ENERGY DRINKS

THE GOOD, THE BAD, THE UGLY

WHAT ARE ENERGY DRINKS?

An energy drink is a beverage that typically contains large amounts of caffeine, added sugars, other additives, and legal stimulants such as guarana, taurine, and L-carnitine. Zero-calorie and sugar-free products are available.

WHY CONSUME ENERGY DRINKS?

Energy drinks are widely promoted as products that increase energy and enhance mental alertness and physical performance.

Next to multivitamins, energy drinks are the most popular dietary supplement consumed by teens and young adults.

INGREDIENTS- CAFFEINE

Energy drinks contain a large amount of caffeine – generally 80 to 150 mg in 8 ounces. Therefore a 12-ounce can could contain 225 mg of caffeine.
In comparison:

- A 12 oz can of cola contains about 35 mg of caffeine.
- 12 ounces of coffee contains about 100 mg of caffeine.

INGREDIENTS - SUGAR

Most energy drinks contain a high amount of sugar – up to 21 to 34 grams of sugar per ounce.

This means a 16-ounce energy drink could contain about 20 tsp. of sugar though most contain less.

Sugar in energy drinks is mainly sucrose, glucose, or high-fructose corn syrup.

Sugar-free energy drinks are available, which contain artificial sweeteners.

OTHER INGREDIENTS -

Energy drinks contain other ingredients such as:

B vitamins: excess amounts of B6, B12, niacin and folic acid are quickly washed out of the body, so they are fairly safe but unlikely to be of any benefit.

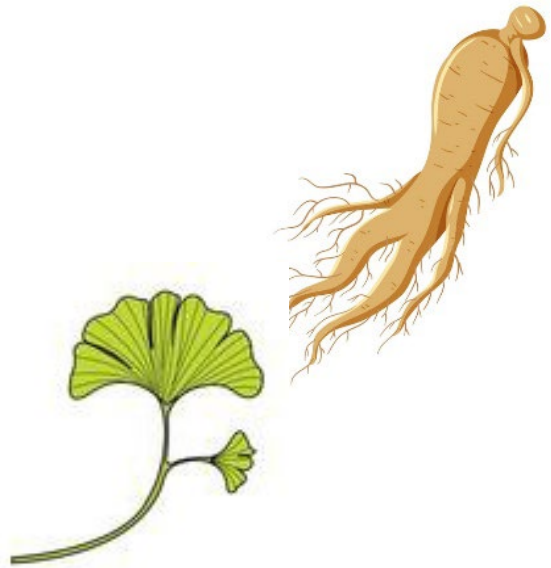
Taurine: an amino acid which may boost athletic performance and metabolism. It is generally considered safe but excess amounts can cause nausea, vomiting, stomach and liver pain and headache.

OTHER INGREDIENTS

Ginseng: there is no evidence that this boosts energy and has been shown to decrease exercise endurance. It lowers blood sugar so should be avoided by anyone taking diabetes medications.

Ginkgo biloba: this herb is said to fight mental fatigue and improve memory but research regarding these claims is conflicting

Carnitine: an amino acid that purportedly pumps up endurance and promotes fat burning. Since extra carnitine is only needed if someone is deficient (which is rare), it's useless to get more.



MORE INGREDIENTS

Green tea extract: this extract delivers small amounts of caffeine. While studies confirm it's a top source of cancer-fighting antioxidants, there's not enough research to back up claims that it can lower blood pressure or help with weight loss.

Green coffee extract: from unroasted coffee beans, it lacks coffee taste, but still supplies caffeine. Claims that the extract promotes weight loss have yet to be backed up by research.

Guarana: from the seeds of the South American guarana plant, is a concentrated source of caffeine. Its claims that it stimulates weight loss and fights fatigue are shaky at best.

THE GOOD:

BENEFITS OF ENERGY DRINKS

BENEFITS:

Boosts energy – which comes mainly from the caffeine and sugar combination.

- Caffeine has been shown to improve vigilance, reaction time, alertness and ability to concentrate. It can help alleviate the adverse effects of sleep deprivation.

Improve mood and attitude.

