
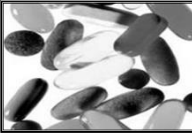



WSSC 2019


Promises & Pitfalls of Sports Supplements



PROMISES & PITFALLS OF DIETARY SUPPLEMENTS

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Overview and Objectives

- Supplements can make a BIG difference in performance. Understand the marketing of supplements, and the science supporting their efficacy and safety.
- Today's multi-billion dollar industry, is full of pills, potions, powders and promises! Address the pros, cons, risks, benefits and dosages of some popular supplements and ergogenic aids.
- Having strength and power is important for maintaining a competitive edge in any sport. With the right arsenal of sports nutrition supplements, you'll provide your body with the best ingredients to support your mission.

PURCHASING REQUIREMENTS


- A USP label states accurately that the product has been tested for dosage, contaminants & it dissolves.
- Labels lie & liars make labels.
- Products need an expiration date.
- Dosages are labeled higher than required.
- Scientific NOT anecdotal studies on humans.

PURCHASING REQUIREMENTS

- Consumer lab GL+ verifies an independent lab checked dosage, purity & absorption. Companies pay ~ \$7,500 per product. Go to consumerlab.com.
- Without FDA control are expensive brands better?
- Avoid yeast, wheat or gluten if you have allergies.
- Sodium listed separately. If lumped with other ingredients, it distorts the content.
- Buyers Beware. There are lies & statistics. If it sounds to good to be true, it is.

CREATINE MONOHYDRATE

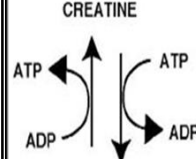
- What is it? Methylguanidine Acetic Acid synthesized from Argine & Glycine (AA's) in the liver, pancreas & kidneys.
- Raw meat & fish ~ 1g per 8oz.
- Dr. Hultman showed 20g daily ↑ body creatine ~ 30%.
- Obtained from muscle tissue in animals until a bottled version. (creatine & water molecule)




CURRENT RESEARCH

- Speeds up the conversion of ADP to ATP in cells.
- Shows ↑ short term energy during intense exercise.


CREATINE





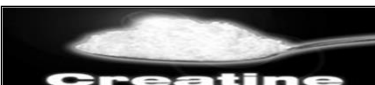
HOW TO DOSE

- Loading is 0.3g per kg/bw. Maintenance is 10 X less.
- Divide your weight by 2.2 = weight in kgs.
- Ex: 150 lbs divided by 2.2 = 68 kgs. 68 X 0.3 = 20g a day for loading. 10 X less (2.0) for maintenance.
- Load 1 wk, maintain 7 wk.
- 2 months on, 1 month off.
- 30g of CHO ↑ insulin to get more into cells.
- Body absorbs 5g at a time, split the loading dose.




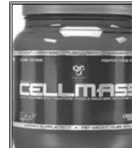
POTENTIAL HARM

- Too much shuts down the ability to make or absorb it.
- Muscles volumize from water retention.
- Causes dehydration. Adequate fluid required!
- Kidneys are stressed to excrete unabsorbed creatine.
- Not regulated by FDA causing relaxed quality control.



HI-TECH CREATINE

- NO-XPLODE: Adds Taurine (AA) to ↑ creatine uptake & ATP levels. Adds electrolytes for hydration.
- CELL MASS: Adds Glutamine, an anti-catabolic AA.





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DEHYDOEPIANDOSTERONE

- **Precursor** for test & estrogen. Produced by the adrenal gland.
- Men derive ~ 50% test from it.
- Women derive ~ 75% estrogen.
- Body has 4X more at 25 than 70.
- Humans /apes have DHEA cycle.

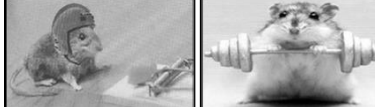


CURRENT RESEARCH

- Mostly on mice & rats who produce far less.
- Human studies show weight ↓, ↑ LMT & ↑ sex drive.

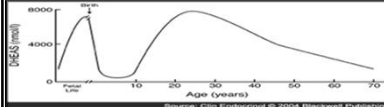
POTENTIAL PROBLEMS:

- Can alter the body's regulation of blood sugar.
- Large ↑ in test & estrogen linked to various cancers.



DHEA DOSAGE


- 5-25mg daily. Elderly prescribed 50-100mg.
- Florida research lab (BBL) examined 7 products.
 1. One had **no** DHEA.
 2. Two claimed 25mg & had 5mg.
 3. Four contained 1/2 of what they claimed.
- **Caution!** Wild yam extracts **do not** convert to DHEA.



PRO-HORMONES ANDROSTENEDIONE OR DIOL


What is it?

- A steroid hormone that converts to test & estrogen.
- **Highly anabolic.** ↑ LMT, strength & libido.
- 2005 pro-hormones were banned. Tested by the IOC, NFL, MLB & NCAA.



