

What Doesn't Kill You...

I was recently deposed and asked to testify in an upcoming court case. As expected, many of the questions I had to answer involved my personal and professional thoughts and feelings on conventional medical therapies and drugs. Even today, many



Dr. David Williams

people continue to believe that anyone who even suggests that there are natural, safe, and effective alternatives to drugs or surgery has to be a fringe nutcase.

As a reader of *Alternatives*, I'm sure the questions I was asked would astound you, as

they did me: "If your child was having stomach problems, you wouldn't take him to a doctor for treatment? Would you give him vitamins instead prescription medication? You don't believe that doctors know what they are talking about when it comes to health?"

As you well know, "stomach problems" could range from something as mundane as indigestion or a temporary intestinal bug to a more serious case of ulcers or even cancer. It's asinine to think that you should approach each of these conditions the same way.

Do I believe that every health complaint requires medication? Hell, no. Do I believe that under the right circumstances medications can be lifesavers? Absolutely. On the flip side, I know drugs are grossly overused and their short-term benefits often don't outweigh their long-term side effects. And the majority of time, it's only after decades of use that we have a better understanding of just how detrimental they can be. Hardly a day goes by that I don't run across a research study that uncovers a new side effect of some supposedly safe, commonly used drug.

Do I believe that just because someone is a doctor, they know

what they are talking about when it comes to restoring and preserving health? It obviously depends on the particular doctor. Sadly, a lot of doctors these days know far more about treating and managing disease than they do about eliminating it and maintaining health. And sometimes the doctors who try to do what's best for their patients risk losing their careers and livelihoods. This is why doctors continue to prescribe drugs that have been shown not to work, such as statins.

Everyone knows that heart disease is the number one killer in this country, accounting for one in four deaths. There's a long list of factors that contribute to heart disease, including diet, exercise, lifestyle, stress, and congenital problems. No single treatment will guarantee immunity. As such, most doctors know that they will have some patients who will die of heart attacks, and this opens them up to potential lawsuits. But the way our system works, as long as a doctor is doing what all the other doctors are doing—like prescribing statins—he/she can't be held liable for the patient's death.

It doesn't matter if the research shows that statins don't prevent heart attacks or prolong life; they have become part of the prevailing standard of care. In simple

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You will observe with concern how long a useful truth may be known, and exist, before it is generally received and practiced on.

— BENJAMIN FRANKLIN

terms, if one deviates from the accepted standard of care (even if it's been proven totally ineffective), the courts can find them liable.

To make matters worse, insurance companies refuse to insure doctors who choose not to practice like everyone else. And in this litigious day and age, no doctor is foolish enough to practice without liability insurance.

The situation will become even more complicated with government-controlled health insurance. Doctors are being required to follow rigid treatment protocols in order to get paid for their services. The protocols don't allow for any wiggle room to address a patient's special needs or individual health circumstances.

The system isn't designed to treat individuals, cure disease, or even use the most effective treatments. It's designed to standardize care and promote the management of disease through increased drug use.

Although many people don't want to admit it, our health care system is broken. And when combined with our current insurance and liability laws, we've created a perfect storm that will not only narrow our treatment options, but also suppress future research and innovation in natural therapies.

It seems like the last couple of generations in particular have been brainwashed into believing that the pharmaceutical industry holds the key to optimal health. These people

have forgotten or don't know that, when given the proper nutrients, tools, and environment, our bodies are innately programmed to heal and repair themselves.

Spreading this truth has always been one of my foremost goals in writing *Alternatives*, and I hope it's something you share with your family and loved ones.

I'm not sure what's going to happen to our health care system in the next few years. My dad used to say, "Hope for the best but prepare for the worst." I think that's sage advice right now. In the meantime, I'll continue to give you the information you need to take charge of your own health.

...Makes You Stronger

Hormesis is defined as a biological phenomenon whereby a beneficial effect on health results when the body is exposed to small amounts of an agent that is otherwise harmful or even deadly when given in larger doses.

I'm sure you've heard some variation of the quote by the German philosopher Friedrich Nietzsche, "That which does not kill us makes us stronger." In a way, this describes hormesis. When we subject our bodies to small amounts of stressors, whether they're

emotional, physical, or chemical, they can actually make us stronger.

