

Where the mind leads, the body will follow.

Pre-Mium – Pre-Workout Formula

It's time to train... Are you ready?...

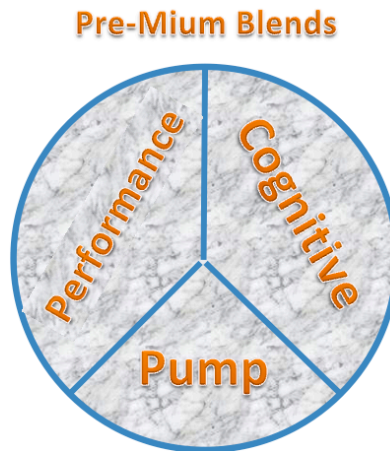
We're not asking about whether your training strategy, your diet or your gym bag is in order...

The question is: Are you ready to manifest the physique you see in your **mind's eye**? Are you building up your **focus**, laser like **intention**, and the unbreakable mental **strength** that will ensure that this workout **really** matters?...

This is what Pre-Mium is all about: Priming you **physiologically and psychologically** to perform **optimally**. We're talking about generating the mental fortitude to blast you through the physiological barriers, workout by workout, that stand in the way of the your physique, strength and human performance goals.

Pre-Mium takes a three-pronged approach in preparing you for superhuman efforts:

- **L-Citrulline for a Great Pump**
- **A Performance blend** for a productive workout: **Creatine, β -Alanine** and **Betaine**
- **A Cognitive blend** to keep your mind sharp: **Lion's Mane** plus **Theacrine, Caffeine, Theobromine**, and **N-Acetyl-Tyrosine!**



Each Blend has been carefully formulated with **ingredients in clinically tested doses** – you won't find Granite supplements "fairy-dusted" with miniscule amounts to fancy up the label. Additionally, we include a smaller dose of β -Alanine ([Carnosyn®](#)) upon which a more aggressive supplement regime can be built (e.g., by supplementing at other times of the day).

L-Citrulline for a Great Pump

Helping you get a great pump is just one way Pre-Mium can promote muscle **gains**¹, not to mention make you feel great and look phenomenal during your workout.

- The hefty 6g dose² of **L-Citrulline** (as both free form and as DL Malate) in Pre-Mium bolsters nitric oxide synthesis by elevating both arginine³ and nitrite⁴], thus opening up blood vessels to allow more blood into active muscle, while improving exercise performance^{2,5,6}. L-Citrulline may also diminish muscle soreness⁵, and thus aid recovery⁷!
- L-Citrulline is a **healthy supplement**, to boot, as it has the potential to support compromised heart contractility⁸, as well as enhance immune function⁹, and even protect against injury to the gut (GI tract)¹⁰.

Performance Blend

Everyone loves a great pump, but it's **mechanical overload** and **metabolic stress** – the heavy and hard, fatiguing (and painful) training – that are tried and true muscle growth signals¹¹⁻¹⁶. In other words, outrageous gym performances goes hand in hand with outrageous physiques, and the Pre-Mium Performance Blend exploits the synergy¹⁷ of 3 ergogenic ingredients (in scientifically-backed dosages) to put you on the path to outrageousness:

