

Energy Drinks



The Hype Around Our Caffeinated Culture

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Today's Topics

- Energy Drinks
 - Content
 - Marketing
 - Health Ramifications





The
World
of
Energy
Drinks



ENERGY DRINKS

- **500 NEW ENERGY DRINKS INTRODUCED IN 2006- THE BEGINNING OF THE EXPLOSIVE MARKET**
- **SALES= \$3.2 BILLION 2006 AND GREW TO AN ESTIMATED \$12 BILLION PLUS IN 2010**
- **31% OF 12-17 YEAR-OLDS ARE REGULAR CONSUMERS**
- **22% OF 25-34 YEAR-OLDS ARE REGULAR CONSUMERS**



Interesting Statistics...

- 65% of Consumers are Male
- 35% of Consumers are over the age of 35 years
- Women and children prefer high sugar drinks
- Marketing targets core age group of 12-30 years- particularly teenagers and college students





Additives:



- **Taurine:** some claim it is a natural stimulant... reports/evidence vary...
 - **Ginseng:** Supposedly stimulates mental and physical activity...
Reports/evidence vary
 - **Xanthines/Methylxanthines:** Mild cardiac and CNS stimulant
- **Vitamin B:** supposedly assists the body in processing resources to produce energy... reports vary
 - **Maltodextrin:** sugar-like additive/artificial sweetener
 - **Carnitine:** a nutrient that helps the body turn fat into energy
- **Creatine:** a natural amino acid synthesized in the body- large amounts reportedly enhance athletic performance and build lean muscle mass
- **Ginkgo Biloba:** works by enhancing blood flow to the brain as well as through the entire body- which supplies oxygen and nutrients



Guarana



Guarana features large leaves and clusters of flowers, and is best known for its fruit, which is about the size of a coffee berry. As a dietary supplement, guarana is an effective energy booster –

it contains about

twice the caffeine found in coffee beans

(about 2-4.5% caffeine in guarana seeds compared to 1-2% for coffee beans).

[<http://www.informaworld.com/smpp/content~content=a786686882~db=all> D. K. Bempong a; P. J. Houghton a; Kathryn Steadman a. The Xanthine Content of Guarana and Its Preparations. Pharmaceutical Biology. August 1993.



Guarana: Cognitive Effects

- As guarana is rich in caffeine, it is of interest for its potential effects on cognition. In rats, guarana increased memory retention and physical endurance when compared with a placebo.

Espinola EB, Dias RF, Mattei R, Carlini EA (February 1997). "Pharmacological activity of Guarana (*Paullinia cupana* Mart.) in laboratory animals". *J*

Ethnopharmacol 55 (3): 223-9.

- A 2007 human pilot study assessed acute behavioral effects to four doses (37.5 mg, 75 mg, 150 mg and 300 mg) of guarana extract. Memory, alertness and mood were increased by the two lower doses, confirming previous results of cognitive improvement following 75 mg guarana

Haskell CF, Kennedy DO, Wesnes KA, Milne AL, Scholey AB (January 2007). "A double-blind, placebo-controlled, multi-dose evaluation of the acute behavioural effects of guaraná in humans". *J. Psychopharmacol. (Oxford)* 21 (1): 65-70.

Caffeine

the following information regarding caffeine is taken from <http://en.wikipedia.org/wiki/Caffeine>
-please refer to this site for a full bibliography

Caffeine is a bitter, white crystalline xanthine alkaloid that acts as a psychoactive stimulant drug.

Most commonly found in the coffee bean and now the guarana bean.

Foods and drinks that are regulated by the FDA cannot contain more than 65 milligrams per of caffeine, per serving. However, as it stands now, the Food and Drug Administration does not regulate energy drinks.

In humans, caffeine is a central nervous system (CNS) stimulant, having the effect of temporarily warding off drowsiness and restoring alertness.