For example, many of the health-promoting phytochemicals that naturally occur in fruits, vegetables, nuts, seeds, herbs, spices, and legumes are actually toxins that plants produce to protect themselves from bugs and other pests. When we consume these plants, the amount of toxins (phytochemicals) in them isn't high enough to kill us, but enough to trigger a mild irritation at the cellular level that stimulates an adaptive and

beneficial response within our immune system.

However, if we were to isolate and consume enormous quantities of these same phytochemicals, they could prove to be detrimental. We've seen this with epigallocatechin gallate (EGCG), the most abundant and active catechin in green tea.

There have been no reports of toxicity from drinking green tea, which typically contains between 25–85 mg of catechins. But there have been reports of

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gastrointestinal problems and even liver damage with use of EGCG supplements (primarily in weight loss products), taken in daily doses greater than 400 mg. (As a side note, green tea catechin consumption has repeatedly been found to be safe at 800 mg per day, but since everyone's tolerance varies depending on their diet, health status, and other factors, I'd recommend erring on the side of caution and limiting it to 400 mg per day.)

Consuming fruits and vegetables in their whole form typically prevents toxicity or overdosing issues because nature has a way of packaging these foods in "idiot-proof" containers. For example, you'd have to eat a truckload of blueberries to worry about overdosing on the antioxidant anthocyanin, but taking a toxic amount of the powdered supplement is possible.

Exercise Is Good Stress

Along with phytochemicals in plants, exercise is another example of beneficial stress that can induce hormesis.

Take weightlifting. If you analyzed its initial effects on your body, you might be hard-pressed to understand why it's so good for you. After all, strength training actually tears small fibers within the muscle. It increases cortisol levels, the same hormone released by the adrenal glands in response to stress. These events subsequently elevate heart rate and inflammatory processes throughout the entire body.

However, the longer-term effects of proper, consistent weightlifting are much different. It triggers a cascade of events resulting in muscle repair and growth,

increased strength, more efficient blood sugar handling, stronger immunity, and improved circulation and oxygen utilization. If weightlifting or other forms of exercise are performed correctly and not overdone, hormesis takes place. The body begins to adapt and the "stress" becomes beneficial. You become stronger and healthier and develop a "reserve capacity" to handle any additional stress that comes your way.

A lot of this is fairly well known. What isn't very well known, however, is the fact that many of the body's beneficial responses to exercise are driven by histamine.

The Vital Role of Histamine in Exercise

Histamine is the compound released by the immune system in response to the invasion of a foreign substance. It opens up the small blood capillaries and allows white blood cells and proteins to attack pathogens and other foreign substances that enter the body. When histamine levels are high and capillaries throughout the body become more permeable, the resulting "leakage" manifests in a long list of symptoms:

- **Itchy skin**
- **Flushing**
- **Runny nose**
- **Watery eyes**
- **Skin rash/urticaria (hives, eczema)**
- **Heartburn (from increased acid release)**
- **Headache**
- **PMS symptoms (headaches and/or cramping)**
- **Diarrhea**
- **Low blood pressure (from dilation of blood vessels)**

■ Irregular heartbeat

■ Swelling in the hands, feet, lips, and face

Typically these symptoms are short lived. Once the invasion is under control, there are two specific enzymes that break down histamine so that things can return to normal.

This is also why the class of drugs known as antihistamines are used to treat such a wide variety of complaints. Antihistamines interfere with histamine receptors in the body, which effectively stops the opening of capillary beds.

The real problem is that histamine has other important roles, and antihistamines interfere with those functions.

Histamine drives the expression of thousands of protein-coding genes involved in our body's response to exercise. Antihistamines have been shown to block over 25 percent of these. More research is needed, but at this point it appears that taking antihistamines could very well counteract many of the positive effects of exercise.

One of those effects is increased insulin sensitivity. Exercise improves your blood sugar-handling capacity. This is one reason physical activity combined with weight loss is one of the most effective ways to deal with type 2 diabetes. Exercise improves blood flow to the muscles and makes cells more sensitive to insulin. In one study, the use of antihistamines reduced post-exercise insulin sensitivity by 25 percent. (*Physiol Rep* 2013;1(2)e00033)

Antihistamines also block the reduction in blood pressure and

mental fatigue that come from exercise.