- **Creatine monohydrate** is a supplement staple¹⁸ for good reason: It increases **performance**¹⁹, **muscle** and **strength** gains^{20,21}, and is intrinsically anabolic²². We intentionally put [Creapure®](#) creatine into the Pre-Mium - as part of a **pre-workout** formulation – to make use of the creatine-loading effect of muscle contraction^{21,23,24}. For an even better creatine-loading effect, you can employ an intra-workout carb source (like **Recovery** or **Intra-Carb**). Why you ask?.. The pairing of creatine alongside carbohydrate means both more creatine storage²⁵ **as well as** more glycogen storage²⁶. Thus, intra-workout carbs (plus creatine) means higher glycogen levels²⁷ and sustained performance during your workout^{28,29}.
- **β-Alanine** supplementation fills your muscles' carnosine tanks^{30,31}, topping off your capacity to buffer acidity during high intensity efforts³². This means a **stronger kick** at the finish line³³, better performance lifting weights³⁰ or doing intervals³⁴, and more importantly, **more muscle mass** over the long haul³⁴. [In other words, we've stacked β-alanine with creatine in Pre-Mium to give you better gains^{35,36}.] The 1.8g dose of β-alanine (as patented [Carnosyn®](#)) found in Pre-Mium alone should produce a modest increase in muscle carnosine levels³⁷, but limit the skin-tingling (paresthesia) side effect^{32,37} that larger doses of β-alanine are famous for. [NOTE: Ergogenic effects from β-alanine are a probably a matter of increasing muscle carnosine over time³⁸. Supplementing with ~3-4g of additional β-alanine, spread throughout the day, should produce much higher carnosine levels more quickly^{30,31}, but a cumulative dose of ~180g, spread over a longer loading period, should also do the trick^{38,39}.]

- Found naturally in food, **Betaine** is cell volumizer (osmolyte) and source of methyl groups, meaning it's good for the liver and kidney⁴⁰, and used in the synthesis of molecules like creatine and carnitine⁴¹. Betaine is both **ergogenic** and inherently **anabolic**: Just two weeks of supplementation (2.5g/d via 2 x 1.25g doses) can increase bench and squat performance, jumping power⁴²⁻⁴⁴, and make fatiguing exercise feel easier⁴⁵. When fed to growing livestock, betaine increases muscle gains and reduces body fat⁴¹. More importantly, in exercising **humans** (like you, you animal!), the same modest dosing regime is enough to amplify both the intracellular anabolic signaling and reduce blood cortisol⁴⁶, both of which can mean more muscle growth^{47,48}.
- The **performance blend** may also carry have **health benefits**. Creatine supplementation may protect against heat, musculoskeletal injury and neurodegeneration²⁰. Both creatine and betaine are heart friendly via their anti-inflammatory effects⁴⁹⁻⁵² and by lowering blood homocysteine levels⁵³⁻⁵⁵, a predictor of heart disease⁵⁶. Additionally, evidence is starting to accumulate that increasing carnosine levels via β -alanine supplementation could theoretically have anti-tumor and anti-diabetic effects³⁹.

Cognitive Blend

The rubber meets the road – **hard** – with Pre-Mium's Cognitive Blend. When it's time to blast through your workout with laser-like focus, count on Pre-Mium is an energy source to turbo-charge your willpower.

- We've included 500mg of a concentrated (4:1) **Lion's Mane (*Hericium erinaceum*) extract** in Pre-Mium because of its **nootropic effects**: It can both increase alertness during the waking hours, while supporting restful sleep at night⁵⁷, vital for recovery⁵⁸. While medicinal mushrooms like Lion's Mane are largely unexplored, relative to the large number of mushroom species on the planet earth⁵⁹, there are growing number of studies of their bioactive compounds⁶⁰. This especially holds true for Lion's Mane⁶¹, which has demonstrated beneficial psychoactive^{62,63}, neurotrophic^{64,65}, anti-oxidant⁶⁶, anti-tumor and many other medicinal^{67,68} properties.
- The Pre-Mium Cognitive Blend also stacks three **purine alkaloids** to ensure clean mental focus: **Theacrine (100mg)**, **caffeine (250mg)** and **theobromine(60mg)**. When it comes to strength and power performance⁶⁹⁻⁷⁴ caffeine isn't **always** an effective ergogenic for everyone, all the time⁷¹. So, Pre-Mium contains maybe the "cleanest" over-the-counter stimulant of them all: **Theacrine** (as [Teacrine®](#)). Theacrine improves mood, focus, subjective feelings of energy, and motivation to exercise, but actually **decreases anxiety**. Even after months of daily use (300mg) theacrine does not lose effectiveness or hook you into a nasty habit⁷⁵ [which may be the case for caffeine^{71,76}]. On the other hand, co-administering theacrine **with** caffeine may actually prevent de-sensitization⁷⁷. The Pre-Mium "alkaloid trinity" is topped off by a small dose of **theobromine**, another mood booster for some individuals⁷⁸⁻⁸⁰ that counterbalances the caffeine's hypertensive (blood

