2010 Was A Bad Year For Stimulant Based Energy Products

I was recently asked to author a “Point – Counter Point” article on the use of Energy Drinks. Sure it will get edited down a bit, so here is the full copy of what I sent off for review that you may find helpful....

Should you consume energy drinks? Would you recommend the consumption of energy drinks?

By Dave Ellis, RD, CSCS (www.daveellisbio.com, President CPSDA www.sportsdietitians.org)

For those of you who follow the health wire annually you know it was a very bad year for Energy Drinks, Shooters, Powders and Pills (Stimulant Based Energy Products - SBEP). To illustrate that point I will primarily reference articles that hit the wire in 2010.

Being amped up is not a catch all for improving all forms of athletic performance (1). As a health professional you have to use an integrated approach to determining the efficacy of SBEP use based on the populations that you are working with (2). My three decades of work in athletics as a Strength Coach, Sports Dietitian and Level 5 Hockey Coach have me very concerned about the growing co-dependence I have witnessed with the use of SBEP pre-activity and how young the users are (3). I am even more concerned about the cavalier attitude wielded by many who do research for the Energy Drink / Dietary Supplement Industry that seem to ignore the realities that come with population wide stimulant use (4). There are going to be many within the “Energy Drink” demographic with a predisposition to stimulant related problems by race, gender, genes or environment and it's the responsibility of health professionals to go out of their way to alert users to these potential outcomes (5).

So why the success of the Stimulant Based Energy category? Maybe it's a result of working with a chronically under-rested population that has set the stage for the growth of the Energy Drink category the last ten year. Over 20% of high school students are getting 6 hours of sleep per night (6) so maybe it should be no surprise that 31% of 12- to 17-year-olds and 34% of 18- to 24-year-olds report regular use of Energy Drinks, double the amount of adults who report regular use (7). Sadly under-rested populations may already be vulnerable to peer driven influence (8) and the use of caffeine by teens might result in addictive behaviors which all seem to have negative blood pressure implications (9,10). Smoking aside in athletics, consider 9% of high school students (15% of male and 2% of female students) used smokeless tobacco (e.g., chewing tobacco, snuff, or dip), on at least 1 day during the 30 days before the survey. Adolescents who use smokeless tobacco are more likely than nonusers to become cigarette smokers (11). So as a health professional do we validate giving under-rested, high blood pressure prone students SBEP with short-sited performance outcomes as the validation? Do we pander to a population that is prone to trade addictions or do we create some meaningful accountability for what quite possibly could be a life-changing event?
Hey, let's throw some alcohol in the mix! So last time I checked we work with a work hard-play hard population of risk takers (12) who routinely get into alcohol use prior to turning 21, latest figures report 27% of all US youth do (13). Some recent data shows that among college athlete 79% consumed alcohol and 92% of them fit the five drinks in an outing description of "binge drinkers". Additionally 48% combined alcohol with "Energy Drinks" (14). 2010 was quite a year for documenting the increased amount of alcohol that is consumed when combined with "Energy Drinks" elevating binge drinking and alcohol related injuries and deaths (15). Yet again we have a habit that impact blood pressure regulation and now some direct outcomes on heart inflammation are coming out related to binge drinking that are alarming (16). As a result the FDA recently took action to deem adding caffeine to alcohol an "unsafe food additive" after a rash of deaths with some power drinking teens and college students (17). Let's just ignore this and pretend that SBEP use have no bearing on the athletes we rouse out in the morning to training after a big night out, still intoxicated and dehydrated. It should be no surprise that heat and injury rates are on the rise (18,19). This trend is so prevalent I have seen athletes breathalyzed by their coaches this year to determine if they could participate in team training. Others are using urine concentration refractometers to determine hydration status. Under rested, hung over, dehydrated and codependent on stimulants. That is now way to go through life!

What about SBEP and the rules? There was some buzz back in July '10 about caffeine being put back on the World Anti-Doping Agency (WADA) list after being dropped in '04 as a result of an adverse event where an athlete had an adverse event from sleeping aids in an attempt to get some rest after caffeine use during a competition. The use of sleeping aids to get to sleep by NHL, NBA and MLB athletes who compete at night is a very real problem including our military athletes who's operations at night create significant challenges. Around the same time in '10 at dinner with WADA Leadership I posed a simple question. Will caffeine ever go back on the Olympic banned substance list? To my surprise the answer was "not likely." The rationale is that caffeine is ubiquitous in society and that it's not an issue of if it works, but that it only works up to a certain point after which it become a performance and health detriment! The wild card is that there maybe some considerable variability at what point caffeine becomes a performance or health detriment based on some genetic ability to metabolize caffeine due to genetics or drug interactions (20). For example women using birth control have a slower rate of caffeine clearance then men which was determined to contribute to a positive doping test with a female athlete at the collegiate level where caffeine is still on the Performance Enhancing Doping list (15 micrograms/mL urine cut-off). The estimated half-life of caffeine in adults is anywhere between 5 hours in a healthy male to 10 hours for a female taking oral contraceptives (21).

At this point Energy Drinks seem to be following the same course that creatine did as brands try to distinguish themselves in a very competitive marketplace. The addition of herbs, vasodilatation precursors and yes creatine is moving a number of these products into the Supplement vs. Food category. It was a bad year for the "Energy" supplement industry when it comes to ethics as a number of positive doping outcomes for athletes have been reported in drug tested populations (22, 23). We just can't depend on good faith of formulators to ensure that supplements at large have not been intentionally doped with pharmacologically active ingredients like Methylhexamanamine or that that the
raw materials they have imported are not fouled with heavy metals or pesticides (24).

It’s no surprise that the leaders in Sports like MLB, NFL, and PGA have established Banned Substance Certification programs through credible non-profit companies like NSF to certify the safety of the dietary supplements they supply their athletes (25). It’s also no surprise that leaders in all College, Olympic, Professional and Military positions have supported more legal accountability for the supplement industry at large in 2010 (26). Supplement form or not some state are even considering banning “Energy Drinks” for anyone under the age of 19 as a safety precaution (27) which tracks with the policy the American Academy of Pediatrics has published advising children under the age of 18 to avoid Energy Drinks and Dietary Supplements (28). Multi-tasking, stressed out youth are sleepless students with mental health issues and that will get the attention of parents and lawmakers (29, 30).

In addition to the challenges we face with high elevated heart rates, blood pressure and stroke in male power athletes (31, 32) I am very concerned about that evidence that caffeine can lower perceived exertion during exercise (33). It’s important that we accurately gauge our exertion, especially in environmentally challenging conditions (34). Health professionals are great at proactively connecting the safety dots for the populations they work with and they are wise enough to know that we don’t have all the answers to offer population wide validation of SBEP, even if it's just as simple as putting a ceiling on the amount of caffeine and stimulants that a serving can yield (35). My advice for 2011, proceed with caution when it comes to validating the use of Stimulant Based Energy Products!

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