RISKS

- ↑ **Testosterone:** Amenorrhea for females.
- ↑ red blood cells, & enlarge prostate for males.
- **Dosage:** 50-100mg in the am (peak) with anti-estrogen




TEST BOOSTERS

- Both have Tongkat Ali as primary ingredient.
- ↑ lutenizing hormone in the pituitary gland to ↑ test.
- Nugenix has Nettle to ↑ MPS, libido & ↓ inflammation.
- Nugenix has test boosters Boron, Maca & Fenugreek.



TEST BOOSTER

- Testa-furanol & Testofen from the Tribulus plant.
- White Button Mushroom extract is an anti-estrogen.
- **Boosts** lutenizing hormone in the pituitary to ↑ test.
- Studies ↑ anabolic effects, MPS & nitrogen retention.




Canadian Inst of Health Research, April 2016 Circulation & Test levels.

LOW TESTOSTERONE CLINICS


- **Big push** by Low T ads.
- Fatigued? Depressed? ↓ sex drive?
- **Hormone formation controlled by:** Hormones, body chemicals, enzymes.
- **RESULTS CAN VARY.**

In a clinical trial, more than **7/10 MEN** had their T levels restored to the normal range in about 2 WEEKS



LOW TESTOSTERONE CLINICS

- Usually a combo of meds.
- Testosterone Cypionate injection.
- Human chorionic gonadotropin ↑ test production.
- Clomid or Anastrozole helps block estrogen receptors.




ANDROPAUSE - MALE MENOPAUSE WITH LOW T

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BETA- HYDROXY BETA- METHYLBUTYRATE


- Metabolite of the AA leucine.
- In grapefruit, alfalfa & catfish.
- ~ 5% leucine converts to HMB.
- Depletes a lot in metabolic stress. (**Intense training!**)
- Research:** ↓ MPB, ↑ MPS.
- Works well with glutamine.
- Studies show ↓ recovery time.



BETA- HYDROXY BETA- METHYLBUTYRATE


- 2018 study:**
- 3g day for 6 weeks.
- ↓ muscle damage & MPB after heavy resistance training.
- Health benefits:**
- ↓ BP, LDL ϕ & recovery time.
- ↓ cardiovascular disease risk.
- Recommend 3-5 grams a day.

Effects on Body Mass & Performance in Male Rugby Players. J Strength Cond Res. 2018 Jan; 32(1):19-26.




GLUTAMINE

- Nonessential AA in beans, meats, fish, poultry & dairy.
- Depletes a lot in metabolic stress. (**Intense training!**)
- Primary fuel source for lymphocytes & macrophages. **Promotes** nitrogen retention! NR required to ↑ LMT.



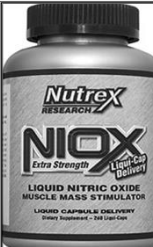
RESEARCH

- ↓ MPB, ↑ MPS & GH.
- ↑ immune system, ↓ leaky gut syndrome.
- Risks:** ↑ doses of AA's ↓ absorption of others.
- Dosage:** 5-10 grams pre & post workout.




NITRIC OXIDE

- Enzymes breakdown AA Arginine to NO gas which ↑ luteinizing hormone Lutropin.
- Lutropin ↑ the production to make more testosterone!**
- Lutropin ↑ blood flow & test.
- Say hello to Viagra & Cialis!
- Tested & detected in sports.




BETA ALANINE

- AA helps produce Carnosine. FT fibers have a **HIGH** %!
- Helps to delay fatigue.
- ↑ body ph, high alkalinity.
- 4-6mg daily. Kidneys & liver clean. 2 months on, 1 month off.
- ↑ intensity, gains & recovery.




PED's STARTED LONG AGO


- Quick history:** 
- Dutch word ϕ loping+is opium juice.
- The drug of choice of ancient Greeks.
- 1800 ϕ British Cyclists used caffeine & ephedrine.
- 1930 ϕ Soviets injected test & dominated Olympics.
- 1950 ϕ USA amateur & pro athletes jumped on board.

6 PED's FOR AMATURE & PROS

- Stimulants (caffeine).
- Anabolics ↑ testosterone.
- Narcotics for pain (codeine).
- GH ↑ test & tendon strength.
- Endurance ↑ RBC & O ϕ (EPO).
- Diuretics mask drug use (bumetanide).




HUMAN GROWTH HORMONE

- A popular PED!** 
- Hormone produced by the pituitary gland.
- Determines height & bone size during puberty.
- Pre 1985 extracted from the pituitary of cadavers.
- Some cases of Creutzfeldt-Jakob (rare brain disorder).
- Now lab developed GH mimics natural GH in the body.

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HUMAN GROWTH HORMONE

- Greatly stimulates muscle & bone growth.
- Greatly ↑ tendon strength for overload training!
- Growth hormone enhances amino acid transport.
- Released throughout the day, highest levels at night.
- Abuse can cause Acromegaly (extremity enlargement).