- pressure elevating) effect^{81,82}. It's possible that theobromine may synergize with caffeine to promote arousal⁸³, but reduce perceived exertion during exercise because it's also a bronchodilator^{77,84-87}.
- **N-Acetyl L-Tyrosine** is Pre-Mium's soluble source of L-tyrosine⁸⁸⁻⁹⁰, a precursor for catecholamine synthesis (e.g., noradrenaline and dopamine)⁹¹⁻⁹³, thus supporting brain neurotransmitter levels⁹⁴ to improve cognitive performance^{95,96}. For instance, in lab animals put under stress, tyrosine normalizes feeding and activity behavior^{94,97}. In stressed "gym animals" (again, that's you), tyrosine may actually promote the aggressive mentality⁹⁸ needed to push past performance barriers.

Disclaimer: Responses to alkaloid stimulants are variable^{79,99}. L-Tyrosine may interact with certain drugs (such as MAOIs, Levodopa and thyroid medications).

REFERENCES

1. Schoenfeld BJ, Contreras B. The Muscle Pump: Potential Mechanisms and Applications for Enhancing Hypertrophic Adaptations. *Strength & Conditioning Journal*. 2014;E-Published ahead of Print 12.23.13.
2. Campbell B, Wilborn C, La Bounty P, et al. International Society of Sports Nutrition position stand: energy drinks. *Journal of the International Society of Sports Nutrition*. 2013;10:1-1.
3. Curis E, Crenn P, Cynober L. Citrulline and the gut. *Curr Opin Clin Nutr Metab Care*. 2007;10(5):620-626.
4. Sureda A, Cordova A, Ferrer MD, Perez G, Tur JA, Pons A. L-citrulline-malate influence over branched chain amino acid utilization during exercise. *Eur J Appl Physiol*. 2010;110.
5. Perez-Guisado J, Jakeman PM. Citrulline malate enhances athletic anaerobic performance and relieves muscle soreness. *J Strength Cond Res*. 2010;24.
6. Hoon MW, Johnson NA, Chapman PG, Burke LM. The effect of nitrate supplementation on exercise performance in healthy individuals: a systematic review and meta-analysis. *Int J Sport Nutr Exerc Metab*. 2013;23(5):522-532.
7. Clarkson PM, Hubal MJ. Exercise-induced muscle damage in humans. *Am J Phys Med Rehabil*. 2002;81(11 Suppl):S52-69.
8. Orozco-Gutierrez JJ, Castillo-Martinez L, Orea-Tejeda A, et al. Effect of L-arginine or L-citrulline oral supplementation on blood pressure and right ventricular function in heart failure patients with preserved ejection fraction. *Cardiol J*. 2010;17(6):612-618.
9. Sureda A, Cordova A, Ferrer MD, et al. Effects of L-citrulline oral supplementation on polymorphonuclear neutrophils oxidative burst and nitric oxide production after exercise. *Free Radic Res*. 2009;43(9):828-835.
10. van Wijck K, Wijnands KA, Meesters DM, et al. L-citrulline Improves Splanchnic Perfusion and Reduces Gut Injury during Exercise. *Med Sci Sports Exerc*. 2014.

