

# FIT TO FIGHT



4th INFANTRY DIVISION'S PERFORMANCE TRIAD NEWSLETTER

MARCH 2016

## Dietary Supplements: What You May Not Know

US citizens spend over 8.5 billion dollars per year on dietary supplements. The active population is the biggest consumers with approximately 1 in 2 people using them regularly. These products include those claiming to increase endurance and strength, lower body fat, decrease illness, enhance recovery and/or improve hydration. Most likely there is a bottle sitting in your medicine cabinet right now. My question to you is, do you really know what you are taking?

### *Regulation*

Dietary supplements are Product (other than tobacco) intended to supplement the diet, which contain one or more of the following dietary ingredients: vitamins, minerals, amino acids, herbs or other botanical ingredients. While most people are familiar with what defines a dietary supplement, many are unaware of how they are regulated. Well, that is probably because they are not! The Dietary Supplement Health and Education Act of 1994- stated that the maker of the dietary supplement is responsible for its safety. This was passed to allow the consumer the choice of more supplements and to keep prices down. Here are some of the problems regarding the safety of supplements with this act. The manufacturer is responsible for the safety of the supplement only after it is put on the market. Can the FDA take action against unsafe supplements? If you wanted to put your own concoction on the market tomorrow and label it muscle magic, you could because manufacturers do not need to register their products. Perhaps the most concerning, however, is that approximately 25% of dietary supplements today are either contaminated or mislabeled. Tested supplements have been found to be contaminated with lead, bacteria, testosterone, and steroids to name a few; others have little or none of the ingredients they claim to on the label. This can be extremely dangerous to the consumer's health and could also cause positive UA's in the Army.



### In This Issue

- The facts about dietary supplementation.
  - Concerns/Safety
  - Effectiveness
- Diaphragmatic breathing and exercise performance.

## Supplement Concerns

- ✓ Regulatory Issues
- ✓ Contamination and Impurities
- ✓ Mislabeling
- ✓ Potential Side Effects
- ✓ Banned Substances
- ✓ Ineffectiveness

## *Safety*

So, how do you know your dietary supplements are safe? Unfortunately, while you can decrease the risk of purchasing a contaminated supplement, you cannot eliminate it completely. To decrease the risk, look for the USP on the label, which indicates that the supplement has passed good manufacturer practices. Search for your supplement on third party testing websites such as [www.consumerlab.com](http://www.consumerlab.com), which check to make sure that the label matches everything that is in the product. For military, there is a website designed specifically for service members call Operation Supplement Safety <http://hprc-online.org/dietary-supplements/opss> which provides links to outside websites and educational handouts in addition to lists of ingredients that could cause a possible positive drug test. If you choose to take a higher risk supplement which includes weight loss supplements, body building supplements, and sexual enhancement supplements the best thing to do is choose products that are NSF or Informed Choice Certified, meaning that they have been third party tested to ensure they contain no banned or contaminated substances. Look for the below logos or go to these websites for a complete list <http://informed-choice.org/> or <http://www.nsf.org/certified-products-systems>.

***Recommendation...*** Shop for products with third party verification seals like the ones shown below. They evaluate and certify dietary supplements for quality.



## High Risk Supplements

The following are categories of high risk supplements:

- Bodybuilding Products
- Sexual Enhancement Products
- Weight-Loss Products

*“If you choose to take a higher risk supplement ...the best thing to do is choose products that are NSF or Informed Choice Certified, meaning they have been third-party tested to ensure they contain no banned or contaminated substances.”*

## Effectiveness

Some sports supplements can offer real advantages to the soldier both directly and indirectly. Some products have a direct performance enhancing effect; while others are used to help better meet nutritional goals that ultimately enhance performance. Research also indicates that some might obtain a placebo effect, meaning the belief that they are taking something has a psychological effect on the soldier and performance improves. So how can one determine if a supplement is effective?

A scientific trial conducted on humans that simulates the context to which supplement is used is the best indicator of efficacy. If the thought of researching sounds tedious, there are some programs out there such as OPSS and the Australian Institute for Sports Supplement Program that already have ranked the supplements based upon risk/ benefit analysis. Natural Medicine Comprehensive Database can also be accessed through OPSS and provides a score from 1-10 based upon the risk and benefit of taking a supplement. <http://hprc-online.org/dietary-supplements/nmcd>.

The decision to use a supplement should only be made after consideration of the above issues and after an effort has been made to obtain the necessary micronutrients from a food source.

