NUTRITIONAL CONSIDERATIONS & STRATEGIES for POWER SPEED ATHLETES
I have no financial relationship to the audience.
Polarizing topic  (to put it mildly)
Perspective tuning
Nutritional analysis
Framework  (the less debatable)
Special considerations
Top 3 Emotionally Fueled Topics on Earth

1. Religion
2. Politics
3. Nutrition

Bonus #4 (in my life with 2 young daughters): Glitter
Coach’s mortgage depends on their athletes’ successes. Coach gets frustrated with outcomes. Coach turns to judging/critiquing lifestyle.

You need to gain 30lbs to compete in this conference.

You need to lose 10lbs.

You should eat less carbs.

You should stop eating gluten.

How do you expect to recover when you’re doing [___]?!
100 possible thoughts or statements
Training is overrated

Henk K. Dan P 2014 Seminar
Dietitians are great…

But the most effective nutritionists are the ones that can COACH it.

So, in a large part, YOU (coaches) are a lot more effective than I will ever be for your group/team.
LEGEND

Red: It is illegal to perform individualized nutrition counseling unless licensed or exempt. Effectively only RDs are eligible for licensure.

Orange: It is illegal to perform individualized nutrition counseling unless licensed or exempt. There is a non-RD pathway for licensure. Check for exemptions.

Yellow: It is legal for all to perform individualized nutrition counseling. Effectively, only RDs are eligible for state recognition.

Green: It is legal for all to perform individualized nutrition counseling.
So you green states ...

I think you should eat ice cream and candy when you want. Because my daddy gets to each those things whenever he wants too.
NUTRITION IS PERMISSIVE

OUTCOMES

TRAINING PROGRAM

ANY LIFESTYLE INPUT

NUTRITION

PERSPECTIVE TUNING

2017 USTFCCCA NATIONAL CONFERENCE
BODY COMP IS A LEGITIMATE PARAMETER THAT CAN CHANGE OUTCOMES IN A BIG WAY.

ATHLETES MUST BE COGNIZANT OF THIS. OUTSIDE OF HEALTH … PHYSICS IS REAL.

Bittencourt, N. F. N. (2016)
BEHAVIOR AND LIFESTYLE

SUPPLEMENTS

NUTRIENT TIMING

MACRO & MICRONUTRIENTS & FIBER

HYDRATION & ENERGY BALANCE (CICO)

Top down = Popular
Buttom up = Evidence based

Influenced by: Lyle McDonald
EDUCATION RARELY WORKS.

COACHING WITH EDUCATION
WITH CONSISTENT APPLICATION
OF SOUND STRATEGIES WORKS A LOT MORE.
PERFORMANCE REPORT CARD

INJURY (don’t blame it on this)

ENLISTING OTHER TEAM MEMBERS

MORE THAN SPORT – e.g. Skin issues

TEACH SO THEY CAN TEACH - e.g. FAMILY

COLLABORATE WITH SUPPORT STAFF
ELEPHANT IN THE ROOM

PERSPECTIVE TUNING

2017 USTFCCCA NATIONAL CONFERENCE

Dan Pardi & Stephan Guyenet

NUTRITION POWER SPEED ATHLETES
ADDRESS ALL OF THESE THINGS
ENTRY INTO THEIR LIVES IS MUCH EASIER
International society of sports nutrition position stand: diets and body composition


https://doi.org/10.1186/s12970-017-0174-y © The Author(s). 2017
Received: 25 May 2017 | Accepted: 30 May 2017 | Published: 14 June 2017
IMPORTANCE #1: CALORIES & HYDRATION
Components:
1. Basal Metabolic Rate
2. Thermic Effect of Food
3. Thermic Effect of Activity
4. Non-exercise Activity Thermogenesis

**CALORIES IN, CALORIES OUT (CICO)**
- Calories IN = Easy
- Calories OUT = Complex

**IN GENERAL**

**POWERSPEED**
- Low
- Lower body weight
- Lower activity levels
- Attempting to get leaner

**MIXED/TEAM SPORTS**
- But ...

**ENDURANCE**
- High
- Higher body weight
- Higher activity levels
- Attempting to gain muscle
### NUTRITIONAL FRAMEWORK

#### Men
**HARRIS-BENEDICT**

\[
BMR = 66.5 + (13.75 \times \text{weight in kg}) + (5.003 \times \text{height in cm}) - (6.755 \times \text{age in years})
\]

**MIFFLIN-ST JEOR**

\[
BMR = (10 \times \text{weight in kg}) + (6.25 \times \text{height in cm}) - (5 \times \text{age in years}) + 5
\]

