Join VN DPG!

As the leading authority on evidence-based plant-based nutrition, VN DPG’s vision is to optimize global health and well-being by:

- Creating and disseminating plant-based nutrition education materials
- Supporting cutting edge research
- Advocating for influential public policy

Member Website:
VNDPG.org

Consumer Website:
VegetarianNutrition.net

VN DPG Member Benefits

Vegetarian Nutrition Update Newsletter
- Vegetarian Nutrition Update is a quarterly newsletter published by VN DPG and distributed free to all VN members

State Coordinators Program
- Promote VN DPG by exhibiting at affiliate meetings and community events
- Coordinate networking events for VN DPG members
- Connect with Academy student members

Webinars
- Continuing education on plant-based nutrition-related topics

Research Grant
- VN DPG offers a $10,000 research grant for innovative vegetarian research to RDNs, NDTRs and dietetics students who are members of the Academy.
Join our Google Group for discussions on current topics related to plant-based nutrition.
Plant-based recommendations

- Network for a Healthy California, USDA
- American Heart Association
  "Choose foods like vegetables, fruits, whole-grain products and fat-free or low-fat dairy products most often."
- American Diabetes Association
  "Fill the largest section of your plate with non-starchy vegetables."

Matt Ruscigno, MPH, RD
www.truelovehealth.com

Scott Jurek wins the 2006 Badwater Ultramarathon

- 135-mile running race through Death Valley in July
- Wins 2 straight years, sets the course record
- Credits vegan diet

Matt Ruscigno, MPH, RD
www.truelovehealth.com

Sports nutrition

- Total calories
  Mechanism: fuel for cells, muscles
  Requirements: varies by life stage, activity level
  Deficiency: muscle degeneration, lethargy
  Sources: carbohydrate, fat, protein

Matt Ruscigno, MPH, RD
www.truelovehealth.com

Carbohydrate

- Academy / SCAN recommendations
  - 45 to 65% of calories
- American College of Sports Medicine
  - 6 to 10 grams/kg body weight
- Paleo for Athletes
  - 45 to 55% of calories (!)

Matt Ruscigno, MPH, RD
www.truelovehealth.com

Protein

Regulation/growth of cells, organs, muscles
*Requirements: 1.2-2.0g per kg body weight or 10-25% of total calories
Deficiency: muscle mass loss, fatigue

*Meet daily needs for protein and essential amino acids by eating a variety of plant-based protein sources.*

-SCAN DPG

Matt Ruscigno, MPH, RD
www.truelovehealth.com

Even more protein...

- Plant foods contain all of the essential amino acids
- Need to combine proteins is a myth
- Term ‘incomplete protein’ is misleading
- Legumes, nuts, seeds, whole grains and more
- Spinach is 30% protein, 1 cup cooked = 5 grams
- Protein Primer on noneatathlete.com

Matt Ruscigno, MPH, RD
www.truelovehealth.com
Amino acid content - legumes

<table>
<thead>
<tr>
<th>Feed</th>
<th>PRO</th>
<th>HIS</th>
<th>GLU</th>
<th>LEU</th>
<th>LYS</th>
<th>MET/CYS</th>
<th>PHE</th>
<th>THR</th>
<th>TRP</th>
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<td>229</td>
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<td>193</td>
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Amino acid content - vegetables

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<th>LEU</th>
<th>LYS</th>
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<td>15.6</td>
<td>12.9</td>
<td>17.2</td>
<td>15.6</td>
<td>10.5</td>
<td>8.2</td>
<td>6.5</td>
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<td>Lentil - 9 1/2 inches long, cooked</td>
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<td>36</td>
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<td>14.2</td>
<td>13.5</td>
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Iron

- Iron needs of athletes and plant-based eaters are increased
- Non-heme iron is less well absorbed...
- Vit-C increases absorption up to 5-fold!
- Vegans may have higher iron intake than vegetarians
- Variety of sources increases absorption

