

## **Power Drinks and Energy Pills: What is all the 'buzz' about?**

As a parent would you give your child a couple of cups of coffee before a game? Likely not, but when your child drinks a can of one of the popular “power” or “energy” drinks they could be consuming a lot more caffeine than that.

As parents, coaches, managers, referees, and administrators of minor lacrosse organizations, we should ask ourselves whether we know, and should become educated, about a growing trend amongst our children to utilize power drinks, energy pills, caffeine supplements and other products to supposedly “enhance” their performance on the floor or on the field. More specifically, we should ask whether we know that these perfectly legal, over the counter, items that can be purchased by youngsters at the local corner store might be harmful to our children and athletes. The fact that these items are “legal” may lead to complacency on the part of adults who willingly or unwittingly endorse their use by kids. We need the facts. And so do the athletes themselves, who are (and they are!!) taking these products with the hope of being better performers and to gain that competitive edge. We should consider what risks are associated with the use (or abuse) of these sorts of products as they gain popularity among our youth.

Power drinks, energy drinks, energy pills, caffeine supplements. The power drink industry has exploded into a \$3 billion per year industry in the US alone (NY Times, “Taste for Quick Boost tied to Taste for Risk”, May 27, 2008). About one-third of youth aged 12 to 24 years report that they “regularly” use energy or power drinks. Products such as Red Bull, Monster, Full Throttle, Go Girl, and Rockstar directly target the youth market. We have all seen young athletes using these drinks. This data merely confirms what we have observed anecdotally in recent years: kids are consuming power drinks and energy supplements more frequently.

How are they offered up to our youth? The names appear to promise something extraordinary. They claim to be able to enhance physical and mental energy. They provide a “pick-me-up”. Many specifically target the athlete, suggesting greater performance on the field of play. Others may be appealing to the non-athlete youth -- such as Rockstar. Still others, such as “Cocaine” (yes that’s right) and “Wired”, may be after another kind of person altogether. Several reports indicate a dramatic increase in use of these products among College students who consume these drinks to stay alert for school while balancing other activities. There is also more frequent reports of health risks and even an increase in “risky” behaviour associated with consumption of these products by youth (see NY Times article, above).

The ‘energy supplement’ industry is not limited to beverages. So-called power pills such as “Six-Hour Mini-Thin Energy Rush” provide a cheaper form of “supplement”. These can be purchased in packets of two tablets for as little as \$1.69. They are displayed in the store at eye level to a 7-10 year old. Check it out next time you go into one of those well known convenience stores. This same producer gives you the option of purchasing a liquid booster (the size of a pill bottle) all available to you right at the check out counter.

What do they contain? All of them contain a lot of caffeine. They also contain a good dose of sugar, and many combine these two ingredients with various "herbal" or "organic" components. "Guarana", for example, is found in several of these products yet a major component of it, too, is caffeine (Karrie Henneman, PhD et al, Energy Drinks, "Nutrition and Health Info-Sheet", University of Cal-Davis, April 2007). Surprisingly, the effect of many of these additional ingredients have never been tested on children: (Mary L. Gavin (Reviewer), "Power Drinks: Should Your Child Drink Them?" in Kids Health for Parents, April 2008).

The Health Canada website identifies daily caffeine maximums for youth as follows.

Age Group	No more than:
4-6 years	45 mg
7-9 years	62 mg
10-12 years	85 mg

The caffeine content of various drinks is reported by law on the products' labels or information sheets:

Can of Cola (355ml):	35 mg of Caffeine
Starbucks Grande Latte	70 mg of Caffeine
Red Bull (500 ml)	160 mg of Caffeine
Monster (500 ml)	160 mg of Caffeine
Cocaine Drink (500 ml)	560 mg of Caffeine
Six Hour Energy Rush (2 pills)	400 mg of Caffeine

As illustrated, the energy pills pack a big punch (400 mg per 2 pills) accounting for more than 10 cans of Cola worth of caffeine at a cost of less than a Toonie.

But what are the risks associated with overloading on caffeine and herbs that contain unquantifiable doses of caffeine? Unlike Sports drinks such as Gatorade and Powerade that merely re-hydrate the body and replenish and balance electrolytes, the high caffeine content of Power or Energy drinks tend to de-hydrate the body. Their consumption by adolescents has been linked to elevated blood pressure and irregular heart beat (see Henneman et al, above).

