



Rice Rules

WHAT YOU NEED TO KNOW ABOUT ARSENIC IN RICE

By Rachel Begun, R.D.

It's no surprise a recent *Consumer Reports* story about arsenic in rice caught the attention of the gluten-free community. After all, rice is a staple of the gluten-free diet, though some rely on it more than others.

Although arsenic is found in water and many foods, including fruits and vegetables, *Consumer Reports* focused scrutiny on rice. "Rice absorbs arsenic from soil or water much more effectively than most plants," *Consumer Reports* says in its story. "That's in part because it is one of the only major crops grown in water-flooded conditions, which allow arsenic to be more easily taken up by its roots and stored in the grains."

Consumer Reports analyzed levels of arsenic in more than 200 rice and rice products and found what it calls "worrisome levels" in many of the samples tested. The report encouraged consumers to reduce their consumption of rice and rice products. Prompted by the story, the U.S. Food and Drug Administration (FDA) released some preliminary results of its ongoing investigation into arsenic in rice. The FDA concluded it does not currently "have an adequate scientific basis to recommend changes by consumers regarding their consumption of rice and rice products."

For gluten-free consumers, reports of arsenic in rice raised a red flag not only because rice is a naturally gluten-free grain but also because consumption of rice itself is only part of the picture.

Rice is used to make rice flour and starch frequently found in a wide range of gluten-free products. It is included in many baked goods, snacks, cereals, pasta and other foods that those who follow the diet are likely to eat every day. *Consumer Reports* pointed out in its story that a number of the products it tested are "often used by people on gluten-free or other special diets, including rice pasta, rice flour, and rice drinks."

Since reports about arsenic in rice started to spread, many organizations and experts have weighed in on the topic. The bottom line for those who are gluten free is that it's not necessary to avoid rice, but it makes sense to eat a diet that includes a wide range of gluten-free grains.

And although brown rice, long promoted as a healthy alternative to less nutritionally dense white rice, is also likely to contain more arsenic, experts say the health benefits of eating this whole grain may still outweigh any arsenic-related risk.

Overall, scrutiny of arsenic in rice is providing a clearer picture of what is going on with arsenic in our food supply, where we stand on the research pertaining to health outcomes, and the steps consumers

should take with respect to rice consumption.

The issue of arsenic in the environment, and subsequently our food supply, is not a new one and has been monitored by the FDA, the Environmental Protection Agency (EPA) and international organizations such as the World Health Organization (WHO) for decades. There is evidence showing an association between long-term exposure to arsenic levels and adverse health outcomes, particularly higher rates of certain types of cancer.

However, more research needs to be done to determine if there is a relationship between consuming higher levels of rice and rice products and the illnesses associated with arsenic. While *Consumer Reports* reported on arsenic levels in rice and rice products, it did not detail any specific health problems directly tied to rice.

ARSENIC AND THE FOOD SUPPLY

Arsenic comes in two forms, organic and inorganic, and exists in the environment naturally and from human sources, including the agricultural use of arsenical pesticides. The inorganic form of arsenic is of greater concern and has been associated with certain types of cancer and heart disease. Organic arsenic is of less concern because the body does not absorb it as well.

Arsenic from pesticides is not an issue for rice, according to a representative of rice producers. "Arsenical pesticides are not used in rice production," says Anne Banville, vice president domestic production for the U.S.A. Rice Federation. "The agricultural use of arsenical pesticides in other crops has been dramatically decreasing since the 1950s. However, they were never approved for use on rice."

And rice is not the only source of arsenic in foods. A study by the EPA shows that vegetables, fruits and fruit juices, beer, wine, other grains, meats, poultry and eggs as well as other foods all contribute to dietary exposure to arsenic. (See page 42 for percentages.)

WHAT THE EXPERTS HAVE TO SAY

While the FDA is not currently calling for reduced rice consumption, the agency does recommend that "consumers should eat a balanced diet that includes a wide variety of grains — not only for good nutrition but also to minimize any potential consequences from consuming any one particular food."

Many health experts agree, and this advice is in line with general recommendations by nutrition experts to eat a wide variety of foods to obtain the different nutrients they offer.

