

The Importance of Umami in Healthy Aging

CULINARY CONNECTION

Explore what makes umami the mysterious fifth taste sense



For the longest time, adequate nutrition was the narrow focus of healthcare kitchens. We thought that if the calories and nutrients were available, nature would take care of the rest. While useful, it is not enough to just present the calories on a plate and call it a day. Emerging research shows that focusing on the dining *experience* may be just as important as the nutritional content. You can pack a meal with the optimal scientific formulation of what does a body good, but it will do no good for a body that has lost their appetite. The desire to eat is correlated with the desire to live. Weight loss has a variety of negative health outcomes in the elderly, including lower energy, increased risk of dementia, and even death.

Enter the mysterious fifth taste sense. It is called *umami* (a Japanese word that denotes savory, meaty flavors) and has

only recently been recognized in the west as a distinct taste sensation. Umami is why we crave ham and bacon, why soy sauce makes rice so delicious, and why restaurants are grating parmesan cheese on our pasta until we say “when.” The ability to taste umami, or lack thereof, has a profound impact on how much food we consume, our overall weight, and our dining satisfaction.

After reading this article, you should understand what umami is, where it comes from, and its potential impact on our aging population through both psychological and physiological effects. Understanding and utilizing umami in your dining operation has the potential to improve and even extend lives.



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WHAT IS UMAMI?

Umami is our fifth taste sense, in addition to sweet, sour, salty, and bitter. We experience umami when we taste the amino acid *glutamate* and a few similar molecules. In 1908, an enterprising Japanese chemist named Kikunae Ikeda was experimenting with a popular Japanese broth made from seaweed called *dashi*, and pinpointed glutamate as the molecule responsible for its deliciousness. After further experiments he found that

produced more offspring, and the trait was passed down. Besides being an amino acid, glutamate is also the most common excitatory neurotransmitter in our brains, and has a signaling role in many other biological processes in our bodies, including digestion.

Umami as a standalone flavor defies easy explanation, and though many chefs throw this trendy term around, it can be difficult to put into words. If you want to experience pure glutamate, you can purchase

probably won't understand the hype. It is a flavor enhancer, not a standalone treat. It makes other flavors stand out as stronger and more intense, and as one popular brand states, "It wakes food up."

THE DEMONIZATION OF MSG

Monosodium glutamate has a rather nasty reputation, dating back to 1969, 60 years after being widely consumed by millions, but is it deserved? This is when a U.S.



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glutamate had this effect on other foods as well. We likely evolved the ability to sense glutamate because it indicates foods rich in amino acids and proteins, which are critical to survival.

Free glutamate is found in much higher concentrations in cooked, cured, and fermented foods which are safer to eat than their raw counterparts. Our ancestors that preferred cooked food lived longer and

it in the seasoning aisle of any grocery store. It turns out Ikeda wasn't just a chemist, he figured out how to stabilize the ion and sell it to the world. His creation, called MSG or monosodium glutamate, has been widely used ever since. MSG is a glutamate(-) ion bound to a sodium(Na+) ion in a crystalline format, and dissolves into its component parts instantly in water. Taste a bit of MSG by itself and you

doctor wrote a journal piece about "Chinese Restaurant Syndrome." People had reported adverse reactions (racing heart, sweating, headache) after eating at Chinese restaurants known to use MSG, and the vilification was born.

According to the Mayo Clinic, there is no conclusive scientific evidence linking these reactions to glutamate.

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One study demonstrated that among participants who claimed to be sensitive to MSG, 36 percent reported symptoms when consuming a large amount (six times the daily average in one meal), while 24 percent reported the same symptoms after consuming regular table salt. The debate rages on even today, with some companies proudly stating “No MSG” on their labels, while other food producers quietly add it to their products to take advantage of its flavor-boosting properties.

I won't name any names, but many extremely popular snack foods, condiments, restaurant chains, and salad dressings we love are using it. The known consumption of MSG in the USA is ~.55g a day, while consumption is two to three times higher in the Far East. Since MSG is considered proprietary seasoning, food producers are not required to disclose the amount in their products, so the actual number could be much higher. *There is no difference, chemically, between naturally-occurring glutamate and the glutamate found in MSG.* Glutamate is incredibly common. We consume between 10g and 20g of natural glutamate found in meat and cheese and vegetables per day, and our bodies produce around 50g in addition to this. MSG is one of the most studied additives in the history of food science, and it enjoys GRAS (Generally Recognized as Safe) status from the U.S. Food and Drug Administration. The debate continues to this day.

