



## 4-H Consumer Judging Guide

# Energy Drinks 101

### What Are Energy Drinks?

The term “energy drinks” refers to beverages that contain caffeine in combination with other ingredients such as taurine, guarana, and B vitamins, and that claims to provide energy or other benefit to those who drink the product. This term was created by beverage companies and is not recognized by the United States Food and Drug Administration (FDA) or the United States Department of Agriculture (USDA).

### Is There Evidence These Energy Drinks Increase Energy?

There is limited evidence that consumption of energy drinks can significantly improve physical and mental performance, driving ability when tired or decrease mental fatigue during long periods of concentration. Unfortunately, it is not clear if these improvements are due to the caffeine, other herbal ingredients or a combination of both.

### Can Consumption of Energy Drinks Harm You?

The caffeine content of a single serving of energy drink (8 to 12 fluid ounces) can range from 72 to 150 milligrams. The problem is that many of these products contain more than one serving, so the caffeine content may be as high as 294 milligrams per bottle. In comparison, the caffeine content, per serving (8 fluid ounces), of brewed coffee, tea and cola beverages ranges between 134-240 milligrams, 48-175 milligrams and 22-46 milligrams, respectively. Most adults can safely consume up to 400 milligrams caffeine daily. Women of childbearing age should limit their daily consumption of caffeine to a maximum of 300 milligrams per day, and children should limit their consumption to 5.5 milligrams per pound of body weight. Adolescents should limit caffeine consumption. Intakes greater than 100 milligrams per day have been associated with elevated blood pressure. Based on this information,

**What Is the Caffeine and Sugar Content of Energy Drinks?**

Drink	Serving (fluid ounce)	Servings per container	Sugar per serving (grams)	Caffeine per serving (milligrams)	Calorie
Diet Rockstar Energy Drink™	8	2	0 g	80	10
Full Throttle™	8	2	29 g	72	111
Go Girl Sugar Free™	12	1	0 g	150	3
Monster Lo-Carb XXL™	8	3	3 g	80	10
Monster Energy Assault™	8	2	27 g	80	100
Monster Energy XXL™	8	3	27 g	80	100
Red Bull Sugar Free™	8.3	1	0 g	80	10
Red Bull™	8.3	1	27 g	80	110
Rockstar Energy Drink™	8	2	30 g	80	130
Rockstar Juiced™	8	2	21 g	80	90
Wired 294 Caffeine™	8	2	26 g	147	100

**Note:** This table does not include amounts of other stimulants found in energy drinks that can enhance the effects of caffeine.

consumption of energy drinks by pregnant or nursing women, adolescents and children is not recommended.

Caution is warranted even for healthy adults who choose to consume energy beverages. Consumption of a single energy beverage may not lead to excessive caffeine intake; however, consumption of two or more beverages in a single day can. Other stimulants such as guarana, ginseng, yerba mate, kola nut, green tea extract and bitter orange are often added to energy beverages and can enhance the effects of caffeine. Guarana, in particular, contains caffeine (1 gram of guarana is

nearly equal to 40 milligrams caffeine) and may substantially increase the total caffeine in an energy drink. Adverse effects associated with caffeine consumption in amounts of 400 milligrams or more include nervousness, irritability, sleeplessness, increased urination, abnormal heart rhythms (arrhythmia), decreased bone levels and stomach upset.

Furthermore, it should be noted that energy drinks contain added sugar. According to the USDA Dietary Guidelines, sugar should be limited in the normal daily diet.

There are many unusual ingredients in energy drinks. What do they claim to do?

<b>Ingredient</b>	<b>Found In</b>	<b>Functional Claims</b>
Carnitine	Monster™, Rockstar™, Full Throttle™	Improves endurance, increases fat metabolism, protects against heart disease
Glucuronolactone	Go Girl Sugar Free™, Red Bull™, Monster™	Promotes excretion of toxins and protects against cancer
Guarana	Inositol™, Rockstar™, Full Throttle™	Increases energy, enhances physical performance and promotes weight loss
Inositol	Go Girl Sugar Free™, Red Bull™, Monster™, Rockstar™, Wired B <sub>12</sub> , Rush™	Decreases triglyceride and cholesterol levels, lowers risk of heart disease
Panax Ginseng	Monster™, Rockstar™	Speeds illness recovery, improves mental and physical performance, controls blood glucose and lowers blood pressure
Super Citrimax	Go Girl Sugar Free™	Suppresses appetite, resulting in weight loss
Taurine	Go Girl Sugar™, Red Bull™, Monster™, Rockstar™, Full Throttle™	Lowers risk of diabetes, epilepsy and high blood pressure
Yohimbine HCL	VPX Redline™	Promotes weight loss

Is there scientific evidence to support these claims?

<b>Ingredient</b>	<b>Scientific Evidence</b>
Carnitine	There is no clinical evidence that carnitine use is effective for increased endurance or weight loss, but it may protect against heart disease.
Glucuronolactone	Scientific evidence does not exist to support claims regarding glucuronolactone.
Guarana	A major component of guarana is caffeine. Caffeine consumption has been associated with increased energy, enhancement of physical performance and suppressed appetite.
Inositol	Scientific evidence does not exist to support claims regarding inositol.
Panax Ginseng	Scientific evidence does not exist to support claims regarding panax ginseng.
Super Citrimax	There is scientific evidence that use of this supplement decreases food consumption.
Taurine	Clinical evidence is insufficient to show that taurine is effective in treating diabetes or epilepsy, but it may lower blood pressure.
Yohimbine HCL	Currently no evidence exists to support the claim that use of Yohimbine HCL leads to weight loss .

Is consumption of these ingredients safe?

Ingredient	Safety
Carnitine	Insufficient data exists to establish the safety of carnitine use.
Glucuronolactone	Insufficient data exists to establish the safety of glucuronolactone use at the concentrations found in energy drinks.
Guarana	This substance is generally regarded as safe (GRAS) by the Food and Drug Administration Center for Food Safety and Applied Nutrition (FDA CFSAN).
Inositol	Inositol is generally regarded as safe (GRAS) by the Food and Drug Administration.
Panax Ginseng	Insufficient data exists to establish the safety of panax ginseng use.
Super Citrimax	Insufficient data exists to establish the safety of super citramax use.
Taurine	Insufficient data exists to establish the safety of taurine use.
Yohimbine HCL	Approved for use by the FDA to treat hypertension, but over-the-counter use is not recommended.

## Should Energy Drinks Be Consumed Before or During Exercise?

Caffeine is known to increase endurance and its use was banned by the International Olympic Committee. Red Bull® was banned in Norway, Uruguay and Denmark as the result of an 18-year-old athlete who died hours after drinking four cans prior to an event in 2000. Although the FDA limits the caffeine content in soft drinks to 71 milligrams per 12-ounce can, energy drinks are designated as dietary supplements and are not limited in their caffeine content.

## Should Children and Adolescents Consume Energy Drinks?

A recent survey of 78 youth (11-18 years) found that 42.3 percent of participants consumed energy drinks. The effects of ingredients found in energy drinks has raised concern for children and adolescents. In adolescents, caffeine consumption has been associated with an increase in blood pressure. Based on the limited data regarding safety, it is not recommended that children or adolescents consume energy drinks.

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