

# PRODUCT INFORMATION

## PSYCHED 2.0



**By Dane Ivcevic: BSc, GradDip, GradCert, Dip, TAE  
Gen-Tec Resident Biochemist**

### Multi-ingredient pre-workout supplement

Pre-workout supplementation is one of the most commonly practiced protocols used by exercising individuals, often before correct nutrition and nutrient timing around training. This has led to the rise of numerous products all with the goal of giving the consumer an energy hit. However, the short fall to this is often an overshoot in stimulation or the lack of co-nutrients to support a mental and physical enhancement without significant side effects or a crash. The use of caffeine is the leading ingredient in most pre-workout supplements, however caffeine use can be a delicate balance between stimulatory enhancement and an array of unnerving side effects. Therefore, a multi-ingredient pre-workout supplement is needed that will not only enhance but also support an ergogenic potential.

An excellent example of a multi-ingredient pre-workout supplement was evident in the small randomised, placebo controlled, double blind trial involving the use of a multi-ingredient pre-workout supplement which contained caffeine, tyrosine, creatine and B vitamins specifically (1). The outcomes of the protocol lead to statistically significant improvements in performance and body composition over 28 days. What was also examined and reported in this trial was that the use of this supplement mix resulted in no reported side effects on; liver, heart rate and blood pressure during the 28-day period (1). The efficacy and safety of this model of pre-workout supplementation has also been supported by various other papers examining multi-ingredient supplementation during exercise (2, 3).

### Pump and anti-fatigue

The incorporation of arginine and citrulline malate (CM) essentially leads to a greater endogenous (internal) increase in nitric oxide production, which in turn significantly increases vasodilation and circulation.

Small randomised controlled trials have reported that CM either improves recovery from repeated anaerobic bouts or enhanced performance by promoting aerobic energy production and muscle oxygenation (4-7).

### Mental focus, performance and vigilance

During periods of high physical exertion and prolonged exercise, mental focus can take a significant hit, especially when hard training is involved. The adverse effects of this can be overcome by supplementing tyrosine and caffeine. Tyrosine is an amino acid which manufactures neurotransmitters like dopamine, norepinephrine and epinephrine (8). Tyrosine has been observed to increase performance on stress-sensitive attention tasks which would otherwise lead to a decline in cognitive (mental ability) capacity (9-11). During acute periods of stress there is a heightened use of tyrosine-dependent neurotransmitters which is a contributing factor to the reduction in motivation, attention and working memory. Therefore, consuming tyrosine can increase "brain power" under times of moderate-heavy stress (9).

Caffeine not only combats fatigue but it aids in the release of endorphins which reduce the perception of pain during exercise (12). In addition, like tyrosine, it stimulates the production of neurotransmitters like dopamine and norepinephrine, which improves alertness and vigilance during periods of fatigue and sleep deprivation (13, 14).



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## Anti-fatigue and performance support

Water soluble vitamins like B and C are heavily involved as co-enzymes in energy dependent pathways which is stressed to a great degree in those who exercise compared to those who don't. The use of nutrients such as carbohydrates and amino acids requires sufficient levels of B vitamins like B6 and folate to assist in the creation of energy to support exercising demands (15, 16). It is established that exercise likely modifies the metabolic need and requirements of B vitamins which although may not adversely impact performance, it can impact recovery and long term health status (15). Specifically, the metabolism of amino acids like methionine and creatine and the depletion of B vitamins during metabolism give rise to a product called homocysteine which when chronically high, is a potential marker for disease, inflammation and fatigue (17). While its very unlikely that exercise increases the risk of disease though homocysteine levels, it does appear to influence fatigue and recovery specifically, which appear to be highly individual in regards to the significance and impact it has. Those who supplement these water-soluble vitamins appear to support adrenal function during times of heightened cortisol production, maintain higher blood level of B vitamins during and post exercise as well as experience lower homocysteine levels in the blood post exercise (16, 17).

Moreover, the addition of creatine works not only to increase training performance by acting as a muscle fuel during high intensity exercise, but it also works with B vitamins to reduce homocysteine levels in the blood. This in turn may alleviate fatigue and enhance recovery (18). By using a more pure and clean source of creatine, an athlete receives more active creatine per gram and significantly less contaminants and creatinine than other competing creatine products which surprisingly is more common than it should be (19, 20).

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