

Runner's Guide



Optimizing Performance with Supplements

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Contents

- 3 About Author
- 4 Introduction

Essential Supplements

- 5 Fish Oil + EPA/DHA + Omega-3
- 6 Vitamin D + Vitamin K2
- 7 Prebiotics + Probiotics
- 8 Iron (Fe)

Performance Boosting Supplements

- 9 Creatine
- 10 Caffeine
- 11 L-Arginine + L-Citrulline
- 12 Electrolytes + Minerals
- 13 Beta-Hydroxybutyrate (BHB) + Ketones

Recovery Supplements

- 14 Protein
- 15 Essential Amino Acids
- 16 Magnesium
- 17 Curcumin
- 18 Colostrum

WRAPPING UP

- 19 Conclusion
- 20 Quick Reference Guide
- 21 References

About Author

Hello, I'm Anthoney Q. CSCS!

With 15 years of experience in biomechanics, nutrition, and optimal performance, I want to share my expertise with you. I view the body as a whole, not just focusing on one aspect, and use my understanding of nutrition and exercise to help people like you improve your life

I have a Bachelor's degree in Biology, Psychology, and Exercise Sport Science. This multidisciplinary approach allows me to dive deep into science and break down the information in an easy to understand way. I also received the Certified Strength and Conditioning Specialist (CSCS) credentials, which is the gold standard in personal training and human performance. I never stop learning about the human body and keep exploring information with an open mind. I expanded my knowledge base with certifications such as Layne Norton's Advanced Nutrition and Nutrition for Bodybuilding, and the CHEK Institutes Holistic Life Coaching. These courses allow me break down information in nutritional science, allowing high level evaluations, which helps when recommending the most effective supplements.

My holistic approach to wellness emphasizes the benefits of tailored dietary strategies to optimize health. Navigating the complex world of nutrition and supplement use can be hard to keep up with, let alone understand. Understanding the role that nutrients play in achieving optimal performance I created this guide to make the information easy to understand.

Why Trust My Supplement Recommendations?

My commitment to continuous learning and staying up to date on the latest research in nutrition, ensures I provide you with current and effective recommendations.

My goal is to educate you to help inform your decisions, so you can reach your goals.

Let me guide you through the complexities of supplements, by helping you make choices that are truly beneficial for you.

For more information visit anthoneyq.com



Introduction

Welcome to the Runner's Guide of Supplementation. This e-book will dive into how supplements can boost your performance and overall well-being. Let's start by understanding what supplements are and why we turn to them.

Supplements are essentially a way to include nutrients, vitamins, minerals, or other substances to complement our diet. While whole foods should always be our main focus, supplements can help optimize and fill in any nutritional gaps, especially as the nutritional value of produce decreases.

Whole foods provide essential nutrients for our health and performance. However, there might be times when certain nutrients are not readily available in the foods we eat, despite having a balanced diet.

When it comes to taking care of our bodies, supplements can be really helpful. They provide a simple and effective way to make sure we're giving our bodies everything they need to perform at their best. Whether it's boosting our immune system, aiding in recovery, or increasing our energy levels, supplements are there to support us and help us reach our running goals.

In this e-book, we'll talk about a range of supplements that are specifically beneficial for runners. From important nutrients like fish oil and vitamin D to performance-enhancing supplements like creatine and caffeine, we'll cover the top recommended supplements for runners. We'll also look into recovery supplements that can help you bounce back faster

Affiliations

When sharing brand recommendations, I always strive for transparency and integrity. It's important for me, and should be for anyone in this position, to be upfront about our affiliations. The brands I recommend are ones I use, have used, or have thoroughly researched. My connection to these brands is through affiliate links, meaning if you decide to purchase through my links, I'll receive a contribution at no extra cost to you.

As an Amazon Associate I earn from qualifying purchases. This approach not only supports my work but also ensures that you get genuine recommendations. It's a way of saying thank you for trusting my advice and using the links provided. Remember, the value you find in any product or service should always be the priority. My aim is to guide you toward choices that enhance your life, based on honest and informed opinions.

Fish Oil + EPA/DHA + Omega-3

Understanding Fish Oil: A Closer Look

Fish oil comes from fat found in fish. This fat has two omega-3 fatty acids: EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid).¹ These essential fats offer health benefits including, heart health, brain function, and reducing inflammation. Eating whole provides the optimal balance of omega-3 to omega-6 ratio of 1:1. Typical diets often lead to an imbalanced ratio of 1:16, which increase health risks.² Therefore, selecting high-quality fish oil supplements becomes essential to get the protective and beneficial effects of the omega-3s.

Benefits: [4-7](#)

- Inflammation: Manage chronic conditions.
- Joint Comfort: Reduces joint inflammation and pain.
- Heart Health: Lowers heart disease risk, improves blood pressure and cholesterol.
- Brain Function: Boosts cognition, memory, lowers depression risk.
- Muscle Recovery: Eases post-exercise soreness, speeds recovery.
- Immune System: Strengthens immune response.
- Exercise Efficiency: Increases endurance and performance.
- Eye Health: Essential for eye health and vision.
- Skin Health: Promotes healthy skin, fights acne and aging.
- Mood: Enhances mood, decreases depression symptoms.

Dosage: [8, 9](#)

- Looking for a ratio of 1:1 (EPA:DHA) — typically EPA is higher.
- General Adult Population: 2000mg EPA+DHA
- Healthy Adults: 3000-4000mg EPA+DHA
- Healthy Adults Upper limits: 5000mg EPA+DHA

Specific Health Needs: EPA:DHA ratio adjusted

- 2:1 for inflammation and mood
- 1:2 for pregnancy and brain health.

Note: With a lack of conclusive evidence on individual intake we can see there was no significant downside of dosages up to 14g per day.³ This is why we should test our Omega-3 index to determine optimal individualized levels.

Testing:

- [Omegaquant Omega-3 Index - Home Test \(Gold Standard\)](#)
- [Rupa Health \(Home test\) - Home Test](#)

Brand Recommendations:

- [Carlsons Labs](#)
- [Kion](#)



Vitamin D + Vitamin K2

Vitamin D + K2: Enhancing Strength and Recovery for Athletes

Vitamin D is a fat-soluble nutrient, essential for bone strength, aerobic performance, muscle function, and immune health.¹¹ When exposing our skin to sunlight, vitamin D is produced (synthesis).¹² Ideally, we should get vitamin D from sunshine, but life gets busy and does not always allow us to get enough. Most people worldwide have vitamin D deficiency.¹³ That is where supplementing with vitamin D comes in to play.

Vitamin D helps our bodies absorb calcium, to strengthen bones, improve muscle function, and the increase the immune system. It’s vital to maintain balanced levels of vitamin D; too little can harm health, but too much can lead to issues as well. Regular testing is advised to keep levels in check.

