



## Back To Health

### Your guide to better living

Dr. Chad R. Kesner, DC, DACBSP, CCCN, CEDP

Dr. Kimberly C. Kesner, DC, DiplAcup NCCAOM, CEDP

## August 2006

# MSG (Monosodium Glutamate)

### What is MSG?

Monosodium Glutamate, "MSG", is a processed sodium salt of glutamic acid, one of the most common amino acids (protein building blocks) found in nature. As glutamate, it is present in virtually all foods. Glutamate is found naturally in foods such as tomatoes, mushrooms, broccoli, peas, cheese, meats, fish, even human milk (20 times more than cow's milk). MSG is produced by a fermentation process of glutamate. The glutamate industry would love for you to believe that there is no difference between glutamate found in natural foods and that added as MSG.

Most of the glutamic acid with which consumers come in contact is found **in** protein where it is connected to (or bound to) other amino acids. There are two forms of glutamic acid found in nature: L-glutamic acid and D-glutamic acid. When glutamic acid is found **in** protein it is referred to as **bound glutamic acid**. The glutamic acid found **in protein** is L-glutamic acid, only. Eating protein (which will contain bound glutamic acid that is L-glutamic acid, only) does not cause either brain damage or adverse reactions.

Glutamic acid **outside of protein** is referred to as **free glutamic acid**. **Manufactured/processed free glutamic acid** (MSG) always contains D-glutamic acid, pyroglutamic acid, and various other contaminants in addition to L-glutamic acid. **Manufactured/processed free glutamic acid** (MSG) causes brain lesions and neuroendocrine disorders in laboratory animals. **Manufactured/processed free glutamic acid** (MSG) also causes adverse reactions which include skin rash, tachycardia, migraine headache, depression, and seizures in humans.

MSG is an **excitotoxin**, a substance that overexcites cell neurons causing cell damage and, eventually, cell death. These excitotoxins are able to enter and cause damage to the brain because humans lack a blood-brain barrier in the hypothalamus. The MSG is then able to create a lesion in the hypothalamus allowing for abnormal development, including sexual reproduction and obesity.

### Why should I avoid MSG?

As little as 1/10th of a tsp can give a severe reaction, and reactions can be dose related: the more you consume the greater chance of the reaction. Some common side effects include the following:

- tachycardia (increased heart rate)
- heart attacks
- asthma
- headaches
- facial swelling
- swelling in the joints
- marked obesity
- impaired skeletal development
- tightness in the chest
- a burning sensation in the forearms and the back of the neck
- joint pain
- sterility in females
- In laboratory experiments, every species of animal fed MSG developed brain lesions and infant animals were especially susceptible, as they had not developed an effective blood-brain barrier.
- heart arrhythmia

### What products contain MSG?

MSG is used on poor quality food to enhance flavor. It is found in many dressings and sauces and is added to most infant formulas. Soy formulas, Isolated Soy Protein, and Texturized Vegetable Protein [TVP] in particular are loaded with MSG. Hydrolyzed vegetable protein contains up to 40% MSG. MSG is also found in cheese, ice cream, beverages, medications, frozen meals, cookies and candies, IV materials, "Cream of ..." soups and other canned soups, pre-packaged "dinner in a box" types, and rice mixes. When eating out, beware of fast food sandwiches, as well as Chinese foods. At some Chinese restaurants, you can ask for "No MSG".

#### These ALWAYS contain MSG:

Glutamate, Monosodium glutamate, Monopotassium glutamate, Glutamic acid, Calcium caseinate, Sodium caseinate, Gelatin, Textured protein, Hydrolyzed protein (**any** protein that is hydrolyzed), Plant protein extract, Yeast extract, Yeast food, Autolyzed yeast, Yeast nutrient

#### These OFTEN contain MSG/excitotoxins or create MSG during processing:

Flavor(s) & Flavoring(s), Natural flavor(s) & flavoring(s), Natural pork flavoring, Bouillon, Natural beef flavoring, Stock, Natural chicken flavoring, Broth, Malt flavoring, Barley malt, Malt extract, Soy sauce, Soy sauce extract, Soy protein,

Soy protein concentrate, Soy protein isolate, Pectin, Whey protein, Whey protein isolate, Whey protein concentrate, anything Protein fortified, anything Fermented