In North America, 90% of adults Drug Administration consume caffeine daily. The U.S. Food and lists caffeine as a "Multiple Purpose Generally Recognized as Safe Food Substance".



Caffeine is a CNS and metabolic stimulant, and is used both recreationally and medically to reduce physical fatigue and restore mental alertness when unusual weakness or drowsiness occurs.

...resulting in increased alertness and wakefulness, faster and clearer flow of thought, increased focus, and better general body coordination, and later at the spinal cord level at higher doses.

<http://en.wikipedia.org/wiki/Caffeine>

Recommended dose is no more than 400mg of caffeine per day.



"The caffeine content of energy drinks varies over a 10-fold range, with some containing the equivalent of 14 cans of Coca-Cola, yet the caffeine amounts are unlabeled and few include warnings about potential health risks of caffeine intoxication," said one of the study's authors, Roland Griffiths of Johns Hopkins Medical Institutions.

http://latimesblogs.latimes.com/booster_shots/2008/09/energy-drinks-c.html



Xanthine

(Methylxanthines)

- Derivatives of xanthine, known collectively as **xanthines**, are a group of alkaloids commonly used for their effects as mild stimulants and as bronchodilators, notably in treating the symptoms of asthma.
- Methylated xanthine derivatives include caffeine, paraxanthine, theophylline, and theobromine. wikipedia.org
- Methylxanthines produce bronchial smooth muscle relaxation which helps to dilate constricted airways, stimulates diuresis to help relieve congestion, and acts as a mild cardiac and central nervous system stimulant.

http://ratguide.com/meds/respiratory_drugs/xanthines_methylxanthines.php

Vitamin B...

supposedly assists the body in producing energy... studies vary

B vitamins are also commonly added to energy drinks.

Many energy drinks have been marketed with large amounts of B vitamins ("5-Hour Energy contains an astounding 8,333% of the recommended dietary allowance of vitamin B-12 and 2,000% of the RDA for vitamin B-6.... Red Bull...offers 360% of the RDA for vitamin B-6, 120% of B12, 140% of niacin (vitamin B3)") with claims that this will cause the consumer to "sail through your day without feeling jittery or tense."

Nutritionists, such as Professor Hope Barkoukis, dismiss these claims "It's brilliant marketing, but it doesn't have any basis [in fact]."

Chris Woolston (July 14, 2008). "B vitamins don't boost energy drinks' power". Los Angeles Times. <http://www.latimes.com/features/health/la-he-skeptic14-2008jul14,0,3939169.story>. Retrieved on 2008-10-08.



Taurine

- Taurine is used as a functional food [foods that claim to have nutritional value]... Despite being present in many energy foods, it has not been proven to be energy-giving. <http://en.wikipedia.org/wiki/Taurine>

TAURINE: THE CLAIMS (little research done on humans)

- Improves exercise performance in rodents
- Prevents hypertension in rats fed a high fructose diet & rats treated with alcohol
- Potent neuroprotectant, protects against glutamate excitotoxicity, cerebral ischemia, oxidative stress, and the buildup of toxins
- Improves memory in memory-impaired rats
- Protects many of the body's organs against toxicity and oxidative stress due to various substances.

http://www.1fast400.com/a47_Taurine_Information.html

Ginseng

Both American and Panax (Asian) ginseng roots are taken orally...

What they are saying: Promised effects

- stimulated mental and physical activity, improved accuracy of work, prevents (1) fatigue, stimulation of endocrine glands, improves memory (2)
- strengthen the heart and nervous system, builds mental and physical vitality, builds resistance to disease, stimulates endocrine glands (3)
- recommended for: decreased health conditions, hangovers, fatigue, cool or hot feelings, stress, menopause, light symptoms of diabetes, male impotency, weakness surrounding childbirth increased strength, stamina, athletic performance, stress management, recovery from illness (4)
- improved capacity to think, study, concentrate, focus and memorize (5)