11. Schoenfeld BJ. The mechanisms of muscle hypertrophy and their application to resistance training. *Journal of strength and conditioning research / National Strength & Conditioning Association*. 2010;24(10):2857-2872.
12. Schoenfeld BJ. Potential Mechanisms for a Role of Metabolic Stress in Hypertrophic Adaptations to Resistance Training. *Sports medicine*. 2013;43(3):179-194.
13. Baar K. The signaling underlying FITness. *Appl Physiol Nutr Metab*. 2009;34(3):411-419.
14. Schoenfeld BJ, Ratamess NA, Peterson MD, Contreras B, Sonmez GT, Alvar BA. Effects of different volume-equated resistance training loading strategies on muscular adaptations in well-trained men. *J Strength Cond Res*. 2014;28(10):2909-2918.
15. Schoenfeld BJ, Wilson JM, Lowery RP, Krieger JW. Muscular adaptations in low- versus high-load resistance training: A meta-analysis. *Eur J Sport Sci*. 2014:1-10.
16. Fry AC. The role of resistance exercise intensity on muscle fibre adaptations. *Sports Med*. 2004;34(10):663-679.
17. Naderi A, Earnest CP, Lowery RP, Wilson JM, Willems ME. Co-ingestion of Nutritional Ergogenic Aids and High-Intensity Exercise Performance. *Sports Med*. 2016.
18. Knapik JJ, Steelman RA, Hoedebecke SS, Austin KG, Farina EK, Lieberman HR. Prevalence of Dietary Supplement Use by Athletes: Systematic Review and Meta-Analysis. *Sports Medicine (Auckland, N.z.)*. 2016;46:103-123.
19. Hespel P, Derave W. Ergogenic effects of creatine in sports and rehabilitation. *Subcell Biochem*. 2007;46:245-259.
20. Buford TW, Kreider RB, Stout JR, et al. International Society of Sports Nutrition position stand: creatine supplementation and exercise. *J Int Soc Sports Nutr*. 2007;4.
21. Vandenberghe K, Goris M, Van Hecke P, Van Leemputte M, Vangerven L, Hespel P. Long-term creatine intake is beneficial to muscle performance during resistance training. *Journal of applied physiology (Bethesda, Md. : 1985)*. 1997;83(6):2055-2063.
22. Safdar A, Yardley NJ, Snow R, Melov S, Tarnopolsky MA. Global and targeted gene expression and protein content in skeletal muscle of young men following short-term creatine monohydrate supplementation. *Physiological genomics*. 2008;32(2):219-228.
23. Harris RC, Söderlund K, Hultman E. Elevation of creatine in resting and exercised muscle of normal subjects by creatine supplementation. *Clin. Sci.(Colch)*. 1992;83:367-374.
24. Hultman E, Soderlund K, Timmons JA, Cederblad G, Greenhaff PL. Muscle creatine loading in men. *J Appl Physiol*. 1996;81.
25. Green AL, Simpson EJ, Littlewood JJ, Macdonald IA, Greenhaff PL. Carbohydrate ingestion augments creatine retention during creatine feeding in humans. *Acta Physiol Scand*. 1996;158:195-202.

