



## The Effects of Caffeine

With the increasing popularity of energy drinks, many questions are arising about the potential benefits and consequences of caffeine. Evidence indicates that caffeine in moderation (defined by the American Medical Association as no more than 300 milligrams (mg) per day)<sup>1</sup> is safe, and can actually improve both mental and physical performance. It is important to note that this does not apply to children; upper limit of caffeine for children is generally believed to be 45 mg per day.

As a result of these findings, many of our young Sailors and Marines are turning to energy drinks to improve their performance in competitive and recreational sports, as well as at school and work. According to a recent study from Walter Reed Army Institute of Research, nearly 45% of combat troops consume at least one energy drink daily, while 14% drink 3+ energy drinks per day.

### Facts

Current research shows the positive effects of caffeine (300 mg or less in adults) include:<sup>2</sup>

- Decreased rate of perceived exertion (how hard you feel like you are working) during exercise
- Improved exercise performance, particularly aerobic activity
- Increased alertness
- Increased concentration

It is important to keep in mind that too much caffeine can have a detrimental effect. Over consumption of caffeine can lead to:

- Irritability
- Restlessness
- Decreased quality of sleep
- Increased heart rate

If caffeine toxicity occurs symptoms can include:

- Heart attack
- Seizure

- Coma
- Kidney and musculoskeletal dysfunction
- Death (scientifically determined at 10-14 grams for the average person)

The average amount of caffeine per serving in common caffeinated beverages:

- Coffee: 65-120 mg
- Tea: 20-90 mg
- Cola: 20-40 mg
- Energy Drink: 6-300 mg per serving

### Did You Know?

Caffeine does not actually cause dehydration or fluid-electrolyte imbalances as once believed. The mild diuretic effect (causing you to urinate) of coffee is comparable to that of most fluids, including water.<sup>3</sup> Currently there is no FDA regulation on caffeine content in foods and beverages except for cola beverages (71 mg per 12 oz). Several popular commercial energy drinks contain 15 mg of caffeine per ounce. Many of these products are sold in 24 ounce cans – that is 360 mg of caffeine in one can!

Common ingredients found in many commercial energy beverages include:

- **Tyrosine/Phenylalanine** interacts with many meds
- **Yohimbe** interacts with anti-depressants
- **Kola Nut and Guarana** are both sources of caffeine
- **Citrus aurantium (Bitter Orange)** contains synephrine – contains stimulant properties
- **Ma Huang** is a source of ephedra (products containing ephedra were pulled off the market as they were associated with significant adverse events to include death)

Keep in mind the ingredients above may not cause problems alone but when consumed together they have the opportunity to cause serious harm.

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Use this caffeine chart as a guide before consuming your next dose of “pick me up.”

PRODUCT	SERVING SIZE	CAFFEINE CONTENT
Black coffee – home brewed	12 fl. oz.	148 mg
Black coffee – Starbucks	12 fl. oz.	260 mg
Black coffee with turbo shot – Dunkin Donuts	20 fl. oz.	436 mg
Green tea, brewed for 3 minutes	8 fl. oz.	35-60 mg
Black tea, brewed for 3 minutes	8 fl. oz.	30-80 mg
Chai tea latte - Starbucks	12 fl. oz.	95 mg
FDA official limit for cola and pepper soft drinks	12 fl. oz.	71 mg
Pepsi MAX	12 fl. oz.	69 mg
Mountain Dew	12 fl. oz.	54 mg
Diet Coke	12 fl. oz.	47 mg
5-Hour Energy shot	1.9 fl. oz.	208 mg
Rockstar energy drink	16 fl. oz.	160 mg
Red Bull	8.4 fl. oz.	80 mg
Starbucks coffee ice cream	4 oz.	45 mg
Dar chocolate bar	1.5 oz.	20 mg
NoDoz or Vivarin	1 caplet	200 mg
Exedrin migraine	2 caplet	130 mg

### References

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