1) <http://www.mksservices.com-L/ginseng/more.html> 2) <http://www.com-star.com/ginseng/about.html>

3) <http://www.dacom.co.kr/O/07Ekkm55/moreinfo.html> 4) <http://www.tenzing.com/g.htn-d> 5) <http://www.tcmherbs.com/products/60222.html>



Other Additives:

- Maltodextrin: sugar-like additive/artificial sweetener
- Carnitine: a nutrient that helps the body turn fat into energy
 - Creatine: a natural amino acid synthesized in the body- large amounts reportedly enhance athletic performance and build lean muscle mass
- Ginko Biloba: works by enhancing blood flow to the brain as well as through the entire body- which supplies oxygen and nutrients



Caffeine Contents... Surprised??

12-ounce beverage and milligrams of caffeine

- Jolt - 71.2
- Pepsi One- 55.5
- Mountain Dew - 55.0
- Diet Mountain Dew - 55.0
- Mellow Yellow - 52.8
- **Diet Coke - 45.6**
- Dr. Pepper- 41.0
- Diet Dr. Pepper – 41.0
- Diet Sunkist Orange- 41.0
- Sunkist Orange - 40.0
- **Pepsi-Cola - 37.5**
- Pepsi Twist - 37.5
- **Diet Pepsi - 36.0**
- **Coca-Cola Classic - 34.0**
- Diet Cherry Coke - 34.0
- Snapple Flavored Teas (Reg. or Diet) - 31.5
- A&W Creme Soda - 29.0
- Nestea Sweet Iced Tea - 26.5
- Barq's Root Beer - 23.0
- A&W Diet Creme Soda - 22.0

Compared to Energy Drink Caffeine Content...

<http://www.cspinet.org/new/cafchart.htm>

Energy Drink	Serving size	Mg of Caffeine
Spike Shooter	8.4 oz.	300
Cocaine	8.4 oz.	280
Monster Energy	16 oz.	160
Full Throttle	16 oz.	144
Enviga	12 oz.	100
Tab Energy	10.5 oz.	95
SoBe No Fear	8 oz.	83
Red Bull	8.3 oz.	80
Rockstar Energy Drink	8 oz.	80
SoBe Adrenaline Rush	8.3 oz.	79
Amp	8.4 oz.	74
Glaceau Vitamin Water Energy Citrus	20 oz.	50
SoBe Essential Energy, Berry or Orange	8 oz.	48

Other interesting numbers...

<http://www.cspinet.org/new/cafchart.htm>

Coffees	Serving Size	Caffeine (mg)
Coffee, generic brewed	8 oz.	133 (range: 102-200) (16 oz. = 266)
Starbucks Brewed Coffee (Grande)	16 oz.	320
Einstein Bros. regular coffee	16 oz.	300
Dunkin' Donuts regular coffee	16 oz.	206
Starbucks Vanilla Latte (Grande)	16 oz.	150

Over-The-Counter Drugs	Serving Size	Caffeine (mg)
NoDoz (Maximum Strength)	1 tablet	200
Vivarin	1 tablet	200
Excedrin (Extra Strength)	2 tablets	130
Anacin (Maximum Strength)	2 tablets	64

Caffeine “Shots”



Most energy shot drinks are between 1 and 3 oz serving size. On average they deliver between 80 and 171 mg of caffeine per oz. You will be consuming about the same amount of caffeine in an energy shot as you would with a whole can of any energy drink, but at significantly smaller serving sizes. So energy shot drinks are in reality concentrated energy drinks. <http://www.energythis.com/blog/>

Caffeine amounts in “shooters”

- 1) Ammo- 171mg in a one ounce bottle**
(= 4 cans Diet Coke)
- 2) Rockstar Shooter- 200mg in a 2.5oz bottle**
(= 5 cans Diet Coke)
- 3) NOS Powershot- 125mg in 2oz**
(= 3 cans Diet Coke)
- 4) Full Throttle- 125mg in 2oz**
- 5) Monster Hitman- 200mg approximate**
in 3oz bottle
- 6) 5 Hour Energy Shot- 80mg in 2oz**



