

## Practitioner Dietary Supplement Reference Guide

### Introduction

#### About dotFIT Worldwide

- Evidence-based research and support for Fitness Professionals and their clientele
  - See dotFIT Worldwide Faculty and Advisory Board below
- Exercise content and support from the National Academy of Sports Medicine (NASM)
  - The market leader in Fitness, Sports Medicine and Sports Performance credentials
  - NASM activates over 25,000 credentials annually with over 100,000 professionals worldwide
  - Works with over 6,000 health clubs and professional sports organizations
- Sports Science and Human Performance Resource and Partner: Fusionetics
- Evidence-based tools and applications
  - R&D and support for nutrition, weight control, performance and exercise programming
  - Web-based, client- and trainer-centric programming: exercise, menu plans with supplement screening, continuous feedback to client and/or trainer based on measurement inputs and goals
- Worldwide professional delivery network
  - Health clubs, clinical settings, hands-on fitness professionals as well as phone and e-coaching platforms
- Programs can connect to body sensing/tracking devices
  - Free living calorie expenditure, steps, physical activity, sleep efficiency, etc.
- Unlimited support and education for consumers and professionals via website, webinars, workshops, certifications, and direct access to R&D team. Toll-free (877.436.8348) and email address: support@dotfit.com
- Complete pharmaceutically manufactured and holistically integrated dietary supplement Practitioner Product line and foods including home delivery platform - offered through practitioners only

#### dotFIT Worldwide Faculty and Advisory Board

INSTITUTIONAL RELATIONSHIPS AND ADVISORY RESOURCES University of Berkeley University of Hawaii	CHIROPRACTIC HEALTH AND WELLNESS Eric Plasker, DC
NUTRITION, DIETETICS AND WEIGHT CONTROL Jill Fairweather, MS, RDN Gay Riley, MS, RDN, CCN Alan Titchenal, PhD Kat Barefield, MS, RDN, NASM-CPT & PES, CES, ACSM-HFS	DIETARY SUPPLEMENTS Timothy Ziegenfuss, PhD, CSCS, EPC Dr. Steven Shassberger, DO RELIANCE VITAMIN CO., INTEGRITY NUTRACEUTICALS & GARDEN STATE NUTRITIONALS Pharmaceutically & drug-licensed facilities, FDA inspected operating under strictly audited GMPs & NSF CERTIFIED FOR SPORT™ Program
EXERCISE SCIENCE, PHYSICAL THERAPY AND CORRECTIVE EXERCISE National Academy of Sports Medicine <a href="http://www.nasm.org">www.nasm.org</a>	SPORTS SCIENCE & HUMAN PERFORMANCE Dr. Micheal A. Clark, DPT, MS, PT, PES Fusionetics Sports Science Advisory Board <a href="http://www.fusionetics.com">www.fusionetics.com</a>

## Practitioner Dietary Supplement Reference Guide

---

### dotFIT Worldwide's Position on Use, Recommendations & Manufacturing of Dietary Supplements

The function of dietary supplement preparations is to provide a safe vehicle for delivering precise amounts of desired isolated nutrients and compounds in a low to no calorie form with the purpose of complementing the diet in order to enhance health, sport and fitness goals, i.e. dietary support.

Individual outcomes from the use of dietary supplements are often predicated upon the physiological and psychological state of the recipient as well as dosages, regimen compliance, manufacturing processes, including the use of proper delivery systems and ingredient forms or origins.

### dotFIT Worldwide's Position on Overall Dietary Supplement Use and Recommendations

Dietary supplement products must be 100% defensible through scientific research, not used to treat medical conditions and only recommended in support of the following goals:

- Preserving health
  - Objective: potentially help stave off chronic or age-related disease by improving the daily nutrient intake achieved through diet alone
- Safely enhance sport and fitness outcomes
  - Objective: hasten and support fitness/weight control goals
  - Objective: improve training-induced performance results

### dotFIT Worldwide's Position on the Use of Supplements for Health

**Multivitamin and mineral formulas (MVM)** are simply part of a healthy lifestyle. Unless precluded due to a medical condition, all persons of all ages should use a daily MVM to complement one's best efforts to define<sup>1,2</sup> and consume a proper diet.<sup>3,4,5</sup>

At a minimum, MVM supplementation is insurance against common and unavoidable shortcomings driven by typical daily diets and local food supply or availability<sup>6,7</sup> because regular MVM use can raise blood/tissue levels to what has been shown to reduce risk of disease.<sup>8,9,10,11</sup> Furthermore, there appears to be no downside to daily use.<sup>12</sup> At best, the daily increased level of all known vital nutrients supplied by the MVM may indeed allow optimal cellular performance. Levels of nutrients which are significantly higher but well within a safe range that are delivered by diet combined with a MVM have more potential than diet alone (especially within a range of total calories that maintains proper weight and lean body mass during energy restriction<sup>13,14</sup>) to supply all cellular entities/enzymes with enough materials to operate at full capacity thus avoiding a potential triage effect that may be at the root of many chronic and age-related diseases.<sup>7,7,9,15,16,17,18,19,20,21</sup> MVM supplementation as a primary prevention strategy should begin as early as possible (e.g. prenatal) and be consistent throughout one's lifespan.<sup>12,22</sup> (See Appendix 1: dotFIT Worldwide's Position on Vitamin & Mineral Supplementation).