Vitamin K2, a crucial vitamin that should be taken with vitamin D. Vitamin K2 helps direct calcium to the bones and teeth. Without sufficient K2, calcium might deposit in arteries and soft tissues, posing risks. Taking Vitamin K2 should be taken with vitamin D to optimize health and reduce risks.¹⁴

Benefits Vitamin D + K2: ¹³⁻¹⁶

- Strengthens Bones (D + K2): D absorbs calcium; K2 directs it to bones.
- Heart Health (D + K2): D supports blood pressure; K2 prevents artery calcification.
- Muscle Function (D): Muscle growth and contraction regulation.
- Immunity Boost (D): Fights infections.
- Mood Enhancement (D): Reduces depressive-like behaviors.
- Weight Management (D): Regulates fat cells formation.
- Brain Health (D): Reduces age-related cognitive decline.
- Diabetes Management (D): Regulates insulin resistance.
- Anti-Inflammation (D): Reduces inflammation to allow healing to occur.
- Lung Support (D): Essential for breathing.
- Healthy Blood Vessels (K2): Maintains vessel elasticity.

Testing:

[Everlywell \(Home Test\)](#)

[Thorne \(Home Test\)](#)

Your Primary Care Provider can request Labs

Dosage:¹⁷

Deficiency:1000-5000IU

Athletic Performance: 4000-5000 UI

Doctor supervised Deficiency: 5000-10,000IU

10-30 mins of sun daily. More skin exposed, the more Vitamin D you will create. In the winter, spending extra time in the sun can help too.¹⁸

Brands Recommendations:

[Life Extension \(Vitamin D and K2\)](#)

[Pure Encapsulations \(Vitamin D and K\)](#)

[Thorne \(Vitamin D\)](#)

Prebiotics + Probiotics

Unlocking Gut Health: The Power of Prebiotics and Probiotics

Prebiotics versus Probiotics: what’s the difference? Prebiotics are undigestible fibers that are beneficial for your gut’s good bacteria, while probiotics are the beneficial living bacteria. Together, they support digestion, boost immunity, and might improve mental health. After using antibiotics, which kill both the “bad” and “good” bacteria, it’s important to re-establish your gut with both.[19](#) Natural food high in fiber will help with prebiotics and yogurt or fermented foods are where the probiotics come from. The interaction between gut health and athletic performance, including nutrient absorption, is an area of growing interest and research within the fields of nutrition, exercise science, and microbiology.[20](#) This is where supplementing with both comes in.

Gut Biome Expertise: A Developing Field

There are many self-proclaimed gut biome experts base their claims on personal experience, as scientific research is still fairly new. The significance of gut biome diversity[21](#) —whether highly diverse or low diversity—is still under investigation, with conclusive health impacts no fully determined or agreed upon. What is agreed upon is the benefits of a well rounded approach to having both prebiotics and probiotics.

Benefits of Probiotics: [22-25](#)

- Enhance gut health: Balance the gut microbiota.
- Support the immune system: Potentially reduce the incidence of colds and flu.
- Improve digestion: Alleviate symptoms of irritable bowel syndrome (IBS).
- Mental health benefits: Affect mood and stress levels through the gut-brain axis.
- Nutrient and vitamin absorption: Assist in the absorption process.
- Lactose intolerance: Improve lactose digestion.

Benefits of Prebiotics: [25,26](#)

- Promote beneficial gut bacteria: Enhance gut health and improve bowel regularity.
- Enhance calcium absorption: Contribute to bone density.
- Obesity management: Influence satiety and possibly reduce appetite.
- Improve immune function: Resistance to infections.
- Reduce risk factors for heart disease: Influence cholesterol levels.
- Prevent gastrointestinal infections: Support the prevention of disorders.
- Synthesis of essential nutrients and vitamins: Stimulate beneficial bacteria.

Testing:

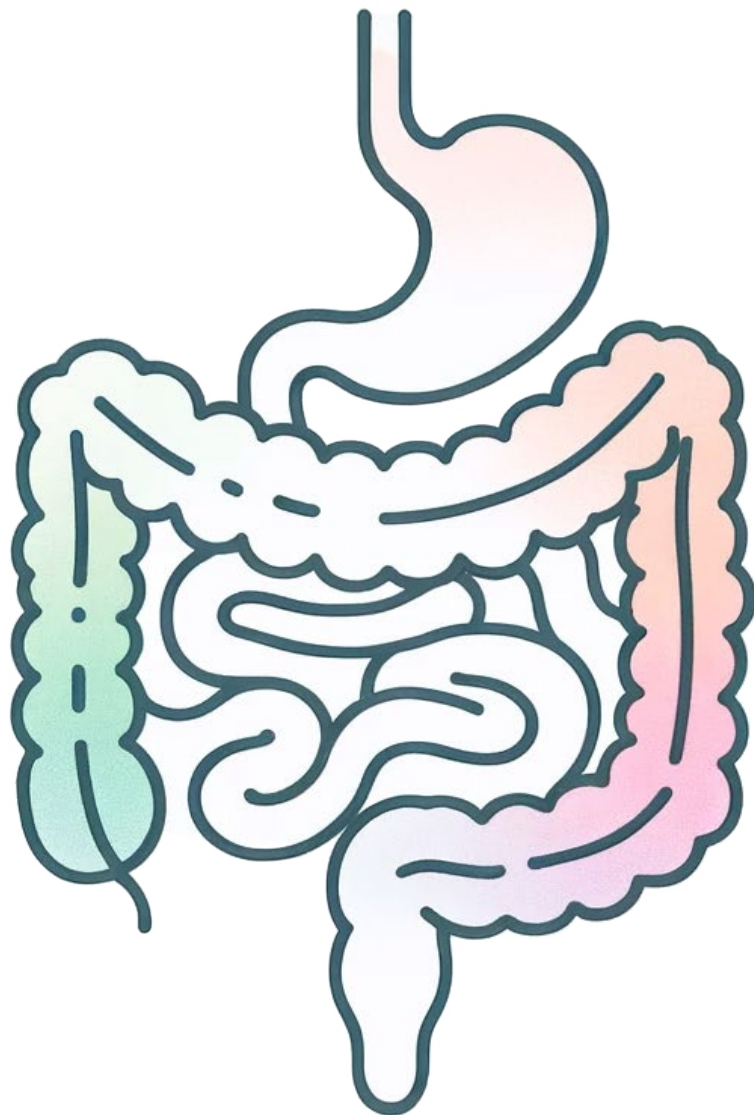
[Stool samples](#)
[DNA testing](#)

Dosage:

Unlike other supplements, there is no recommended upper limit. There appears to be no evidence of them having toxicity effects in the body. With the various strains, dosage of CFU is unique to that strain, and having more does not give you better results, but follow brand recommendations or physician guidance.

Brands Recommendations:

[Seed \(Prebiotics and Probiotics\)](#)
[Bioptimizers P3-0M](#)
[Pendulum](#)



Iron (Fe)

Iron: The Essential Boost for Runners

Iron is crucial for runners, acting as the key to unlocking performance. It’s central to transporting oxygen throughout the body, essential for muscle function and stamina.²⁷ Think of red blood cells as the body’s delivery system, with iron as the driver ensuring oxygen reaches your muscles. This process is important for runners, as it fuels muscle activity and improves endurance. Running or other endurance sports can create anemia (lowering iron levels), which is why supplementing with iron can be very beneficial.^{28-29, 31}

Combating Fatigue, Enhancing Performance:

Adequate iron levels allow for efficient oxygen delivery, which combats fatigue and boosts endurance. Women specifically have lower Iron levels due to menstruation,³⁰ so supplementing with iron and Iron is a great way to supercharge your red blood cells to get more oxygen to your muscles. However, moderation is key. Excessive iron can be detrimental, so consult a healthcare professional to strike the perfect balance.³¹ The right amount of iron in your diet or through supplements can make your runs feel more effortless and energized.