26. Green AL, Sewell DA, Simpson L, Hultman E, Macdonald IA, Greenhaff PL. Creatine ingestion augments muscle creatine uptake and glycogen synthesis during carbohydrate feeding in man. *J.Physiol.Lond.* 1996;491:63P-64P.
27. Haff GG, Koch AJ, Potteiger JA, et al. Carbohydrate supplementation attenuates muscle glycogen loss during acute bouts of resistance exercise. *Int J Sport Nutr Exerc Metab.* 2000;10.
28. Haff GG, Lehmkuhl MJ, McCoy LB, Stone MH. Carbohydrate supplementation and resistance training. *Journal of strength and conditioning research / National Strength & Conditioning Association.* 2003;17(1):187-196.
29. Haff GG, Schroeder CA, Koch AJ, Kuphal KE, Comeau MJ, Potteiger JA. The effects of supplemental carbohydrate ingestion on intermittent isokinetic leg exercise. *The Journal of sports medicine and physical fitness.* 2001;41(2):216-222.
30. Derave W, Ozdemir MS, Harris RC, et al. beta-Alanine supplementation augments muscle carnosine content and attenuates fatigue during repeated isokinetic contraction bouts in trained sprinters. *J Appl Physiol.* 2007;103.
31. Hill CA, Harris RC, Kim HJ, et al. Influence of beta-alanine supplementation on skeletal muscle carnosine concentrations and high intensity cycling capacity. *Amino Acids.* 2007;32.
32. Artioli GG, Gualano B, Smith A, Stout J, Lancha AH. Role of beta-alanine supplementation on muscle carnosine and exercise performance. *Med Sci Sports Exerc.* 2010;42.
33. Van Thienen R, Van Proeyen K, Vanden Eynde P, Puype J, Lefere T, Hespel P. Beta-alanine improves sprint performance in endurance cycling. *Med Sci Sports Exerc.* 2009;41.
34. Smith AE, Walter AA, Graef JL, et al. Effects of beta-alanine supplementation and high-intensity interval training on endurance performance and body composition in men; a double-blind trial. *J Int Soc Sports Nutr.* 2009;6.
35. Stout JR, Cramer JT, Mielke M, O'Kroy J, Torok DJ, Zoeller RF. Effects of twenty-eight days of beta-alanine and creatine monohydrate supplementation on the physical working capacity at neuromuscular fatigue threshold. *J Strength Cond Res.* 2006;20(4):928-931.
36. Hoffman J, Ratamess N, Kang J, Mangine G, Faigenbaum A, Stout J. Effect of creatine and beta-alanine supplementation on performance and endocrine responses in strength/power athletes. *Int J Sport Nutr Exerc Metab.* 2006;16.
37. Harris RC, Tallon MJ, Dunnett M, et al. The absorption of orally supplied beta-alanine and its effect on muscle carnosine synthesis in human vastus lateralis. *Amino Acids.* 2006;30.
38. Hobson RM, Saunders B, Ball G, Harris RC, Sale C. Effects of β -alanine supplementation on exercise performance: a meta-analysis. *Amino Acids.* 2012;43(1):25-37.
39. Sale C, Artioli GG, Gualano B, Saunders B, Hobson RM, Harris RC. Carnosine: from exercise performance to health. *Amino Acids.* 2013;44(6):1477-1491.
40. Craig SA. Betaine in human nutrition. *Am J Clin Nutr.* 2004;80(3):539-549.