**Calcium** intake for optimal bone health, potential reduction of stroke and fractures should be 1,000-1,200 mg/day.<sup>23,24</sup> If the diet falls short the gap should be filled by supplementing but not to exceed 1,200 mg total intake of supplements and diet.<sup>25</sup> Males should not exceed 500 mg of calcium from supplements unless advised by a qualified physician.<sup>26</sup> There is almost no reason to take a calcium-only supplement. Calcium supplementation should be accompanied with adequate amounts of Vitamin D for proper absorption and utilization.<sup>27</sup>

## Practitioner Dietary Supplement Reference Guide

**Vitamin D** daily intakes of 600 IU up to age 70 and 800 IU over 70 years of age are the current recommendations.<sup>28</sup> The Institute of Medicine (IOM) suggests that a 25-hydroxyvitamin D blood level of 20 ng/mL (50nmol/L) is sufficient for bone health based on integrated measures of calcium absorption, bone mineral density, osteomalacia, and rickets.<sup>29</sup> Based on current data many experts disagree with the IOM recommendation and suggest a 25-hydroxyvitamin D blood level of at least 30 ng/mL (75nmol/L)<sup>30,31</sup> a level associated with up to a 31% risk reduction in all cause mortality, falls and fractures.<sup>31,32,33</sup> Generally supplementation would be required to achieve and maintain<sup>34</sup> this potentially beneficial blood level.<sup>35,36</sup>

### dotFIT Worldwide's Position on Use of Supplements in Support of Weight Control

Dieting to lose weight without financial motivation is difficult for most everyone and generally ends with much of the weight regained within the first year.<sup>37,38,39,40,41</sup>

The goal of incorporating a dietary supplement or prescription drug into a weight loss program is to assist the participant in complying with the daily routine that leads to weight reduction. The supplement ingredients must have safely demonstrated the potential to act in one or more of the following ways:

- Help create and maintain a calorie deficit by increasing daily calorie expenditure when compared to a non-supplemented state
- Raise energy levels that may make one more active throughout the day
- Reduce the drive to consume food
- Decrease calorie absorption

The dieter would cease supplementation once the weight goal is reached or when s/he has established a daily routine which allows continual progress and/or maintenance without supplements.

### dotFIT Worldwide's Position on Use of Supplements for Enhancing Performance

Sports at all levels have become fiercely competitive, primarily because the rewards for winning continue to expand into previously unimaginable economic territories. Giving athletes the necessary “edge” to compete now requires sophisticated evolving nutrition and exercise protocols including the proper integration of individualized dietary supplements. Additionally, because of improved methods and frequency of drug testing, athletes are seeking healthy legal alternatives to help enhance performance. Maximizing potential during high-level competition involves athletes and qualified trainers leveraging all available resources. In fact, surveys from the 2008 Olympics showed at least 90% of the 11,000 athletes reported regularly using dietary supplements.<sup>42</sup> Other polls of competitive athletes of all ages show the same numbers.<sup>43,44,45,46</sup> Additionally, approximately 85% of health club participants regularly use dietary supplements to enhance health or exercise outcomes.<sup>47</sup>

There is now strong scientific and empirical evidence that a limited number of natural substances prepared in formulations matched from positive clinical trials and ingested properly into a training and nutrition plan can safely improve recovery,<sup>48,49,50,51</sup> muscle protein synthesis,<sup>52,53,54,55,56,57,58</sup> time to exhaustion<sup>59,60,61,62,63,64,65</sup> and training-induced size or performance for many athletes.<sup>66,67,68,69</sup> The rationale behind using nutritional strategies to avoid training *plateaus* centers around findings that the extent of muscle damage induced by exercise appears to remain constant throughout a prolonged training regimen. Meaning, repeated exercise sessions continue to “open the door” for the building process even if no muscle or strength gains are being produced.<sup>70</sup> Therefore, when the benefits of training and diet on muscle mass and performance have stabilized, specific nutrient supplement regimens may play a role in plateau avoidance and progressive development for many athletes.

## Practitioner Dietary Supplement Reference Guide

---

### dotFIT Worldwide's Position on Final Individual Recommendations

---

All dotFIT programs prepared by dotFIT Worldwide are designed to screen individuals based on medical history, physical characteristics, exercise experience and goals in order to safely and properly integrate dietary supplements into their fitness programs delivered by certified practitioners to accomplish the above stated outcomes.

#### The Practitioner Product Channel - Evidence Based Rules

Before nutritional compounds become Practitioner Products and recommended for consumer use, all formulas/ingredients must survive rigorous legal and scientific review and testing. Practitioner Product guidelines are as follows:

- Identify best, current clinical research demonstrating benefit for using active ingredients (evidence-based).
- Identify data supporting safety and efficacy including long-term empirical data (see Table 1 below and Evaluation Guidelines).
- Identify and recommend proper ingredient dosing and forms matched to positive outcomes from clinical data
- As evidence-based science progresses, products must be routinely updated.
- Products are designed in appropriate delivery forms established by each product's ingredients, desired target tissues, and the amounts required in specific time periods to deliver on the product claims. In other words, validate that the right ingredients and amounts get to the right places at the right times.
- Customized finished products are tested to validate whether release patterns match their respective designed criteria in order to assure the desired results.
- Dietary supplement products and powders are manufactured in regularly audited FDA-registered pharmaceutical and NSF Certified for Sport facilities in compliance with current Good Manufacturing Practices (cGMP).
- Ingredient testing for purity, potency and delivery from raw materials to finished product.
- The final product undergoes rigorous testing, both in-house and through a 3rd-party including outside NSF Certified laboratories, Health Canada Laboratories, and NSF Certified For Sport Program testing which assure users that all label claims are met and surpass FDA guidelines, USDA guidelines, and industry norms.
- All formulas must be able to work in synergy with other dotFIT™ products in order to avoid nutrient overages, which are common with typical, indiscriminate supplement use.<sup>71,72</sup>
- dotFIT programs consider diet, medications, and other dotFIT products before a personalized dietary supplement recommendation is generated. This assures the user remains in a safe and optimal nutrient range throughout the day.
- dotFIT foods cannot be "spiked" with unnecessary substances/nutrients. Most other products in this space (e.g. bars, shakes, ready-to-drinks, etc.) are heavily spiked with many nutrients that can lead to undesirable levels within the body when combining products from multiple manufacturers and normal food intake.<sup>73</sup> When consuming only dotFIT products, as directed with one's normal daily food intake, the recipient can be assured of keeping the body at a safe and optimal nutrient level.
- dotFIT must provide complete practitioner and customer product/program education and support, including full disclosure regarding product ingredients, proposed mechanisms of action, contraindications, safety, manufacturing processes and visibility.