Concerns Regarding Youth Marketing Focus



- Caffeine addiction considered a “Gateway” addiction as youthful search for “the buzz” often escalates
- Brand confusion with alcoholic and non-alcoholic versions (fewer alcoholic versions now available due to public pressures)
- Messages of sexuality... athleticism (you “need” this to have the “edge”)... risky behaviors encouraged... mixing with alcohol...
- Messages in labeling... “Joose”- alcoholic energy drink... “Full Throttle”- non-alcoholic... minimal visible difference





Marketing Messages



- Sexual imagery
- Drug like effects
- Risk taking activities
 - All night parties
 - Extreme sports
- Getting "The Edge"







<http://www.rockstarenergy.com>





Monsterenergy.com

... would you rather have the same old bull...or would you like "Sum Poosie!"

Mana Energy Potion
5-8 hours of smooth, jitter-free Energy, equals 2 8oz RedBulls
getrealistic.com

Labeling...



Red Bull is a utility drink to be taken against mental or physical weariness or exhaustion.

180 All-Natural Energy Drinks contains all-natural ingredients to ensure you get the best of both worlds – taste and health!



RED BULL ENERGY SHOT

ROCKSTAR is the world's most powerful energy drink and is scientifically formulated to provide an incredible energy boost for those who lead active, ...

BAWLS Guarana is the perfect *drink* to keep you bouncing through your day - or night!



Guru - Natural Energy Drink

Better - Faster - Stronger!

100% natural and made with certified organic ingredients, GURU combines the power of carefully chosen ingredients borrowed from ancient cultures around the world. Scientifically designed for health-conscious lifestyles, GURU Energy Drink helps deliver the mental and physical boost you need in the afternoon, at work, before sports or during periods of stress or fatigue.



Youth Targeting:

Alcohol + Energy Drinks



Alcohol, Energy Drinks, and Youth: A Dangerous Mix

“This new line of alcoholic beverage product is extremely similar in look and feel to the popular energy drinks that contain no alcohol.

Our youth are at risk when clerks and retailers cannot differentiate between nonalcoholic and alcoholic beverages being sold.”

-- Chris Lilly, Kentucky Alcoholic Beverage Control



At a Glance...



Can You Tell the Difference??



Alcoholic energy drink producers have built on the popularity of non-alcoholic energy drinks in two ways:

- 1) promoting the mixing of energy drink products with alcohol

[Example: Red Bull + Vodka= drink and stay awake so you have time to get more drunk]

- 2) marketing premixed alcoholic energy drinks.

[Example: Joose and Four]



Efforts to encourage the mixing of alcohol with energy drinks serve as a stepping stone to building a separate beverage category of premixed alcoholic energy drinks.



Feel “Drunker” for Longer...

Growth in the popularity of energy drinks can be attributed to bars and clubs, where energy drinks have been used as mixers. Now consumers can find pre-mixed alcoholic energy drinks at a nearby convenience store or grocery store. Alcoholic beverage (especially beer) manufacturers are increasingly launching products that are likely to appeal to young adults aged 21–24 who are most likely to drink beer and distilled spirits—ideal alcoholic drinks to mix with energy drinks

<http://www.marininstitute.org/alcopops/resources/EnergyDrinkReport.pdf>



The Dangers...

The research found that those students who mixed **alcohol** and **energy drinks**, or consumed a prepackaged version of alcoholic energy drinks were at a much greater risk of being injured, or hurt enough that they needed medical attention.

They were also at twice the risk of riding in a car with an intoxicated driver compared to students who didn't mix **alcohol** with energy drinks.