It's too early to say if exercise is a waste of time while taking antihistamines. But it seems pretty clear that these drugs can stifle hormesis and blunt many of the health benefits that come from exercise. It's definitely something you want to think about if you regularly take antihistamines.

H1 Blockers

There are three types of histamine blockers. First-generation H1 blockers are typically used to treat allergies and allergic reactions. You can readily find these over the counter. Benadryl (diphenhydramine) is probably the most common.

The first-generation H1 blockers are also known for their sedation effect. They suppress the pathway that promotes wakefulness and cause a person to become sleepy. For years, in fact, the use of diphenhydramine has been on the rise among the older population to treat insomnia. It is the main ingredient in many over-the-counter sleep aids such as Sominex, Compoz, Simply Sleep, Tylenol PM, and Unisom.

The heightened use of these first-generation H1 blockers is rampant in nursing homes. I noticed this when my father was in a nursing home a few years ago before he passed away. It seems like the staffs in nursing homes often rely on sleep aids to manage their residents. It's easier if most of them go to sleep and wake up at the same time.

These drugs are known to impair daytime cognitive performance, which only makes those with dementia even more confused and

can lead to the use of additional drugs. They also cause a loss of balance and increase the risk of falling.

(Second-generation H1 blockers, which include Claritin and Allegra, have less of a sedative effect because of reduced absorption into the central nervous system. And the other histamine blockers block H2 receptors primarily in the stomach lining and reduce stomach acid secretion. Popular H2 blockers are Pepcid and Zantac. Although it's not a well-publicized fact, loss of libido and erectile failure are some of the side effects associated with H2 histamine blockers because they reduce the uptake of testosterone. The marketing for these drugs fails to mention this little fact, and I'm sure it comes as an unpleasant surprise to many men. And by the way, the studies I mentioned earlier found that both the H1 and the H2 blockers blunted the positive effects of exercise.)

Histamine Intolerance

As I mentioned earlier, there are two enzymes that break down excess histamine when it is no longer needed—diamine oxidase (DAO) and histamine N-methyltransferase (HNMT). When levels of either of these enzymes are low, excess histamine can accumulate in the body and trigger symptoms.

A small segment of the population (anywhere from 1–4 percent) suffers from histamine intolerance. It's one of those rare problems that seems to stay under the radar and go undetected by most physicians, though I learned about it years ago. Since the symptoms of excess histamine are often very similar to allergies, most doctors assume

allergies are the problem and treat it as such.

To further confuse matters, extra histamine in the system predisposes one to an overblown or excessive response to allergens encountered by contact, injection, inhalation, or consumed as food. Histamine intolerance should be considered in individuals who have a history of life-threatening anaphylactic reactions to various allergens.

Histamine intolerance is caused by the inability of the body to break down histamine sufficiently. Low levels of DAO seem to be a primary factor since DAO has the greatest capacity to inactivate histamine. DAO exhibits a histamine-degrading capacity 10 times higher than that of HNMT. (*Int J Immunopathol Pharmacol* 2016;29(1):105–11)

Unfortunately, DAO is hard to measure accurately because it continually fluctuates and blood levels are extremely low. There also aren't any established ranges for DAO and no indication that blood levels are actually reflective of levels in the gut, which is the area of most concern.

If you have a chronic problem and no one can pin down the cause and/or nothing seems to help, you may have histamine intolerance. It results in a wide range of reactions that can mimic the symptoms of allergies. For example, patients may suffer from asthma but all the allergy tests show up negative. Others might suffer from chronic sinusitis but no infection or blockage can be found. Still others may suffer from chronic daily migraines. (In fact, many migraine

sufferers don't produce adequate amounts of DAO.)

One of the most difficult-to-diagnosis patients I've ever worked with was a young adolescent girl who suffered from severe eczema over her entire body. She was embarrassed to go to school or be seen in public. She couldn't swim with other children, play basketball (because it required wearing shorts), and the constant itching kept her from ever having a decent night's sleep. She had undergone just about every allergy test imaginable and no offending substances could be identified. I traced her nonstop suffering to histamine intolerance.