#### Product Testing Documentation

- Tests that include disintegration, dissolution, stability, purity (no contaminants) and potency, which includes the finished product's certificate of analysis.

## Practitioner Dietary Supplement Reference Guide

---

- In-house and 3<sup>rd</sup> party product validation and testing methods based on all available certified protocols including applicable USPs (United States Pharmacopeia, an official compendia of standards) and other international compendia.
- 3<sup>rd</sup> party NSF Certification for Sport testing for banned substances and label claims.
- 3<sup>rd</sup> party Health Canada product testing for ingredients matched to clinical trials, label claims and safety.
- Appropriate peer-review research that supports the dosage and purpose of the compound.
  - Proof of equivalence or evidence that a given dose of a product must contain a certain amount of key ingredients in order to produce a known effect.
- Proof that products will be absorbed and utilized by the body.
- Assurance that the substance is nontoxic, along with list of any known potential side effects and drug interactions.
- Qualified personnel and support documents available to all consumers via [www.dotFIT.com](http://www.dotFIT.com) or 877.436.8348.

### *Product Evaluation Guidelines and Scoring*

Only products/ingredients that score a four or five out of five possible points are potential dotFIT Worldwide-authorized products and may become integrated into holistic fitness planning (e.g. combined with diet and activity/exercise planning) and delivered by certified practitioners. See Table 1.

#### **Review of Products**

- A. Criteria for evaluation: to establish product integrity
  - 1. History of safe use
  - 2. Cultural or traditional medicine
  - 3. Anecdotal or empirical reports
- B. Product formulation
- C. Individual ingredients

#### **Research documenting claims, performed on humans**

- D. Published in peer reviewed literature – citation(s)
  - 1. Product formulation
  - 2. Individual ingredients
- E. Books/brochures and company marketing brochures or sales sheets
  - 1. Product formulation
  - 2. Individual ingredients
- F. Privately sponsored, unpublished reports or studies
  - 1. Product formulation
  - 2. Individual ingredients
- G. Research supporting either a biochemical or physiological rationale

#### **Research documenting claims, performed on animals**

- H. All same as above

#### **Safety Studies**

- I. Animal toxicology studies
- J. In vitro toxicology studies
- K. Human clinical evaluations
  - 1. Dosage and route of administration

## Practitioner Dietary Supplement Reference Guide

---

### 2. Toxicity

#### L. Human anecdotal/empirical reports

1. Dosage and route of administration
2. Toxicity

### Adverse Event Reports

- M. Center for Disease Control (CDC) and Med Watch
- N. Food and Drug Administration (FDA)
- O. World Health Organization (WHO)
- P. State Health Departments
- Q. Trial Lawyers Association: personal injury litigation groups

### Food and Drug Administration

The regulatory agency for approved claims with medical – scientific evidence for documentation of educational marketing claims in advertising and ‘third party’ literature under DSHEA\*.

- R. Structure (anatomy) claims
- S. Function (physiology) claims
- T. ‘Life Event’ claims
- U. Fitness claims
- V. Anabolic/weight gain claims
- W. Androgenic/strength and endurance claims
- X. Fat loss (lipolysis) claims
- Y. Metabolic rate (BMR) and lean body mass claims
- Z. Cardiovascular tone/‘aerobic’ fitness claims
- AA. Recovery time/‘muscle burn’ claims

\* DSHEA is the Dietary Supplement Health Education Act of 1994. The DSHEA established a formal definition of “dietary supplement” using several criteria. A dietary supplement:

- is a product (other than tobacco) that is intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, a mineral, an herb or other botanical, an amino acid, a dietary substance for use by man to supplement the diet by increasing the total daily intake, or a concentrate, metabolite, constituent, extract, or combinations of these ingredients
- Is intended for ingestion in pill, capsule, tablet, or liquid form
- Is not represented for use as a conventional food or as the sole item of a meal or diet
- Is labeled as a “dietary supplement”
- Includes products such as an approved new drug, certified antibiotic, or licensed biologic that was marketed as a dietary supplement or food before approval, certification, or license (unless the Secretary of Health and Human Services waives this provision)

## Practitioner Dietary Supplement Reference Guide

**Table 1—Product Evaluation Score: Rating of Evidence**

Only products that score a four or five rating are potential dotFIT authorized products.