### Why can't we see....

Researcher Hiroshi Ohguro conducted a study on the relationship between MSG consumption and retinal damage. In the study, rats were fed three different diets for six months. The diets consisted of either high or moderate amounts of MSG, or none. The rats on the high-MSG diet experienced thinning of retinal nerve layers, by as much as 75 percent!! Further testing that measured retinal response to light showed they could not see as well. The rats on the moderate diet also experienced retinal damage, although to a lesser extent. The researchers found high concentrations of MSG in the vitreous fluid, which bathes the retina. The MSG is able to bind to receptors on the retinal cells and destroy them, causing secondary reactions that reduce the ability of the remaining cells to relay signals. Why can't we see that consuming products containing MSG should be avoided?

-A High Dietary Intake of Sodium Glutamate as Flavoring (Ajinomoto) Causes Gross Changes in Retinal Morphology and Function. *Experimental Eye Research*, Volume 75, Issue 3, Pages 307-315

-Decision News Media, Eye Damage From MSG Consumption, Oct 25, 2002

**Obesity** is a common problem for many people in the world today. With so many people and companies focused on dieting and weight loss, it makes one wonder why the problem just keeps getting bigger!! MSG, while just a part of the puzzle, contributes to obesity. Interestingly, many "diet" products contain MSG! Researchers believe that excitotoxin [MSG] induced obesity is not dependent on food intake, which may lend a hand in explaining why people seem to be unable to diet away their obesity.

MSG exposure can cause problems in the long run for those who are exposed to high doses of glutamate early in life. One study found that babies of pregnant mothers that consumed large amounts of excitotoxins are more likely to develop gross obesity and that the risk can become a reality after even a limited exposure. What's more, MSG is used as a stabilizer in various vaccines in order for the vaccine to remain unchanged, even in the presence of heat, light, acidity, humidity etc.

You can access a Medline data base through the National Library of Medicine on the Internet. We encourage you to log on to [www.pubmed.gov](http://www.pubmed.gov) and search for studies using the key words "obesity AND monosodium glutamate,". You might find two studies published in 2005 particularly interesting: "[Obesity, voracity, and short stature: the impact of glutamate on the regulation of appetite](#)," and "[\[Effect of monosodium glutamate given orally on appetite control \(a new theory for the obesity epidemic\)\]](#)."

-News Target, *The Link Between Monosodium Glutamate (MSG) and Obesity*, July 9, 2005

-Obesity induced by neonatal monosodium glutamate treatment in spontaneously hypertensive rats: an animal model of multiple risk factors. Iwase M, Yamamoto M, Iino K, Ichikawa K, Shinohara N, Yoshinari Fujishima *Hypertens Res*. 1998 Mar

-Hypothalamic lesion induced by injection of monosodium glutamate in suckling period and subsequent development of obesity. Tanaka K, Shimada M, Nakao K, Kusunoki *Exp Neurol*. 1978 Oct

-A. Frieder, B, and Grimm, VE. Prenatal monosodium glutamate (MSG) treatment given through the mother's diet causes behavioral deficits in rat offspring. *Intern J Neurosci*. 23:117-126,1984.

-PEDIATRICS, *Addressing Parents' Concerns: Do Vaccines Contain Harmful Preservatives, Adjuvants, Additives, or Residuals?*, December 2003

At least 25% of the U.S. population reacts to free glutamic acid from food sources. Today, we recognize that those reactions range from mild and transitory to debilitating and life threatening.

There are **no substitutions** for fresh, quality foods...

1. Read your ingredient labels and don't buy products that contain artificial or highly processed ingredients.
2. Buy natural, whole foods.
3. Use basic spices like freshly ground salt and pepper, garlic powder and fresh or dried herbs to add a variety of flavors to your meal. Read the ingredient labels on your spices too!

## Don't Guess About Your Health... Schedule a Nutritional Consultation Today!

To make an appointment for a nutritional consultation, please call 303-683-3377.

Primary Care & Chiropractic Center 9299 S. Broadway, Suite 100 Highlands Ranch, CO 80129

[www.kesnerchiropractic.com](http://www.kesnerchiropractic.com)

Federal Law requires that we warn you of the following:

1. The information provided in this article is for educational purposes only.
2. Your individual health status and any required health care treatments can only be properly addressed by a professional healthcare provider of your choice. Remember: There is no adequate substitution for a personal consultation with your chosen health care provider. Therefore, we encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.