**ALAN ARAGON**

- **Men** (or more active): 9-11 + \( \text{HRS Training} \times \text{TBW} \)
- **Women** (or less active): 8-10 + \( \text{HRS Training} \times \text{TBW} \)

#### Women
**HARRIS-BENEDICT**

\[
BMR = 66 + (6.2 \times \text{weight in pounds}) + (12.7 \times \text{height in inches}) - (6.76 \times \text{age in years})
\]

**MIFFLIN-ST JEOR**

\[
BMR = (10 \times \text{weight in kg}) + (6.25 \times \text{height in cm}) - (5 \times \text{age in years}) - 161
\]

**ALAN ARAGON**

- **Men** (or more active): 9-11 + \( \text{HRS Training} \times \text{TBW} \)
- **Women** (or less active): 8-10 + \( \text{HRS Training} \times \text{TBW} \)

### CALORIES

<table>
<thead>
<tr>
<th>Activity Level</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light to None</td>
<td>( \times 1.2 )</td>
</tr>
<tr>
<td>Light</td>
<td>( \times 1.375 )</td>
</tr>
<tr>
<td>Moderate</td>
<td>( \times 1.55 )</td>
</tr>
<tr>
<td>Heavy</td>
<td>( \times 1.725 )</td>
</tr>
<tr>
<td>Very Heavy</td>
<td>( \times 1.9 )</td>
</tr>
</tbody>
</table>

I USE THIS IF I CANT GET A TWO WEEK CALCULATION
NUTRITIONAL FRAMEWORK

GETTING GAUGE

1. 3 Days Average
2. Compare
3. See areas to improve
   Start initial steps

We don’t eat calories. We eat foods that have calories that are made up of macronutrients that have micronutrients, fiber, and other crazy cool chemicals.
MAINTENANCE is a MOVING TARGET
Why hydration (H20 + Electrolytes)?

1. Thermoregulation
2. Reducing Cramping? (yet, EAMC and electrolyte depletion theory has been debunked)
3. Increased Power

Leading theory: Abnormal NS control at the spinal level in response to fatiguing exercise and/or rapid increase in tissue tension.
Variation in Response Times & Hydration State

Response Time (s)

Dehydration (% BW Loss)

CAREFUL WITH THIS THOUGH
- Water with each meal.
- Starting point is **ONE Powerade (20-24oz)** bottle for every 35-40lbs of bodyweight.
- Smart food choices throughout day should cover your electrolyte needs.
- Consider salting your food more or eating salt containing foods if you sweat more.
- Refer to water and electrolyte alternation scale below.
- 3-5 lemonade color urines per day. See chart below.

**Thirsty**
- High Sweat Amount
- Longer Duration
- Higher Intensity
- Higher Temperature
No Evidence of Dehydration with Moderate Daily Coffee Intake: A Counterbalanced Cross-Over Study in a Free-Living Population

Sophie C. Killer, Andrew K. Blannin, Asker E. Jeukendrup

Published: January 9, 2014 • DOI: 10.1371/journal.pone.0084154

Conclusion: Coffee, when consumed in moderation provides similar hydrating qualities to water.

50 men consumed 4 x 200ml of coffee per day or water for 3 days

Randomised cross over design

Physical activity, food and fluid intake controlled

No changes in

- Body mass
- 24h urine volume
- Urinary hydration markers
- Haematological hydration markers

Coffee did not dehydrate

IMPORTANCE #2:
MACRO / MICRO NUTRITION & FIBER
# Nutritional Framework

<table>
<thead>
<tr>
<th>Dietary Fat</th>
<th>Carbohydrates</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hormonal, Immune,</td>
<td>&quot;Fuel for Activity&quot;</td>
<td>Rebuild (Tissue, enzymes, etc),</td>
</tr>
<tr>
<td>Structural Support, Fuel</td>
<td></td>
<td>appetite control</td>
</tr>
<tr>
<td>Nuts, oils, animal products</td>
<td></td>
<td>Animal and Vegetable based Proteins</td>
</tr>
<tr>
<td>20-35% of calories</td>
<td>After calories set, subtract PRO+FAT</td>
<td>1.6-2.4g/kg Possibly Higher</td>
</tr>
</tbody>
</table>

![Bar graph showing nutritional breakdown]

- **Endurance**: >= 800m
  - Mixed: Multis, 400m
  - Power/Speed: Jumps, Sprints, Throws
NUTRITIONAL FRAMEWORK

Proteins
Ground beef, chicken, fish, eggs

Dense Carbohydrates
Rice, potatoes, bread, pasta, oats, fruit

Vegetables
Salad, Cabbage, Slaw, Squash, Broccoli, Onions, Cauliflower, Asparagus, Green Beans

Spices
Salt, Pepper, Mixed, Tabasco Sauce, Soy Sauce, Hot Sauce, Salsa

Build Your Meal

IN MOST CASES, MICRONUTRIENTS AND FIBER TAKE CARE OF THEMSELVES

Take your athlete out to lunch day?
Take your athlete(s) to the grocery store.
NUTRITIONAL FRAMEWORK

Dense (fibrous) carbohydrates can be great appetite suppressants (SCFA) and ... less calories (when matched with a processed carbohydrate source)?

