

## THE DIRECT HEALTH EFFECTS OF STIMULANT/ENERGY DRINKS

USA Swimming's Sports Medicine Task Force recently conducted research into the topic of energy drinks. For the next few weeks, the task force will present a series of articles designed to educate swimmers, coaches and parents on the findings of its research.

This week we bring you an article on the direct health issues related to stimulant/energy drinks.

Other articles in this series include [Energy Drinks: What You Need to Know](#) and [Energy Drinks: A No-No for Young Swimmers](#)



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Stimulant/energy drinks produce complex interactions within the human body. Combine that with the lack of full disclosure as to what is and is not contained within these compounds and the problems become obvious. In short, you cannot know for sure what the athlete is consuming.

Stimulant drinks boast a lot of claims. Just a few of these claims include: improved stamina, concentration, alertness, weight control, performance and reaction times. Clearly anything that makes these claims warrants suspicion. Common side effects are usually stated to include: insomnia, emotional instability, difficulty with short and long term concentration and (once again) weight loss.

Let's look at this from several angles:

- What is required to performing at one's best? Besides training and technique, concentration, emotional stability, sleep, and nutrition all have to be there when it counts the most. The potential performance enhancement is not worth the risks of sleep and emotional disturbances or weight loss.
- There is no substitute for good mental, physical, and nutritional preparation.
- We cannot ignore medical conditions wherein the athlete may be placed in danger. As the stimulants (including concentrated caffeine) bind to various receptors in the body they can impact cardiovascular, nervous, gastrointestinal and genitourinary systems. The result commonly is an increased heart rate, increased blood pressure, irregular heartbeats, increased speech rate, increase urination, increased gastric activity, abdominal cramping and diarrhea. Where does performance benefit from these affects?

If we wish to look at these problems in more detail the picture becomes even more disturbing.

- Increased stimulation of cardiac receptors can trigger abnormal heart rhythms. These are often felt as a racing, fluttering and skipped heartbeats. If the athlete is dehydrated or has electrolyte problems, these arrhythmias may be life threatening.
- Stimulation of the nervous system can lead to sleep disturbances such as an inability to fall asleep in a timely manner or multiple episodes of waking throughout the night.

- When we sleep, our body repairs, builds and grows – so does our brain. Stimulants can make it hard to fall asleep and can make our sleep quality poor. Lack of sleep can affect our body and our brain's ability to improve with training, learn, and grow.
- Obviously, these stimulants are revving up the nervous system. If the athlete has problems with attention deficits, emotion control, anxiety or in the worst case – seizures, suddenly it is apparent that this nervous system stimulation can produce dire problems. Pre-race jitters may become much more than just jitters.
- Stimulants (a primary ingredient in energy drinks) are not fuel. Imagine a car engine racing, but there is no gas in the tank. Energy drinks cause our body's engine to race but do not provide a healthy source of fuel for the body. Energy drinks are not a safe source of fuel.
- Energy drinks often have more than one stimulant in the ingredient list so the total amount of stimulant is not known and the full effect is not known.
- Did you know you can overdose on caffeine? Did you know too much caffeine or other stimulants in ED's can hurt your performance and can even cause death? "Safe" caffeine doses in children are not known. Toxic caffeine doses can happen if a young athlete drinks just one energy drink. Too much caffeine results in nausea, vomiting, nervousness, anxiety, fast heart beat, shaking, seizures, low potassium, jitteriness, confusion and possibly death. Life threatening doses of caffeine can occur if a young athlete drinks more than one energy drink.
- Did you know energy drinks have ingredients that can react with other medicines? Some medicines that are used to help your mood, help coughs, help infections, help prevent strokes and seizures and help attention can react with some of the ingredients in energy drinks. Some medication interactions can be very dangerous and even life threatening.
- Some of the ingredients in energy drinks may actually change how the brain develops and may increase risk of other drug use later in life.

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