Benefits:

- Enhances Oxygen Transport: Improves endurance and performance.
- Boosts Energy Levels: Reduces fatigue, increases energy.
- Improves Muscle Function: Essential for muscle health.
- Supports Immune Health: Keeps athletes healthy.
- Reduces Injury Risk: Prevents fatigue-related injuries.
- Enhances Athletic Performance: Leads to faster recovery.

Testing:

[Rupa Health](#)

[Quest Health](#)

Your Primary Care Provider can request Labs

Dosage: [27](#), [32](#)

Depending on Iron(Fe) ferritin levels, dosage should be adjusted accordingly. Take with vitamin C to increase bioavailability of the iron.

Age 18-50: Males - 8mg, Females - 18mg

Age 51+: Males - 8mg, Females - 8mg

Brand Recommendations:

[Thorne](#)

[Thorne\(Womens\)](#)



Creatine

Creatine: The Powerhouse Supplement for Enhanced Athletic Performance

Creatine stands out as one of the most studied supplements, that offers significant benefits in strength, power, and lean muscle mass enhancement.[33,39](#) It is effective at improving recovery and providing energy needed for high-intensity activities such as weightlifting and sprinting. Also, there appears to be evidence that the increase in muscle glycogen (glycogen re-synthesis) can improve endurance athletes performance.[34](#) Contrary to some myths, creatine is not a steroid, and concerns about it causing dehydration or cramps are largely unfounded, making it a safe option for athletes and fitness enthusiasts (especially females [38](#)). There is not a “best” time to take creatine, per say, consistency or post exercise would be ideal.[35,36](#)

Extending Benefits Beyond Muscle Strength:

One notable effect of creatine is its ability to retain water within muscle cells, which may lead to increased muscle force output. This means that the larger the muscle, the greater its potential power. The most researched and cost-efficient variant, creatine mono-hydrate, is not only a natural component of muscle cells but also offers potential neurological benefits.[37](#) This makes creatine mono-hydrate a valuable supplement for boosting athletic performance, enhancing overall health and cognitive function.

Benefits for Peak Performance:

- Boosts Strength and Power: Increases muscle strength.
- Improves Anaerobic Performance: Enhances short, intense exercises.
- Stimulates Muscle Growth: Promotes muscle volume.
- Faster Recovery: Reduces muscle damage.
- Increases Energy Production: Boosts ATP for energy.
- Enhances Brain Health: Improves cognitive functions.
- Supports Metabolic Health: Benefits glucose and insulin.
- Aids Rehabilitation: Maintains muscle during recovery.
- Benefits Aging Populations: Mitigates muscle loss.

Dosage: [23](#)3-5g per day.

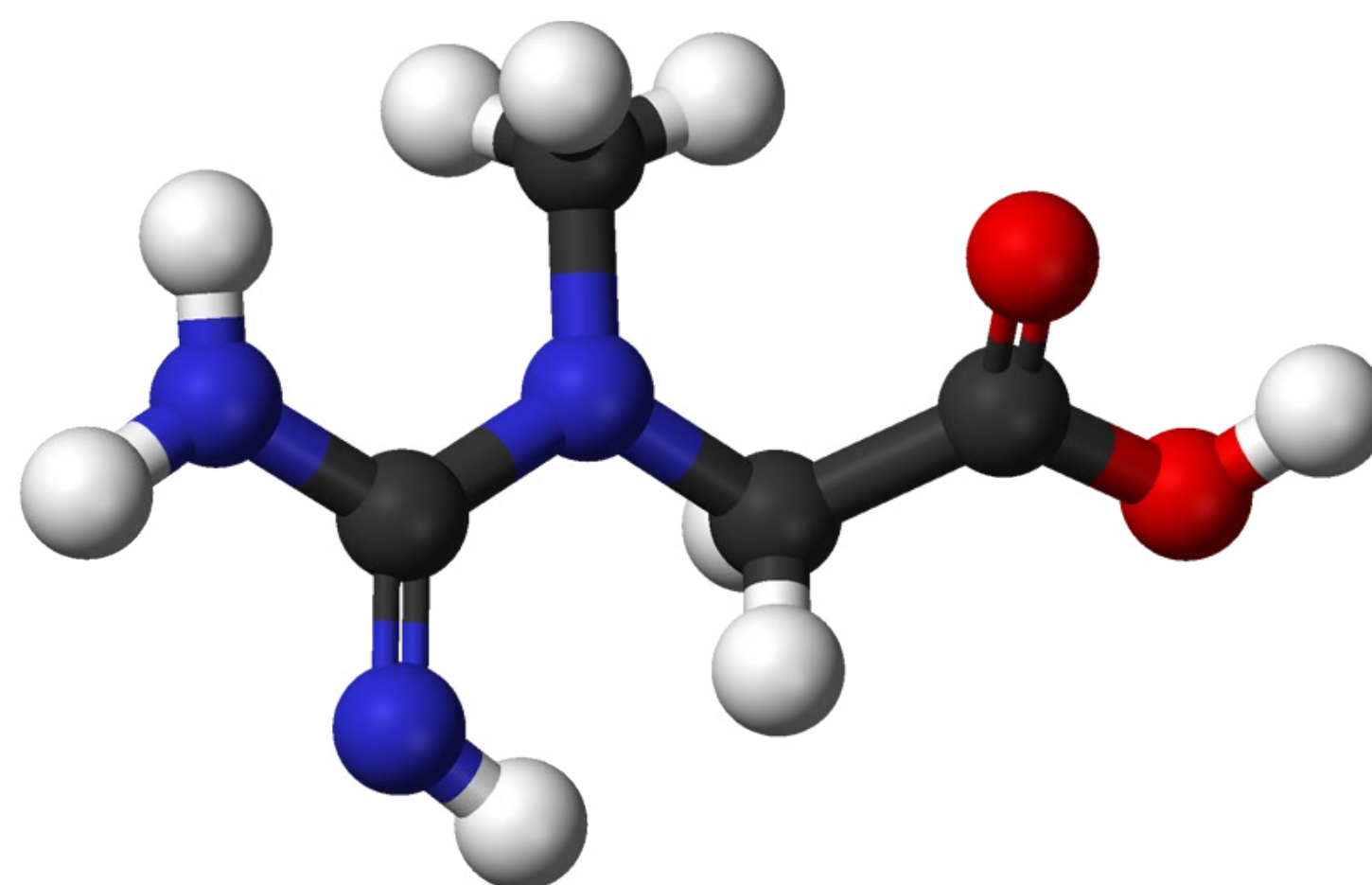
Note: There is some research on a loading protocol, but I don't think this is necessary. If you are more concerned about the bioavailability of creatine, you can dose 3-5g spread out throughout the day: 2 times 2.5g or 3 times 2 g throughout the day.