41. Eklund M, Bauer E, Wamatu J, Mosenthin R. Potential nutritional and physiological functions of betaine in livestock. *Nutrition research reviews*. 2005;18(1):31-48.
42. Hoffman JR, Ratamess NA, Kang J, Rashti SL, Faigenbaum AD. Effect of betaine supplementation on power performance and fatigue. *J Int Soc Sports Nutr*. 2009;6:7.
43. Trepanowski JF, Farney TM, McCarthy CG, Schilling BK, Craig SA, Bloomer RJ. The effects of chronic betaine supplementation on exercise performance, skeletal muscle oxygen saturation and associated biochemical parameters in resistance trained men. *J Strength Cond Res*. 2011;25(12):3461-3471.
44. Lee EC, Maresh CM, Kraemer WJ, et al. Ergogenic effects of betaine supplementation on strength and power performance. *Journal of the International Society of Sports Nutrition*. 2010;7:27-27.
45. Hoffman JR, Ratamess NA, Kang J, Gonzalez AM, Beller NA, Craig SA. Effect of 15 days of betaine ingestion on concentric and eccentric force outputs during isokinetic exercise. *J Strength Cond Res*. 2011;25(8):2235-2241.
46. Apicella JM, Lee EC, Bailey BL, et al. Betaine supplementation enhances anabolic endocrine and Akt signaling in response to acute bouts of exercise. *Eur J Appl Physiol*. 2013;113(3):793-802.
47. Baar K, Esser K. Phosphorylation of p70(S6k) correlates with increased skeletal muscle mass following resistance exercise. *Am J Physiol*. 1999;276(1 Pt 1):C120-127.
48. Tarpenning KM, Wiswell RA, Hawkins SA, Marcell TJ. Influence of weight training exercise and modification of hormonal response on skeletal muscle growth. *J Sci Med Sport*. 2001;4(4):431-446.
49. Detopoulou P, Panagiotakos DB, Antonopoulou S, Pitsavos C, Stefanadis C. Dietary choline and betaine intakes in relation to concentrations of inflammatory markers in healthy adults: the ATTICA study. *Am J Clin Nutr*. 2008;87(2):424-430.
50. Santos RV, Bassit RA, Caperuto EC, Costa Rosa LF. The effect of creatine supplementation upon inflammatory and muscle soreness markers after a 30km race. *Life Sci*. 2004;75(16):1917-1924.
51. Khanna NK, Madan BR. Studies on the anti-inflammatory activity of creatine. *Arch Int.Pharmacodyn.Ther*. 1978;231:340-350.
52. Bassit RA, Curi R, Costa Rosa LF. Creatine supplementation reduces plasma levels of pro-inflammatory cytokines and PGE2 after a half-ironman competition. *Amino Acids*. 2008;35(2):425-431.
53. Wyss M, Schulze A. Health implications of creatine: can oral creatine supplementation protect against neurological and atherosclerotic disease? *Neuroscience*. 2002;112(2):243-260.
54. Olthof MR, van Vliet T, Boelsma E, Verhoef P. Low dose betaine supplementation leads to immediate and long term lowering of plasma homocysteine in healthy men and women. *J Nutr*. 2003;133(12):4135-4138.
55. Olthof MR, Verhoef P. Effects of betaine intake on plasma homocysteine concentrations and consequences for health. *Curr Drug Metab*. 2005;6(1):15-22.

56. Eilat-Adar S, Sinai T, Yosefy C, Henkin Y. Nutritional recommendations for cardiovascular disease prevention. *Nutrients*. 2013;5(9):3646-3683.
57. Inanaga K. Amycenone, a nootropic found in *Herichium erinaceum*. *Personalized Medicine Universe*. 2012;1(1):13-17.
58. Ordóñez FM, Oliver AJS, Bastos PC, Guillén LS, Domínguez R. Sleep improvement in athletes: use of nutritional supplements. *Arch Med Deporte*. 2017;34(2):93-99.
59. Ganeshpurkar A, Rai G, Jain A. Medicinal mushrooms: Towards a new horizon. *Pharmacognosy Reviews*. 2010;4(8):127-135.
60. Lindequist U, Kim HW, Tiralongo E, Van Griensven L. Medicinal mushrooms. *Evidence-based complementary and alternative medicine: eCAM*. 2014;2014(Special Issue):1-2.
61. He X, Wang X, Fang J, et al. Structures, biological activities, and industrial applications of the polysaccharides from *Herichium erinaceus* (Lion's Mane) mushroom: A review. *International journal of biological macromolecules*. 2017;97:228-237.
62. Inanaga K, Matsuki T, Hoaki Y, et al. Improvement of refractory schizophrenia on using Amyloban® 3399 extracted from *Herichium erinaceum*. *Personalized Medicine Universe*. 2014;3:49-53.
63. Inanaga K, Yoshida M, Tomita O, Uchimura N. Treatment of Mild Neurocognitive Disorder with Compounds from *Herichium Erinaceum*. *International Medical Journal*. 2015;22(3).
64. Wong K-H, Naidu M, David RP, Abdulla MA, Kuppusamy UR. Functional recovery enhancement following injury to rodent peroneal nerve by lion's mane mushroom, *herichium erinaceus* (Bull.: Fr.) Pers.(Aphyllorphormycetidae). *International Journal of Medicinal Mushrooms*. 2009;11(3).
65. Lai PL, Naidu M, Sabaratnam V, et al. Neurotrophic properties of the Lion's mane medicinal mushroom, *Herichium erinaceus* (Higher Basidiomycetes) from Malaysia. *Int J Med Mushrooms*. 2013;15(6):539-554.
66. Mau J-L, Lin H-C, Song S-F. Antioxidant properties of several specialty mushrooms. *Food Research International*. 2002;35(6):519-526.
67. Friedman M. Chemistry, Nutrition, and Health-Promoting Properties of *Herichium erinaceus* (Lion's Mane) Mushroom Fruiting Bodies and Mycelia and Their Bioactive Compounds. *J Agric Food Chem*. 2015;63(32):7108-7123.
68. Khan MA, Tania M, Liu R, Rahman MM. *Herichium erinaceus*: an edible mushroom with medicinal values. *Journal of complementary & integrative medicine*. 2013;10.
69. Astorino TA, Roberson DW. Efficacy of acute caffeine ingestion for short-term high-intensity exercise performance: a systematic review. *J Strength Cond Res*. 2010;24(1):257-265.
70. Guimarães-Ferreira L, Dantas WS, Murai I, Duncan MJ, Zanchi NE. Chapter 3 - Performance Enhancement Drugs and Sports Supplements for Resistance Training. In: Nair S, Sen CK, eds. *Nutrition and Enhanced Sports Performance*. San Diego: Academic Press; 2013:29-41.