Finally, when college students consumed the alcohol energy drink combination, they were twice as likely to engage in or be taken advantage of sexually.

http://www.associatedcontent.com/article/437858/is_mixing_alcohol_and_energy_drinks.html

Anheuser Busch's B-to-the-E and TILT... off the market in 2008

Along with a name that evokes hip-hop slang, this product appeals to the changing tastes of the market segment, now referred to as the "cocktail culture crowd"-young drinkers who increasingly favor the wide variety of flavors and colors of mixed drinks.

Consistent with the trend, B^E is beer infused with caffeine, guarana and ginseng-an energy drink and beer hybrid-offering a sweet, yet tart taste.



Anheuser-Busch will stop alcoholic 'energy' drinks

- Busch will remove caffeine and other stimulants from its alcoholic energy drinks
 - Attorneys general found Busch was marketing the alcoholic beverages to minors
- Anheuser-Busch to pay \$200,000 to states that investigated the brewer's practices
- Bud Extra and Tilt "met all regulatory requirements," read a statement from brewer

<http://www.cnn.com/2008/US/06/26/anheuser.busch.settle/index.html>

Alcoholic Energy Drinks-

Discontinued per “request” of the FDA in December 2010

- **Sparks** was a caffeinated alcohol beverage, one of the first such beverages... Its packaging states a 6% alcoholic content by volume (ABV). [http://en.wikipedia.org/wiki/Sparks_\(drink\)](http://en.wikipedia.org/wiki/Sparks_(drink))
- **Tilt** was introduced as an energy drink, containing alcohol. It is marketed as a "Premium Malt Beverage" .. Its alcoholic content by volume varies, from 6.6 in the berry flavor and up to 8% in the lemon lime, higher than most American beer (commonly 3-6%) [http://en.wikipedia.org/wiki/Tilt_\(Drink\)](http://en.wikipedia.org/wiki/Tilt_(Drink))
- **Joose** ... growing in popularity due to its relatively high alcohol content (9.0-9.9% ABV) [http://en.wikipedia.org/wiki/Joose_\(drink\)](http://en.wikipedia.org/wiki/Joose_(drink))
- **Four MaXed** is a 16oz (473ml) aluminum canned caffeinated alcoholic malt beverage... It contains 10.0%ABV... [http://en.wikipedia.org/wiki/Four_\(drink\)](http://en.wikipedia.org/wiki/Four_(drink))
- **Rockstar 21**... Several alcoholic versions of Rockstar are available in Canada; an alcoholic version in the US was discontinued in 2007, possibly in response to criticism that young people were confusing the alcoholic version with the regular one. [http://en.wikipedia.org/wiki/Rockstar_\(drink\)](http://en.wikipedia.org/wiki/Rockstar_(drink))





Real Life Concerns...

- Nine college students in Washington State who were hospitalized - after ingesting date-rape drugs, cops initially thought - were actually sickened by the high-alcohol caffeinated drink Four Loko, according to school officials.
- Ramapo College (in New Jersey) announced the campus ban, which took effect Oct. 1, after 23 intoxicated students were hospitalized over the span of a few weeks — some after drinking Four Loko. Mercer said that's more hospitalizations than the college usually sees at the start of the school year.

http://articles.nydailynews.com/2010-10-25/news/27079215_1_alcoholic-energy-drinks-drinking-five-alcohol-poisoning

http://badgerherald.com/news/2010/10/26/another_campus_bans_.php



FDA WARNING

On November 17, 2010 the U.S. FDA issued a warning letter to four manufacturers of caffeinated alcohol beverages citing that the caffeine added to their malt alcoholic beverages is an “unsafe food additive” and said that further action, including seizure of their products, may occur under federal law.

The four companies receiving the warning letter are:

- 1) Charge Beverages Corp.: Core High Gravity HG, Core High Gravity HG Orange, and Lemon Lime Core Spiked
- 2) New Century Brewing Co., LLC: Moonshot
- 3) Phusion Projects, LLC (doing business as Drink Four Brewing Co.): Four Loko
- 4) United Brands Company Inc.: Joose and Max
[http://en.wikipedia.org/wiki/Four_\(energy_drink\)](http://en.wikipedia.org/wiki/Four_(energy_drink))



Not that you can't just mix your own... recipes are easy to find!