SCORE	RATING	DOCUMENTATION/ EVIDENCE CRITERIA
5	Excellent (>90% Probability)	Product formulation claims documented by human studies
4	Very Good (>70%<90% Probability) (High Probability)	At least two (2) of the product’s formulated ingredients claims documented by human studies
3	Good (<70%>30% Probability) (Medium Probability)	One of the product’s formulated ingredients claims documented by human studies
2	Fair (>10%<30% Probability) (Low Probability)	No human studies. However, at least two (2) of the product’s formulated ingredients have a biochemical- physiologic rationale
1	Poor (<10% Probability) (Questionable Probability)	No human studies. However, at least one (1) of the product’s formulated ingredients have a biochemical– physiologic rationale
0	Fails (Zero Probability – “Hype”)	No documented human studies, and no biochemical – physiologic rationale for any ingredients

### The Products

Included in this guide are the following for each dotFIT product:

- Goal
- Rationale
- Typical Use
- Dosage
- Definitions
- Precautions
- Contraindications
- Adverse Reactions
- Upper Limits/Toxicity



---

---

## Practitioner Dietary Supplement Reference Guide

---

---

### Definitions:

#### Goal

Describes the purpose of the formulation, including each product's intended outcome.

#### Rationale

Lists the ingredient's basic mechanisms of action and their respective function in participating in the product's intended outcome or goal.

#### Typical Use

Describes the known group of users that may experience the product's potential listed benefits.

#### Dosage

Lists the dosages used in studies and historically with the greatest potential for safety and efficacy.

#### Precautions

The compounds in this Practitioner's Dietary Supplement Reference Guide (SRG) are considered safe for the general population at the proper dosage. Under this heading and the subheadings below, a summary of safety considerations will be called out for potential vulnerable subpopulations.

#### Contraindications

Describes conditions in which the compound might be avoided or signal caution, including people with unique genetic predispositions, certain pre-existing disease states or persons taking specific prescription medications.

#### Adverse Reactions

Lists possible side effects and/or explains commonly reported reactions that may not be clinically supported or causally related to the compound. Case reports may be used to explain theoretical risk when clinical trials or specific studies are not available. Case reports are not considered scientifically valid for proving efficacy or documenting risks, but may be used to highlight an unlikely but potential safety issue.

#### Upper Limit/Toxicity

Gives the highest known dose that still maintains a large margin of safety and any known toxicity data. When available the Recommended Daily Allowance (RDA), No Observed Adverse Effect Level (NOAEL), Lowest Observed Adverse Effect Level (LOAEL) and the lethal dose 50 (LD50) values will be given. The LD is the dose at which 50% of the test animals (rats or mice) died and is usually only used as a reference for the relative toxicity of a substance.

The Tolerable Upper Intake Level or Upper Limit (UL) is the maximum level of total chronic (long-term) daily intake judged unlikely to pose a risk of adverse health effects to most of the healthy population, including sensitive individuals, throughout their life stages. The UL is intended to provide a safety standard for dietary supplements such that no significant or unreasonable risk of illness or injury would arise at or below this intake level.