Compiled by Jack Norris, RD for veganhealth.org

Matt Ruscigno, MPH, RD
www.truelovehealth.com
Plant sources of iron

Table 1: Iron Content of Selected Vegan Foods

<table>
<thead>
<tr>
<th>Food</th>
<th>Amount</th>
<th>Iron (mg)</th>
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<tbody>
<tr>
<td>Soybeans, cooked</td>
<td>1 cup</td>
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<tr>
<td>Blackstrap molasses</td>
<td>2 Tbsp</td>
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<tr>
<td>Lentils, cooked</td>
<td>1 cup</td>
<td>6.8</td>
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<tr>
<td>Spinach, cooked</td>
<td>1 cup</td>
<td>6.4</td>
</tr>
<tr>
<td>Tofu</td>
<td>4 ounces</td>
<td>6.6</td>
</tr>
<tr>
<td>Bagel, enriched</td>
<td>1 medium</td>
<td>6.4</td>
</tr>
<tr>
<td>Chickpeas, cooked</td>
<td>1 cup</td>
<td>4.7</td>
</tr>
<tr>
<td>Tempeh</td>
<td>1 cup</td>
<td>4.5</td>
</tr>
<tr>
<td>Lima beans, cooked</td>
<td>1 cup</td>
<td>4.5</td>
</tr>
<tr>
<td>Black-eyed peas, cooked</td>
<td>1 cup</td>
<td>4.3</td>
</tr>
<tr>
<td>Swiss chard, cooked</td>
<td>1 cup</td>
<td>4.3</td>
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</table>

Calcium

- Vegans should aim for recommendations
- Animal protein not related to osteoporosis
- Variety of sources
  - Leafy greens (bok choy, kale, mustard)
  - Fortified non-dairy milks, orange juice
  - Calcium-set tofu, blackstrap molasses

Bone health

- Complex! Nutrition and exercise
- Nutrients involved: magnesium, phosphorus, potassium, vit D, vit K, amino acids: lysine and hydroxylysine
- Legumes, meat alternatives beneficial

Bone health and exercise

- Strong evidence
- Weight bearing (and strength training!)
- Tension of muscle and bone increases density
- Increase in balance and stability

Vitamin B12

- Crucial to get through a supplement or fortified food
- Must be pro-active!
- Seaweed, tempeh, non-organic vegetables are not sources
**Vitamin B12 recs: 2.4µg/day**

Options for people age 14–65

- Fortified foods 2-3.5µg per serving, 2x/day
- 25–100µg supplement 1x/day
- 1000µg supplement 2x/week

Over 65yo: 500-1000µg 1x/day

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**Sample meal**

- Whole wheat pasta with broccoli, olive oil and tomato sauce
  - 67% carbohydrate, 20% fat, 13% protein
  - < 800 calories, 32g protein, 22g fiber
  - 167% vit-A, 418% vit-C, 19% calcium, 45% iron
- Add 0.5 cup lentils
  - 68% carbohydrate, 17% fat, 15% protein
  - 41 grams protein, Iron 63%

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**Non-nutrients in plant foods**

- Phytochemicals and antioxidants
  - Reduced inflammatory markers
  - Same function as CVD prevention
- Nitric oxide- beets, cacao, plant foods
  - Increase vasodilation, oxygen flow to muscles
  - Increased time to exhaustion

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**The future of nutrition is plants**

- 25,000 (!) different phytochemicals with potential disease fighting properties

Carotenoids- carrots
Lycopene- tomatoes
Isoflavones- soybeans
Flavonoids- cacao

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**Nutrition for plant-based eating**

- Nutrients are derived from more diverse foods than the Standard American Diet (SAD)
- General rule: eating smaller amounts of nutrients more often
- Fruits and vegetables are nutrient-dense: many nutrients for fewer calories. BIG portions!
- Phytochemicals: non-nutritive benefits
Creating plant-based meals

• Grains, vegetables (leafy!), legumes, nuts/seeds
• Emphasize whole foods
• Vegan meat / cheeze can complement
• Variety, variety, variety
• Fruit and salads can be meals!
• Discretionary calories…

Tips for counseling

• Some vegans may overly restrict: organic, non-GMO, local, raw, juice
• Fat- plant fat is good
• Meal timing
• BIG portions of vegetables

It's more about what they eat than what they don't eat.

Nutrition resources

Plant-based Sports Nutrition
- Enette Larson-Meyer, PhD, RD; Matt Ruscigno, MPH, RD
Vegan For Life
- Ginny Messina, MPH, RD; Jack Norris, RD
Plant-powered Diet
- Sharon Palmer, RD
Vegetarian Nutrition (.net)
Vegan Health (.org)

Thank you!
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Protein References


Pythagorus and beyond

“As long as man continues to be the ruthless destroyer of lower living beings he will never know health or peace.” in 400 BC.

• Long philosophical tradition regarding the lives of animals
• Peter Singer, Carol Adams

Benefits of plants

• Great carbohydrate to protein ratio
• Fruits and vegetables are hydrating
• Anti-oxidants that aid recovery
• Healthy fats for increased caloric needs
• Easy to eat

Many athletes are eating plant foods most of the time!

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