Jager Bomb
Bitch Blaster
Big Balls
Butt Plug
Tucker Death Mix
Liquid Viagra
Crunk Juice
Flaming Liquid Cocaine Blaster
Bull Blaster
Up All Night
Irish Trash Can
All Night Hunter
Liquid Cocaine #6
Panty Dropper Punch
Cherry Bomb #5
Dirty Gecko
Heart Attack
Touchdown

O Thing

12 ounce can Amp® energy drink
2 – 4 ounce Bacardi® O rum



Monstermeister recipe ingredients:

2 oz Jagermeister® herbal liqueur,
4 oz Monster® energy drink

Butt Plug

6 ounce Red Bull® energy drink
Half ounce vodka
Half ounce Blue Curacao liqueur



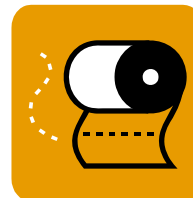


Caffeine Related Health Risks

<http://www.marininstitute.org/alcopops/resources/EnergyDrinkReport.pdf>

...health researchers agree that caffeine consumption can have adverse health consequences, particularly at high doses.

Among the most common negative effects are:
increased anxiety,
panic attacks,
increased blood pressure
increased gastric acid
bowel irritability
insomnia



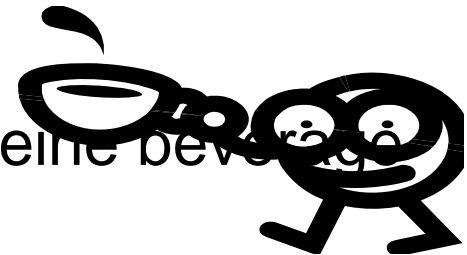
Caffeine, a stimulant, **masks the intoxicating effects of alcohol**, which may lead to increased risk-taking. **Young people** are therefore particularly vulnerable to increased problems from ingesting these products, since they are **more likely to take risks** than adults and to suffer **high rates of alcohol problems**, including **alcohol-related traffic accidents, violence, sexual assault, and suicide.**

Caffeine Consumption

Global consumption of caffeine has been estimated at
120,000 tons per year,

MAKING IT THE WORLD'S MOST POPULAR
PSYCHOACTIVE SUBSTANCE.

This number equates to one serving of a caffeine beverage
for every person, per day.



CAFFEINE

Caffeine has diuretic properties, at least when administered in sufficient doses to subjects who do not have a tolerance for it.

Regular users, however, develop a strong tolerance to this effect, and studies have generally failed to support the common notion that ordinary consumption of caffeinated beverages contributes significantly to dehydration.





Effects when taken in moderation

The precise amount of caffeine necessary to produce effects varies from person to person depending on body size and degree of tolerance to caffeine.
[FDA recommends a maximum dose of 400mg per day]

It takes less than an hour for caffeine to begin affecting the body and a mild dose wears off in three to four hours.

Consumption of caffeine does not eliminate the need for sleep, it only temporarily reduces the sensation of being tired throughout the day.

Caffeine and Caffeine Tolerance

<http://en.wikipedia.org/wiki/Caffeine>

Caffeine tolerance develops very quickly, especially among heavy coffee and energy drink consumers.

Complete tolerance to sleep disruption effects of caffeine develops after consuming 400 mg of caffeine 3 times a day for 7 days.

(meaning it will not keep you up at night)

Complete tolerance to subjective effects of caffeine was observed to develop after consuming 300 mg 3 times per day for 18 days, and possibly even earlier
(meaning you no longer get a “kick” of energy)



The DSM-IV and Caffeine

There are four caffeine-induced psychiatric disorders recognized by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*:

- 1) caffeine intoxication,
- 2) caffeine-induced anxiety disorder,
- 3) caffeine-induced sleep disorder,
- 4) caffeine-related disorder not otherwise specified (NOS).

