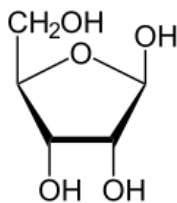


# Bioenergy RIBOSE & Caffeine

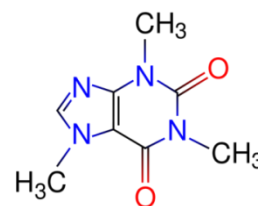
## Solution for

- Decreased Fatigue/Increased Alertness/Elevated Mood
- Higher Sport Performance
- Cognitive/Mental Health
- Cardiovascular Health

**D-Ribose**, or simply ribose, is an aldopentose (5-carbon monosaccharide with an aldehyde functional group) which is used by all cells of the body. Ribose is an essential structural component of energy currency Adenosine triphosphate (ATP) as well as several other compounds that are critical to metabolism. Ribose also comprises the backbone of RNA and is related to DNA. Forming ribose in heart and muscle is a slow process which, in turn, delays energy recovery when energy pools have been depleted by disease or exercise. Ribose restores and maintains depleted energy reserves. Ribose is often marketed as a supplement for boosting energy and reducing fatigue in: post exercise (muscle cramping and soreness), fibromyalgia and chronic fatigue syndrome. Ribose also increases cardiac efficiency, power output and tolerance to stress. Bioenergy RIBOSE is GRAS (absorption of ~ 95% with peak blood levels found within 30-45 min). The recommended daily dose depends on the product benefit (e.g., up to 1.5g for energy, up to 7 g for physical performance and up to 10 g for cardiovascular and general health).



**Caffeine** is a bitter, white crystalline xanthine alkaloid which is found in many plants such as coffee, tea, and to a lesser extent chocolate derived from cocoa beans. Less commonly used sources of caffeine include the yerba maté and guarana plants. Caffeine content in coffee is in the range of 40 to 100 mg/cup. Soft drinks typically contain about 10 to 50 mg/240 ml and energy drinks such as Red Bull<sup>®</sup> has 80 mg/per 250 ml. The disparity in experience and effects between the various natural caffeine sources could be because plant sources of caffeine also contain widely varying mixtures of other xanthine alkaloids theobromine and theophylline, and polyphenols that can form insoluble complexes with caffeine. Caffeine from coffee or other beverages is absorbed by the stomach and small intestine within 45 minutes of ingestion. In humans, caffeine is a central nervous system stimulant, having the effect of temporarily warding off drowsiness, decreased fatigue, increased awareness/alertness/attentiveness, and elevating one's mood. With these effects, caffeine is an ergogenic (increasing a person's capability for mental or physical labor). Caffeine's principal mode of action is as a nonselective antagonist of adenosine receptors in the brain. Caffeine is metabolized in the liver into three primary dimethylxanthine metabolites: paraxanthine (84%), theobromine (12%), and theophylline (4%) which also contribute to caffeine's effects. In healthy adults, caffeine's half-life is about 5 hours. Caffeine is the most widely consumed legal and unregulated psychoactive substance but overdose (>300 mg/day) must be avoided.



## Advantages of combining Bioenergy RIBOSE and Caffeine

There seems to be a logical synergy for combining ribose and reasonable doses of caffeine. Caffeine has been proven to decrease fatigue, increase alertness and elevated mood while ribose helps make the energy and higher sport performance. As a result, combination of caffeine and ribose should show combination of these effects and possibly improved cognitive and mental health.

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