

October 2012 Health Notes by Evelyn Ames

Energy Drinks: Americans spend about 9 billion/year on Energy (stimulant) drinks!

A perusal of lists of ingredients of various “energy” or “power” drinks found on shelves in a variety of stores showed an assortment of ingredients from vitamins and minerals to flavor enhancers, preservatives, sugars, and color additives, to a conditional amino acid (taurine) and the stimulants caffeine and guarana. Several products included inositol (a vitamin-like substance). First thing for readers to note is that vitamins and minerals are not energy inducers and do not give a person “pep.” Vitamins are organic compounds necessary for reproduction, growth, and maintenance of the body. Minerals are inorganic compounds needed for growth and regulation of body processes. “The popular high-caffeine, high-sugar beverages, typically sold in 8.3 oz aluminum cans (two-thirds the size of a standard size of Coca-Cola) contain about seven teaspoons of sugar and as much as two to four times the amount of caffeine (9 milligrams per fluid ounce) as Coke.”

http://www.johnshopkinshealthalerts.com/alerts/healthy_living/JohnsHopkinsHealthAlertsHealthyLiving_3056-1.html

That said, energy/power drinks boost “energy” due to differing amounts of caffeine and guarana. These two compounds are stimulants of the central nervous system. One product contained inositol (57 mg), caffeine (47 mg), and taurine (27 mg). The bottom of this label gave this percentage: 3000% of RDI. RDI probably means recommended daily intake! Another product listed 1500 mg of taurine, 172 mg of caffeine, 125 mg of guarana, 50 mg of inositol, and 30 mg of white tea extract. The amount of liquid is 473 ml. Another product listed 80 mg of caffeine. To give an equivalent of how much caffeine 172 mg is, consider that a 5 oz cup of brewed coffee is generally equivalent from 90 to 125 mg of caffeine. Amusingly, one product said the caffeine was equivalent to one cup of premium coffee! According to FDA requirements, the presence of caffeine in a product has to be listed but not necessarily the amount! Some products do list the amount of caffeine; others do not.

“The use of energy drinks has [exploded](#) in the last few years, especially among young adults, but has been linked with elevated blood pressure and heart rate because of such ingredients as caffeine and the amino acid taurine” (<http://www.medpagetoday.com/MeetingCoverage/ESC/34460>). “The FDA currently considers energy drinks to be dietary supplements so the ingredients are not regulated as with soft drinks. Although caffeine is the main ingredient in most of these beverages, various additives such as guarana, L-carnitine, and ginseng are often mixed in to boost caffeine availability. Published reports have linked the drinks to serious adverse effects in young people, including seizures, diabetes, cardiac abnormalities, and [mood and behavioral disorders](#)” (<http://www.medpagetoday.com/MeetingCoverage/ESC/34460>).

Caffeine: is a natural chemical found in tea leaves, coffee beans, and cacao (think chocolate). Caffeine is generally recognized as safe when used in cola-type beverages up to a level of 0.02 percent or 200 parts per million (1-2 cups of regular coffee). Caffeine is rapidly absorbed after oral intake with peak blood levels reached in thirty minutes. Maximal central nervous system effects are reached in about two hours. A person does feel mentally and physically more alert (e.g., typists do make fewer errors according to various studies). The direct action on the kidneys is an increase in urine output. There is more of a tolerance to the effect on kidneys compared to the CNS. This means the habitual coffee drinker needs to increase caffeine intake to affect the kidneys. An interesting note about caffeine is that it dilutes the heart arteries whereas it constricts the brain arteries (which is why caffeine is sometimes used for migraine headaches). Caffeinism is generally defined as the habitual use of large amounts of caffeine, usually in coffee, but this could include large intakes of tea.

Guarana: is known as Paullinia cupana, paullinia, Brazilian cocoa, guarana bread, guarana paste or gum, and zoom. Guarana contains very high concentrations of caffeine and has been used as a stimulant and appetite suppressant. http://www.emedicinehealth.com/drug-guarana/article_em.htm “Guarana has not been evaluated by the FDA for safety, effectiveness, or purity. All potential risks and/or advantages of guarana may not be known.” People who have cardiovascular problems, high blood pressure, anxiety disorders, hyperthyroidism (overactive thyroid), or kidney disease are advised to discuss usage with their primary care doctor or cardiologist. <http://www.drugs.com/mtm/guarana.html#UqFUxQvQPLRuDp1w.99>

What is taurine? “Taurine is an amino acid that supports neurological development and helps regulate the level of water and mineral salts in the blood. Taurine is also thought to have antioxidant properties. Taurine is found naturally in meat, fish and breast milk, and it's commonly available as a dietary supplement. Some studies suggest that taurine supplementation may improve athletic performance, which may explain why taurine is used in many energy drinks. Other studies suggest that taurine combined with caffeine improves mental performance, although this finding remains controversial. And in one study, people with congestive heart failure who took taurine supplements three times a day for two weeks showed improvement in their exercise capacity.” Little is known about the effects of heavy or long-term taurine use.

<http://www.mayoclinic.com/health/taurine/AN01856> Detailed scientific explanation of taurine as a neurotransmitter can be found at <http://www.jbiomedsci.com/content/17/S1/S1>

Comments on “5 Hour Energy” drink product (that little yellow bottle): An October 2010 analysis by ConsumerLab.com found the caffeine content of a full bottle of 5-Hour Energy to be 207 mg of caffeine, about twice the amount in a 5 oz. cup of brewed coffee. What should be of concern to parents who have PKU children and to adults who were diagnosed at birth with PKU is that Phenylalanine is listed as an ingredient in this product. PKU diagnosed individuals must avoid this amino acid and as adults ingest only small amounts. All babies born in the United States are given a “PKU test to check whether a newborn baby has the enzyme needed to use phenylalanine in his or her body. Phenylalanine is an amino acid that is needed for normal growth and development. If a baby's body does not have the enzyme that changes phenylalanine into another amino acid called tyrosine, the phenylalanine level builds up in the baby's blood and can cause brain damage, seizures, and intellectual disability.” “PKU is a treatable disease. Treatment involves a diet that is extremely low in phenylalanine, particularly when the child is growing. The diet must be strictly followed. This requires close supervision by a registered dietitian or doctor, and cooperation of the parent and child. Those who continue the diet into adulthood have better physical and mental health.” <http://www.nlm.nih.gov/medlineplus/ency/article/001166.htm>

Final comment: people with high blood pressure (and those taking medications for HBP) or other cardiovascular conditions are best advised to avoid energy-like drinks.

Note: “Gatorade and POWERade are simply mixtures of water, sugars, minerals, and salts, without chemicals aimed at increasing "energy" or alertness.”

<http://www.cbn.com/cbnnews/healthscience/2011/March/Health-Risks-Tied-to-Energy-Sports-Drinks/>