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Nutrition News: Is there arsenic in the apple juice and does it matter?

A primer on arsenic:

Arsenic is a naturally occurring element (remember that periodic chart in high school chemistry class?) found in soil and water. It is classified as a “heavy metal,” like iron, copper and zinc, all of which are essential minerals in the human diet, though we have no requirement for arsenic. Just like all of the essential minerals, arsenic can be toxic if consumed in excess.

Because inorganic arsenic compounds do not decompose, they accumulate in the environment and are therefore unavoidable. Arsenic gets into the environment in a variety of ways, including as part of the pesticides used before 1970, pyrotechnics, batteries, brass plumbing fittings, semiconductors, pressure treated lumber, and volcanic ash.

Around the world, drinking water has been a primary source of arsenic exposure, whether from public water supplies or private wells. Fortunately, safe levels can be maintained with routine monitoring and effective precipitation. The acceptable limit for arsenic in U.S. drinking water is 10 parts per billion (PPB) gallons. There is no federal limit for arsenic in most foods, but the Food and Drug Administration has been monitoring arsenic in the food supply for over 20 years.

The spin:

Now here comes the spin. In the fall of 2011 Dr. Oz said on his show that apple juice is unsafe because of the amounts of total arsenic found in some samples he had tested. Anyone who reads mystery novels knows high levels of arsenic can be fatal, so people were outraged by this news. Rice, grape juice and seafood were also implicated in the arsenic scare.

What many alarmed parents didn't know when they stopped giving their children apple juice as a result of this news is that not all arsenic is the same. The tests done by Dr. Oz measured total arsenic, but only the inorganic form is potentially harmful. Nonetheless, people assumed Dr. Oz was the good guy in this battle and the FDA was wearing the black hat.

The facts:

A little fact finding reveals that the FDA was given a list of the samples Dr. Oz had tested before he aired his results, and he was told they were flawed ([See letter from FDA to The Dr. Oz Show](#)). The FDA then tested identical samples of apple juice, including the more comprehensive analysis for inorganic arsenic, and found they were well within safe limits (2-6 ppb). The manufacturer of the apple juice also tested the samples in their own labs and submitted them to two independent laboratories for analysis.

All of these results matched those obtained by the FDA and were shared with Dr. Oz in a [second letter](#), which I assume most of you didn't get to see.

After the Dr. Oz show aired, the FDA released results of its apple juice results from 2005-2011. The levels varied, but 95% had below 10 ppb. Those with arsenic in them had predominantly the inorganic (harmful) form, however, 100% of those samples were below 10 ppb for inorganic arsenic.

Who do you trust?

The take-away from this episode has to be, what were Dr. Oz's motives for sharing those inaccurate results? And my question to anyone caught up in this scare, who do you now trust for your food safety information?

CONCLUSION: What should we do when a food is suddenly under attack in the news?

Keep in mind these tips

1. **Just because we can measure something we could not detect before does not mean it is doing us harm.** *Pesticides may be found on our food, but that does not mean it is doing us harm.*
2. **No food is good/safe for us in unlimited quantities.** *Knowing "how much and "how often" is needed to determine safety.*
3. **Removing a food from the diet can have unintended nutritional consequences if it was a significant source of key nutrients that are not easily replaced.** *Wheat is fortified with folic acid to prevent birth defects, but would be lost to those on gluten free diets.*
4. **All food choices must be viewed in the context of the total diet.** *Removing a single food cannot fix a diet that is out of balance.*
5. **Banning or restricting access to certain foods in an effort to reduce their use or fight obesity can send the message that other foods are healthy in any amounts.** *Balancing all food choices and total calories are the goal.*
6. **Food grouping systems can be so simplistic that some foods are mistakenly only associated with a single nutrient, such as the milk group and calcium.** *Foods provide an array of nutrients that work together synergistically.*
7. **The more we learn about nutrient requirements in health and disease, the more we should be moving towards individualization of dietary advice.** *Broad based dietary recommendations are guidelines, not absolutes.*
8. **Nutritional needs must be based on scientific evidence.** *Personal choice comes into play when considering environmental (organic vs conventional), philosophical (omnivore vs vegetarian) and socio-political (farm subsidies vs food aid) issues.*