

## Why Excitotoxins Are Harmful To Our Health

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Excitotoxins are chemical substances that overstimulate certain type of cells in the brain, all of the nervous system and many other organs.

In high and excessive amounts these cells become damaged and may die.

The underlying mechanism of excitotoxins has been attributed to the following diseases: **alzheimer's, parkinson's, multiple sclerosis, strokes, autism, huntington's disease.**

Excitotoxins have also been found to be associated with the following diseases: **migraines, diabetes, atherosclerosis, sudden death from heart disease, eye diseases, digestive disorders, autoimmune diseases, growth of tumors, spread of cancer and obesity.**

### The Most Common Excitotoxin is Glutamate

Glutamate is the main component of Monosodium glutamate (MSG)

As a general rule, the more a food is processed, the more likely it is to contain MSG. Foods that commonly use MSG include potato chips, flavored crackers, canned soups, dry soup mixes, canned meats, diet foods, soy sauces, salad dressings, cured meats and poultry injected with broth. But reading the labels won't always help you.

When a food product is 99 percent pure MSG it is called "monosodium glutamate" by the FDA and must be labeled as such. However, when a food product contains less than 99 percent MSG, the FDA doesn't require that the MSG be identified. So it often appears on labels in various disguised forms, such as "hydrolyzed vegetable protein," "spices" and "natural flavoring."

Here's a quick list of potentially suspect ingredients to watch for:

#### Ingredients that may contain 30 to 60 percent MSG:

- hydrolyzed vegetable protein
- hydrolyzed protein
- hydrolyzed plant protein
- plant protein extract
- sodium caseinate
- calcium caseinate
- yeast extract
- textured protein
- autolyzed yeast
- hydrolyzed oat flour

#### Ingredients that may contain 12 to 40 percent MSG:

- malt extract
- malt flavoring
- bouillon
- broth
- stock
- natural flavoring
- natural beef or chicken flavoring
- seasoning
- spices

#### Ingredients that may contain some MSG:

- carrageenan
- enzymes
- soy protein concentrate
- soy protein isolate
- whey protein concentrate
- some soymilk

Although I have presented the downside of excessive glutamate it is important for me to let you know that glutamate does have positive health benefits.

**These would include the following benefits:**

- Acting as an important neurotransmitter in the brain — it has excitatory effects, meaning it makes neurons more likely to fire
- Serving as a precursor for the neurotransmitter GABA (gamma-aminobutyric acid), which is the main inhibitory neurotransmitter in the central nervous system
- Supporting growth and development of the brain
- Helping cells survive and differentiate and supporting formation and elimination of nerve contacts (synapses)
- Supporting cognitive functions, including learning and memory.
- Stimulating gut movement by increasing gut serotonin levels
- Producing the antioxidant glutathione
- Regulating inflammatory processes

So what is one to do when it comes to this special and sometimes detrimental neurotransmitter.

One answer is to get tested if you suspect glutamate toxicity. If your glutamate levels are high then you have an **objective marker** to carefully monitor as you taper and avoid foods high in glutamate.

Analyte	Result	Unit per Creatinine	L	WRI	H	Reference Interval
Phenethylamine (PEA)	20	nmol/g	▲	■	■	42 – 160
Tyrosine	48	µmol/g	▲	■	■	70 – 180
Tyramine	3.4	µmol/g	▲	▲	■	2.8 – 8.5
<b>Dopamine</b>	258	µg/g	■	▲	■	175 – 500
3,4-Dihydroxyphenylacetic acid (DOPAC)	1520	µg/g	■	▲	▲	540 – 1850
3-Methoxytyramine (3-MT)	151	nmol/g	■	▲	■	122 – 278
<b>Norepinephrine</b>	17.6	µg/g	▲	■	■	29 – 69
Normetanephrine	195	µg/g	■	▲	■	112 – 400
<b>Epinephrine</b>	1.9	µg/g	▲	■	■	2.1 – 14.5
Metanephrine	84	µg/g	■	▲	■	60 – 158
Norepinephrine / Epinephrine ratio	9.3		■	▲	■	< 13
Tryptamine	0.4	µmol/g	▲	■	■	0.65 – 1.6
<b>Serotonin</b>	84.4	µg/g	▲	▲	■	79 – 235
5-Hydroxyindoleacetic acid (5-HIAA)	5913	µg/g	■	▲	■	2500 – 9000
<b>Glutamate</b> ←	23	nmol/g	■	▲	■	18.0 – 70.0
<b>Gamma-aminobutyrate (GABA)</b>	5	nmol/g	■	■	▲	2.6 – 8.0
Glycine	966	nmol/g	■	▲	■	700 – 2500
Histamine	12	µg/g	▲	■	■	14 – 51
Taurine	428	µmol/g	■	▲	■	420 – 1400
Creatinine	73.1	mg/dL	■	▲	■	25 – 180

Doctors Data Lab

If you don't want to invest in testing the next best step is to **avoid foods in glutamate** and see if you see an improvement in your symptoms.

**Natural plant products and extracts that reduce glutamate and immunoexcitotoxicity**

Curcumin, quercetin, green tea catechins, balcain, and luteolin have been extensively studied to dampen the detrimental impact of excessive glutamate

**My comments:** If you suspect that your health issues are associated with glutamate toxicity I encourage you to talk with your functional medicine healthcare provider. They can best advise you on the best steps to take to improve your health.

#### References:

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