71. Spriet LL. Exercise and Sport Performance with Low Doses of Caffeine. *Sports Medicine*. 2014;44(2):175-184.
72. Goldstein ER, Ziegenfuss T, Kalman D, et al. International society of sports nutrition position stand: caffeine and performance. *Journal of the International Society of Sports Nutrition*. 2010;7:5-5.
73. Hendrix CR, Housh TJ, Mielke M, et al. Acute effects of a caffeine-containing supplement on bench press and leg extension strength and time to exhaustion during cycle ergometry. *J Strength Cond Res*. 2010;24.
74. Collier NB, Hardy MA, Millard-Stafford ML, Warren GL. Small Beneficial Effect of Caffeinated Energy Drink Ingestion on Strength. *The Journal of Strength & Conditioning Research*. 2016;30(7):1862-1870.
75. Taylor L, Mumford P, Roberts M, et al. Safety of TeaCrine®, a non-habituating, naturally-occurring purine alkaloid over eight weeks of continuous use. *Journal of the International Society of Sports Nutrition*. 2016;13(1):2.
76. Pohler H. Caffeine Intoxication and Addiction. *The Journal for Nurse Practitioners*. 2010;6(1):49-52.
77. Lopez HL, Wells S, Ziegenfuss TN. Theacrine-based supplement and method of use thereof. Google Patents; 2014.
78. Mumford GK, Evans SM, Kaminski BJ, et al. Discriminative stimulus and subjective effects of theobromine and caffeine in humans. *Psychopharmacology (Berl)*. 1994;115(1):1-8.
79. Baggott MJ, Childs E, Hart AB, et al. Psychopharmacology of theobromine in healthy volunteers. *Psychopharmacology (Berl)*. 2013;228(1):109-118.
80. Judelson DA, Preston AG, Miller DL, Munoz CX, Kellogg MD, Lieberman HR. Effects of theobromine and caffeine on mood and vigilance. *J Clin Psychopharmacol*. 2013;33(4):499-506.
81. Mitchell ES, Slettenaar M, vd Meer N, et al. Differential contributions of theobromine and caffeine on mood, psychomotor performance and blood pressure. *Physiol Behav*. 2011;104(5):816-822.
82. van den Bogaard B, Draijer R, Westerhof BE, van den Meiracker AH, van Montfrans GA, van den Born B-JH. Effects on Peripheral and Central Blood Pressure of Cocoa With Natural or High-Dose Theobromine. *A Randomized, Double-Blind Crossover Trial*. 2010;56(5):839-846.
83. Smit HJ, Gaffan EA, Rogers PJ. Methylxanthines are the psychopharmacologically active constituents of chocolate. *Psychopharmacology (Berl)*. 2004;176(3-4):412-419.
84. Simons FER, Becker AB, Simons KJ, Gillespie CA. The bronchodilator effect and pharmacokinetics of theobromine in young patients with asthma. *Journal of Allergy and Clinical Immunology*. 76(5):703-707.
85. Becker AB, Simons KJ, Gillespie CA, Simons FE. The bronchodilator effects and pharmacokinetics of caffeine in asthma. *N Engl J Med*. 1984;310(12):743-746.
86. Borg GA. Psychophysical bases of perceived exertion. *Med Sci Sports Exerc*. 1982;14(5):377-381.