So ... attempting to gain muscle tissue, you need (at least in more trained athletes) adequate muscular tension, adequate protein, and a surplus of calories. Processed carbohydrates may need to enter in your diet.

Hard to eat mounds of broccoli, sweet potatoes, and chicken breasts to get the caloric intake some people (e.g. shot putters) may need. Even to hold their weight. Don’t judge, just smile.
NUTRITIONAL FRAMEWORK

20-30g protein

20-30g carbs

7-12g Fat

www.precisionnutrition.com

https://www.precisionnutrition.com/calorie-control-guide-infographic

A serving of protein = 1 palm

A serving of vegetables = 1 fist

A serving of carbs = 1 cupped hand

A serving of fats = 1 thumb
NUTRITIONAL FRAMEWORK

FITGENIE

Thu, Oct 05

371 EATEN
1129 CALS LEFT
0 BURNED

BREAKFAST: 148 CALS
Egg
2 large, 148 cals

LUNCH: 142 CALS
Baked or Broiled Fish
1 fillet (6-1/4” x 3” x 3/8”), 142 cals

DINNER: 81 CALS
Meat
1 oz. boneless, cooked, 81 cals

ADD SNACK

Log
Recipes
Weight
Account
IMPORTANCE #3: TIMING
# Nutritional Framework

## Timing

- **Phase 1**: 1-4 hours before
- **Phase 2**: 0-60 min before
- **Phase 3**: During
- **Phase 4**: Post Workout

## Hydration
- **Phase 1**: Water, Gatorade G2, Powerade, Gatorade
- **Phase 2**: Water, Gatorade G2, Powerade, Gatorade
- **Phase 3**: Water (Power Sport Only) or Gatorade G2, Watered down Powerade (45-60+ min)
- **Phase 4**: Fluids from Post Workout Shake or Meal
  - If eating a meal, consume water

## Carbohydrates
- **Phase 1**: Low fiber carbohydrates, Minimal to zero vegetables
- **Phase 2**: Gatorade G2, Powerade, Gatorade
- **Phase 3**: Gatorade G2, Watered down Powerade
- **Phase 4**: Oatmeal, white rice, brown rice, whole grain breads/bagels, whole grain based cereals, pasta, potatoes

## Protein
- **Phase 1**: Chicken breast, sirloin, salmon, white fish, lean deli meats, greek yogurt, whey
- **Phase 2**: Whey if you haven’t eaten any protein for awhile, and if you don’t have an opportunity to ingest protein afterwards
- **Phase 3**: Not necessary
- **Phase 4**: Chicken breast, sirloin, salmon, white fish, lean deli meats, greek yogurt, eggs

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2017 USTFCCCA National Conference

Nutrition Power Speed Athletes
NUTRITIONAL FRAMEWORK

**PROTEIN:**
0.25–0.4 G / KG

**170LB**
20–30 GRAMS

**MORE IMPORTANT**
CALORIES
MACRONUTRIENT SETUP
SCHEDULE
MEAL SIZE TOLERANCE
AVAILABILITY

6 MEALS PER DAY IS A MYTH
## Nutritional Framework

### Continuum of Nutrient Timing Importance

<table>
<thead>
<tr>
<th>Minimal Importance</th>
<th>Variable Importance</th>
<th>Maximal Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Advanced/competitive trainees looking to push the limits of hypertrophy, strength, or fat loss.</td>
<td>Competitions involving more than one glycogen-depleting event in a single day, separated by only a few hours</td>
</tr>
<tr>
<td>Overweight/obese persons seeking weight loss for general health</td>
<td>Exhaustive/continuous training sessions that occur shortly after an overnight fast</td>
<td>Competitions or training bouts that significantly exceed 2 hours, especially bouts that approach or exceed 3 hours</td>
</tr>
<tr>
<td>Novice &amp; intermediate trainees seeking to improve body composition</td>
<td>Exhaustive/continuous training sessions that significantly exceed 1 hour, especially sessions that approach 2 hours</td>
<td></td>
</tr>
<tr>
<td>Non-fasted resistance-training bouts lasting 1 hour or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-competitive training sessions or events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goals that do not involve endurance competition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goals that do not involve extremes in muscle gain or fat loss</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Alan Aragon, NSCA Personal Trainers Conference, 2012
IMPORTANCE #4: SUPPLEMENTATION
NUTRITIONAL FRAMEWORK
NUTRITIONAL FRAMEWORK