-Authored by 4ID and Army World Class Athlete Program Sports Dietician

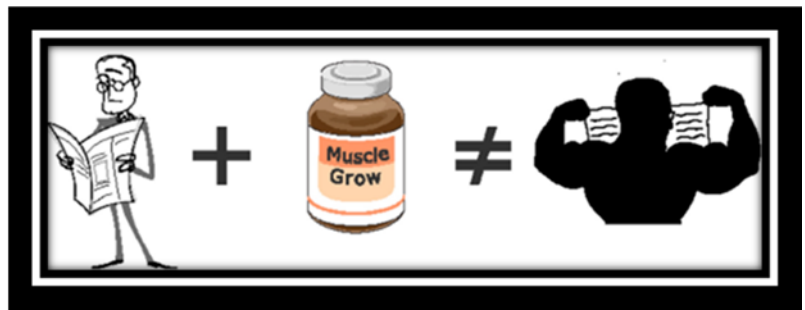


Image courtesy <http://hprc-online.org/dietary-supplements>

### Supplements by Zone

Green Zone	Yellow Zone	Red Zone
Branched-Chain Amino Acids	Antioxidants	Ephedra
Fish Oil/Omega-3 Fatty Acids	Beta-Alanine (B-Alanine)	<b>Melatonin (for flight personnel)</b>
Melatonin	*Caffeine	Bitter Orange (Synephrine)
Multivitamins & Minerals	Chromium	Testosterone Precursors/Boosters and Anabolic Compounds
Probiotics	Coenzyme Q10	Weight-loss Supplements
Tyrosine	Creatine	
Vitamin B Complex	Glutamine	
	L-Arginine	
	L-Carnitine	
	Megavitamins & Minerals	
	Quercetin	
Food-based Products		
Sports Bars	Protein Powder (including whey)	<b>**Energy Shots</b>
Sports Drinks	*Energy Drinks	
Sports Gels		

\*Excessive consumption is potentially dangerous and could lead to side effects and/or adverse reactions.

\*\*Insufficient evidence to support a recommendation for use.

Note: Supplements in bold appear in more than one zone.

## Keep Calm And Breathe On...

*Not only can diaphragmatic breathing help improve performance, evidence suggests it's a great way to control anxiety. When your body is stressed your breathing becomes shallow and constricted. Through slow, conscious breathing, your heart rate slows, your body relaxes, and you can Keep on Keeping on.*

## Breathing for Performance

*Nasal breathing versus mouth breathing, which is better for you?*

When determining how to breathe while running, take in to consideration the fact that everyone is anatomically different. Some people, like myself, might have genetically smaller nasal passages, thus making mouth breathing more efficient for getting oxygen in. Or, also like myself, you might have allergies, which affects “nasal turbinates”, and decreases nasal airway diameter. Cold weather can also cause “condensation rhinitis”, which also has an adverse effect on nasal passage diameter. However, nasal breathing in lower temperatures can warm the air before it reaches the lungs and facilitate better oxygen consumption.

### ***Cross-Training***

I work with professional boxers who do a ton of running, and I instruct them to breathe primarily through their nose because they can't have their mouth open during a fight or they risk getting knocked out when the jaw is open. We discovered a nice benefit of exclusively breathing through the nose, whereby these boxers get a “second wind” when they change to mouth breathing because they are able to get more air in and more carbon dioxide out. This concept is what gave birth to the idea of the mixed martial arts “breathing mask”, which is a mask designed to create “pulmonary resistance”, which strengthens the diaphragm and results in adaptation to less oxygen, and improvement in oxygen consumption and utilization without the mask.

### ***Running***

My point to this discussion is that runners should train themselves to be proficient with breathing through their nose and mouth because different physical and environmental factors can call for different techniques. After considering some of the anatomical variables, it is best to experiment with different breathing techniques to see what feels the most natural and harmonious with your stride.

### ***High Intensity Interval Training***

When it comes to high intensity interval training (HIIT), I am a firm believer in the martial arts breathing technique called the “Kiai.” Kiai is a method of generating energy through forceful breathing with your diaphragm and pelvic floor musculature. The sound you make is a “shushing sound”, and the objective is to let a little air out through your teeth while drawing in the nasal. Pretend you are holding a candle four inches from your face and you have to exhale without blowing the candle out. This requires a controlled exhalation that sounds like letting air out of a tire. To feel the effects of a Kiai, firmly grab your obliques with your thumb to your back and fingers on your obliques. Then, exhale normally and you should feel little to no change in the firmness of your obliques. Now, with your hands still on your oblique's, shush as hard as you can, and you will feel a big difference in how tight your abdominal musculature gets.



**PERFORMANCE TRIAD**



Any time you transfer force, you should not hold your breathe (Valsalva), especially during HIIT training. Rather, Kiai at the exact moment you either receive or deliver force. For example, let's say you're doing a Burpee push-up; you would Kiai at the very bottom of the push up and explode out of the push-up right into the jump. Let's say you're doing a power clean; you would Kiai during the second pull (the explosive phase).

In closing, I believe in learning to breathe through your nose for low intensity exercise, but primarily breathing through the mouth during high intensity exercise. Also, most importantly, breathe with your belly (diaphragm) and find the appropriate RHYTHM for each mode of training. Remember, that breathing is not only about getting oxygen in, but getting carbon dioxide out, and finding the perfect gas exchange balance FOR YOUR BODY, during different training modes AND intensity levels.

-Authored by 4ID Strength and Conditioning Coach

## Additional Information & Resources

### *What is FIT TO FIGHT?*

The FIT TO FIGHT Newsletter is designed to educate Soldiers and Leaders of the 4th Infantry Division in all matters related to the Performance Triad (Physical Activity, Nutrition, Rest). The intent is to provide resources to Soldiers in order to help improve and sustain combat readiness through safe and effective means. For additional information on Soldier performance improvement and reconditioning programs as well as previous issues of FIT TO FIGHT, please visit the link below.

***Did you know...*** 4th Infantry Division has their own Human Performance team that is comprised of Strength Coaches and Athletic Trainers who are dedicated to improving physical performance of Soldiers? Below is a list of services offered, but you can also visit the website below for more information.

#### **Advanced Fitness Courses:**

- ◆ PRT Planning and Leadership Course
- ◆ Unit Strength and Conditioning Sessions

#### **Rehabilitation & Reconditioning Services**

- ◆ Unit Reconditioning PRT training

