

## How Energy Drinks Are Draining Your Brain's Power

By Michelle Standlee, *The Epoch Times*



Walk past a beverage cooler in any store and you'll be struck by lightning bolts and bold lettering screaming, "Energy!"

The makers of these drinks promise that ingredients such as caffeine, amino acids, and herbal extracts will deliver superhuman focus and motivation by the sip. Yet lurking beneath the pull tab is a danger that may outweigh any lift the drink offers. It's important to ask, "What if the cost of this burst of energy isn't just money?"

### The Evolution of Energy Drinks

The origins of energy drinks can be traced back decades before their rise to mass popularity.

In 1929, the glucose-based drink Lucozade Energy (formerly Glucozade in 1927) was introduced in the United Kingdom as a nutritional supplement for hospital patients recovering from illnesses, including the flu.

Later, in 1949, Dr. Enuf, containing a mixture of caffeine, B vitamins, and sugar, became the first carbonated energy drink in the United States when it was introduced in Chicago.

However, it wasn't until the massive marketing campaigns of Red Bull in Austria and beyond in the late 1980s and 1990s that energy drinks really took off globally. Red Bull, a mixture of caffeine, taurine, B vitamins, and sugar, established the standard energy drink formula many brands mimic today.

Today, the global energy and sports drinks market is valued at more than \$159 billion, with the United States alone accounting for nearly \$14 billion.

In addition to adults, teenagers are drawn to these energizing tonics for academic or sports performance. Some schools have begun to ban energy drinks because of their high sugar and caffeine content, which can result in energy crashes, making long-term focus and studying difficult.

# The Sinister Side of Sweet Energy Surges

While energy drinks may provide short-term benefits such as alertness and focus, research indicates they can also have negative health effects.

“The amount and quality of caffeine inside the energy drinks gives a false source of energy,” Omar Eliwa, a registered pharmacist in Wisconsin, told The Epoch Times. “You’re getting more than what your brain can take. It will be detrimental in the long-term to memory, the aging of the cells, depletion of nutrients, and it makes you not want to eat, so it affects metabolism as well.”

## How Energy Drinks Affect Your Brain

Researchers are getting more insight about how the combination of ingredients in energy drinks affects the brain, and it isn’t an encouraging picture.

### 1. Neurodegenerative Disorders and Brain Aging

Caffeinated energy drinks can cause neurodegenerative changes in the hippocampus, an essential structure for long-term memory, in male albino rats, according to a 2020 study published in the *Anatomy and Cell Biology* journal.

High sugar intake has also been linked to an increased risk of insulin resistance. Insulin resistance prevents cells throughout the body, including brain cells, from adequately absorbing glucose. Over time, impaired insulin signaling may contribute to neurodegeneration and accelerated brain aging.

Moreover, insulin resistance contributes to the advancement of Alzheimer’s disease through various mechanisms, including the escalation of oxidative stress, as indicated by a study published in the *International Journal of Molecular Sciences* in 2021.

“[Energy drinks] are often packaged in aluminum, a neurotoxin that has been linked to Alzheimer’s disease,” Dr. Aruna Tummala, an integrative psychiatrist at Trinergy Health and founder of Psychiatry 2.0, told The Epoch Times.

### 2. ADHD

Food dyes such as red dye 40, also known as Allura Red AC, are common in energy and sports drinks, and they can decrease the absorption of minerals such as zinc and iron that are needed for growth and development.

Some research suggests that artificial food colorings may exacerbate attention-deficit/hyperactivity disorder (ADHD) symptoms in children. In 2007, a randomized controlled trial conducted in the UK showed that the consumption of artificial colors, the widely used preservative sodium benzoate, or both was linked to heightened levels of hyperactivity in children.

A meta-analysis conducted in 2012 estimated that about 8 percent of children with ADHD experience symptoms associated with the consumption of food dyes and indicated potential benefits in removing artificial colors from their diets.

### **3. Fatigue, Insomnia, and Headaches**

“Sugar and caffeine crashes are very real,” Aidan Prud’Homme, a high school student, told The Epoch Times. He consumed one or two energy drinks daily to stay focused and energized at school. Some accompanying side effects included prolonged fatigue, headaches, and sleep problems.

As a diuretic, caffeine in energy drinks can lead to dehydration by increasing urine output. Adequate hydration is critical for proper brain function, as brain cells consist primarily of water. Dehydration from energy drinks can therefore cause fatigue and poor concentration.

Energy drinks can lead to long-term insomnia due to the caffeine they contain, according to Dr. Tummala. Caffeine promotes wakefulness by increasing levels of histamine and glutamate, neurotransmitters that disrupt sleep cycles.

Stopping energy drink consumption can lead to caffeine withdrawal, often causing headaches, Dr. Tummala said. Upon discontinuing caffeine, blood vessels widen, causing an increase in blood flow and resulting in heightened pressure that triggers a headache.

### **4. Anxiety**

Energy drinks can increase the level of catecholamines, neurotransmitters involved in the body’s stress response. The spike in these chemicals increases heart rate and blood flow, triggering a fight-or-flight response in some people, leading to anxiety.

### **5. Seizures**

There is growing concern over the link between energy drinks and increased seizures. The caffeine in energy drinks promotes the release of glutamate and dopamine, excitatory neurotransmitters, and reduces responsiveness to GABA, an inhibitory neurotransmitter in the central nervous system, thus lowering seizure threshold, according to a recent Nutrition review article. The seizures stopped when people refrained from consuming energy drinks.

## **How Energy Drinks Affect the Rest of the Body**

Concerns over energy drinks’ overall health effects have been rising globally. Poland, for example, recently banned sales of energy drinks containing taurine and caffeine to those under 18.

### **1. Diabetes**

Energy drinks’ high sugar content can lead to insulin resistance, resulting in elevated blood glucose levels that can, over time, lead to prediabetes and Type 2 diabetes.

The addictive properties of caffeine make these drinks a notable concern for children.

“Children are getting a sudden rush of sugar, setting the foundation for insulin resistance and Type 2 diabetes,” Dr. Tummala said.

## 2. Stress

The caffeine and other stimulating ingredients in energy drinks spur the adrenal glands to release excessive amounts of the stress hormone cortisol. Over time, this can overwork the adrenals, potentially leading to adrenal exhaustion (pdf), fatigue, and impaired stress response.

## 3. Heart Problems

“The high caffeine content in energy drinks is associated with heart arrhythmias and sudden cardiac death,” Dr. Tummala said. Caffeine and taurine affect cardiac rhythm and repolarization, facilitating arrhythmia, according to a 2022 experimental study using rabbit hearts. At least one human case report has also connected excessive consumption of energy drinks to acute heart failure.

## Healthy Alternatives

Having encountered troublesome side effects, high schooler Aidan eventually opted for healthier drinks.

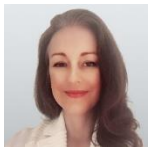
Healthier alternatives can provide sustained energy and focus minus the risks. Sparkling water with a splash of fruit juice, for example, makes a refreshing, soda-like drink packed with antioxidants. Herbal teas such as hibiscus and rooibos also contain beneficial antioxidants and phytochemicals.

Even better than a drink is physical activity such as walking, which has been shown to reduce stress, boost energy levels, and support brain health and is especially important for children today who have adopted more sedentary lifestyles.

Health experts stress the importance of parental awareness regarding children’s drink choices.

“One of the critical points I have against energy drinks is the deceptive method of marketing to the consumer who might not know what is being presented to them,” Mr. Eliwa said.

“We have to pay attention to the little details. Check the labels,” he added. “We have to protect our kids.”



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