Other adverse effects associated with caffeine overload include anxiety, arrhythmia, and decreased bone density. One theory is that the human brain continues to grow up to age 16 (some say 21). We know that caffeine can affect a growing brain, but we don't as yet know how (fact sheet 2.11 Drug Info Clearing House). The jury is still out in terms of the dire effects of Power/Energy drinks, largely due to the fact they are relatively new and scientific studies and literature is just now emerging. So, in a sense, you are taking your chances.

But there are more and more stories of serious impacts to youth who consume even a moderate amount of these products. Recently, a 12 year old youth soccer player in Ridge Meadows was reported to have collapsed during a soccer game after consuming one energy drink can just before his game. His heart beat had accelerated to 140 beats per minute and he was rushed to hospital.

Many other stories are available and reported in the press and on the internet. Some of these may be associated with congenital issues or health issues in individuals that were unknown to them until they were stricken with serious and adverse consequences. But perhaps this is even greater cause for alarm.

There are many stories of good kids doing dumb or dangerous things when they have consumed too much caffeine. A term that is used for this is Toxic Jock Behavior. A recent study suggests that people are more likely to participate in risky and aggressive behaviors after consuming energy drinks or caffeine pills (see NY Times, "Taste for Quick Boost tied to Taste for Risk", May 27, 2008).

Adults who consume excessive quantities of caffeine often report headaches, tremors, insomnia, anxiety, and a rapid, irregular heartbeat. When it comes to young people, excessive amounts of caffeine can also cause behavioral problems. Children 12 and under should not consume more than 2.5 mg per kilogram of body weight. (Caffeine Fact Sheet; Substance Information Link)

The American College of Sports Medicine says:

"Many of these [energy] drinks are a very poor choice to consume when exercising in the heat or probably when exercising in general. . . They have the potential for adverse and dangerous effects if taken in excessive quantities or consumed while on medications."

The "energy" that these beverages provide come from stimulants such as caffeine and guarana, which may have serious implications on athletic performance (SportMedBC Fact Sheet, Jennifer Gibson BAsC, RD)

What we do know is this: Power/Energy drinks are not designed to re-hydrate and replenish electrolytes. Sports drinks can do that, but so does water and a reasonably good diet. The caffeine levels in Power/Energy drinks are designed to provide a quick boost of energy but are followed by a crash of sorts. These drinks and their pill form companions were developed for adult consumption given their very high caffeine contents. However, they are clearly being marketed to our youth. They can have negative impacts to the health of youth generally and younger athletes in particular who are seeking an advantage in competition and who are combining the consumption of these products with high stress and high impact activity.

While Power/Energy drinks are still a relatively new phenomenon the popular Red Bull is now regulated by Health Canada as a Natural Health Product. We should all consider looking in to this issue further. There are many resources out there on the internet, in our libraries, and in our doctors' offices. In addition to answering the questions posed at the beginning of this article, maybe we should also consider these questions:

- Shouldn't we encourage our players and children to be competitive and improve in sports through hard work and practice?
- Do they need anything more than a healthy diet and lots of water to ensure their bodies are able to meet that challenge?
- Should we be encouraging our kids and athletes to consider using something "extra" to give them that competitive edge?
- And when we accept their use of supplements and aids of this sort, what message are we sending to them in terms of their ability to achieve success in both sports and in life?
- Is this just a slippery slope to even more serious, and illicit, drug use to enhance their performance in sport or to deal with the pressures of life?

Additional Resources:

- Caffeine Fact Sheet - <http://carbc.ca/portals/0/resources/FS%20Caffeine.pdf>
- Energy drinks - Do they really give you wings? - <http://carbc.ca/portals/0/resources/ADF-EnergyDrinks.pdf>
- Caffeine and Your Child - [http://www.kidshealth.org/PageManager.jsp?dn=KidsHealth&lic=1&article\\_set=40419&cat\\_id=148](http://www.kidshealth.org/PageManager.jsp?dn=KidsHealth&lic=1&article_set=40419&cat_id=148)
- Energy Drinks – What's in them? - <http://www.sportmedbc.com/libraryArticles.php?recordID=231>

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(Desktop)Energy Drinks