

CAFFEINE

THE FACTS



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ENERGY DRINKS

COFFEE

TEA

COLA

CHOCOLATE

WHAT IS CAFFEINE?

A drug is any substance (with the exception of food and water) which, when taken into the body, alters its function physically and/or psychologically. Caffeine is one of the most popular drugs, with average consumption estimated to be 70mg per person per day (54% of this is from coffee, 43% from tea and 3% from other forms).

Caffeine is a psychoactive drug, meaning it alters mood, thinking and/or behaviour. Caffeine is a stimulant drug. Stimulants increase the body's state of arousal by speeding up the production of nerve impulses, which increases the activity of the brain.

In its purest form, caffeine consists of bitter-tasting crystals. It is found in many common substances like coffee, tea, cocoa, chocolate, cola-flavoured soft drinks and some medical preparations. In Australia, the consumption of energy drinks containing caffeine is increasing.

WHERE DOES CAFFEINE COME FROM?

The words **caffeine** and **coffee** came from the Arabic gahweb. Caffeine was first isolated from coffee in 1821. Coffee originally came from a native plant in Ethiopia and in the fourth century AD was introduced to Arabia and the rest of the East.



Ethiopian nomads noticed that their domestic animals became more energetic after eating the fruits of the trees.

These nomads discovered that they also felt energised after eating the seeds and began to make a drink by roasting the beans.

Coffee has been used in religious ceremonies and rituals, where groups of men would drink excessive amounts and stay up all night praying and chanting.

In 1573 coffee was introduced to Europe. Authorities tried to ban it as a new and unapproved drug, but were unsuccessful. The coffee plant is now cultivated in many tropical countries.

Tea was first introduced to England in 1657. Switzerland made the first milk chocolate bar in 1876, and cola-drinks began to appear at the end of the 19th century.

HOW IS CAFFEINE USED?

Caffeine is consumed orally in drinks such as coffee, tea, energy drinks, in some over-the-counter medicines and as a food in chocolate bars. Caffeine also comes in tablet form e.g. NoDoz[®] tablets, which are used to increase alertness.

HEALTH EFFECTS OF USING CAFFEINE

The effects of caffeine will vary from person to person depending on characteristics of the:

- **Individual (user)** - Mood, physical size, health, gender, previous experience with caffeine, expectations of the drug, personality, whether the person has had food and whether other drugs have been taken.
- **Drug** - The amount used, the strength of the caffeine, what it is mixed with and the way it is taken.

- **Setting (environment)** - the occasion on which the drug is taken (e.g. while studying or using other drugs).

Caffeine begins to reach all tissues in the body within five minutes of being consumed. Peak blood levels are reached within 30 minutes and, on average, half the caffeine in a given dose is metabolised within several hours. Caffeine does not accumulate in the body as almost all is metabolised.

- **Short-term effects**

The amount of caffeine in one or two cups of average-strength coffee can produce mild effects including:

- increased alertness and energy
- alterations to mood
- increased metabolism
- elevated blood pressure
- increased body temperature
- increased urination
- increased gastric acid secretion.

Caffeine can help people to stay awake. If taken before bedtime it can delay the onset of sleep, shorten sleep time, decrease the depth of sleep and decrease the amount of dream sleep.

Caffeine has been reported to improve the performance of some athletes at a professional level. However, most people will not benefit from consuming caffeine before participating in sport. The consumption of caffeine before or during exercise may cause dehydration. This is because caffeine is a diuretic (meaning it increases the production of urine).

The effects of caffeine in large doses (ie. more than 600mg or eight average cups of coffee) include headache, hand tremors, impaired coordination, nervousness, diarrhoea and even delirium.

Very large doses (10g or more) can produce high blood sugar and urinary acid levels. Ten grams is equivalent to 100 - 200 cups of coffee or tea.

Most adults can consume up to 300mg of caffeine (four average cups of coffee per day) without experiencing unpleasant side-effects. However, some people are sensitive to caffeine and may experience tremors, nausea and insomnia, even when small amounts are consumed.

- **Long-term effects**

Regular use of more than 600mg of caffeine per day may cause chronic insomnia, depression, stomach upset, persistent anxiety or heart palpitations.

TOLERANCE, DEPENDENCE AND WITHDRAWAL

Regular, heavy caffeine use can lead to tolerance and dependence.

- **Tolerance** - This means that a person needs more of the drug to achieve the same effects they did previously with smaller amounts.
- **Dependence** - This occurs when someone finds it very difficult to stop or reduce their caffeine consumption.
- **Withdrawal** - Withdrawal occurs when someone who is dependent on caffeine decides to cut down or stop using it. Symptoms include severe headaches, poor concentration, flu-like symptoms, irritability, and tiredness/fatigue. These symptoms usually begin 12 to 24 hours after the last dose of caffeine and may last for up to one week.

CAFFEINE AND PREGNANCY

It is recommended that pregnant women, or women considering having a child, should not consume caffeine. However, if they choose to consume caffeine, then they should consume no more than 200mg per day. If they do consume more than this amount, then they should consult their doctor. Studies have shown that consuming more than this amount during pregnancy increases the risk of giving birth to a premature or low birth weight baby.