## Practitioner Dietary Supplement Reference Guide

### References

- <sup>1</sup> Powell-Wiley TM, Miller PE, Agyemang P, Agurs-Collins T, Reedy. Perceived and objective diet quality in US adults: a cross sectional analysis of the National Health and Nutrition Examination Survey (NHANES). *J Public Health Nutr.* 2014 Mar 17;1-9. [Epub ahead of print]
- <sup>2</sup> Dollahite J, Franklin D, McNew R. Problems encountered in meeting the Recommended Dietary Allowances for menus designed according to the Dietary Guidelines for Americans. *J Am Diet Assoc* 1995 Mar;95(3):341-4, 347
- <sup>3</sup> Fairfield KM, Fletcher RH. Vitamins for chronic disease prevention in adults: scientific review. *JAMA.* 2002 Jun 19;287(23):3116-26. Review.
- <sup>4</sup> [No authors listed] Multivitamins: should you buy this insurance? Studies have raised doubts about vitamins, but the multivitamin pill is still a good idea. *Harv Health Lett.* 2006 Sep;31(11):3-5.
- <sup>5</sup> Nicklas TA, Jahns L, Bogle ML, Chester DN, Giovanni M, Klurfeld DM, Laugero K, Liu Y, Lopez S, Tucker, KL. Barriers and facilitators for consumer adherence to the dietary guidelines for Americans: the HEALTH study. *J Acad Nutr Diet.* 2013 Oct;113(10):1317-31. doi: 10.1016/j.jand.2013.05.004. Epub 2013 Jul 17.
- <sup>6</sup> Krebs-Smith SM, Guenther PM, Subar AF, Kirkpatrick SI, Dodd KW. Americans do not meet federal dietary recommendations. *J Nutr.* 2010 Oct;140(10):1832-8. Epub 2010 Aug 11.
- <sup>7</sup> Calton JB. Prevalence of micronutrient deficiency in popular diet plans. *J Int Soc Sports Nutr.* 2010 Jun 10;7:24.
- <sup>8</sup> Gladys Block, Christopher D Jensen, Edward P Norkus, Tapashi B Dalvi, Les G Wong, Jamie F McManus, and Mark L Hudes Usage patterns, health, and nutritional status of long-term multiple dietary supplement users: a cross-sectional study. *Nutr J.* 2007; 6: 30. Published online 2007 October 24. doi:
- <sup>9</sup> Zhang W, Iso H, Ohira T, Date C, Tamakoshi A; JACC Study Group. Associations of dietary magnesium intake with mortality from cardiovascular disease: the JACC study. *Atherosclerosis.* 2012 Apr;221(2):587-95. doi: 10.1016/j.atherosclerosis.2012.01.034. Epub 2012 Jan 28.
- <sup>10</sup> Leishear K, Boudreau RM, Studenski SA, Ferrucci L, Rosano C, de Rekeneire N, Houston DK, Kritchevsky SB, Schwartz AV, Vinik AI, Hogervorst E, Yaffe K, Harris TB, Newman AB, Strotmeyer ES; Health, Aging and Body Composition Study. Relationship between vitamin B12 and sensory and motor peripheral nerve function in older adults. *J Am Geriatr Soc.* 2012 Jun;60(6):1057-63. doi: 10.1111/j.1532-5415.2012.03998.x
- <sup>11</sup> Meir Stampfer, M.D., Dr.P.H., Toward Optimal Health: JOURNAL OF WOMEN'S HEALTH Volume 16, Number 7, 2007© Mary Ann Liebert, Inc.  
DOI: 10.1089/jwh.2007.C077
- <sup>12</sup> Macpherson H, Pipingas A, Pase MP. Multivitamin-multimineral supplementation and mortality: a meta-analysis of randomized controlled trials. *Am J Clin Nutr.* 2013 Feb;97(2):437-44. doi: 10.3945/ajcn.112.049304. Epub 2012 Dec 19
- <sup>13</sup> Stiegler P, Cunliffe A. The role of diet and exercise for the maintenance of fat-free mass and resting metabolic rate during weight loss. *Sports Med.* 2006;36(3):239-62.
- <sup>14</sup> Eric T Trexler<sup>1</sup>, Abbie E Smith-Ryan<sup>1\*</sup> and Layne E Norton . Metabolic adaptation to weight loss: implications for the athlete. *Trexler et al. Journal of the International Society of Sports Nutrition* 2014, 11:7 <http://www.jissn.com/content/11/1/7>
- <sup>15</sup> Autier P, Gandini S. Vitamin D supplementation and total mortality: a meta-analysis of randomized controlled trials. *Arch Intern Med.* 2007 Sep 10;167(16):1730-7. Review.
- <sup>16</sup> Garland CF, Garland FC, Gorham ED, Lipkin M, Newmark H, Mohr SB, Holick MF. The role of vitamin D in cancer prevention. *Am J Public Health.* 2006 Feb;96(2):252-61. Epub 2005 Dec 27. Review.
- <sup>17</sup> Xu Q, Parks CG, DeRoo LA, Cawthon RM, Sandler DP, Chen H. Multivitamin use and telomere length in women. *Am J Clin Nutr.* 2009 Jun;89(6):1857-63. Epub 2009 Mar 11.
- <sup>18</sup> Ames BN. Low micronutrient intake may accelerate the degenerative diseases of aging through allocation of scarce micronutrients by triage. *Proc Natl Acad Sci U S A.* 2006 Nov 21;103(47):17589-94. Epub 2006 Nov 13. Review.
- <sup>19</sup> Ames BN. Optimal micronutrients delay mitochondrial decay and age-associated diseases. *Mech Ageing Dev.* 2010 Jul-Aug;131(7-8):473-9. doi: 10.1016/j.mad.2010.04.005. Epub 2010 Apr 24.
- <sup>20</sup> Lal A, Ames BN. Association of chromosome damage detected as micronuclei with hematological diseases and micronutrient status. *Mutagenesis.* 2011 Jan;26(1):57-62. doi: 10.1093/mutage/geq081.
- <sup>21</sup> Gaziano JM, Sesso HD, Christen WG, Bubes V, Smith JP, MacFadyen J, Schvartz M, Manson JE, Glynn RJ, Buring JE. Multivitamins in the prevention of cancer in men: the Physicians' Health Study II randomized controlled trial. *JAMA.* 2012 Nov 14;308(18):1871-80.