"I think that we have good data that those who eat diets rich in the right stuff have lower risks of most chronic diseases, so don't eliminate rice, fruits, vegetables or grains," says Julie Miller Jones, Ph.D., a food safety expert and professor at St. Catherine University. Even in areas like Bangladesh with high soil levels, those who are better nourished have less impact of the arsenic.

"Concentrate on what to include in the diet rather than what to exclude," says Jones. She encourages consumers to make changes to their diets that are more in line with the U.S. Department of Agriculture's MyPlate, which focuses on fruits, vegetables and whole grains. She adds that these foods contain nutrients that help to detoxify arsenic in the body, including vitamins, minerals and antioxidants.

David L. Katz, M.D., a specialist in internal medicine and preventive medicine and founding director of Yale University's Prevention Research Center, agrees. In his *U.S. News and World Report* blog post, "Arsenic in Rice: of Baby and Bath Water," he says, "The benefits of habitual intake of health-supportive foods can outweigh the presence of contaminants in them." In the post, he makes that case for mercury in fish as well as arsenic in fruits, vegetables and brown rice.

"Based on the limited but increasing information we have, it seems prudent to take steps to both diversify our gluten-free diets if we rely heavily on rice and rice-based products and decrease the amount of arsenic in the rice we choose to eat," says Tricia Thompson, R.D., a nutrition consultant on celiac disease who has been following the issue of arsenic in rice since 2009. "Taking these steps can't hurt us, and it might possibly help."

A CALL TO ACTION

Currently, there are no federal limits for arsenic in food. *Consumer Reports* wants a standard to be set by the FDA and is also pushing the rice industry to accelerate efforts to reduce levels, develop types of rice that take up less arsenic, and use rice with the lowest possible arsenic in products for young children.

The FDA is collecting and analyzing approximately 1,200 samples of rice and rice products and expects its review to be completed by the end of 2012. The agency says it will use results to determine whether to issue additional recommendations. The preliminary statement the FDA released after the *Consumer Reports* story ran was based on a partial review of rice samples.

"U.S.A. Rice has provided rice samples and information to both the FDA and EPA," says Banville. The association is also working with university rice researchers and USDA's Agricultural Research Service to understand the growing conditions that affect the level of arsenic that rice plants take up as well as the differences in the level of arsenic absorbed by rice varieties. The goal is to "gain insight into potential strategies that could reduce the level of arsenic in rice," according to Banville.

Manufacturers are also looking into the issue. Lundberg Family Farms, which sells rice and rice products, is testing samples of the rice varieties they use and sharing the results with the FDA. Other manufacturers, like Mary's Gone Crackers, are taking steps to educate and be transparent with their customers.

"We are offering information to give a bigger-picture perspective on toxins in our food and to educate people," says Mary Waldner, founder and chairman of Mary's Gone Crackers. The company sent a letter to customers explaining the larger arsenic issue and how it relates to their products.

A MEASURED APPROACH

Yale's Katz takes a measured approach to reports about arsenic in food. "Brown rice will remain a part of my diet, as will other foods containing rice, just as vegetables and fruits do despite some potential for contaminants there, and just as fish does despite the mercury," he says. "Perfectly pure food is, alas, not available on this planet.

TIPS FOR EATING RICE ON THE GF DIET

There are simple and reasonable steps you can take to reduce the amount of rice in your diet if you are concerned about arsenic levels.

Tricia Thompson, a registered dietitian who specializes in celiac disease and founded **Gluten Free Watchdog**, a company that tests foods for gluten, recommends:

• **Substituting cooked rice dishes with other naturally gluten-free grains, including quinoa, millet, and kasha (roasted buckwheat groats). Look for a gluten-free label to avoid cross contamination from wheat, barley or rye.**

• **Replacing some rice-based products, such as breakfast cereal, pasta, rice beverages and rice cakes, with products made from other gluten-free grains, including corn, amaranth, buckwheat, millet and quinoa.**

• **Cooking rice in more water, using amounts similar to cooking pasta as a guide. Cook only until the rice is tender (not until all the water is absorbed, as package directions often indicate) and then discard**

the water. This will remove a portion of the inorganic arsenic. (Keep in mind this will remove some of the nutrients as well.)

