DIETARY SUPPLEMENTS: THE GOOD, THE BAD, AND THE UGLY

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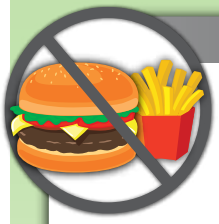
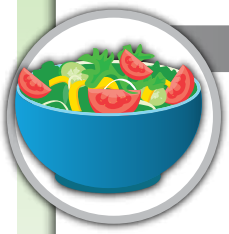
The dietary supplement industry is an ever-growing market and currently offers over 50,000 products including vitamins, minerals, herbal supplements, weight-loss products, protein powders and shakes, and pre-workout boosters. With so many options, it's understandable that an athlete may become confused about which brand to trust, what dosage is appropriate, and what product is safe to take.



THE PROBLEM

- Poor dietary choices and meal frequency are the limiting factors in why most athletes do not achieve their performance goals.
- You can't out-supplement a bad diet—many athletes think if they can take a pill or a powder, they don't need to eat the real stuff.
- More is not better—using more than the recommended dosage will not provide greater gains but can lead to serious consequences (i.e. banned from competition (college and pro), negative side effects on health (increased blood pressure), irregular heart rate, enlarged organs (from steroid use), liver failure).
- Athletes run the risk of using a supplement that may contain a banned substance if purchasing from a supplement store or relying on the advice from someone not familiar with 3rd party testing certification and its process.



THE FOOD FIRST SOLUTION

- Eat a meal or snack every 3 to 4 hours to stay well-fueled and to keep blood sugar stable for optimal energy (i.e. PB and honey sandwich, fruit and nuts, lean protein with fruit and veggies, turkey sandwich with fruit and salad).
- Pre-workout snack or breakfast every morning to minimize utilization of muscle tissue for energy, especially if the athlete has an early lifting or practice session.
- **Implement your plan:** make a bunch of sandwiches on an off-day, portion out your snacks ahead of schedule (i.e. trail mix, fruit and nuts, nutrition bars, PB&J sandwiches), and meal prep for the week to avoid skipping meals.

With the amount of dietary supplements on the market, how can athletes make the right and safe choice when it comes to purchasing dietary supplements?

HOW TO EVALUATE A DIETARY SUPPLEMENT FOR SAFE AND EFFECTIVE INGREDIENTS

	Good	Bad	Ugly
Lists individual ingredients on label	✓		
Dosages based on scientific research	✓		
Tested for banned substances	✓		
Uses branded ingredients/raw materials	✓		
Manufactured in an NSF facility that carries both the cGMP and Athletic Banned Substances certifications	✓		
Uses generic ingredients		✓	✓
Uses a proprietary blend		✓	✓
Uses stimulants to cover up for insufficient ingredient profile (i.e. pre-workout supplements)		✓	✓
Contains banned substances			✓

SAFE SUPPLEMENTS: PROS & CONS

* Disclaimer: All individuals respond differently to supplements. Please talk with your Sports Dietitian before taking any supplements, and remember that the brand matters. Make sure it's a reputable, tested brand, and one that the Sports Dietitian recommends/stands behind.

Dietary Ingredient	Potential Benefits	Potential Risks/Side Effects
Beta-Alanine	May buffer muscle acid by increasing muscle carnosine levels, enhancing muscular endurance. Best for training or events lasting 60-240 seconds.	Parathesia (i.e. tingling of skin) if taken in higher dosages. Side effects may vary depending on weight of individual and dosage taken.
Beetroot	Increases nitrates and may improve aerobic endurance performance.	Heavy consumption may lead to beeturia (red or pinkish urine or stools) and kidney stones due to the high oxalate content. Take caution with choosing the best brand, as some may be of low quality and content.
HMB (Free Acid)	May increase lean muscle and strength when combined with resistance training in untrained individuals. May provide anit-catabolic effects, preventing muscle wasting + supporting healing.	No known side effects or toxicity reported in dosages up to 6 grams per day in human studies.
Creatine monohydrate	May increase lean mass, strength, sprint performance, anaerobic power.	Larger doses (> 20g per day for 5 days) may lead to diarrhea or nausea in some individuals and many anecdotal reports of cramping.
Omega-3 fatty acids (i.e. Triglyceride-based fish oil) (50% of the omega-3/fish oil should come from EPA & DHA fats)	May reduce inflammation, muscle soreness, body composition, exercise-induced asthma, joint soreness, and enhance brain health.	If taken in dosages higher than 5-6 grams per day, may increase risk of bleeding, hypoglycemia, low blood pressure, loose stools, nausea, fishy breath. Many brands are low quality and don't provide enough EPA & DHA.
Probiotics	May filter out and eliminate harmful bacteria, toxins, chemicals, and waste products in our digestive tract. May be beneficial for athletes with IBS, abdominal pain, diarrhea, antibiotic-related diarrhea, bloating, and ulcerative colitis. May improve immune health.	Children, pregnant women, and individuals with compromised immune systems should speak with their physician before taking a probiotic supplement. May cause gas, bloating, diarrhea, and stomach pains during the first few days of use.
Sodium bicarbonate (i.e. Baking Soda)	Delay muscular fatigue by reducing the increase in lactic acid associated with exercise. May improve anaerobic and peak power.	Individual differences in side effects, but GI distress very common, including diarrhea and stomach pain.
Caffeine	May improve endurance & high-intensity exercise >20 min, stimulate central nervous system.	**Caffeine is a controlled/restricted substance, so athletes should refrain from using synthetic forms and pay attention to amount in naturally-occurring products. Risk of jitters, nausea, rapid heart rate, anxiety, poor sleep etc. from overdosing; possible diuretic effect if not well-hydrated over long-term.
Vitamin D	May reduce fat mass and increase lean mass; supports immune health, bone health, and may reduce inflammation.	Megadoses of vitamin D (50,000 IU a day for several months) may lead to toxicity in the blood, which leads to hypercalcemia, poor appetite, nausea, vomiting, and kidney problems.

Ingredients found in muscle building supplements with little to no research supporting their use:

- Arginine.
- L-Arginine AKG.
- Agmatine Sulfate.
- BCAA's.
- Citrulline Mallate.
- D-Aspartic Acid.
- Glutamine.
- L-Carnitine.
- Kre-Alkalyn.
- Creatine Hydrochloride.
- Creatine Ethyl Ester.
- Creatine Magnesium.
- Di-Creatine Malate.

Stimulants found in pre-workout & weight loss supplements:

- Caffeine.
- Guarana Seed.
- Hoodia Gordonii.
- Caffeine Anhydrous.
- BMPEA.
- Kola Nut.
- Green Tea Extract.
- Yohimbine.
- Dendrobium.
- Synephrine.
- DMAA (1-3 Dimethylamylamine).
- Yerba Mate.

The following logos are placed on supplements to indicate the product has passed 3rd party testing certification and may be free of banned substances:

*It is important to discuss your supplements with your Sports Dietitian. Even with these certifications, some companies may still produce other products that contain banned substances. **Each 3rd party testing company varies in what they test for and the method in which they test.

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List of Banned Substances for NCAA, Professional, and Olympic Athletics:

http://www.ncaa.org/health-and-safety/policy/2014-15-ncaa-banned-drugs | https://www.wada-ama.org/en/what-we-do/prohibited-list

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