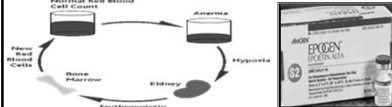
CLENBUTEROL

- Used medically for asthma. Used in fitness:
 - ↑ metabolism, breakdowns fat & triglycerides.
 - ↑ muscle endurance, allows more O₂ into cells.
- Works quickly, ↑ body temp to burn energy.
- Risks: (Not a steroid) A CNS stimulant. Used for weight loss often by females to ↑ endurance. **(more cardio!)**




ERYTHROPOIETIN

- Medically used to ↑ RBC in kidneys, & treat anemia.
- Greatly ↑ oxygen absorption, endurance & recovery.
- Risks: Danger! More RBC than the body can handle.
- Benefits: ↑ endurance! (Tour De France, marathons).




EPHEDRA & MA HUANG

- Stems of Ephedra plants.
- CNS stimulant that ↑ energy!
- Used in China as herbal tea (asthma) for 5,000 years!
- Ephedra free products: Willow Bark, Bitter Orange, Guarana & Hydroxycitric Acid.
- Stack: Add caffeine & aspirin.



RISKS


- A push for your workout?
- ↑ energy; dangerously!
- Could equal disaster!
- Stimulants with caffeine
- ↑ HR, BP, ↓ appetite & constrict blood vessels.
- Over 120 deaths.
- FDA banned in 2004.
- De-conditioned risk?
- Athletes & Contracts?



CHROMIUM PICOLINATE


WHAT DOES IT DO?

- ↑ insulin ↓ dieting fatigue & cravings.
- Most diets have the RDA of chromium.
- Trace mineral in yeast, prunes, cereal, nuts, mushrooms & bread.
- Picolinate ↑ absorption.




RESEARCH

- Helps push AAAs & CHO into muscle cells.
- Risk: Need a lot.
- Absorbs very slow.
- ↑ amounts might lead to liver & kidney damage!
- Headaches? Moody? Chromosomes damage?
- Dose: 200mcg per 2,000K.




CONJUGATED LINOLEIC ACID

- Fatty acid found in mushrooms, eggs, meat, dairy & processed food.
- Claim: Stops fat cells from ↑ in size.
- Research: Anti-carcinogenic.
- (On Rats) ↓ in body fat **without** changing eating habits.
- (Humans) ↑ weight loss in dieting.
- Risk & dosage: GI upset, 3g daily.



RASPBERRY KETONES


- An aromatic in raspberries used in cosmetics.
- (On mice) prevented weight ↑ on high fat diets.
- (On mice) prevented excess fat build-up in the liver.
- RK have adipo-nectin which ↑ body temp with 100mg.



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5 HOUR ENERGY

- Born in 2004. **215mg caffeine** & B vitamins.
- 1.93 oz:** 4K¢, no sugar or herbal stimulants.
- AA Tyrosine, Phenylalanine & Taurine to ↑ uptake.




5 HOUR ENERGY

- Effectiveness:** (Consumer Reports Study 2017)
- Probably+help grogginess as well as a cup of coffee.
- Little if any research* that AA & Vit B₆ ↑ energy level.




ROCKSTAR

- Born in 2001 by Pepsi.
- Sales ~ 15% of the drink market.
- 16oz:** 1,000 mg of Taurine to ↑ uptake.
- 160 mg caffeine, 67 grams sugar, ginseng & guarana.



SIDE EFFECTS & RISKS

- ↑ dehydration & caffeine is a diuretic. (UAM)
- Caffeine masks the level of alcohol intoxication.
- Can cause jitters, anxiety & ↑ blood sugar levels.




BEAVER BUZZ

- 12oz:** 180K¢, 188mg caffeine, 32g sugar.
- ↑ ratio of stimulants per volume than Rockstar.
- Other stuff: Guarana, ginseng, taurine & B-vitamins.




MONSTER ENERGY DRINK

- Born in 2002 by Anheuser Bush.
- 16 oz:** 2,000mg Taurine, 54g sugar & sucralose.
- 200K, 160mg caffeine, guarana & ginseng to ↑ CNS.
- Usually has a warning label ~ drinking ↑ 48oz daily.



USE, ABUSE & MISUSE!

- CSPI (2015):** 34 deaths linked to energy drinks.
- 22 linked to 5-Hour, 11 to Monster & 1 to Rockstar.



POST-WORKOUT NUTRITION

Within 30 minutes:

- Whey protein is fast digesting & starts the rebuilding process.
- Drink a liquid protein with CHO.

Eat a meal within 2 hours!

- ~ 2:1 CHO to PRO ratio replenishes glycogen stores.
- .8g CHO per kg/bw & .4g PRO.
- 35-40¢ per kg/bw to support aerobic & an-aerobic activity.





WORLD SPINNING® AND SPORTS CONDITIONING CONFERENCE

- Thank you for being a part of WSSC 2019.
- Please remember to submit a session evaluation.
- Your feedback is important to us!