Overuse = Caffeinism

aka “caffeine jitters”

In large amounts, and especially over extended periods of time, caffeine can lead to a condition known as *caffeinism*.

Caffeinism :

- Nervousness
- irritability
- anxiety
- tremulousness
- muscle twitching
- Insomnia
- headaches
- respiratory alkalosis
- heart palpitations



Furthermore, because caffeine increases the production of stomach acid, high usage over time can lead to peptic ulcers, erosive esophagitis, and gastroesophageal reflux disease.

Caffeine Intoxication

In cases of much larger overdoses:
(which according to the DSM-IV
can be at 300mg or more at one time)

- Mania
- Depression
- Lapses in judgment
- Disorientation
- Lack of inhibition
- Delusions
- Hallucinations
- Psychosis may occur
- Rhabdomyolysis
(breakdown of skeletal muscle tissue)

In cases of extreme overdose, death can result.... Death typically occurs due to ventricular fibrillation brought about by effects of caffeine on the cardiovascular system.

Toxic Jock Identity

Energy drink consumption has been linked to a “toxic jock” identity, comprised of a pattern of

risk-taking,

self-identification as a “jock,”

and endorsement of conventionally masculine norms,

in college undergraduates of both genders.



Because jock identity is also associated with **problem drinking,**

sexual risk-taking,

delinquency,

and interpersonal violence,

frequent consumption of energy drinks may signal an elevated risk for health-compromising behaviors.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2575122/>



Wired: energy drinks, jock identity, masculine norms, and risk taking

Miller KE; University at Buffalo, Research Institute on Addictions, Buffalo, NY 14203, USA.

Strength of jock identity was positively associated with frequency of energy-drink consumption; this relationship was mediated by both masculine norms and risk-taking behavior.

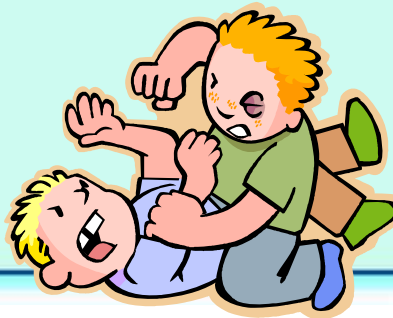
CONCLUSIONS: *Sport-related identity, masculinity, and risk taking are components of the emerging portrait of a toxic jock identity, which may signal an elevated risk for health-compromising behaviors.*

College undergraduates' frequent consumption of Red Bull and comparable energy drinks should be recognized as a potential predictor of toxic jock identity.

PMID: 18400659 [PubMed - indexed for MEDLINE]

Problem Behavior Syndrome

Results indicate that individuals consuming "frequent energy drinks (six or more days a month) were approximately three times as likely as less-frequent energy drinkers or non-consumers to have smoked cigarettes, abused prescription drugs and been in a serious physical fight in the year prior to the survey."



Problem Behavior Syndrome-

Continued

The survey reveals alcohol-related problems and marijuana addiction as well as behavioral issues related to unsafe sex, avoiding seatbelt use while driving, and indulgence in dangerous and risky sports.

However, whites (40 percent) more than African-American (25 percent) students were prone to exhibit the behavioral problems.

Parents and college officials may want to screen students for "problem behavior syndrome" by looking for their energy drink consumption over a period of time.

Read more: http://public-healthcare-issues.suite101.com/article.cfm/energy_drinks_cause_risky_behaviours#ixzzolBcMONUe&C



The “Half- Life” ...

the time required for the body to eliminate one-half of the total amount of caffeine—varies...