Brand Recommendations:

[Thorne](#)

[Optimum Nutrition](#)

[Transparent Labs \(With HMB\)](#)



Caffeine

Caffeine: The Energizer for Athletes

Caffeine is more than just a morning ritual that about 90% of people use; it’s a powerful stimulant for the central nervous system, enhancing alertness and blocking feelings of tiredness.[40,45](#) Coffee, teas, and cacao, have caffeine, and it works by blocking the neurotransmitter adenosine. This neurotransmitter promotes relaxation and sleepiness. Imagine adenosine as a key to the body’s “tiredness lock.” Caffeine, resembling the key closely, fits into this lock but prevents it from opening, keeping tiredness at bay.

Boosting Athletic Performance:

For athletes, caffeine’s magic lies in its ability to activate the central nervous system. This activation sharpens mental alertness and improves physical performance, including power, strength, and endurance, while also delaying fatigue. [41-47](#)

Brain Protective:

Caffeine may help protect the brain from diseases like Alzheimer’s and Parkinson’s by fighting off stress and damage in brain cells. However, more research is needed to fully understand its effects, especially on women with Parkinson’s and other brain diseases.[48](#) Also, to get these effects from coffee, don’t use a paper filter.

Considerations and Myths:

Reactions to caffeine vary widely—some may experience jitters or anxiety, while others may need multiple cups for the desired effect. Over time, the body’s sensitivity to caffeine can decrease, leading to higher consumption for the same energy boost. Moderation and occasional breaks can help maintain its effectiveness.

Addiction vs. Dependency: Caffeine isn’t addictive in the clinical sense, but regular use can lead to dependency, with withdrawal symptoms like headaches if suddenly stopped.[49](#)

Hydration: Caffeine doesn’t dehydrate you when consumed in moderation as part of a balanced diet.[50](#)

Weight Loss: Caffeine can increase fidgeting,leading to minor calorie burns, not a weight loss strategy.[24](#)



Caffeine Benefits:

- Boosts Physical Performance: Increases strength and endurance.
- Delays Fatigue: Extends workout duration.
- Improves Reaction Time: Sharpens mental responsiveness.
- Supports Brain Health: Potentially protects against neurodegenerative diseases.
- Increases Perceived Fatigue: Push harder during the end of workouts

Testing:

Genetic Testing: **CYP1A2** and **AHR**.[53,54](#)

Note: You can tell how caffeine affects you, when you have some. Another way to see how it affects you is by genetic testing.

Dosage:

Daily dosage of 1 -3 mg/kg bodyweight or 100mg - 400mg per day
Sports Performance: 3 - 6 mg/kg Bodyweight 60 min prior to exercise.[41](#)

Brand Recommendations:

Coffee: [Kion](#) , [Kicking Horse Coffee](#)
Preworkouts: [Optimum Nutrition](#) , [Legion \(Discount code: AnthoneyQ\)](#), [Outwork Nutrition](#)

L-Arginine + L-Citrulline

Nitric Oxide (NO): The Essential Boost for Athletic Performance

Nitric Oxide (NO) enhances athletic performance significantly, by two non-essential amino acids: L-arginine and L-citrulline.[55,56](#) These amino acids are fundamental in improving blood flow by dilating blood vessels, which facilitates a more efficient exchange of nutrients and waste within muscles.[57](#)

Immediate and Sustained Performance Enhancement

L-arginine is known for its immediate impact on performance, making it an ideal choice for pre-workout supplementation or for use during intense training sessions.[58](#) Its direct involvement in nitric oxide production makes it a quick-acting aid for athletes seeking an instant boost.

L-citrulline, serves as a precursor to L-arginine in the body. It is converted into L-arginine in the kidneys, leading to prolonged benefits. This delayed conversion process ensures a sustained enhancement of nitric oxide levels, offering lasting support for athletic performance.[59](#)

Natural Sources and Supplementation

L-arginine and L-citrulline are naturally present in foods such as beets, watermelon, meats, and pumpkin seeds, providing a dietary means of supporting nitric oxide production.[60](#) While the increased use of pre-workout supplements can often lead to the belief that higher intakes give better results, it's important to recognize that the body can only use these amino acids to a certain extent.

Benefits:

- Boosts Blood Flow: Enhances cardiovascular health.
- Enhances Endurance: Reduces exercise fatigue.
- Lowers Blood Pressure: Helps manage hypertension.
- Sustained Blood Flow: Enhances nitric oxide levels.
- Better Athletic Performance: Improves strength and endurance.
- Faster Recovery: Accelerates recovery post-exercise.

Dosage:

L-Citrulline

2000mg 3x day with meal

6000-8000mg an hour before exercise [61](#)

L-Arginine:

Standard Preworkout dose 3-6g [62](#)

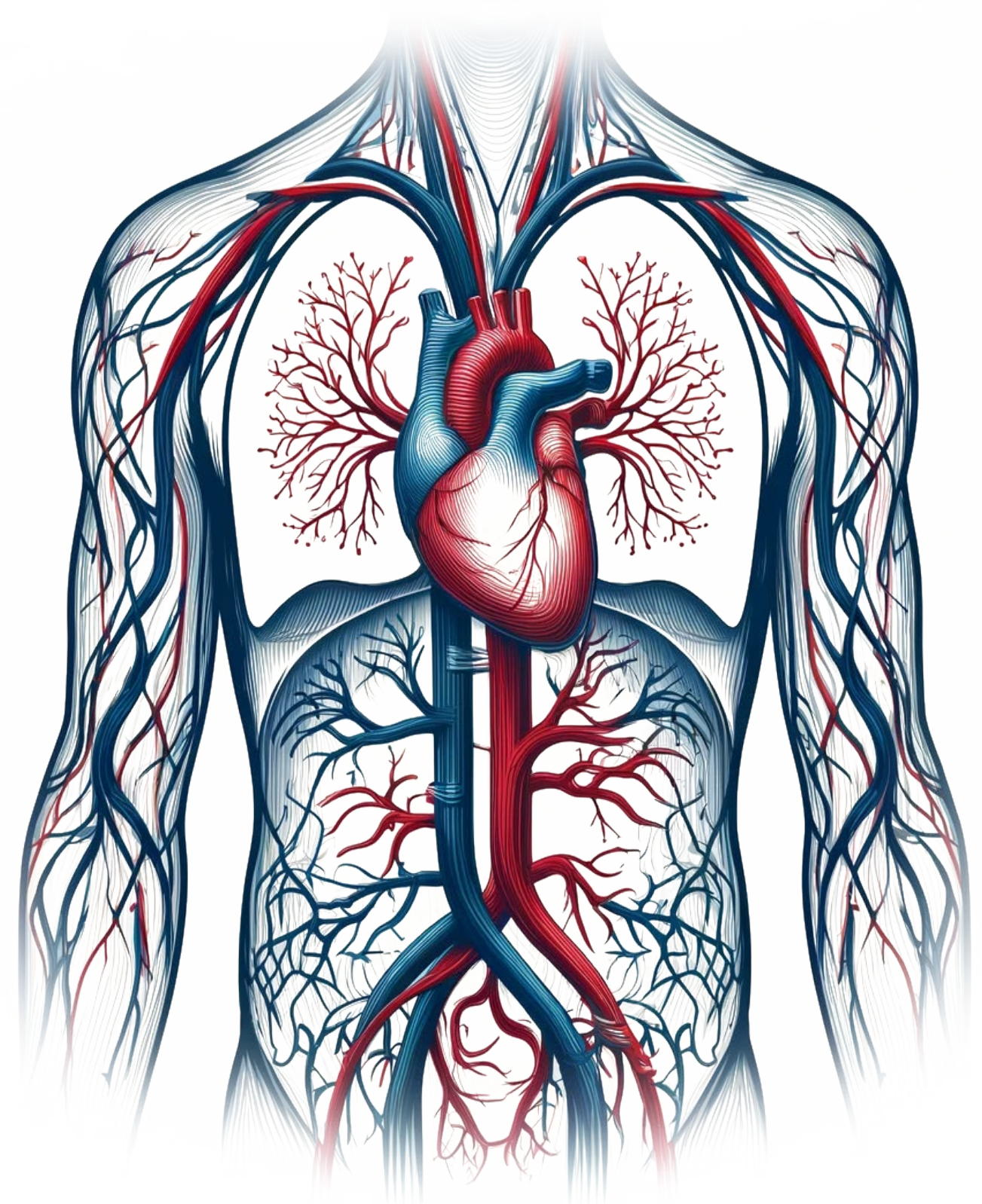
10-18g can cause gastrointestinal distress.

