

AISS SPORTS SUPPLEMENT FRAMEWORK

FRUIT-DERIVED POLYPHENOLS GROUP B



As a group B supplement, this supplement should only be used under the close supervision of your sports dietitian

Polyphenols are a group of naturally occurring compounds found in fruits, vegetables and other plants. Brightly coloured fruits are particularly good sources of polyphenols. They are rich in anti-oxidants, with anti-inflammatory properties that may benefit exercise performance, recovery and broader health.

Whole fruits and vegetables:



Cherries



Blackcurrants



Blueberries



Blackberries



Pomegranate



Red grapes, apples, raspberries, onions, green leafy vegetables

Supplemental forms:



Range of products available. Many don't state the active compounds making calculation of effective dose difficult

BENEFITS & SITUATIONS FOR USE



ANTI-INFLAMMATORY



REDUCE CELL DAMAGE

Polyphenols may help:

- Reduce cell damage, stress, inflammation and muscle pain associated with exercise
- Reduce perception of effort due to improved blood flow
- Improve high intensity exercise performance
- Reduce muscle soreness and improve recovery post exercise
- Reduce incidence of upper respiratory tract infections (flavonoids)
- Assist sleep as a naturally occurring source of melatonin (tart cherries)

FOOD FIRST PHILOSOPHY

- > The 2 and 5 fruit and vegetable target recommended for Australians is the minimum number of serves recommended per day, and higher amounts are likely to carry further benefits. A wide range of brightly coloured fruit and vegetables is recommended in the daily diets of athletes.
- > The amount of polyphenols in fruit and vegetables can vary depending on variety and growing conditions and can be hard to quantify.

The polyphenol content provided in many research studies is equal to approximately:
150 g blueberries or 300 g mixed berries *

1 punnet blueberries
= 125 g



2 cups mixed berries
= 300 g








* These intakes are achievable through foods over the day



HOW AND WHEN DO I USE IT?

> There is insufficient human research data to recommend an effective dosing strategy for polyphenol supplements generally, however the below indicates amounts used in research studies that may benefit athletes.

	FORM	DOSE	BENEFITS
Tart Cherries (Montmorency & Balaton) 	> Flavonoid > Tart cherry juice and juice concentrate, powdered, dried	> 90 - 200 cherries split across 2 doses per day. e.g. juice concentrate, 30 ml twice a day for 4 - 7 days before and throughout competition	> Improved half marathon performance > Reduced delayed onset muscle soreness (DOMS) > Improved sleep duration and efficiency (natural source of melatonin)
Blackcurrant (NZ) 	> Flavonoid > Blackcurrant whole-fruit powder, extract, juice and concentrate [shot], blackcurrant fruit	> 105 - 210 mg blackcurrant anthocyanins per day for 7 days prior to competition. Final dose 1 - 2 hrs before exercise	> Small effect on prolonged high intensity exercise
Red grapes, apples, citrus, onions & leafy veg 	> Quercetin > Quercetin supplement powder	> 1000 mg/day for at least 7 days prior to competition	> Improved endurance performance (1000 mg for 7 days)
Pomegranate 	> Polyphenol > Pomegranate juice, powder	> 0.5 - 1 L consumed over the day for 1 - 14 days	> Improved time to exhaustion > Emerging evidence for reducing DOMS, particularly when undertaking strenuous exercise over multiple days of competition
Blueberry 	> Flavonoid > Blueberry fruit, powder	> 150g per day	> Some evidence in reducing DOMS, in part due to reduced muscle damage and inflammation

CONCERNS & CONSIDERATIONS



There remains little consensus on the specific doses required for benefit.



The absorption and metabolism of most polyphenols is thought to be slow and incomplete.



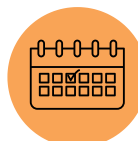
The evidence for benefit may only be relevant to the specific variety of the fruit, so check the source/variant in supplements.



The role of flavonoids on upper respiratory tract infections in athletes needs further research.



Cherries have a known laxative effect. High doses of berries may cause distress in those with a sensitive gut.



Supplementation with isolated anti-oxidant and anti-inflammatory compounds during daily training may reduce the stimulus to training adaptation.



All supplements have a doping risk of some kind. Some supplements are riskier than others. Athletes should only use batch-tested supplements. The Sport Integrity Australia app provides a list of more than 400 batch-tested products. [www.sportintegrity.gov.au/what-we-do/supplements-sport].

While batch-tested products have the lowest risk of a product containing prohibited substances, they cannot offer you a guarantee. Before engaging in supplement use, you should refer to the specific supplement policies of your sport or institute and seek professional advice from an accredited sports dietitian [www.sportsdietitians.com.au]. Athletes are reminded that they are responsible for all substances that enter their body under the 'strict liability' rules of the World Anti-Doping Code.