MSG and Aspartame: Too much of a Good (?) Thing

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Our bodies are very complicated mechanisms. It's not uncommon to find that many substances in small amounts are a normal and vital part of our make-up, while at higher amounts they cause trouble. This is the case with MSG and apartame (sold as Nutrasweet ® and Equal ®). These two compounds are considered "excitotoxins", which means that although they are normally used in small amounts to help our brain cells communicate with one another, in larger amounts they actually cause significant brain toxicity and damage.

MSG is monosodium glutamate; glutamate is one of the major chemicals used in the brain to allow our neurons to communicate with each other. Aspartate is chemically similar and can be made from glutamate (or as part of the break down of aspartame). Although these two compounds are necessary for normal cell function in the brain, research is now showing that excess activity of these chemicals is most likely contributing to or causing many neurodegenerative disorders such as Alzheimer's and Parkinson's. It most likely is also the cause of "normal" memory loss, mild intellectual decline and "brain fog" of aging, as well as some of the devastating effects of brain injury following a stroke.

In brain cells, there is a complex mechanism of release and then re-uptake of compounds such as these in order to maintain a delicate balance between the amount of the compounds inside the cells and outside the cells. This mechanism is dependant on numerous factors, such as cellular energy and mineral molecules (calcium, zinc, magnesium) for proper function; it can also be harmed by free radicals and inflammatory compounds. If we either have too much glutamate or aspartate, or if there is an imbalance in any of these regulatory compounds, then there will be cellular damage in our brains.

So what does this have to do with what we eat? MSG is the world's most common food additive. It is used as a food enhancer, as it makes foods taste "meatier". Although many people are aware that they feel bad after ingesting a lot of it, it is often hard to spot. Other names for MSG include "hydrolyzed vegetable protein", "natural flavoring", "spices", "yeast extract". (So when your restaurant tells you that they didn't add MSG, they may not realize that they actually did!). Aspartame is widely used in sweetened drinks, sodas, desserts, low fat yogurt and as a sugar substitute for coffee and tea. It is clearly labeled on ingredient lists, and there is often a small logo on the container as well. Since these compounds are so prevalent in our current food chain, some of us end up eating a large amount over the course of days; studies show that it's not just a single high-MSG meal that's a problem, but even lower exposures are problematic over time.

One way to protect yourself from potential damage from these compounds is to avoid them; aspartame is pretty easy to avoid. To really avoid msg, you need to avoid processed foods as much as possible and try to only eat in restaurants that cook from

whole foods; this is tricky. If you base your meals on whole foods (ie cook from scratch!), then you'll be much safer.

Another way to protect yourself is to include foods that will provide the minerals you need for proper functioning of the reuptake mechanism; this would include calcium, zinc and magnesium. Although you could take these as supplements, you'll get better absorption if you get them from foods such as whole grains, cooked greens and legumes. Adding antioxidants to your diet from brightly colored vegetables and green tea is also a helpful step for protection.

One cautionary note: the negative effects of msg and aspartame impact young children much more than adults, so tell your family!