Boosts performance and endurance for exercise and workouts.

Convenient.

Zero calorie options available to limit weight gain.

THE BAD

ADVERSE EFFECTS OF ENERGY DRINKS

ADVERSE EFFECTS

- Ringing ears
- Dehydration (due to stimulation of urination)
- Obesity (due to high sugar content)
- Shortness of breath
- And they can be addicting

HEART EFFECTS

- Increased heart rate
- Increased blood pressure
- Heart failure
- Arrythmias
  - including atrial fibrillation

GI AND METABOLIC EFFECTS

- Stomach irritation
- Hepatitis
- Diabetes
- Metabolic syndrome
- Pancreatitis
- Elevated liver tests

DENTAL EFFECTS

Energy drinks consumption was associated with about a 2.4-fold increase in dental erosion.

This has been attributed to a low pH and the high sugar content.

NEUROLOGICAL AND PSYCHOLOGICAL EFFECTS

- Chronic anxiety
- Sleep disorder
- Acute and chronic daily headaches
- Mood swings

Caffeine intoxication: anxiety, insomnia, restlessness, muscle twitching

Due to high caffeine content, energy drinks can interact with medications.

Strong interactions occur with the following medications:

- Acebrophylline and doxofylline – bronchodilators used to treat COPD, and asthma.
- Stiripentol (Diacomit®) – anticonvulsant used to treat Dravet syndrome

Anyone taking these medications should completely avoid caffeine-containing products.

ENERGY DRINKS AND MEDICATION INTERACTIONS

MEDICATION INTERACTIONS WITH ENERGY DRINKS

There are weaker interactions between other commonly prescribed medications. Some of those are listed here:

- Atomoxetine (Strattera®)
- Ciprofloxacin
- Clozapine
- Bupropion (Wellbutrin®)
- Tizanidine (a muscle relaxant)
- Lithium

Moderate caffeine consumption (equivalent to about 1 to 2 cups of coffee per day) is unlikely to lead to a serious drug interaction but higher doses may.

Caffeine can decrease the absorption of alendronate (Fosamax®) and iron.

CAFFEINE WITHDRAWAL

Withdrawal symptoms may occur after only 3 days of drinking regular quantities of caffeine.

As little as 100 mg per day of caffeine can cause symptoms. Higher daily consumption results in increased severity of symptoms.

Withdrawal symptoms typically occur within 12 to 24 hours, peak at 1 to 2 days, and may persist for up to 9 days.

CAFFEINE WITHDRAWAL SYMPTOMS

Headache	Tiredness/ fatigue	Decreased energy
Drowsiness, sleepiness	Decreased contentedness	Depressed mood
Difficulty concentrating	Irritability	Fuzzy, foggy, not clearheaded
Flu-like symptoms	Nausea	Muscle pain

THE UGLY

SEVERE ADVERSE EFFECTS OF ENERGY DRINKS

SEVERE ADVERSE EFFECTS

Acute kidney injury and coma

Seizures

Cardiac arrest

Sudden death

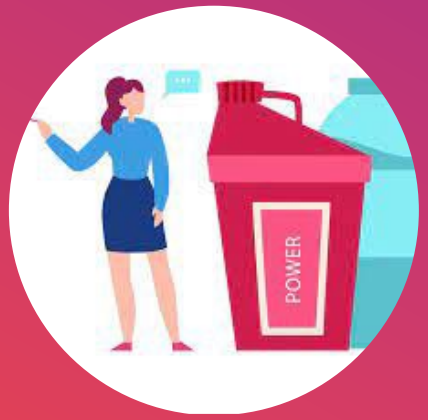
ENERGY DRINKS AND ALCOHOL

A greater danger is introduced if energy drinks are combined with alcohol, a trend largely seen in underage drinkers and associated with binge drinking.

Energy drinks mask the usual signs of inebriation, thus more alcohol is consumed.

High consumption of energy drinks—especially when mixed with alcohol—has been linked to adverse cardiovascular, psychological, and neurologic events, including fatal events.

ENERGY DRINKS



Jean Justad, MD
Medical Director DDP
2024