ASK THESE FIVE QUESTIONS BEFORE CONSIDERING SUPPLEMENTS

▸ QUESTION #1: Can I change my diet to remove the need?
▸ QUESTION #2: You considering this because you’re fatigued?
▸ QUESTION #3: Is there research to back up the supplement?
▸ QUESTION #4: Is the product safe?
▸ QUESTION #5: Is the supplement banned?
These supplements are ones that I generally suggest (when appropriate):

- **Fish Oil**
  - 2-3 grams EPA/DHA

- **Multivitamin**

- **Iron**

- **Vitamin D3**
  - 4,000-5,000 IU

- **Probiotic**
  - 25-30 billion mixed strain

- **Alpha GPC**

- **Creatine Monohydrate**
  - 3-5 grams

- **Protein Powders**
  - As needed. Usually WHEY

- **Beet Root Juice**

- **Caffeine**
  - 3-9mg/kg
  - I start low, then see response
NUTRITIONAL FRAMEWORK

EXAMINE.COM

FOR SUPPLEMENTATION INSIGHT
Body Composition (at least bodyweight)

Performance Metrics

Blood
GUIDING BY NUMBERS
(or mini therapy sessions)

MULTI Slowly Dropping Bodyweight

2.5kg drop from 9/5/17 to 12/6/17
<table>
<thead>
<tr>
<th>Anthropometric Trait</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body Mass</strong></td>
<td><strong>Skinfolds</strong></td>
</tr>
<tr>
<td>Increase</td>
<td>Stable</td>
</tr>
<tr>
<td>Decrease</td>
<td>Stable</td>
</tr>
<tr>
<td>Stable</td>
<td>Increase</td>
</tr>
<tr>
<td>Stable</td>
<td>Decrease</td>
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<tr>
<td>Increase</td>
<td>Increase</td>
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<tr>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Decrease</td>
<td>Increase</td>
</tr>
<tr>
<td>Decrease</td>
<td>Decrease</td>
</tr>
</tbody>
</table>

*(Physiological Tests for Elite Athletes 2nd Ed, 2013)*
CAN’T COOK? RECORD!

GoPro + iMovie + Royalty Free Music

SPORTS NUTRITION

2017 USTFCCCA NATIONAL CONFERENCE

NUTRITION POWER SPEED ATHLETES
SPECIAL CONSIDERATIONS

- INJURED ATHLETES
- FEMALES
## INJURED ATHLETES

<table>
<thead>
<tr>
<th>Notes</th>
<th>Modification from Non-Injured Nutrition</th>
<th>Suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>DECREASE</td>
<td>Primary decrease will come from starchy carbohydrates</td>
</tr>
<tr>
<td>Overall caloric expenditure is down when injured</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>NO CHANGE</td>
<td>Lean meats, lean dairy, eggs, vegetable based proteins, protein powders</td>
</tr>
<tr>
<td>Injury sites need the necessary building blocks to improve. Dietary protein</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starchy Carbohydrates</td>
<td>DECREASE</td>
<td>Whole grains, oatmeal, potatoes, rice, quinoa</td>
</tr>
<tr>
<td>These will lower primarily because the amount of activity is limited, so the amount will drop. Do not drop DRASTICALLY because dropping too low can cause some hormonal issues that may slow down the healing process.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietary Fat</td>
<td>NO CHANGE</td>
<td>Avocado, olive oil, fish, eggs (some are omega-3 enriched), coconut oil, grass-fed beef, mixed nuts, flax seed, flax oil, fish oil</td>
</tr>
<tr>
<td>Dietary fat, especially a good mixture of omega-3 fatty acids help keep excessive inflammation at bay.</td>
<td></td>
<td>Reduce vegetable oils: Corn, sunflower, safflower, cottonseed, soybean.</td>
</tr>
<tr>
<td>Fruits and Vegetables</td>
<td>INCREASE</td>
<td>Any and all colors. Maintain a good variety in your eating plan at all times.</td>
</tr>
<tr>
<td>Vitamins and minerals are abundant in these. Their calorie value is relatively low, so in order to “bulk” up your meals because you are reducing your starchy carbohydrates, increase these!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Females are not small men.

**CHO Metabolism**  
*Strength/Power/Speed Adaptations*

**FAT Metabolism**  
*Endurance Adaptations*

### Graph:
- **Follicular Phase**
  - Blood levels of estrogen

- **Luteal Phase**
  - Blood levels of progesterone
Sincere thank you to everyone.

Any questions?

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Email: landon-evans@uiowa.edu