87. Feriche B, Chicharro JL, Vaquero AF, Perez M, Lucia A. The use of a fixed value of RPE during a ramp protocol. Comparison with the ventilatory threshold. *J Sports Med Phys Fitness*. 1998;38(1):35-38.
88. Magnusson I, Ekman L, Wangdahl M, Wahren J. N-acetyl-L-tyrosine and N-acetyl-L-cysteine as tyrosine and cysteine precursors during intravenous infusion in humans. *Metabolism*. 1989;38(10):957-961.
89. Hoffer LJ, Sher K, Saboohi F, Bernier P, et al. N-Acetyl-L-Tyrosine as a Tyrosine Source in Adult Parenteral Nutrition. *JPEN, Journal of Parenteral and Enteral Nutrition*. 2003;27(6):419-422.
90. Van Goudoever JB, Sulkers EJ, Timmerman M, et al. Amino Acid Solutions for Premature Neonates During the First Week of Life: The Role of N-Acetyl-L-Cysteine and N-Acetyl-L-Tyrosine. *Journal of Parenteral and Enteral Nutrition*. 1994;18(5):404-408.
91. Milner JD, Wurtman RJ. Tyrosine availability: a presynaptic factor controlling catecholamine release. *Adv Exp Med Biol*. 1987;221:211-221.
92. Melamed E, Glaeser B, Growdon JH, Wurtman RJ. Plasma tyrosine in normal humans: effects of oral tyrosine and protein-containing meals. *J Neural Transm*. 1980;47(4):299-306.
93. Lieberman HR. Tyrosine and Stress: Human and Animal Studies. In: Marriott BM, Institute of Medicine (U.S.). Committee on Military Nutrition Research., eds. *Food components to enhance performance : an evaluation of potential performance-enhancing food components for operational rations*. Washington, D.C.: National Academy Press; 1994:277.
94. Avraham Y, Hao S, Mendelson S, Berry EM. Tyrosine improves appetite, cognition, and exercise tolerance in activity anorexia. *Med Sci Sports Exerc*. 2001;33(12):2104-2110.
95. Attipoe SMA, Zeno SAMA, Lee CMA, et al. Tyrosine for Mitigating Stress and Enhancing Performance in Healthy Adult Humans, a Rapid Evidence Assessment of the Literature. *Mil Med*. 2015;180(7):754-765.
96. Deijen JB, Wientjes CJ, Vullings HF, Cloin PA, Langefeld JJ. Tyrosine improves cognitive performance and reduces blood pressure in cadets after one week of a combat training course. *Brain research bulletin*. 1999;48(2):203-209.
97. Lehnert H, Reinstein DK, Strowbridge BW, Wurtman RJ. Neurochemical and behavioral consequences of acute, uncontrollable stress: effects of dietary tyrosine. *Brain Res*. 1984;303(2):215-223.
98. Lieberman HR, Thompson LA, Caruso CM, et al. The catecholamine neurotransmitter precursor tyrosine increases anger during exposure to severe psychological stress. *Psychopharmacology (Berl)*. 2015;232(5):943-951.
99. Arnaud MJ. Pharmacokinetics and metabolism of natural methylxanthines in animal and man. *Handb Exp Pharmacol*. 2011(200):33-91.