We know that higher levels of MSG and glutamate lead to higher consumption of food and are directly correlated with weight gain. Whether this is because the food is more enjoyable so we consume more of it (likely), or it is some other bio-mechanism, is still being researched. For many of us, overeating could lead to obesity and poor health, but for some, gaining weight can mean the difference between recovery or further decline, and by extension, between life and death.

UMAMI AND HEALTHY AGING

The ability to experience umami is vital for healthy aging. Of the five tastes recognized by science, umami sensitivity was the most critical (Wells & Dumbrell, 2006). Seniors who can no longer detect umami have reported lower appetite, weight loss, and had poorer overall health than their peers. These outcomes were reversed with targeted therapy to revive the lost umami taste sensations (Takashi Sasano, 2020). Zinc deficiency is a common cause of taste imbalance, and this creates a feedback loop, as reduced consumption of food leads to less absorption of nutrients (Takakazu Yagi, 2013). Umami also has a powerful, mouthwatering effect on the salivary glands and a similar effect

FURTHER READING

1. <https://foodinsight.org/everything-you-need-to-know-about-glutamate-and-monosodium-glutamate/>
2. <https://www.healthline.com/nutrition/msg-good-or-bad#what-it-is>
3. <https://www.newyorker.com/culture/culture-desk/you-think-you-know-umami>
4. <https://www.healthline.com/nutrition/umami-foods>



on producing gastric juices. These facilitate chewing, swallowing, and digestion, including uptake of vitamins, like zinc. Proper salivation also makes the meal more enjoyable (Hisayuki Uneyama, 2009). Other research suggests glutamate has a role in signaling our gut to promote better digestion and energy metabolism (Kunio Torii, 2013). Yet another study found that adding glutamate makes you feel more satisfied after a meal, and when offered a choice between high fat/unhealthy foods, or healthy foods spiked with MSG, lab rats preferred healthier foods (Greta Magerowski, 2018). Seniors with advanced dementia also showed some cognitive benefits from an increased MSG diet. They displayed improved posture and focus while eating, with effects lasting four weeks after the study concluded.

Whether these positive effects are due to the additional glutamate, the increased calorie and nutrient uptake, or the psychological boost from more pleasurable meals is unknown (Minoru Kouzuki, 2018). All of these findings are positive, but there are many studies out there, and I encourage you to do your own analysis.

When cooking for a population restricted in their sodium intake, a small amount of MSG can replace a larger amount of salt and still achieve the same, if not better, flavor. Unfortunately, the negative speculation surrounding it means that most chefs hesitate to adopt it, or even buy products that contain it. I suggest doing your own research and discussing it with your dietitian before banning or adopting MSG in your own operation. For those that decide on a more natural approach, there is hope. Every living organism we eat contains glutamate and its derivative molecules, usually bound up in the proteins that comprise it. To release this glutamate in its free, tastable form, foods often require low and slow cook times, curing, or fermentation to denature the protein structures within. Certain mushrooms, cured meats, aged cheeses, bone



CERTAIN MUSHROOMS, cured meats, aged cheeses, bone broths, and many yeast extracts can add natural umami to your dishes.

broths, and many yeast extracts can add natural umami to your dishes. For a more detailed list of natural ingredients to tweak your recipes, links are provided.

We have always craved and loved umami flavor, even before we knew it existed. Now that it has a name, albeit a funny one, we owe it to our residents to take advantage of this unique and powerful taste that may promote improved intake. **E**

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- The amino acid responsible for the umami taste response is:
 - Dopamine
 - Glutamate
 - Cysteine
- Increased glutamate in our foods is correlated with:
 - Weight gain
 - Increased salivary production
 - Both A and B
- Umami was first discovered by:
 - A Japanese chemist
 - Kraft Foods company
 - No one knows
- MSG stands for:
 - Modified starch granules
 - Monosodium glutamate
 - Maximum salivary gustation
- The taste sense most critical to maintaining a healthy weight in the elderly is:
 - Sweet
 - Sour
 - Umami
- MSG is:
 - Generally recognized as safe by the FDA
 - One of the most researched additives in the history of food
 - Both A and B
- Glutamate is:
 - Extremely rare in nature
 - An excitatory neurotransmitter
 - Produced by living organisms

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