Here's another possible indication of histamine intolerance I've found. Oftentimes women notice that their migraine headaches, psoriasis, allergies, eczema, or other problem seem to practically disappear when they become pregnant. But after having the baby, the problem returns. In these situations, the placenta actually produces additional DAO as a way to protect the fetus. DAO activity in women who are pregnant is 500–1,000 times higher than in those who are not pregnant.

Ways to Lower Your Histamine Intake

I realize that many people feel they need to use antihistamines to function or dull bothersome symptoms. But there are other ways to deal with excess histamine.

While the body naturally produces histamine, it also happens to be present in just about every plant- and animal-based food. It is particularly high in beer, wine, and fermented foods (because it's

a byproduct of the fermentation process). Some foods with high histamine levels include:

- **Aged/processed meats (sausage, hot dogs, salami, and bacon)**
- **Fermented dairy such as cheese (especially aged cheeses like parmesan, blue, and Roquefort)**
- **Sour cream, buttermilk, yogurt, kefir, and cottage cheese**
- **Sauerkraut**
- **Kimchi**
- **Kombucha**
- **Vinegar and vinegar-containing foods (pickled vegetables, olives, relishes, etc.)**
- **Alcohol**
- **Anchovies, sardines, mackerel, and smoked fish**
- **Sour breads and other foods made with yeast**
- **Eggplant**
- **Spinach**
- **Avocados**
- **Tomatoes**
- **Strawberries**
- **Mushrooms**
- **Nuts/seeds**
- **Coffee**
- **Chocolate**

You may already know you can't tolerate these or other high-histamine foods. Or maybe you've noticed that certain foods trigger a reaction or make your symptoms worse. These are telltale signs.

However, while going on a diet that eliminates or limits foods high in histamine can help, it won't solve the underlying problem—a deficiency in the

enzymes necessary to break down histamine. For that, here's what I suggest.

Avoid Benzoates

You'll find this synthetic chemical preservative in carbonated soft drinks, fruit juices, dips, jams, salad dressings, salsa, ketchup, mouthwash, toothpaste, and other cosmetic products. It often goes by the name sodium benzoate, benzoic acid, or benzene.

Sodium benzoate is possibly linked to cancer and a long list of other problems, but for purposes of this discussion, it is a histamine liberator. Not surprisingly, warnings for benzoates state, "a small percentage of people are hypersensitive to sodium benzoate and can experience asthmatic attacks, hives, or other allergic reactions when they consume the preservative." These are the exact same symptoms associated with histamine intolerance.

(Benzoic acid naturally occurs at very low levels in many fruits, but that's a totally different animal than sodium benzoate.)

Start Taking a DAO Enzyme Supplement

There are a few different DAO enzyme products on the market, including DAO Histaminase from Allergy Research Group. The recommended dosage is one or two capsules taken about five to 10 minutes before each meal.

Unfortunately, DAO enzyme supplements are expensive, but the improvement many people

(continued on page 7)

NEWS TO USE *from around the world*

High Fructose Corn Syrup Linked to Brain Damage

A new study out of UCLA has found that fructose-induced changes to genes in the brain are not only linked to diabetes and cardiovascular disease but also to Alzheimer's, Parkinson's, depression, bipolar disorder, and attention deficit disorder. (*EBio-Medicine* 2016;7:157-66)

This report cites a Department of Agriculture study, which states that the average American gets most of his/her fructose from foods containing high fructose corn syrup (HFCS) and consumes an average of 27 pounds a year. (Fruit naturally contains fructose, but it also contains various fibers and other compounds that slow the absorption of fructose and counteract its ill effects.)

I think the average consumption of HFCS is much higher. The Illinois Farm Bureau puts that average at 35.7 pounds, and we know that HFCS consumption increased over 1,000 percent between 1970 and 1990. Since that time, its use has continued to skyrocket.

The researchers knew that the omega-3 fatty acid docosahexaenoic acid (DHA) occurs naturally in the membranes of brain cells and could possibly protect against these genetic alterations. However, DHA is only made in very small amounts by the body from the essential fatty acid linolenic acid. Most DHA has to come from diet.

To better understand the effects fructose has on the brain and any possible protective effects of DHA, researchers trained rats to escape from a maze. Then they randomly divided the animals into

three groups. For six weeks, one group drank water spiked with fructose that would be equivalent to a human drinking a liter of soda per day. The second group was given the same fructose-laced water along with a diet rich in DHA. The third group received water but no fructose or DHA.