Brand Recommendations:

[Thorne \(L-arginine\)](#)

[Source Naturals \(L-arginine + L-citrulline\)](#)

[Source Naturals \(L-citrulline\)](#)



Electrolytes + Minerals

Minerals and Electrolytes: Essential for Athletic Success

Minerals and trace minerals, are abundant in many foods and they play a crucial roles in our health. Electrolytes, a specific group of minerals, interact with the body’s fluids, such as blood and water. They carry charged particles, essential for fluid balance and electrical activity in bodily functions. Electrolytes regulate nerve and muscle function, hydration, blood pressure, and tissue repair. Individual needs for these minerals vary based on different sensitivities.[75,76](#) Mineral supplementation can improve nerve function, which leads to better muscle contractions, resulting in overall better performance.

While athletes may require more electrolytes due to increased sweat loss, everyone needs them so their body functions properly.[77](#) Contrary to popular belief, many of the sports drinks people reach for contain more sugar than electrolytes.

Salt have been demonized for increasing blood pressure, but more evidence is coming out against this idea.[78](#) There are more issues from too little salt, causing lower blood pressure.[79,80](#) Some people that have genetic predisposition making them sensitive to salt.[81](#) Some research suggests a balanced mineral balance and resolving metabolic issues may lead to healthier individuals with those genetic variations.[82,83](#)

Hydration and Muscle Cramps:

Excessive water intake without adequate minerals can lead to over-hydration or hyponatremia, a condition of too low sodium levels. The exact cause of muscle cramps are unknown, but theories suggest neurological disturbances or dehydration as the main cause.[84,85](#)

Benefits:

- Regulates Hydration: Maintains fluid balance.
- Improves Nerve Function: Ensures muscle coordination.
- Enhances Muscle Contraction: Prevents cramps and spasms.
- Supports Energy Production: Boosts metabolic processes.
- Supports Recovery: Speeds up post-exercise recuperation.
- Boosts Heart Function: Regulates heart rhythm.
- Improves Cognitive Function: Enhances focus and concentration.
- Optimizes Cellular Function: Ensures cell health and function.

Dosage:

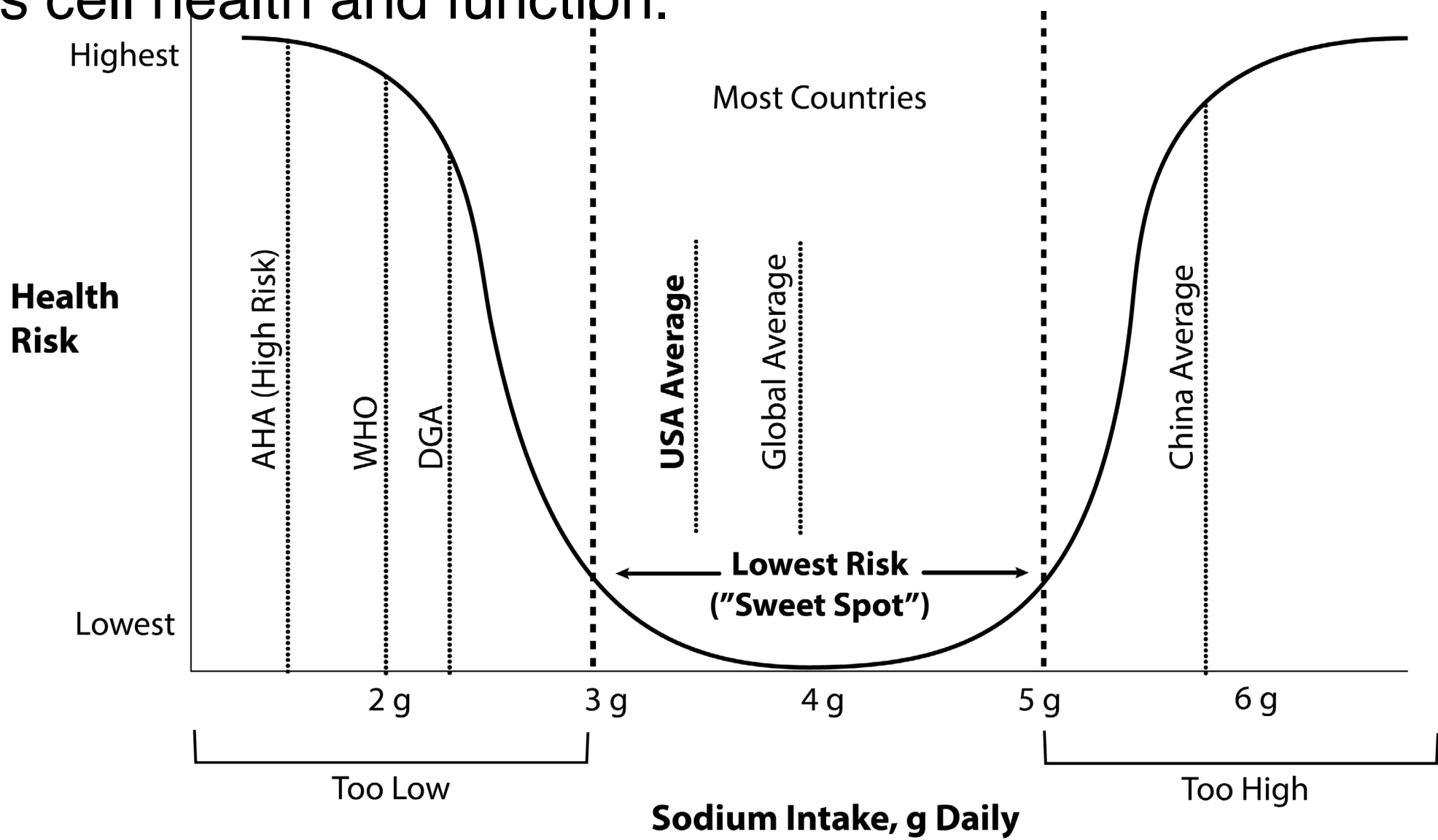
Sodium Between 3g/day - 5g/day [86](#)

Potassium 85mg/day [87](#)

Brand Recommendations:

[LMNT](#)

[Redmond Real Sea Salt](#)



Beta-Hydroxybutyrate (BHB) + Ketones

Ketosis and Endurance Running: Unlocking Efficient Energy Use

Endurance runners often hit a “wall” during long races when their fuel source (carbohydrates) runs low.⁶³ This is where a ketogenic diet might offer a strategic advantage. On ketosis, runners train their bodies to efficiently burn fatty acids, without the need of carbohydrates.⁶⁴ This could potentially delay or even prevent the dreaded mid-marathon energy crash, allowing for sustained performance.

