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## MSG Revelations Make One Wonder About Other Foods

MONOSODIUM GLUTAMATE (MSG) is about the last substance that any student of biochemistry would have expected to see under attack as a food additive. It is the sodium salt of glutamic acid, among the commonest of the amino acids, making up, for example, over a fifth of the composition of milk protein.

However, it is not an essential part of the human diet, but only because it is synthesized in large amounts within the body. Besides its role in the structure of proteins, glutamic acid is an important intermediate in metabolism, involved in basic reactions by which nitrogenous compounds are cycled.

More recently, glutamic acid has been found to have a special role in the energy supply to the brain, where it is unusually abundant. Speculations based on this finding led to fruitless trials some years ago in which extra glutamic acid was fed to children of low or borderline intelligence without effect.

FOR SEVERAL decades, MSG has served as a flavor enhancer for hamburger and the like. It then crept into baby foods, apparently more for the benefit of the mother than the infant. The first reports that MSG might need some second thoughts came out as the near-joke of the "Chinese Restaurant Syndrome," a subjectively unpleasant re-

action experienced by some people to rather large doses, like five grams of MSG in won-ton soup.

Why other people (like the writer) do not react to moderate doses is unknown. That the action was unnoticed for so long should make us wonder how many similar responses to common dietary substances remain to be discovered.

Last May, Dr. John W. Olney of the Department of Psychiatry, of Washington University Medical School, St. Louis, reported that newborn mice suffered specific brain damage from injection with a very large dose of MSG, equivalent to 35 grams in the adult. Subsequently, rats, rabbits and one monkey were reported to show similar responses, mainly in the hypothalamus—a part of the brain concerned with the regulation of hormones, temperature and body weight.

Dr. Olney quite properly suggested that his findings invited a reconsideration of the use of MSG, particularly in baby foods. However, so long as only modest amounts of MSG are used, small in relation to the volume of glutamic acid normally furnished by the rest of the diet, it is hard to see any basis for concern. On the other hand, MSG is entirely dispensable in infant diets—and together with salt and sucrose, it may be suspected of setting up invidious tastes that at best do the young child no great good.

THE FUSS about MSG as a food additive may be obscuring the deeper interest of Dr. Olney's finding. It is startling that a natural amino acid, even if only at high levels, can cause serious disease in a specific part of the brain—and it will be very surprising if this does not have important implications both for further research and in understanding some kinds of brain damage that may be related to "normal" glutamic acid metabolism without our knowing it. The toxicity of MSG reminds one of the effect of another amino acid, phenylalanine, that can only be observed in the rare genetic disease PKU, which can often be treated by careful dietary control.

We know very little about the blood levels of glutamic acid that may obtain in the fetus or in some infants under various conditions. We also have to look into the chance that other brain structures may be sensitive to MSG overdosage at other stages of development.

MSG toxicity may also be related to an imbalance of its concentration compared to that of other amino acids,

or to its conversion to GABA (gamma-amino-butyric acid), an important transmitter substance in the brain. Until we have answers to these questions, we should neither shrug off the possibility that Dr. Olney has discovered another important diet-related disease nor be content with driving MSG out of baby foods as our only response to the challenges he has raised.

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