

AIS SPORTS SUPPLEMENT FRAMEWORK

PICKLE JUICE GROUP B



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

Pickle juice is a transient receptor potential (TRP) channel agonist, which may specifically act to delay the onset of exercise associated muscle cramps. TRP channels are located on the outside of cells that are involved in communicating a variety of sensations including pain, temperature, taste, pressure and stretch. Some of these sensations can be activated by TRP channel agonists naturally found in strong and pungent flavoured foods such as chillies, cinnamon, ginger, wasabi, mustard, mint etc.



Commercially available supplements targeted at delaying cramping that use TRP channel agonists include Pickle Juice and Hot Shot



The amount of pickle juice and other TRP channel agonists effective against cramping are not established in research, and the amount is not quantified on supplement labels



Some commercial supplements contain ingredients such as lime juice, capsaicin, ginger, cinnamon to prevent cramping

BENEFITS OF SUPPLEMENTATION



MAY REDUCE OR PREVENT CRAMPING

- > Pickle juice and other commercial TRP channel agonists are typically recommended for consumption as soon as the first sensation that a cramp is about to occur.
- > It is thought when TRP channels are activated at the back of the throat, this triggers a reflex that shuts down the cramping feeling, by shocking the nervous system and resetting the nerve pathway to muscles all over the body. This may alleviate the cramp in 30 - 80 seconds and allow longer exercise performance.

FOOD FIRST



- > Pickle juice in commercial supplement form is a replica of pickled cucumber /gherkin brine, although most supplements actually contain no real pickle brine. Athletes may wish to strain the liquid from jars of pickled cucumbers/ gherkins and decant approx. 75 mL or 1 mL/ kg body weight into small leak proof containers/ specimen cups suitable for travel. Best consumed chilled!
- > TRP channels are activated by food components such as: capsaicin (found in chillies), wasabi, horseradish, garlic, cinnamon, and to a lesser extent onion, garlic, cumin, anise and acidic foods such as vinegar, lime and lemon juice.

HOW AND WHEN TO USE

- > From the available research, athletes may wish to work with their sports dietitian to trial:



1 mL / kg body mass (i.e. 75 mL for a 75 kg athlete) ingested as soon as possible after the onset of cramp sensation



For those with a history of cramping, trial 1 mL / kg body mass 15 mins before exercise to potentially assist in preventing cramping



For those who dislike the taste of pickle juice or similar, benefits may be possible merely by mouth rinsing the solution for at least 20 seconds



PICKLE JUICE

CRAMPING CONSIDERATIONS

POTENTIAL CAUSES:



Muscle fatigue



Hot & humid environment



Electrolyte imbalance



Dehydration



Poor fitness

POSSIBLE SOLUTIONS:



Increase fitness. Include some training sessions at game intensity



Fuel adequately e.g. carbs & energy



Begin hydration the day before competition. Consider electrolytes



Use pre-cooling & heat management strategies when exercising in the heat



Stretch muscles vulnerable to cramping



Supplementation - e.g. pickle juice, electrolytes, quinine. NB: there is limited evidence for magnesium supplementation for cramps

* See [electrolytes](#) and [quinine](#) infographics for more information

CONCERNS & CONSIDERATIONS



Most research on pickle juice and related TRP channel agonists is conducted in a lab using electrically stimulated cramping rather than exercise associated cramping.



Pickle juice products are particularly high in sodium and this may increase the risk of gut discomfort, nausea and/ or vomiting.



Unnecessary expense of supplements when similar benefits can be obtained from foods naturally containing these compounds, e.g. pickle juice brine, vinegar etc.



The cause of exercise associated muscle cramps is poorly understood and may be attributed to diverse and multiple factors. TRP channel agonists may not be effective for all athletes.



May be overwhelming to athletes due to their strong and pungent flavour during exercise in the heat. Practise use in similar environmental conditions before using in competition.



There is lack of scientific consensus on type, amount, timing, additive or synergistic effects, and mouth rinsing vs. swallowing the supplement.



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.