• **For children, soy beverages fortified with calcium and vitamin D can be used instead of rice drinks.**

In addition to rice dishes and prepared foods, many gluten-free recipes call for rice flour and it's seen as a staple in gluten-free cooking.

But Shauna Ahern, a popular gluten-free recipe blogger and author of *Gluten-Free Girl and the Chef*, says that while rice flour plays a role in gluten-free foods, there are many other gluten-free flavors "to play with."

"Rice flour isn't a magic elixir," Ahern explains. "What matters in gluten-free baking is using a ratio of whole-grain high-protein flours and starches or white flours."

Ahern says she uses a 40 percent whole grain and 60 percent starch mix, because that's a similar proportion of protein to starch in wheat. She prefers using sorghum, buckwheat and quinoa flours, teff and potato starch.

FOODS THAT CONTAIN ARSENIC

Of the food groups that contribute to dietary exposure to arsenic, rice ranks third, according to a study by the U.S. Environmental Protection Agency. Here are actual percentages contributed by each food group:

- **Vegetables 24%**
- **Fruits and fruit juices 18%**
- **Rice 17%**
- **Beer and wine 12%**
- **Other grains 11%**
- **Meats, poultry and eggs 5%**
- **All others 13%**



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So those of us living here should focus on net health effects and do the best we can with the food supply we've got."

When it comes to net health effects and the gluten-free diet, there is considerable scientific evidence supporting the benefits of eating whole grains.

This includes rice as part of a well balanced and varied diet. So far

no one is suggesting that rice or rice products be eliminated, just that, as in all things, moderation is the key. **GF**

Rachel Begun, M.S., R.D., specializes in gluten-related disorders. As a spokesperson for the Academy of Nutrition and Dietetics, she educates the public and food industry about gluten-free topics.

HOW ONE COMPANY IS COPING

For Grant Lundberg, CEO of Lundberg Family Farms, the issue of arsenic in rice is personal. The Richvale, Calif., company started by his grandfather has been selling rice and rice products since 1937.

Lundberg told *Consumer Reports* that concerns about risks of arsenic exposure are prompting him into "taking matters into its own hands."

Lundberg Family Farms is testing more than 200 samples of the many varieties of rice in its supply chain and plans to share the results

with Food and Drug Administration (FDA) scientists.

"We want to make sure the food we grow and that our consumers purchase is healthy," Lundberg says, noting that the health and safety of customers is the company's primary concern.

While the FDA assesses the long- and short-term health risks of consuming arsenic, Lundberg says he wants to help gather information to really understand the issue.

Growing conditions, including soil and fertilizer type, are potential factors that might affect arsenic content of plants. For example, Lundberg says, it's possible that chicken manure used as fertilizer could be bringing in some arsenic. But this is not a certainty. "We are identifying the factors affecting it, but there are a lot of unknowns," he says, noting that

his company wants to be sure it's not contributing to the problem anywhere in the production chain.

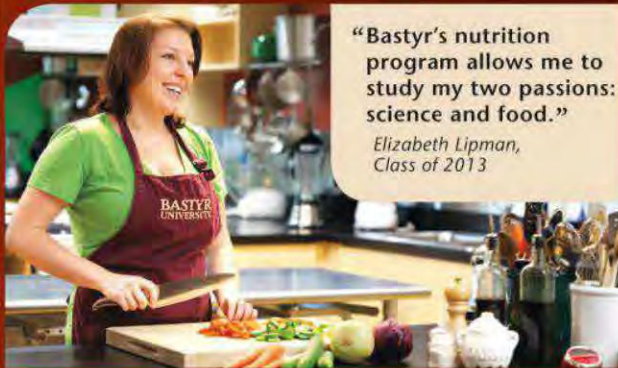
The company has been working with scientists, other farms and farmers, and regulatory agencies on testing. The results are available on the Lundberg Family Farms website (lundberg.com). Consumers can see how many micrograms of inorganic arsenic are in a serving of Lundberg rice. "We want to be able to give the consumer the information to make good choices," says Lundberg. But he stresses that this is not advice. "We cannot advise; we're not nutritionists, we're not scientists."

Until further research provides more facts, he recommends following the FDA's advice to maintain a varied diet.

By Beata Rybka



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