At six weeks, the rats were put through the maze again. Those that consumed the fructose took twice as long to navigate the maze compared to the group drinking water, which was indicative of memory impairment caused by fructose. Those given fructose water and DHA navigated the maze the same as those given only water, which suggested that the DHA had eliminated the ill effects of fructose.

The research team then sequenced over 20,000 genes in the brains of the rats and identified more than 700 genes in the hypothalamus (the part of the brain that controls metabolism) and more than 200 genes in the hippocampus (the area that regulates learning and memory) that were altered by fructose. The altered genes were comparable to those found in humans that interact to regulate metabolism, cell communication, and inflammation...the same alterations that have been linked to Parkinson's, depression, bipolar disorder, and several other brain diseases.

The researchers delved even deeper and discovered the exact mechanism fructose uses to disrupt genes. Fructose removes or adds a biochemical group to cytosine, one of the four components that make up DNA. This modification is what turns genes "on" or "off."

This was an amazing study, to

say the least. It clearly illustrated not just how harmful HFCS is, but also the way it manipulates genes, altering metabolism and destroying the communication between brain cells. HFCS isn't just slowly destroying our ability to learn and remember information, it is making permanent genetic changes that can lead to some of the worst neurological diseases of our time.

Additionally, this study has shown that DHA seems to reverse these harmful changes. As the lead author of the study said, "DHA changes not just one or two genes; it seems to push the entire gene pattern back to normal, which is remarkable."

I certainly don't believe taking DHA should be used as an excuse to consume HFCS. But it does give us a measure of protection against HFCS, which is ubiquitous in our food supply.

I would still try to avoid HFCS like the plague. Sodas continue to be the most common source but if you read food labels, you'll see that it's in practically everything (condiments, salad dressing, commercially manufactured bread products, baby food, crackers, granola bars, and more).

As for DHA, it is abundant in wild (not farmed) salmon and other fatty fish like anchovies, sardines, mackerel, tuna, trout, herring, and halibut. It's also found in algae such as spirulina and in walnuts, flax and chia seeds, and to a lesser degree in other fish, poultry, and egg yolks. I personally take DHA on a daily basis. If you don't already take an omega-3 supplement that contains DHA, you might want to consider it.

experience when they start taking it can be life changing.

It may take a little experimenting when you first start using DAO to get the timing and dosing right. Keep in mind, DAO doesn't hang around in the system long so it won't do you any good to take it more than 15 minutes before you eat. You may discover that taking it five or eight minutes prior to eating works best in your case.

Additionally, the dosage can vary depending on the histamine levels of the food you're eating. So one capsule may be adequate when your meal includes low-histamine foods, but two capsules might be required with histamine-rich meals/foods.

Typically, with time, people can successfully reintroduce foods into their diet that used to cause them problems. Again, it will take a little trial and error to see what works for you.

I should mention that people who are allergic to pork may have a problem taking the DAO enzyme because it is derived from pig kidney. To my knowledge there's no plant-sourced DAO product on the market. However, research has shown that DAO can be extracted from pea seedlings. (*Appl Biochem Biotechnol* 1996;56(3):235-41)

It appears that the best peas to sprout are green peas. But lentils and chickpea sprouts contain DAO as well.

I'm not sure just how effective green pea sprouts would be at raising DAO levels. Although it would be difficult to determine your intake of DAO, it's certainly an inexpensive option to DAO

supplements if you can't afford them or if you're allergic to pork.

You can sprout green peas the same way you would any other seed, except it is best if they are grown in the dark. The sprouts might look lackluster and not as healthy or vibrant as other sprouts, but the added "stress" of the darkness increases the DAO levels in the plants.

DAO begins to form around the second day of germination and reaches a maximum sometime between the eighth and twelfth day. They can be eaten raw, but blending them immediately before consuming might improve their breakdown and the absorption of the enzyme.

Take Probiotics

The ideal situation would be to raise your DAO levels to the point where you don't even need to take a supplement. Although I suspect DAO synthesis might be reduced in some individuals due to a genetic mutation, it has been shown that, in most cases, DAO production can be increased. And even if production isn't improved, there are certain nutrients that can make it more bioavailable.

