoes to the soup pot. Cook an additional 10-15 minutes, then add 3 cups acceptable milk, heat through and serve at once. Garnish with chopped parsley or alfalfa sprouts, if desired.

HELPFUL HINTS: Tomatoes are added later in the cooking to prevent them from getting too mushy. Frozen corn could be used in place of fresh corn, if desired. Use about 2 cups. The white pepper makes this a very spicy soup. Reduce to ¼ teaspoon to make it less spicy.

QUINOA GARDEN SALAD

Preparation Time: 15 minutes
Cooking Time: 15 minutes
Chilling Time: 2 hours
Servings: 6-8

2 cups water
1 cup quinoa, well rinsed
1 red bell pepper, chopped
1 green bell pepper, chopped
½ yellow bell pepper, chopped
2 tomatoes, chopped
1 bunch chopped green onions
1 14.5 ounce can garbanzo beans, drained and rinsed
½ cup chopped fresh parsley
¼ cup chopped fresh mint
½ cup fresh lemon juice
1 tablespoon soy sauce
several dashes Tabasco sauce
several twists of freshly ground black pepper

Place the water and quinoa in a saucepan, bring to a boil, reduce heat, cover and cook for 15 minutes, until water is absorbed. Remove from heat and set aside.

Meanwhile, combine the vegetables, beans, parsley and mint. Add the cooked quinoa and mix well. Add the remaining ingredients and toss well to mix. Cover and refrigerate for at least 2 hours before serving.

SUNSHINE FRUIT SALAD

By Heather McDougall

Make this with organic fruit for the best flavor! My kids love this!

Preparation Time: 10 minutes
Servings: variable

½ fresh pineapple, chopped
1 apple, peeled and chopped
1 banana, sliced
1 pint fresh strawberries, sliced
½ pint fresh blueberries
3 kiwis, chopped
1 tablespoon fresh lime juice
1 container blueberry soy yogurt (or other non-dairy yogurt)

Mix this together in a large bowl and serve at once.

Hints: Other fruits may be substituted according to the season. Add mango, if you can find a fresh one! Other flavors of non-dairy yogurt may be used as desired.