Varies widely among individuals according to such factors as:

- Age
- Liver function
- Pregnancy
- Some concurrent medications
- Level of enzymes in the liver needed for caffeine metabolism.
- In healthy adults, caffeine's half-life is approximately 4.9 hours.
- In women taking oral contraceptives this is increased to 5–10 hours
- In pregnant women the half-life is roughly 9–11 hours.
- Caffeine can accumulate in individuals with severe liver disease, increasing its half-life up to 96 hours.
- Half-life in a newborn baby may be as long as 30 hours.

Withdrawal

- Headache**
- irritability**
- an inability to concentrate**
- drowsiness**
- insomnia**
- pain in the stomach, upper body, and joints**

Symptoms may appear within 12 to 24 hours after discontinuation of caffeine intake, peak at roughly 48 hours, and usually last from one to five days



Anxiety and Sleep Disorders

In some individuals, the large amounts of caffeine can induce anxiety severe enough to necessitate clinical attention. **This caffeine-induced anxiety disorder can take many forms:**

Generalized anxiety

Panic attacks

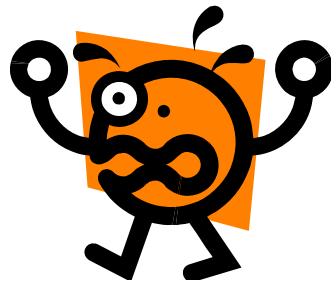
Obsessive-compulsive symptoms

Phobic symptoms

Bi-Polar Disorder

Schizophrenia

A number of medical professionals believe caffeine-intoxicated people are routinely misdiagnosed and unnecessarily medicated when the treatment for caffeine-induced psychosis would simply be to stop further caffeine intake.





Effects on Memory and Learning

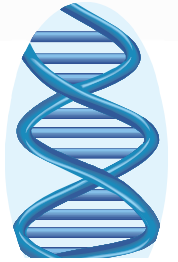
Contradictory Conclusions



- An array of studies found that caffeine could have nootropic effects (**resulting in smart drugs, memory enhancers, and cognitive enhancers**), inducing certain changes in memory and learning.
- One study shows... long-term consumption of caffeine could inhibit...learning and memory ...
- Another study showed that subjects—after receiving 100 milligrams of caffeine—had increased activity in brain regions ... performed better on the memory tasks.
- However, a different study showed that caffeine could impair short term memory and increase the likelihood of the tip of the tongue phenomenon... In essence, caffeine consumption increases mental performance related to focused thought while it may decrease broad-range thinking abilities.



Genetics and Effect on Health



Some people have a gene to metabolize caffeine more slowly, and for them drinking large quantities of coffee was found to increase the risk of myocardial infarction.

For rapid metabolizers, however, coffee seemed to have a preventative effect.

Slow and fast metabolizers are comparably common in the general population, and this has been blamed for the wide variation in studies of the health effects of caffeine.

Energy Drinks In the News...

Red Bull has been subject to bans in France, Denmark, and Norway.

http://en.wikipedia.org/wiki/Red_Bull

Energy Drinks

Banned:

- Denmark
- Iceland
- Norway
- Turkey
- Uruguay
- Sweden-
- only in pharmacies



In Germany 11 out of 16 states had already banned the drinks by 25 May 2009...

http://en.wikipedia.org/wiki/Red_Bull



Students who attend school within the Western School Board in P.E.I. are no longer allowed to bring energy drinks onto school property.

<http://www.cbc.ca/canada/prince-edward-island/story/2008/09/19/pe-energy-drinks-banned.html?ref=rss>



A California high school banned all energy drinks after two students experienced dizziness and disorientation after consuming an energy drink before football practice.

http://www.asdk12.org/depts/health/energy_drinks1108.pdf



French **ban** on Red Bull (*drink*) upheld by European Court

www.medicalnewstoday.com/articles/5753.php



...two Central Massachusetts middle schools who just decided to **ban** all **energy drinks**... <http://wbztv.com/local/energy.drink.ban.2.1041978.html>

What can You Do?

Be aware...