CAFFEINE CONTENT OF SUBSTANCES

SUBSTANCE	CAFFEINE CONTENT
Instant coffee	60 – 80mg/cup
Percolated coffee	60 – 120mg/cup
Espresso coffee	90mg/150ml
Decaffeinated coffee	2 – 4mg/cup
Tea	10 – 50mg/cup
Decaffeinated tea	1mg/200ml
Herbal tea	0mg/200ml
Cola drinks	20 – 35mg/250ml
Energy drinks	35 – 150mg/250ml
Cocoa and hot chocolate	10 – 70mg/cup
Chocolate bars	20 – 60mg/200g bar
Prescription and over-the-counter medicines	20 – 100mg/dose

ENERGY DRINKS

In Australia, the consumption of energy drinks is increasing rapidly with their growing popularity. These drinks usually contain:

- caffeine (ranges from 30mg/250ml to 150mg/250ml, depending on the brand)
- guarana (a caffeine extract from the South American plant Paullinia Cupana)
- sugar (in higher quantities than sports drinks)
- protein (the amino acid taurine is often added to these drinks)
- Vitamin B.

The high caffeine content of energy drinks relative to other foods and beverages containing caffeine is of concern. Some energy drinks contain more than twice the caffeine content of cola-drinks.

The consumption of energy drinks as if they are soft drinks or water is also a concern. Some studies have found that young people find the labels on energy drinks confusing. The maximum recommended daily dose as given on the containers, is usually between two and five cans. However, some people think that they need to drink this much to obtain the maximum benefit, rather than seeing this as upper limit for use. Consuming greater quantities of these drinks increases the risk of unpleasant health effects.



WHY DO PEOPLE CONSUME ENERGY DRINKS?

The typical consumers of energy drinks are young adults. Many young adults (and children) consume energy drinks before or during sporting events, believing that the drink will increase their energy levels. Some people also consume energy drinks for a lift while they are working or when they go out.

ENERGY DRINKS AND YOUR HEALTH

Most people will not benefit from consuming caffeine before participating in sport. While there have been some reports claiming that it can enhance sporting performance at a professional level, the high caffeine content of these drinks can produce a variety of unpleasant side-effects. The high sugar levels of energy drinks may also reduce the body's absorption of water. This makes it dangerous to consume these drinks before, during or after physical activity.

Due to the high caffeine levels of energy drinks, some authorities recommend that the following people avoid consuming these drinks:

- young children
- people with heart disease
- pregnant women (especially during the first three months of pregnancy)
- caffeine sensitive people.

ENERGY DRINKS AND ALCOHOL

Energy drinks have become popular in nightclub settings as mixer drinks and as a way of staying awake. Some people also combine alcohol and energy drinks, hoping that this will allow them to consume more alcohol without feeling intoxicated.

Mixing energy drinks with alcohol increases the risk of dehydration. Both caffeine and alcohol are diuretics (meaning they increase the production of urine). Combining these substances may cause drowsiness, loss of coordination and slower reflexes. These side-effects make it dangerous to drive a vehicle or operate machinery.

When energy drinks are combined with alcohol, it can be very difficult to judge how much alcohol has been consumed. This means that Blood Alcohol Concentration (BAC) continues to increase without the person realising it. Driving with a BAC above 0.05% (0.02% for P-plates) is illegal. Breaking this law carries penalties including disqualification from driving, fines and/or imprisonment.

FOOD REGULATIONS

Under the **Australian Food Standards' Code**, the following regulations apply to caffeine and energy drinks in Australia:

- The caffeine content of cola drinks, flavoured cordials and flavoured syrups must not exceed 14.4mg/100ml serve and energy drinks must not contain more than 32mg/100ml serve.
- Energy drinks and caffeinated beverages must carry clear warnings on the label stating that the product:
 - contains caffeine
 - is not recommended for children, pregnant women or breastfeeding women
 - is not recommended for caffeine sensitive individuals.
- This regulation does not apply to foods containing caffeine.
- Prior to 1998, the sale of energy drinks in Australia was prohibited.

MORE INFORMATION

For up-to-date information about caffeine or other drugs call the Alcohol and Drug Information Service or Parent Drug Information Service, or visit www.drugaware.com.au

Alcohol and Drug Information Service

- Access information about drugs confidentially and quickly.
- Talk to a professionally trained counsellor about alcohol or other drugs.
- Find out about other services.

(08) 9442 5000

1800 198 024 toll free country callers

Parent Drug Information Service

- Drug information and support for parents and family members.
- Talk to a professionally trained counsellor about alcohol and other drugs.
- Talk confidentially to another parent for strategies and support.
- Find out where to go for further help.

(08) 9442 5050

1800 653 203 toll free country callers

www.drugaware.com.au

- Access detailed information about drugs.
- Find out about the latest issues.
- Post questions and have them answered anonymously by health professionals.
- Find links to other useful sites.

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or for confidential advice and counselling call the Alcohol and
Drug Information Service 24 hour helpline
on 9442 5000 or 1800 198 024 (country callers).**