This concept is has anecdotal success with Zach Bitter who broke the 100-mile world record on a ketogenic diet.⁶⁵ Scientific research points towards benefits of ketosis for enhanced fat burning, consistent energy levels, and improved muscle recovery.

Ketosis and BHB: The Connection

Beta-hydroxybutyrate (BHB) or ketone esters are connected through metabolic pathways that support energy production and muscle function. This is relevant in the context of a ketogenic diet. BHB is another key player for endurance athletes, when considering muscle function and recovery.⁶⁶ BHB, is the breakdown of fatty acids, and has been shown to reduce metabolic by-products (aka lactic acid), increase energy production, and reduce oxygen demand when glucose is absent. This is crucial for runners who subject their muscles to high levels of stress over the longer distances.

HMB and Link to Cognitive Benefits:

The ketogenic diet has been linked to better cognitive outcomes due to the increased energy delivery to the brain through ketone.^{67,68} For endurance athletes, this might translate into better focus, reduced mental fatigue, and improved decision-making during races or training sessions.

Benefits:

- Regulates Energy Levels: Sustained energy during fasting or low-carb diets.
- Enhances Physical Performance: Improves endurance and reduces fatigue in runners.
- Supports Brain Health: Offers an alternative energy source for improved cognitive function.
- Promotes Weight Management: Increases fat oxidation and supports metabolic efficiency.
- Reduces Inflammation: Possesses anti-inflammatory properties aiding recovery.
- Improves Heart Health: May reduce risk factors for heart disease.
- Stabilizes Blood Sugar: Helps maintain blood glucose levels, reducing spikes.
- Enhances Mood: Can improve mental well-being and focus.

Testing:

Urine
Finger Blood Drop(Glucose/Ketone Index
Breath (Fatloss)

Dosage: ⁶⁹

Follow product serving size

Brand Recommendations:

[H.V.M.N. Ketones IQ shots](#)

*Any updates on products I think are effective, will be added



Protein

Whole Foods vs. Protein Supplements: Navigating Your Protein Needs

Whole food sources of protein are ideal over supplementing. Whole foods not only provide protein but also deliver a range of other essential nutrients that support overall health and well-being.⁷⁰ However, the demands of busy life can make it challenging to get our nutritional needs through food alone. This is where protein supplements come in. They offer a convenient and efficient way to ensure your body gets the protein it needs to support recovery and muscle growth.

The Essential Role of Protein:

Protein is vital for the body’s anabolic processes, which is the building and repairing of muscle tissue.⁷¹ If you are looking to improve fitness, you should be monitoring protein intake. Most people overestimate how much protein they are consuming, resulting in less desired effects.

Understanding Your Protein Needs:

The amount of protein you need can vary, depending age, physical activity levels, and body composition. Guidelines suggest protein intake should range from 0.8 grams per kilogram of lean body mass (LBM), for maintenance(I think this is too low), to as much as 3.4 grams per kilogram of body weight (BW) for those who are highly active or looking to build muscle.^{72,73} Many “experts” have claims of consuming only 20-35g of protein per meal, coming from an idea that the body can’t absorb more than that. A new study from 2023 shows consuming 100g of protein per meal can be utilized effectively.⁷⁴

Benefits:

- Muscle Repair and Growth: Facilitates the repair and growth of muscle tissue.
- Quick Recovery: Accelerates recovery time post-exercise.
- Muscle Preservation: Helps in preserving muscle mass during weight loss.
- Hunger Management: Increases feelings of fullness, aiding in weight management.
- Longer Endurance: Provides sustained energy for endurance activities.

Dosage:

*The FDA recommends 0.8grams per kilogram of body weight. This is for functioning, not optimizing.

Math:

[Click here for Total Daily Energy Expenditure and Protein calculator](#)

Minimal requirements: 1.2g/kg body weight/day
Optimal: 1.2-2.0 g/kg body weight/day
Advance Athlete: 1.6-3.4g/kg body weight
Fat loss: 2.2-3.8

Brand Recommendations:

[Legion Whey+ \(Discount code AnthoneyQ\)](#)
[Organifi](#)



Essential Amino Acids

Amino Acids: Building Blocks for Athletes

We have heard about proteins, so what is an amino acid? Amino acids are the small molecules that form together to make protein. To conceptualize (figure below) Amino acids link together to make peptides, then many peptide chains create large complex units called proteins. The reverse happens when we take protein, those protein molecules get broken down into smaller units, via digestion, and turn into useable amino acids.

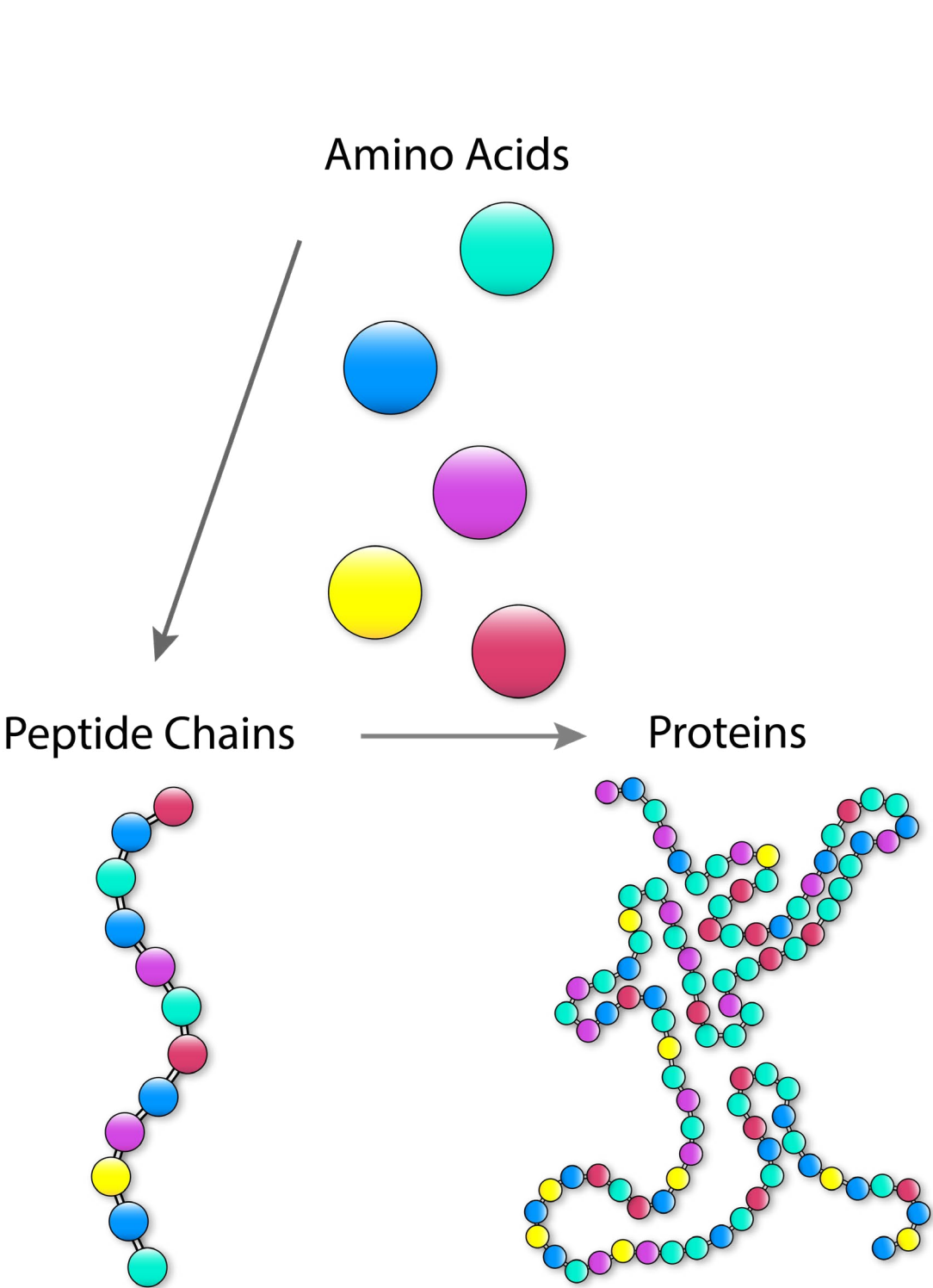
Another supplement that is commonly talked about is Branched Chain Amino Acids, (BCAAs) these are popular in the gym scene.⁸⁸ There is a broader, more beneficial category known as Essential Amino Acids (EAAs). Unlike BCAAs, which consist of only three muscle-building amino acids, EAAs provide all nine amino acids that our bodies cannot make on its own.⁸⁹ These EAAs are not only for muscle growth, but also for supporting various bodily functions including digestion, metabolism, immune system health, sleep, and hormone production.

