

## Liver Damage From Chronic Acetaminophen Dosing is Dangerous, But Not The Only Risk

Why are some people so quick to treat fever? Fever is a normal response to a pathogen. Far too many people see fever as abnormal, and blast it with NSAIDs or acetaminophen, no matter the degree. Having a fever after getting a vaccination is also a normal response. The immune system is supposed to create a specific targeted response to a vaccination that includes the creation of antibodies to whatever antigen has been injected. But in the effort to make children comfortable after getting vaccinated they are usually given acetaminophen (known as paracetamol in most countries outside the United States). A recently published study in *The Lancet* demonstrated that giving children acetaminophen has a detrimental effect on the immune system's response to vaccinations. Kids given acetaminophen to prevent a fever response from vaccination had a significantly blunted antibody response from numerous vaccines. So, well-meaning parents who give their kids acetaminophen are unknowingly also making the vaccination less effective.

This diminution of the immune response is relevant in the current climate of fear surrounding the H1N1 influenza virus and the public's rush to vaccinate. However, this is not the only negative effect of acetaminophen. It is easy to overdose on acetaminophen. This drug became the world's most popular analgesic because it doesn't cause the stomach upset, ulcerations, and potentially fatal gastrointestinal bleeding that can result from the use of NSAIDs. But this benefit is not without risk. The liver metabolizes acetaminophen into a toxic metabolite, N-acetyl-p-benzoquinoneimine, which can damage liver cells by depleting them of glutathione.

A colleague once consulted with me about a patient with an unexplained significantly high level of liver enzymes. I asked about headaches and analgesic use. It turned out the patient had daily headaches – and took daily doses of Extra Strength Tylenol. This is a very common scenario. Many patients take 1,000 mg (two Extra Strength Tylenol) of acetaminophen twice daily, then two tablets of Tylenol PM to sleep. That's a daily total of 3,000 mg acetaminophen, a potentially dangerous amount. If the individual has any underlying liver dysfunction (from chemical exposure or heavy metal toxicity, for instance) or is fasting, or is eating a protein-deficient diet, or drinks alcohol (as little as two drinks), this amount of acetaminophen significantly increases the potential for liver damage. Acetaminophen poisoning is the most commonly reported drug overdose in the United States. According to an 8-year study in the 1990s, each year 56,000 people went to their hospital's emergency department due to acetaminophen overdose; 26,000 were hospitalized and 458 died. Although some of these were acute overdoses due to suicide attempts, the majority were accidental.



Acetaminophen is an ingredient in many cold remedies (Nyquil), cough and cold formulas (Tylenol Cold & Sinus, TheraFlu), and prescription drugs (Vicodin, Percocet). It may be listed as acetaminophen or as APAP. This makes it difficult for the lay public to determine how much is being ingested, or how much they are giving their kids. Children, because of body size, are more easily poisoned by acetaminophen, especially when an adult dose is given; a single 500-mg dose can be toxic to a 50-pound child.

Acetaminophen toxicity may have an even more sinister face – autism. In this issue of *Alternative Medicine Review*, Peter Good presents a disturbing review of the literature and a medical hypothesis. His article, *Did Acetaminophen Provoke The Autism Epidemic?*, offers a plausible explanation for the rise in autism cases since 1980, and gives us the most compelling reason yet to avoid the use of this toxic drug.

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