Much of the DAO enzyme is produced in the immune cells residing in the intestinal tract. Decreased DAO production and histamine intolerance is more common in individuals who also suffer from gastrointestinal disorders like inflammatory bowel disease, celiac disease, and small intestinal bacterial overgrowth.

When 90 percent of the immune system resides in the intestinal tract and it is compromised through the use of antibiotics

and other drugs, chlorinated water, and other factors, DAO production suffers. Additionally, certain beneficial bowel bacteria have been shown to help degrade excess histamine through their own production of DAO. These include *Bifidobacterium infantis*, *Bifidobacterium longum*, *Lactobacillus curvatus*, *Lactobacillus sakei*, *Leuconostoc mesenteroides*, *Weissella hellenica*, *Escherichia faecium* sp., and *Sarcina lutea*.

Ironically, the best way to get these beneficial bacteria is by eating a wide variety of fermented foods. But since histamine is a byproduct of fermentation, fermented foods will increase your histamine levels.

Histamine intolerance is frustrating. The actions necessary to correct it go against the basic rules of good health. Until things normalize, which can be quite some time, you have to limit or eliminate foods that are normally very beneficial, such as fermented foods.

As you know, there's probably no bigger proponent of fermented foods than yours truly. Homemade sauerkraut and live yogurt are at the top of my list when it comes to foods that help you achieve optimal health. However, the three species of bacteria that produce the most histamine are the same three species found in most yogurts (*Lactobacillus bulgaricus*, *Lactobacillus casei*, and *Lactobacillus delbrueckii*).

So, initially, taking a quality probiotic supplement is an essential part of the solution. It's the best way to increase the friendly bacteria in your gut without adding

any extra histamine into your system.

You won't find a probiotic with all of the species of friendly bacteria that I listed earlier. The idea is to "plant" the more prominent strains in your gut. This creates an environment in which the less common varieties can take hold and flourish. Look for a probiotic that at the very least contains *B. infantis* and *B. longum*.

To "feed" the beneficial bacteria in your gut, you'll also want to make sure you're consuming a variety of prebiotics. You can do this by eating specific fruits and vegetables, such as asparagus, artichokes, leeks, garlic, carrots, peas, beets, squash, cabbage, greens, sweet potato, zucchini, onions, chicory, jicama, broccoli, cauliflower, kale, chard, cherries, blackberries, blueberries, dates, apples of all kinds, pears, peaches, plums, pomegranate, watermelon, grapes, and apricots.

Other Helpful Supplements

There are also ways to help degrade and/or reduce histamine production in the body.

Studies have shown that oleic acid increases the release of DAO from the gut into the bloodstream by up to 500 percent. Oleic acid is a monounsaturated omega-9 fatty acid present in several oils. It makes up 55–83 percent of the various fatty acids in olive oil. It's also a major part of canola oil, but canola oil can be inflammatory and has other downsides. Olive oil is your best bet.

Some compounds also act as natural antihistamines. These include quercetin, bromelain, and the pine bark extract Pycnogenol. Taking

bromelain with meals provides a couple of benefits. Its enzymatic action helps break down protein and improves digestion while degrading histamine.

Quercetin is routinely more effective when taken with vitamin C, since that's the way it occurs naturally in foods. Vitamin C down-regulates mast cells, the histamine-releasing cells in our immune system. One study found that 2 grams daily of vitamin C was able to lower blood histamine levels by 60 percent. Lower doses of 1 gram had no effect. (*Biochim Biophys Acta* 2012;1822(1):21–33)

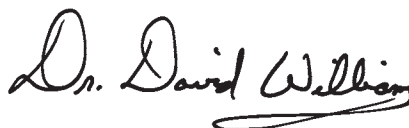
EGCG, the catechin found in green tea that I talked about earlier, is another compound that down-regulates mast cell activity.

And finally, the herb stinging nettle (*Urtica dioica*) has been shown to reduce histamine response. One study found that in half of the participants, stinging nettle was more effective than allergy medication.

Years ago, when I first learned about histamine intolerance, it seemed to be a fairly rare problem. But after taking a closer look at the underlying causes, namely the disruption of beneficial bowel bacteria, I've changed my thinking. I think we may be looking at the tip of the iceberg.

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Until next month,



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