## Practitioner Dietary Supplement Reference Guide

---

---

- <sup>22</sup> Susanne Rautiainen, Agneta A°kesson, Emily B Levitan, Ralf Morgenstern, Murray A Mittleman, and Alicja Wolk. Multivitamin use and the risk of myocardial infarction: a population-based cohort of Swedish women. *Am J Clin Nutr* 2010;92:1251–6.
- <sup>23</sup> A. Catharine Ross, Christine L. Taylor, Ann L. Yaktine, and Heather B. Del Valle, *Editors*. INSTITUTE OF MEDICINE. [http://books.nap.edu/openbook.php?record\\_id=13050](http://books.nap.edu/openbook.php?record_id=13050)
- <sup>24</sup> Schnatz PF<sup>1</sup>, Jiang X, Vila-Wright S, Aragaki AK, Nudy M, O'Sullivan DM, Jackson R, Leblanc E, Robinson JG, Shikany JM, Womack CR, Martin LW, Neuhouser ML, Vitolins MZ, Song Y, Kritchevsky S, Manson JE. Calcium/vitamin D supplementation, serum 25-hydroxyvitamin D concentrations, and cholesterol profiles in the Women's Health Initiative calcium/vitamin D randomized trial. *Menopause*. 2014 Mar 3. [Epub ahead of print]
- <sup>25</sup> Larsson SC<sup>1</sup>, Or sini N, Wolk A. Dietary calcium intake and risk of stroke: a dose-response meta-analysis. *Am J Clin Nutr*. 2013 May;97(5):951-7. doi: 10.3945/ajcn.112.052449. Epub 2013 Apr 3
- <sup>26</sup> Giovannucci E<sup>1</sup>, Liu Y, Stampfer MJ, Willett WC. A prospective study of calcium intake and incident and fatal prostate cancer. *Cancer Epidemiol Biomarkers Prev*. 2006 Feb;15(2):203-10.
- <sup>27</sup> Bolland MJ<sup>1</sup>, Grey A, Avenell A, Gamble GD, Reid IR. Calcium supplements with or without vitamin D and risk of cardiovascular events: reanalysis of the Women's Health Initiative limited access dataset and meta-analysis. *BMJ*. 2011 Apr 19;342:d2040. doi: 10.1136/bmj.d2040.
- <sup>28</sup> Institute of Medicine. *Dietary Reference Intakes: Vitamins*. Washington DC: National Academy Press; 2008. 6p
- <sup>29</sup> Institute of Medicine. *Dietary Reference Intakes for Calcium and Vitamin D*. Washington, D.C.: National Academies Press, 2010
- <sup>30</sup> Pramyothin P<sup>1</sup>, Holick MF. Vitamin D supplementation: guidelines and evidence for subclinical deficiency. *Curr Opin Gastroenterol*. 2012 Mar;28(2):139-50. doi: 10.1097/MOG.0b013e32835004dc
- <sup>31</sup> Schöttker B, Ball D, Gellert C, Brenner H. Serum 25-hydroxyvitamin D levels and overall mortality. A systematic review and meta-analysis of prospective cohort studies. *Ageing Res Rev*. 2013 Mar;12(2):708-18. doi: 10.1016/j.arr.2012.02.004. Epub 2012 Feb 17
- <sup>32</sup> Wong YY<sup>1</sup>, McCaul KA, Yeap BB, Hankey GJ, Flicker L. Low vitamin D status is an independent predictor of increased frailty and all-cause mortality in older men: the Health in Men Study. *J Clin Endocrinol Metab*. 2013 Sep;98(9):3821-8. doi: 10.1210/jc.2013-1702. Epub 2013 Jun 20.
- <sup>33</sup> Lynne Rush<sup>1</sup>, Gerry McCartney<sup>2</sup>, David Walsh<sup>3</sup> and Daniel MacKay. Vitamin D and subsequent all-age and premature mortality: a systematic review. *Rush et al. BMC Public Health* 2013, 13:679 <http://www.biomedcentral.com/1471-2458/13/679>
- <sup>34</sup> Yayuan Zheng<sup>1</sup>, Jianhong Zhu<sup>1</sup>, Manru Zhou<sup>1</sup>, Liao Cui<sup>1</sup>, Weimin Yao<sup>2</sup>, Yuyu Liu<sup>1</sup> Meta-Analysis of Long-Term Vitamin D Supplementation on Overall Mortality 1 Department of Pharmacology, Guangdong Medical College, Zhanjiang, China, 2 Institute of Respiratory Disease, Guangdong Medical College, Zhanjiang, China
- <sup>35</sup> Ng K, Scott JB, Drake BF, Chan AT, Hollis BW, Chandler PD, Bennett GG, Giovannucci EL, Gonzalez- Suarez E, Meyerhardt JA, Emmons KM, Fuchs CS. Dose response to vitamin D supplementation in African Americans: results of a 4-arm, randomized, placebo-controlled trial. *Am J Clin Nutr*. 2013 Dec 24. [Epub ahead of print]
- <sup>36</sup> Macdonald HM<sup>1</sup>, Wood AD, Aucott LS, Black AJ, Fraser WD, Mavroei A, Reid DM, Secombes KR, Simpson WG, Thies F. Hip bone loss is attenuated with 1000 IU but not 400 IU daily vitamin D3: a 1-year double-blind RCT in postmenopausal women. *J Bone Miner Res*. 2013 Oct;28(10):2202-13. doi: 10.1002/jbmr.1959
- <sup>37</sup> Lien LF, Haqq AM, Arlotto M, Slentz CA, Muehlbauer MJ, McMahan RL, Rochon J, Gallup D, Bain JR, Ilkayeva O, Wenner BR, Stevens RD, Millington DS, Muoio DM, Butler MD, Newgard CB, Svetkey LP. The STEDMAN project: biophysical, biochemical and metabolic effects of a behavioral weight loss intervention during weight loss, maintenance, and regain. *OMICS*. 2009 Feb;13(1):21-35.
- <sup>38</sup> McGuire MT, Wing RR, Klem ML, Lang W, Hill JO. What predicts weight regain in a group of successful weight losers? *J Consult Clin Psychol* 1999;67:177–85.
- <sup>39</sup> Phelan S, Hill JO, Lang W, Dibello JR, Wing RR. Recovery from relapse among successful weight maintainers. *Am J Clin Nutr*. 2003 Dec;78(6):1079-84.
- <sup>40</sup> Johansson K<sup>1</sup>, Neovius M, Hemmingsson E. Effects of anti-obesity drugs, diet, and exercise on weight-loss maintenance after a very-low-calorie diet or low-calorie diet: a systematic review and meta-analysis of randomized controlled trials. *Am J Clin Nutr*. 2014 Jan;99(1):14-23. doi: 10.3945/ajcn.113.070052. Epub 2013 Oct 30.