Why EAAs Over BCAAs?

Focusing solely on BCAAs may not give you the health and performance you are looking for.⁹⁰ EAAs are a complete way to improve body function and muscle development.⁸⁹ Studies suggest that BCAAs are less effective for building muscle, and the imbalance can deplete B vitamins, lower serotonin, and even increase the risk of metabolic diseases. ⁹¹⁻⁹²

The Essential Nine: ⁹³

- Leucine (BCAA): Protein synthesis and muscle repair.
- Isoleucine (BCAA): Aids in muscle metabolism, immune function, and energy regulation.
- Valine (BCAA): Promotes muscle growth and energy.
- Phenylalanine: Supports cognitive functions and mood regulation.
- Threonine: Collagen and elastin production, supporting skin and connective tissue health.
- Tryptophan: Essential for mood, sleep, and appetite regulation through serotonin synthesis.
- Lysine: Crucial for immune health and nutrient absorption.
- Methionine: Supports metabolism, detoxification, and mineral absorption.
- Histidine: Key for immune system, digestion, sexual function, and sleep.



Benefits:

- Enhanced Recovery: Accelerates muscle repair post-exercise.
- Boosted Strength: Aids in increasing muscle power and mass.
- Improved Performance: Elevates overall athletic capabilities.
- Reduced Fatigue: Decreases muscle soreness and recovery time.
- Increased Endurance: Fuels longer, more intense workouts.
- Better Metabolism: Assists in maintaining a healthy metabolism.
- Immune System Support: Strengthens the body's defense mechanisms.
- Appetite Control: Helps in regulating hunger and satiety.
- Supports Healthy Aging: Mitigates muscle loss with aging.

Dosage:

Minimal - 1.5g daily to stimulate muscle protein synthesis.
Upper Tolerable limit - 15-18g 3x daily

Brand Recommendations:

[Kion](#)
[Thorne](#)

Magnesium

Magnesium: Unlock Energy & Health

Magnesium is a crucial mineral for over 300 biochemical reactions in our bodies.⁹⁴ It’s essential for runners because it helps in muscle recovery, energy production, and reducing fatigue.^{95,96} Magnesium improves sleep quality, stress relief, physical stress, and enhances cognitive functions, making it a versatile supplement for various needs.⁹⁷⁻¹⁰⁰ With eight different forms, you can choose a magnesium supplement tailored to your specific requirements, whether that’s improving sleep, easing muscle soreness, or boosting your energy levels for performance. Supplementing with magnesium can significantly enhance your running experience and overall well-being.

Epsom Salt Baths:

Baths are not effective at high level magnesium absorption. The rate increases with the heated water, but the sweat glands cover 0.1-1% of the skin.¹⁰¹ So while there may be some magnesium that can penetrated the skin layer, it seems to be a waste of money. But if you feel better from the warm water than keep it up!

- Magnesium Chelate: Muscle building, recovery, and overall health.
- Magnesium Citrate: Supports metabolic health.
- Magnesium Bisglycinate: Best for muscle and overall relaxation.
- Magnesium Malate: Highly bioavailable. Found naturally in fruits, giving them a “tart taste.”
- Magnesium Sucrosomial: Well absorbed, aids in energy production and immune system.
- Magnesium Taurate: Best for heart health.
- Magnesium Orotate: Metabolic improvements, enhanced recovery, energy, and performance.

Benefits:

- Enhanced Sleep Quality: Promotes deeper, more restful sleep.
- Stress Reduction: Lowers stress and anxiety levels.
- Bone Health: Strengthens bones by improving calcium absorption.
- Muscle Function: Supports muscle health and prevents cramps.
- Heart Health: Regulates heart rhythm and supports cardiovascular health.
- Improved Digestion: Alleviates constipation and supports digestive health.
- Migraine Relief: Can reduce frequency and severity of migraines.
- Energy Production: Essential for ATP synthesis and energy creation.
- Mental Clarity: Enhances cognitive function and brain health.

Dosage:

Magnesium from all sources ¹⁰²
410-420mg/day Men
320-360mg/day Women

Brand Recommendations:

[Bioptimizers](#)
[Momentus Magtein](#)

Curcumin

Turmeric and Curcumin: A Runner’s Guide to Natural Anti-Inflammatory Benefits

You may have not heard about turmeric, a vibrant yellow root, and its benefits. Inside this root there are curcuminoids, compounds responsible for its health benefits.[103](#) For athletes pushing their limits, curcumin is known for its anti-inflammatory properties.[104](#) It offers a natural way to alleviate pain and muscle soreness, a common concern for athletes.[105](#)

Many turn to Advil (NSAIDs) or Tylenol(Acetaminophen) post-race to stop pain, a solution that is not ideal due to gut issues. Performing activities we love should not come lead us to pain, but sometimes we have to push through it. This pain reduce should always be in your cabinet or bag. This is a more preferable, natural alternative to conventional pain relievers like acetaminophen or NSAIDs.[106](#)

Not all inflammation is bad. Post-workout inflammation is a form of hormesis – beneficial stress telling our bodies to repair and become stronger.[107](#) Blocking this process reduces our ability to adapt to the workout.[108](#)

