



## **Fact Sheet on MSG Safety**

***This fact sheet is provided by the International Glutamate Information Service, and is current as of June 2017.***

The scientific research supporting the safety and benefits of monosodium glutamate (MSG) is extensive. Also, the scientific consensus among experts who have objectively studied MSG – and affirmed its safety – continues to grow. Despite this, there are some claims, often circulated on the Internet without any scientific or medical support, that MSG can cause certain side effects or symptoms. Here are the facts, based on the science evaluating this popular food ingredient that has been used safely in foods for more than a century.

Because monosodium glutamate is used widely as a food ingredient, a great deal of reputable research has been completed on its safety and efficacy. In fact, literally hundreds of trustworthy scientific studies have been conducted on glutamate with a focus on its use as a food ingredient (monosodium glutamate). This extensive body of research has been reviewed by scientists and regulatory authorities around the world including the Joint Committee on Food Additives (JECFA) of the United Nations Food and Agriculture Organization and the World Health Organization, the EU Scientific Committee for Food (SCF) and the United States' Food and Drug Administration (FDA). All of these authorities have concluded that MSG is safe.

MSG is approved by governments worldwide, including those in the U.S., Europe, Japan and other Asian countries, North and South America, Africa and Australia and New Zealand. Many of these governmental safety evaluations can be accessed here:  
<https://glutamate.org/safety/scientific-evaluations/>

### **The Human Body Treats Glutamate and MSG in Exactly the Same Way**

Glutamate is a natural part and occurs in many foods that are consumed in a normal diet, including tomatoes, mushrooms, fish, meat, cereals and cheese. It is also a component of mother's milk. The body treats glutamate in exactly the same way whether it comes from these foods or is added as seasoning to food as monosodium glutamate (MSG). Glutamate also has important nutritional benefits. It is, for example, the main source of energy for the cells of the digestive system.

The extensive research on MSG, combined with its long history of use, clearly demonstrates that monosodium glutamate is safe. Numerous scientific conferences over the past several decades have evaluated the current usage and effects of MSG, including MSG's physiology. Their conclusions have been published in major scientific journals. For example, in 2006 experts from a range of scientific disciplines met at the University of Hohenheim, Stuttgart, Germany to review and evaluate recent work on the physiology and safety of monosodium glutamate. The objective was to update the Hohenheim consensus of 1997 which dealt with

metabolic and safety aspects of monosodium glutamate. The group took into account newly available information, including findings from the "International Symposium on Glutamate" in 2000 (*Fernstrom and Garattini, 2000*).

The conclusions reached by the experts have been published in the *European Journal of Clinical Nutrition*. Among the points agreed by the group were the fact that glutamate from all sources is mainly broken down and used as energy by the cells of the intestinal lining; that even in very high doses glutamate causes no ill effect and will not trespass into fetal circulation; that for those with a decreased appetite, the palatability of food can be improved by using a small amount of monosodium glutamate; and that the general use of glutamate salts as a food seasoning can be regarded as safe for everyone. The expert review dispels a number of common misconceptions about monosodium glutamate and supports its use as a safe and effective flavor enhancer.

*For more information:*

K Beyreuther et al.; Consensus meeting: monosodium glutamate – an update; *European Journal of Clinical Nutrition* (2007), 61, 304-313 ;  
<http://www.nature.com/ejcn/journal/v61/n3/full/1602526a.html>

Myths about monosodium glutamate dispelled by this scientific conference:  
[https://glutamate.org/wp-content/uploads/2017/04/newsletter\\_may\\_2007.pdf](https://glutamate.org/wp-content/uploads/2017/04/newsletter_may_2007.pdf) (page 3)

### **Scientific Conference Evaluates History and Benefits of MSG**

An example of a scientific conference evaluating the benefits of monosodium glutamate, where the proceedings were published in a reputable, independent and peer-reviewed scientific journal, is the symposium held in Tokyo, Japan, 11–13 September 2008. The symposium was held to honor the discovery a century ago by Kikunae Ikeda, a professor of physical chemistry at Tokyo Imperial University, of the active taste principle in a seaweed favored by the Japanese in cooking. The component of this taste turned out to be simple, the sodium salt of glutamic acid (monosodium glutamate; MSG). This taste was termed *umami* (a Japanese word) and is similar to the taste described in English as "meaty" or "savory." Interestingly, the uniqueness of the taste of monosodium glutamate and of other umami substances (e.g., inosinate, guanylate) would not become widely accepted until the end of the 20th century. In addition to the historical retrospective, the symposium also assessed the roles of glutamate in gastrointestinal function, metabolism, and physiology.

*For more information:*

Symposium Summary: <http://ajcn.nutrition.org/content/90/3/881S.full>

Glutamate: from discovery as a food flavor to role as a basic taste (umami):  
<http://ajcn.nutrition.org/content/90/3/719S.full>

### **Claims (Myths) about MSG Explained – and Refuted – Based on Credible Science**

Experts on the safety and usage of MSG have stated that the health issues relating to dietary MSG (monosodium glutamate) center around basically five claims. Here are the main *claims* as well as the *facts* related to each claim:

1. **Claim:** MSG causes "Chinese Restaurant Syndrome" (CRS).

