ENERGY DRINKS

What are energy drinks?

Energy drinks are beverages that are commonly marketed to boost energy. They are different to sports drinks in that they contain a number of nutrients (e.g. caffeine, vitamins and herbal ingredients), which claim to improve alertness and concentration. High calorie energy drinks generally contain higher amounts of carbohydrate than sport drinks whilst lower calorie options use sweeteners, which contain no calories. Energy shots are concentrated versions of energy drinks.

Are there any performance benefits?

A number of studies have shown some improvements in performance with the use of energy drinks, however these performance effects have been attributed to the carbohydrate and/or caffeine content of the drinks, not the additional ingredients found in energy drinks1.

What are the main ingredients in energy drinks?

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Function</th>
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<tbody>
<tr>
<td>Caffeine</td>
<td>Caffeine is the most common ingredient found in energy drinks. Caffeine may positively affect performance by • Reducing fatigue and perception of effort • Reducing pain perception • Increasing force output for a given stimulation – i.e. more power for less work • Increasing muscle contractility • Increased mental focus, concentration and recalling information Caffeine must be used with caution as each individual’s response is different. For more information, please see the Caffeine information sheet</td>
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<tr>
<td>Carbohydrate</td>
<td>Carbohydrates are a macronutrient that provide a source of energy for muscles and the brain during activity, particularly activity that lasts longer than 45 minutes. Energy Drinks often contain carbohydrates in concentrations of 11 – 12%, which is above the recommended 4–8% during exercise. This can lead to complications and stomach cramps². For more information, please see the Carbohydrate and Sports Drink information sheets</td>
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<tr>
<td>Taurine</td>
<td>Taurine is an amino acid found in the heart, brain and muscle. It is important for: • Nerve function • Muscle contraction Studies to date have shown that taking doses of taurine before exercise does not result in improved performance outcomes³.</td>
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<tr>
<td>Niacin (B3)</td>
<td>Niacin is a water-soluble vitamin which is important for: • the function of over 200 enzymes in the body. Niacin is naturally found in meat, fish, wholegrain cereal products, lentils and nuts. Niacin deficiency is unlikely in athletes therefore supplemental niacin is not beneficial for performance.</td>
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<tr>
<td>Vitamin B6</td>
<td>Vitamin B6 is a water-soluble vitamin which is important for: • the breakdown of protein and glycogen • the formation of haemoglobin (involved in oxygen transport) B6 is naturally found in meat, fish, wholegrain cereal products, potatoes, legumes, green vegetables, dairy and nuts. B6 deficiency is unlikely in athletes therefore supplemental B6 is not beneficial for performance</td>
</tr>
</tbody>
</table>
Vitamin B12 is found in animal and fortified foods only. It is important for:

- healthy nerve function
- DNA formation

As B12 is found only in animal products, those avoiding these may benefit from B12 supplementation, but not in the form of B12 found in energy drinks.

Other ingredients: Other ingredients commonly seen in energy drinks include ginseng, vitamin C, folic acid, ginko biloba, L-tyrosine, citicoline, yerba mate and L-carnitine.

Are there any side effects or health risks?

- **Caffeine**: Small doses of caffeine are generally safe for healthy adults to consume. However, excessively high doses can have negative side effects including: increased heart rate, insomnia, headaches, impairments to fine motor control alertness and reaction time, muscle tremors and gastrointestinal irritation. A number of energy drinks contain doses far above the recommended daily intakes or recommended performance enhancing doses. It is recommended that any athlete considering using caffeine for performance seek further information from the Caffeine information sheet or from your Sport Dietitian.

- **Niacin**: High niacin doses can result in temporary “tingling” or “flushing” for some individuals.

- **Carbonated drinks**: Carbonated drinks may result in stomach discomfort for some individuals.

As with any supplement it is important to make sure any energy drink is approved for use in sport.

Take home messages:

- Energy drinks are generally not recommended for regular use in training or competition
- The performance benefits of energy drinks are attributed largely to their caffeine and carbohydrate content.
- Provided an individual is educated in the use of a non-carbonated, isotonic, caffeinated drink, they may be used for performance after an appropriate trial period.
- Energy drinks should not be used as a long-term solution for under fuelling for activity or poor nutrition.

**Please speak with your Sports Dietitian for further information**