Speaker – Tim Wierman

Speaker’s Bio…

- President of Nutrition Education Services, Inc
- Creator of EAT TO COMPETE
- M.A. Nutrition Education (Immaculata Univ)
- B.S. (Ohio University)
- Member of ADA
- 160 Colleges & H.S. (35 states)
- 15 Professional Conferences
- 75 triathlons (2001 Ironman USA)

www.EatToCompete.com
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Topic...

“Educating Student-Athletes on the Subject of Sport Nutrition Supplements”
Goals…

1. Why The Concern?
   - A lot of use
   - Little nutrition knowledge

2. Types of Sport Nutrition Supplements

3. Discuss Strategies of Teaching & Educating Student-Athletes, Coaches, & Parents
Sports Nutrition Supplements

One Study – Titled…
“High School Athletes & Nutritional Supplements: A study of knowledge & use”

➤ Frequency of Nutritional Supplement Use Among 509 High School Students

source: IJSN Vol. 5; No.3; Sept. 95
Sport Nutrition Supplement …
Use / Popularity…

- 43% reported using fluid replacements
- 42% used multi vitamin & mineral supplements
- 30% used vitamin C
- 22% used protein drinks
- 22% used carbohydrate loading drinks
- 18% used calcium supplements
- 15% used iron supplements
- 13% used Vitamin B complex
- 10% used weight loss formulas
- 8% used weight gain formulas
- 7% used steroid alternatives
Supplements; H.S. Knowledge

- Findings... Of nutrition knowledge test
- Mean score 13.56 out of 21 questions (65%)
- Females 68%    Males = 63%
- 1/3 of subjects did not know high doses of vit. A & D could be harmful
- 1/2 believed B vitamins were a source of energy
Supplements; H.S. Knowledge

- Nearly 48% of subjects believed that nutritional supplements sold at retailers had all been scientifically tested and were safe to use.

- Greater knowledge is associated with less use; more education about supplements may discourage use (those that pose health risks).
1000’s Supplements
some good & a lot bad!

- Vitamin & Minerals
- Energy Drinks
- Energy Bars & Gels
- Protein / Amino Acid Supplements
- Creatine
- NO2, Andro, Anabolic Steroids & Ephedrine
Supplements
Vitamins & Minerals

☑ Multi Vitamin & Mineral each day
☑ Vitamin C...250-500mg / day
☐ Iron in multi (15 mg)
☐ Calcium...1000-1500 mg / day
Supplements
Vitamins & Minerals

High Potency Multi Vitamin & Mineral

- Do Not Provide Energy!
- Serve as Spark Plugs!
- Take with food & water
- Nothing fancy / expensive
- 100% - 200% across the label
Vitamin C (ascorbic acid)

- formation of skin, bones, connective tissue, red blood cells
- antioxidant (prevents cell damage)
- fights infections & promotes healing
- Strengthens immune system
- 250 mg – 500 mg /day

- 1 c. broccoli = 82 mg
- 1 c. OJ = 124 mg
- 1 orange = 70 mg
- 1 c. strawberries = 85 mg
Vitamin & Minerals - Calcium

Kick up the calcium & prevent bone loss!

DYK ? 50% of the women over the age 15 do not meet the target intake of 800 -1200 mg/day; Average American intake only 500 -600 mg/day
Vitamin & Minerals - Calcium

Functions:
- Ca + ph = healthy bones & teeth
- Essential for muscle contraction & nerve transmission during exercise

Deficiencies:
- bone loss ~ osteoporosis
- muscle cramping
- poor healing / chronic stress fractures
Vitamin & Minerals - Calcium

RDA...

- Adult men & women = 800 mg +
- Growing female teens & young women = 1200 mg
- Pregnant, lactating & postmenopausal = 1200 - 1500 mg
Vitamin & Minerals - Calcium

- All milk (skim, 1%, 2%, and whole milk) contain roughly 300 mg of calcium per 8 oz serving.
- 1 Cup fruit yogurt has 345 mg of calcium.
- Calcium fortified orange juice may have 301 mg per cup.
- Fortified soy milk may have more than 300 mg / cup.
Vitamins & Minerals - Iron

Iron + Protein + Copper = Hemoglobin…
Carries oxygen in the blood from the lungs to the body’s tissues.

Needed for formation of Myoglobin… which supplies oxygen to the working muscles during exercise
Iron Facts...

- RDA for... Women = 15 mg   Men = 10 mg
- Typical American diet yields only 5 to 10 mg/day
- 10 to 50% of heme iron in animal foods is absorbed
- 10% of the non-heme iron in plant sources is absorbed
- Vit. C may enhance the absorption of dietary iron (citrus juices & fruits, broccoli, green peppers)
- Large consumption of coffee & tea may inhibit absorption (tannins)
Iron Deficiency Anemia...Hemoglobin values below 12gm/decileter for women and 13mg/decileter for men

Those most susceptible are…

- Strict vegetarians
- Those restricting calories (protein, carbs & fats)
- Excessive menstrual bleeding
- Big coffee & tea Drinkers
- Poor diet / lack of fruits & veggies (vitamin C)
Supplements
Energy Drinks & Energy Bars

- Use to replace fluids, energy, protein, and other nutrients during periods of heavy training and multiple competitions. Before, during & after exercise!
- 16 oz drink = 100 cal
- 1 bar = 230 cal, 15g P
- 1 Gel = 110 cal
Supplements
Energy Drinks - Recovery

- Use to replace energy, protein, and other nutrients after periods of heavy training and multiple competitions.
- Goal 240 – 400 cal first 30 minutes with 15-20 g protein

Convenience & Taste!
- 11.2oz = 308 cal
- 20 g protein
- 50 g carbohydrates
- 4 g fat
Protein supplements are useful when you do not meet your daily protein requirements from food (1/2 to 1 g per pound of body weight)

Reasons Include...