**Fact:** Careful, double-blind clinical research shows **no side effects** of MSG among people *who claim MSG sensitivity*. The research shows that people who claim to suffer from

Chinese Restaurant Syndrome simply cannot isolate glutamate as the cause and often find that it is a well-known allergen such as peanuts, shellfish or certain herbs, which is causing the reaction.

2. **Claim:** MSG causes asthma.

**Fact:** Carefully designed studies show MSG does **not** cause asthma attacks.

3. **Claim:** MSG causes allergic reactions.

**Fact:** Carefully designed research shows MSG does **not** cause urticarial (hives or other allergic reactions). For example, a multicenter placebo-controlled study did not find any side effects when monosodium glutamate was given with food. Further, the American College of Allergy, Asthma and Immunology has stated that MSG is not an allergen.

4. **Claim:** MSG causes effects in the brain.

**Fact:** Innumerable studies show dietary MSG does **not** cause brain effects. Even in one study where plasma glutamate was raised 10-times above normal, which never occurs in real life, none of the glutamate entered the brain. This shows the effectiveness of the brain in being able to exclude glutamate from entering the brain.

5. **Claim:** MSG causes obesity.

**Fact:** Scientific research has shown that glutamate can be administered in very large doses to humans on a long-term basis with **no ill effects**. The intestinal metabolism of glutamate is no different whether the glutamate is derived from natural sources or from monosodium glutamate. The ingestion of MSG in the normal diet, even at very high amounts, does not raise plasma glutamate concentrations. This is because intestinal cells and liver cells metabolize almost all of the dietary glutamate as it is absorbed (they use it to make energy); the dietary glutamate never makes it into the body's general circulation.

*For more information about possible MSG health effects and sensitivity:*

<https://glutamate.org/safety/health-impacts-and-sensitivity/> (S.Jinap and P. Hajeb; Glutamate. Its applications in food and contribution to health.; *Appetite* (2010), doi: 10.1016/j.appet.2010.05.002)

**Study Conclusion:** "Despite a widespread belief that glutamate can elicit asthma, migraine headache and Chinese Restaurant Syndrome (CRS), there are no consistent clinical data to support this claim. In addition, findings from the literature indicate that there is no consistent evidence to suggest that individuals may be uniquely sensitive to glutamate."

*For more information about a possible association between MSG and obesity:*

<https://glutamate.org/safety/health-impacts-and-sensitivity/> (Shi Z, Luscombe-Marsh ND, Wittert GA, Yuan B, Dai Y, Pan X, Taylor AW.; Monosodium glutamate is not associated with obesity or a greater prevalence of weight gain over 5 years: findings from the Jiangsu Nutrition Study of Chinese adults; *Br J Nutr.* 2010 Apr 7:1-7)

**Study Conclusion:** "These findings indicate that when other food items or dietary patterns are accounted for, no association exists between MSG intake and weight gain."

## Food Safety Regulatory Agencies Confirm that MSG is Safe to Consume

Detailed, referenced information about the worldwide reviews of monosodium glutamate among scientific and regulatory authorities is available at [www.glutamate.org](http://www.glutamate.org). Below is a summary of conclusions by the Joint Expert Committee on Food Additives (WHO/FAO), the European Union's Scientific Committee for Food, and the U.S. Code of Federal Regulations. The conclusions of these authorities, who are entrusted to protect the public by safeguarding the food supply, should be extremely reassuring to consumers who have questions about the safety of monosodium glutamate:

- **JECFA (WHO/FAO):** The total dietary intake of glutamates arising from their use at levels necessary to achieve the desired technological effect and from their acceptable background in food do not represent a hazard to health. "ADI not specified" was allocated to L-glutamic acid and the monosodium, potassium, calcium and ammonium salts.  
(Note: according to [JECFA's glossary of terms](#), an "Acceptable Daily Intake (ADI) Not Specified" is applied to food ingredients that "on the basis of the available data (toxicological, biochemical, and other), the total daily intake of the substance, arising from its use or uses at the levels necessary to achieve the desired effect and from its acceptable background in food, does not, in the opinion of the Committee [JECFA], represent a hazard to health. For this reason, and for the reasons stated in individual evaluations, the establishment of an acceptable daily intake (ADI) in mg/kg bw is not deemed necessary.")
- **The Scientific Committee for Food of the Commission of the European Communities:** The SCF (1991) conducted a safety evaluation similar to that of the JECFA and reached the same conclusion, i.e., that MSG could be allocated an "ADI not specified," and this is the current situation in the European Union.
- **United States Code of Federal Regulations for Substances that are Generally Recognized As Safe (GRAS) (21 CFR § 182.1):** "(a) It is impracticable to list all substances that are generally recognized as safe for their intended use. However, by way of illustration, the Commissioner regards such common food ingredients as salt, pepper, vinegar, baking powder, and monosodium glutamate as safe for their intended use."