Some anti-inflammatory supplements reduce workout recovery – such as ice baths, green tea, or over-the-counter pain medications immediately following exercise – curcumin does not disrupt the body’s adaptive processes.[108-111](#) . Therefore, if you opt for an ice bath, consider waiting 4-5 hours post-exercise to let your body’s natural adaptation mechanisms take place. Unless you have another hard competition within 24 hours, then jumping in an ice bath is fine(at this point, you are not building, you are competing).[112](#)

One drawback of curcumin, is its low bioavailability, meaning it’s not easily absorbed by our bodies on its own. Combining it with fats or piperine, a component found in black pepper, can significantly enhance its absorption.[113](#) Piperine, in particular, can increase bioavailability of curcumin by up to 2000%, ensuring its beneficial compounds are effectively utilized by your body.[114](#)

Benefits:

- Anti-Inflammatory: Reduces inflammation throughout the body.
- Pain Relief: Alleviates joint and muscle pain.
- Antioxidant Power: Fights oxidative stress and damage.
- Boosts Brain Function: Enhances memory and cognitive function.
- Heart Health: Improves endothelial function and heart health..
- Supports Digestion: Aids in digestive health and comfort.
- Immune Booster: Strengthens the immune response.
- Detoxification Support: Promotes liver health and detoxification.



Dosage:[115](#)

Curcumin with black piperine (500mg : 5mg) or 1500mg curcumin and 15mg of piperine
BCM-95 1000mg daily
Meriva 400-1000mg daily

Empty stomach

Brand Recommendations:

[Thorne](#)
[Pure Encapsulations](#)
[Organifi Gold](#)

Colostrum

Digestive Health: The Unsung Hero of Athletic Performance

Often underestimated, our digestive system plays a pivotal role in overall wellness and athletic performance.¹¹⁶ Think of the digestive tract as a internal tube, from mouth to anus, with a barrier that decides what enters our body. After food is broken down, then we can absorb it.

The Power of Colostrum:

Enter colostrum, the first form of milk produced immediately following birth. It’s not just crucial for newborns; athletes too can reap its benefits.¹¹⁷ Colostrum supports gut health, improves the immune system, provides growth facilitation, and supports essential digestion.^{118,119} In a world filled with environmental toxins—plastics, pesticides, and more—colostrum helps maintain optimal functioning gut.

Colostrum for Athletes: Beyond Nutrition

Recovery is the most important component for getting results from training. After exercise, blood rushes into the muscles, digestion takes a backseat. This stops nutrients from being absorbed fully.¹²⁰ Colostrum can be a game-changer, enhancing gut functionality and supporting better recovery and performance gains during rest and sleep.

Timing and Digestion:

After pushing the limits, your first thought might be, “I need to eat, NOW!” However, giving your body some time to redirect blood flow towards digestion can improve nutrient uptake. This waiting period, ideally an hour or two post-exercise, might clash with busy schedules. Incorporating colostrum can help mitigate gut issues, making this transition smoother and more efficient.

Benefits:

- Immune System Boost: Strengthens the body’s natural defenses.
- Gut Health Improvement: Supports a healthy digestive tract.
- Enhanced Healing: Promotes faster recovery from injuries.
- Infection Protection: Offers protection against bacterial and viral infections.
- Nutrient-Rich: Provides essential nutrients, vitamins, and minerals.
- Growth Factor Increase: Stimulates tissue growth and repair.
- Anti-Inflammatory Properties: Reduces inflammation throughout the body.
- Improved Fitness: Aids in muscle growth and performance enhancement.
- Supports Healthy Aging: Helps mitigate age-related health issues.

Testing:

Stool analysis

Dosage:

General daily use: 2-6g
Athletic performance/Recovery: 60g daily. Start with lower doses and increase 5-10g every other day.

Brand Recommendations:

- [Kion](#)
- [Ancestral Supplements](#)
- [WonderCow](#)

Conclusion

In this comprehensive guide, we've explored a verity of supplements with each offering unique benefits to enhance performance, health, and recovery. Beginning with essential supplements like Fish Oil, EPA/DHA, Omega-3s, Vitamin D + K2, and Prebiotics + Probiotics, we've laid the foundation for overall health, emphasizing the importance of heart, bone, gut health, and immune function. These are crucial for maintaining the body's balance and ensuring that you can perform at your peak.

Transitioning to performance-boosting supplements, we delved into Creatine, Caffeine, L-Arginine + L-Citrulline, Electrolytes + Minerals, and Beta-hydroxy beta-methylbutyrate (HMB), each selected for their ability to enhance endurance, strength, energy levels, and muscle recovery. These supplements are ideal to help you push beyond your limits, improve training outcomes, and enhancing the recovery processes.

For recovery, we focused on Protein, Essential Amino Acids, Magnesium, Curcumin, and Colostrum. These supplements support muscle repair, reduce inflammation, and replenish essential nutrients lost during intense exercise, ensuring that you can recover quickly and efficiently after training sessions or races.

Our journey through the world of supplements is to offer runners a holistic approach to nutrition and supplementation, ensuring you have the support needed to achieve their performance goals while maintaining optimal health. By integrating these supplements into their regimen, runners can enjoy improved performance, faster recovery, and a stronger, more resilient body.

This guide serves as a clear and concise resource, aiming to demystify the complex world of supplements for runners. Whether you're looking to enhance performance, boost recovery, or support overall health, this guide provides the essential information needed to make informed choices about supplementation. Remember, individual needs vary, so it's important to consider personal health goals and consult with a healthcare provider before starting any new supplement regimen.

Disclaimer: The information provided in this e-book regarding supplements is intended for educational purposes only and is not a substitute for professional medical advice, diagnosis, or treatment. While we strive to ensure the accuracy and effectiveness of the supplement recommendations, individual needs and responses to supplements can vary significantly. Therefore, it's crucial to consult with a healthcare provider before starting any new supplement regimen, especially if you have pre-existing health conditions or are taking medication. The author and publisher of this e-book disclaim any liability or loss in connection with the exercises, opinions, and advice expressed here. Readers are encouraged to make health decisions based on their own research and in partnership with a qualified healthcare professional.

Quick Reference Guide

Daily Supplement Schedule

Morning:

Electrolytes and minerals
Essential amino acids
Fish Oil/Omegas
Vitamin D and K2
Prebiotics and Probiotics

Afternoon:

Creatine
Protein
Curcumin (if after a hard workout)
Iron

Evening:

Magnesium
Colostrum
Curcumin
L-arginine and L-citrulline

Workout Supplement Protocol

Morning Fasted Workout:

Electrolytes and minerals
Essential amino acids
Caffeine

Or

30 minutes Pre-workout:
Electrolytes and minerals
Essential amino acids
Caffeine
HMB (Beta-Hydroxy Beta-Methylbutyr-
ate)

Post-workout:

Fish Oil/Omegas
Vitamin D and K2
Creatine
Protein
Colostrum
Prebiotics and Probiotics
Curcumin (if after a hard workout)
Iron

Evening:

Magnesium
Curcumin
L-arginine and L-citrulline

Fish Oil + EPA/DHA + Omega-3

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Note

* I do not cite organizations like the World Health Organization (WHO), since they make claims based on citing themselves. To me, that is not science. Thats like me saying deadlifts are the best exercise, and that is true, because I said that in the past... Where is the peer reviewed data or other sources?