- Poor diet
- Lack of Resources (availability & $ Funds)
- Vegetarian
Supplements vs. Dietary Protein

EAS MYOPLEX
Deluxe Powder Chocolate Cream

- $69.95 / box / 18 serving box = $3.89 /serving
- Recommended 2 to 3 serving / day = $7.78-$11.67 / day
- 53 g protein & 340 cal / serving = 106-159 g/day

Skinless / Boneless Chicken
1 Pound (16 oz) = $3.89 .... 8.75 g / oz . = 140 g protein
Protein Supplements

- Make sure it has no banned & harmful substances (ephedrine, andro, etc)
- Extra protein not needed by the body stores as body fat.
- Maximum 200 -225 g / day
- 4 ounces = 32-35 grams
- 8 oz. milk = 9 grams
What is creatine?

- It is an amino acid (methylguanidine-acetic acid) found naturally in the diet. It is available in meats & fish (4 g / 2.2 pounds)
- Creatine can be synthesized in the liver, kidneys & pancreas from the amino acids arginine & glycine
Supplements - Creatine

Daily Requirements

- Average daily turnover - 2 grams
- Average daily intake - 1 gram
- Balance is supplied from 2 a.a.
  (arginine & glycine)
Supplements - Creatine

Where is it stored?

- It is synthesized in liver, kidneys, & pancreas. It is then transported to the muscles where it is combined with phosphate to form the active form creatine phosphate.
Supplements - Creatine

- 95% of the body’s creatine supply found in skeletal muscle… 2/3 of this in the form of creatine phosphate
- The less creatine ingested the more efficient the synthesis of creatine by the body
- As creatine intake increases, the amount produced by the body decreases
Supplements - Creatine

What is the theory of creatine phosphate use

- Exercise = ATP $\rightarrow$ ADP $\rightarrow$ ADP + CP = ATP
- The more CP present the faster the resynthesis of ATP = Result shorter recovery = Improved performance
- May reduce lactic acid build-up which reduces performance
Who may benefit from creatine supplementation?

- Those with low muscle creatine concentration
  - Low = less than 120 mmol/kg dm
  - Range = 90 - 160 mmol/kg dm
  - Mean = 125 mmol/kg dm

- Athletes participating in short duration / high intensity events with short recovery times
Supplements - Creatine

**Recommended doses**

- **Loading phase**: 20 - 30 g / day for 5 days (4 - 5g doses)
- **Maintenance phase**: 2 - 6 g / day for 25 days
- **Potential increases**: 20% (120 → 150 mmol kg/dm)... Upper limit 150 - 160 (becomes “trapped”)
NCAA Bylaw 16.5.2.2 (Proposal No. 99-72)
What schools can and cannot PROVIDE
(8/1/2000 Division 1 Schools)

**Permissible**
- Vitamins & Minerals
- Energy Bars
- Calorie-replacement drinks (Ensure, Boost, GO, etc)
- Electrolyte-replacement drinks (Gatorade & Powerade)

- Only “non-muscle building nutritional supplements for the purpose of providing additional calories and electrolytes”
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What schools can and cannot PROVIDE
(8/1/2000 Division 1 Schools)

<table>
<thead>
<tr>
<th>Nonpermissible</th>
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<tbody>
<tr>
<td>✓ Amino acids</td>
<td>✓ Glycerol</td>
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<tr>
<td>✓ Chrysin</td>
<td>✓ HMB</td>
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<tr>
<td>✓ Condroitin</td>
<td>✓ L-Carnitine</td>
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<tr>
<td>✓ Creatine/creatin-containing compounds</td>
<td>✓ Melatonin</td>
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<tr>
<td>✓ Ginseng</td>
<td>✓ Pos-2</td>
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<td>✓ Glucosamine</td>
<td>✓ Protein Powders</td>
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A supplement that contains protein may be classified as a non muscle-building supplement, provided it meets all of the following:

- It is included in one of the four permissible categories
- It does not contain more than 30% of calories from protein (Energy bars, recovery drinks, etc)
- It does not contain additional ingredients that are designed to assist in the muscle building process (as examples of nonpermissible supplements)
Conclusion

Teach the fundamentals of sports nutrition

✓ Caloric Needs for weight management
✓ Types of fuel needed (Carbs, Protein, Fat)
✓ What & When to eat before, during, and after exercise
✓ Fluid replacement needs
✓ BE CONSISTENT & PERSISTENT!