## Practitioner Dietary Supplement Reference Guide

---

---

- <sup>41</sup> Kouvelioti R<sup>1</sup>, Vagenas G, Langley-Evans S. The effects of exercise and diet on weight loss maintenance in overweight and obese adults: a systematic review. *J Sports Med Phys Fitness*. 2014 Apr 16. [Epub ahead of print]
- <sup>42</sup> Starling, Shane. "Dietary supplements win Olympic gold." 2008. NutraingredientsUSA. 15 Sep. 2008 <  
<http://www.nutraingredients-usa.com/Industry/Dietary-supplements-win-Olympic-gold> >.
- <sup>43</sup> Hoyte CO, Albert D, Heard KJ. The Use of Energy Drinks, Dietary Supplements, and Prescription Medications by United States College Students to Enhance Athletic Performance. *J Community Health*. 2013 Feb 1. [Epub ahead of print]
- <sup>44</sup> Diehl K, Thiel A, Zipfel S, Mayer J, Schnell A, Schneider S. Int J Sport Nutr Exerc Metab. Elite Adolescent Athletes and Use of Dietary Supplements: Characteristics, Opinions, and Sources of Supply and Information. 2012 Jun 15. [Epub ahead of print]
- <sup>45</sup> Kristiansen M<sup>1</sup>, Levy-Milne R, Barr S, Flint A. Dietary supplement use by varsity athletes at a Canadian university. *Int J Sport Nutr Exerc Metab*. 2005 Apr;15(2):195-210
- <sup>46</sup> Froiland K<sup>1</sup>, Koszewski W, Hingst J, Kopecky L. Nutritional supplement use among college athletes and their sources of information. *Int J Sport Nutr Exerc Metab*. 2004 Feb;14(1):104-20
- <sup>47</sup> Morrison LJ, Gizis F, Shorter B. Prevalent use of dietary supplements among people who exercise at a commercial gym. *Int J Sport Nutr Exerc Metab*. 2004 Aug;14(4):481-92.
- <sup>48</sup> Kerksick C, Harvey T, Stout J, Campbell B, Wilborn C, Kreider R, Kalman D, Ziegenfuss T, Lopez H, Landis J, Ivy JL, Antonio J. International Society of Sports Nutrition position stand: nutrient timing. *J Int Soc Sports Nutr*. 2008 Oct 3;5:17. Erratum in: *J Int Soc Sports Nutr*. 2008;5:18
- <sup>49</sup> Cermak NM, Res PT, de Groot LC, Saris WH, van Loon LJ. Protein supplementation augments the adaptive response of skeletal muscle to resistance-type exercise training: a meta-analysis. *Am J Clin Nutr*. 2012 Dec;96(6):1454-64. doi: 10.3945/ajcn.112.037556. Epub 2012 Nov 7.
- <sup>50</sup> Matthew Stark, Judith Lukaszuk, Aimee Prawitz, and Amanda Salacinski. Protein timing and its effects on muscular hypertrophy and strength in individuals engaged in weight-training. *J Int Soc Sports Nutr*. 2012; 9: 54. Published online 2012 December 14. doi: 10.1186/1550-2783-9-54
- <sup>51</sup> Leigh Breen<sup>1,5</sup>, Andrew Philp<sup>2</sup>, Oliver C. Witard<sup>1,4</sup>, Sarah R. Jackman<sup>1</sup>, Anna Selby<sup>3</sup>, Ken Smith<sup>3</sup>, Keith Baar<sup>2</sup> and Kevin D. Tipton. The influence of carbohydrate–protein co-ingestion following endurance exercise on myofibrillar and mitochondrial protein synthesis. *J Physiol* 589.16 (2011) pp 4011–4025 4011
- <sup>52</sup> Witard OC<sup>1</sup>, Cocke TL, Ferrando AA, Wolfe RR, Tipton KD. Increased net muscle protein balance in response to simultaneous and separate ingestion of carbohydrate and essential amino acids following resistance exercise. *Appl Physiol Nutr Metab*. 2014 Mar;39(3):329-39. doi: 10.1139/apnm-2013-0264. Epub 2013 Sep 27
- <sup>53</sup> Churchward-Venne TA, Breen L, Di Donato DM, Hector AJ, Mitchell CJ, Moore DR, Stellingwerff T, Breuille D, Offord EA, Baker SK, Phillips SM. Leucine supplementation of a low-protein mixed macronutrient beverage enhances myofibrillar protein synthesis in young men: a double-blind, randomized trial. *Am J Clin Nutr*. 2014 Feb;99(2):276-86. doi:10.3945/ajcn.113.068775. Epub 2013 Nov 27
- <sup>54</sup> Stefan M. Pasiakos Exercise and Amino Acid Anabolic Cell Signaling and the Regulation of Skeletal Muscle Mass. *Nutrients*. 2012 July; 4(7): 740–758. Published online 2012 July 10. doi: 10.3390/nu4070740 PMID: PMC3407992
- <sup>55</sup> Robert H Coker, Sharon Miller, Scott Schutzler, Nicolaas Deutz, and Robert R Wolfe. Whey protein and essential amino acids promote the reduction of adipose tissue and increased muscle protein synthesis during caloric restriction-induced weight loss in elderly, obese individuals. *Nutr J*. 2012; 11: 105. Published online 2012 December 11. doi: 10.1186/1475-2891-11-105 PMID: PMC3546025
- <sup>56</sup> West DW<sup>1</sup>, Burd NA, Coffey VG, Baker SK, Burke LM, Hawley JA, Moore DR, Stellingwerff T, Phillips SM. Rapid aminoacidemia enhances myofibrillar protein synthesis and anabolic intramuscular signaling responses after resistance exercise. *Am J Clin Nutr*. 2011 Sep;94(3):795-803. doi: 10.3945/ajcn.111.013722. Epub 2011 Jul 27
- <sup>57</sup> Witard OC<sup>1</sup>, Jackman SR, Breen L, Smith K, Selby A, Tipton KD. Myofibrillar muscle protein synthesis rates subsequent to a meal in response to increasing doses of whey protein at rest and after resistance exercise. *Am J Clin Nutr*. 2014 Jan;99(1):86-95. doi: 10.3945/ajcn.112.055517. Epub 2013 Nov 20
- <sup>58</sup> Daniel WD West, Nicholas A Burd, Vernon G Coffey, Steven K Baker, Louise M Burke, John A Hawley, Daniel R Moore, Trent Stellingwerff, and Stuart M Phillips. Rapid aminoacidemia enhances myofibrillar protein synthesis and anabolic intramuscular signaling responses after resistance exercise. *Am J Clin Nutr* 2011;94:795–803
- <sup>59</sup> Vandenberghe TJ<sup>1</sup>, Hopkins WG. Effects of acute carbohydrate supplementation on endurance performance: a meta-analysis. *Sports Med*. 2011 Sep 1;41(9):773-92. doi: 10.2165/11590520-000000000-00000
- <sup>60</sup> Doherty M, Smith PM. Effects of caffeine ingestion on rating of perceived exertion during and after exercise: a meta-analysis. *Scand J Med Sci Sports*. 2005 Apr;15(2):69-78. Review.

---

---

## Practitioner Dietary Supplement Reference Guide

---

---

- <sup>61</sup> Astorino TA, Roberson DW. Efficacy of acute caffeine ingestion for short-term high-intensity exercise performance: a systematic review. *J Strength Cond Res.* 2010 Jan;24(1):257-65. Review
- <sup>62</sup> Goldstein ER, Ziegenfuss T, Kalman D, Kreider R, Campbell B, Wilborn C, Taylor L, Willoughby D, Stout J, Graves BS, Wildman R, Ivy JL, Spano M, Smith AE, Antonio J. International society of sports nutrition position stand: caffeine and performance. *J Int Soc Sports Nutr.* 2010 Jan 27;7(1):5.
- <sup>63</sup> Ganio MS, Klau JF, Casa DJ, Armstrong LE, Maresh CM. Effect of caffeine on sport-specific endurance performance: a systematic review. *J Strength Cond Res.* 2009 Jan;23(1):315-24. Review.
- <sup>64</sup> Vitor de Salles Painelli • Bryan Saunders • Craig Sale • Roger Charles Harris • Marina Ya'zigi Solis • Hamilton Roschel • Bruno Gualano • Guilherme Giannini Artioli • Antonio Herbert Lancha Jr. Influence of training status on high-intensity intermittent performance in response to b-alanine supplementation. *Amino Acids* (2014) 46:1207–1215 DOI 10.1007/s00726-014-1678-2
- <sup>65</sup> R. M. Hobson, B. Saunders, G. Ball, R. C. Harris, and C. Sale. Effects of  $\beta$ -alanine supplementation on exercise performance: a meta-analysis. *Amino Acids.* 2012 July; 43(1): 25–37. Published online 2012 January 24. doi: 10.1007/s00726-011-1200-z PMID: PMC3374095
- <sup>66</sup> Robert Cooper, Fernando Naclerio, Judith Allgrove, and Alfonso Jimenez . Creatine supplementation with specific view to exercise/sports performance: an update. *J Int Soc Sports Nutr.* 2012; 9: 33. Published online 2012 July 20. doi: 10.1186/1550-2783-9-33 PMID: PMC3407788
- <sup>67</sup> Buford TW, Kreider RB, Stout JR, Greenwood M, Campbell B, Spano M, Ziegenfuss T, Lopez H, Landis J, Antonio J. International Society of Sports Nutrition position stand: creatine supplementation and exercise. *J Int Soc Sports Nutr.* 2007 Aug 30;4:6
- <sup>68</sup> Chrusch MJ, Chilibeck PD, Chad KE, Davison KS, Burke DG. Creatine supplementation combined with resistance training in older men. *Med Sci Sports Exerc.* 2001 Dec;33(12):2111-7.
- <sup>69</sup> Matthew Stark, Judith Lukaszuk, Aimee Prawitz, and Amanda Salacinski. Protein timing and its effects on muscular hypertrophy and strength in individuals engaged in weight-training. *J Int Soc Sports Nutr.* 2012; 9: 54. Published online 2012 December 14. doi: 10.1186/1550-2783-9-54
- <sup>70</sup> Tipton KD, Cocke TL, Wolf SE, Wolfe RR. Response of muscle protein metabolism to resistance training and acute resistance exercise during hyperaminoacidemia. *Am J Physiol*, 2006; in press.
- <sup>71</sup> Rock CL. Multivitamin-multimineral supplements: who uses them? *Am J Clin Nutr.* 2007 Jan;85(1):277S-279S
- <sup>72</sup> Hurst R, Hooper L, Norat T, Lau R, Aune D, Greenwood DC, Vieira R, Collings R, Harvey LJ, Sterne JA, Beynon R, Savović J, Fairweather-Tait SJ. Selenium and prostate cancer: systematic review and meta-analysis. *Am J Clin Nutr.* 2012 Jul;96(1):111-22. doi: 10.3945/ajcn.111.033373. Epub 2012 May 30
- <sup>73</sup> Mursu J, Robien K, Harnack LJ, Park K, Jacobs DR Jr. Dietary supplements and mortality rate in older women: the Iowa Women's Health Study *Arch Intern Med.* 2011 Oct 10;171(18):1625-33. doi: 10.1001/archinternmed.2011.445.