Competition Nutrition Strategies For Wrestling

Conference at the Cup
13-14 March, 2014 – Los Angeles, USA
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Sports Dietitian, USOC Acrobat and Combat Sports

UNITED STATES OLYMPIC COMMITTEE
Overview

• Physiological implications of poor weight management
• Coaching the weight management process
  – Picking the right weight class
  – Pre, during and post weigh in nutrition and hydration strategies
**Pre Competition Preparation**

**Non-Weight Class Sports**
Taper training & Carb load + hydration increase

- Increase muscle glycogen
- Increased rest/repair
  - helps physically and mentally
- Increase muscle function/strength
- Increase red blood cell mass

**Weight Class Sports**
“Hard Cut” = Decrease in food intake + increase exercise + dehydration

- Decrease muscle glycogen
- Decrease rest/increased activity = Increase stress mentally and physically
- Decreased muscle function/strength
- Decrease red blood cell mass (potentially)
- Increased risk for illness

**United States Olympic Committee**
# Common Reported Weight Loss Methods

<table>
<thead>
<tr>
<th>Activity – Usually last minute</th>
<th>% Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent Fasting/Starving</td>
<td>75%</td>
</tr>
<tr>
<td>Severe Fluid Restriction</td>
<td>75%</td>
</tr>
<tr>
<td>Run or Jog</td>
<td>73%</td>
</tr>
<tr>
<td>Exercise Devices</td>
<td>59%</td>
</tr>
<tr>
<td>Rubber Suits</td>
<td>34%</td>
</tr>
<tr>
<td>Sweat in Sauna</td>
<td>14%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>8%</td>
</tr>
<tr>
<td>Diuretics</td>
<td>2%</td>
</tr>
</tbody>
</table>

This impacts:
- Water
- Muscle – Glycogen

*(Perriello, Almquist, et al 1995)*

(United States Olympic Committee)
## Acute Weight loss Danger Zone

<table>
<thead>
<tr>
<th>Body Weight %</th>
<th>Corresponding Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;3-5%</td>
<td>• 55kg = 56.6 - 57.7kg</td>
</tr>
<tr>
<td></td>
<td>• 60kg = 61.8 - 63kg</td>
</tr>
<tr>
<td></td>
<td>• 66kg = 67.9 - 69.3kg</td>
</tr>
<tr>
<td></td>
<td>• 74kg = 76.2- 77.7kg</td>
</tr>
<tr>
<td></td>
<td>• 84kg = 86.5 -88kg</td>
</tr>
<tr>
<td></td>
<td>• 96kg = 98.9 -100kg</td>
</tr>
<tr>
<td></td>
<td>• 120kg = 123.6 -126kg</td>
</tr>
</tbody>
</table>
Impacts of Extreme Weight Management Practices

Acute:
- Decreased cognition
- Electrolyte imbalances and loss of fluids
- Poor storage of glycogen
- Cardiovascular & thermoregulatory impairment
- Death

Chronic:
- Micronutrient deficiencies
- Lowering of resting metabolic rate
- Depression of sex hormone concentrations
- Reduction in markers of bone synthesis
- Loss of muscle mass & impairment of growth in adolescent athletes
- Disordered eating & disturbed food relationship

Karlson, Becker, Merkur, 2001; Burke, 2007; Steen, Oppliger & Brownwell, 1988; Morris, Payne, Wark, 1998; Grinspoon et al., 1995; Steen, Oppliger & Brownwell, 1988;
The body takes from 4 to 48 hours to fully recover from moderate dehydration, and 24-48 hours to recover glycogen which means with severe weight cutting techniques, there isn't enough time between weigh-in and the competition to ensure peak performance and health.” (4).
Coaching the Weight Management Process

A. Pick the Right Weight Class

B. Try to Manipulate

- Fat
- Stomach contents
- Water
- Sparing muscle mass & glycogen
Weight Class Selection Strategies

1. Using body composition measurements + database information
2. Assess athletes stage of growth
3. Coach education, especially at the developmental level
4. Physiology 101
How Do I Decrease Body Fat?

1. Get it measured
   - Skinfolds, DXA scan, BodPod

2. Get to work
   - Diet and exercise plan for fat loss

3. Give it time
   - Start 6-8 week out or in off season!
   - Realistic safe fat loss (1-2% or 0.5-2lbs) per week
USOC Nutrition Program Highlights
Phase 1 - Steps to Fat Loss
6-8 ++ weeks out

Try to Manipulate

1. Fat
2. Sparing muscle mass & glycogen
Nutrition Changes for Fat Loss

Manipulation of Calories In...

1. Change all liquids = water & skim milk (NO ALCOHOL, SODA, JUICE)
2. Stop eating after 7pm
3. Eat half your normal portion for dinner or no starch at evening meals
4. PLATE model for Lunch/Dinner
5. Replace one meal a day with a calorie controlled shake
6. Limit fast food/restaurant food to 2x per month
7. Calorie reduced meal plan to follow every day
8. No skipping meals – no longer than 4 hours without food
9. Balanced meals & snacks – Lean protein/high fiber carb/antioxidants

MANDATORY - KEEP HYDRATION HIGH (& REPLACE LOSSES!!!)
EASY TRAINING / WEIGHT MANAGEMENT:

FATS
1 Teaspoon

Whole Grains
Pasta
Rice
Potatoes
Cereals
Breads
Legumes

Lean Protein
Poultry
Beef/Game/Lamb
Fish
Eggs
Low-Fat Dairy
Soy (e.g., Tofu, Tempeh)
Legumes/Nuts

Vegetables & Fruits
Raw Veggies
Cooked Veggies
Veggie Soups
Fresh Fruit

FLAVORS
Salt/Pepper
Herbs
Spices
Vinegar
Salsa
Mustard
Ketchup

Water
Dairy/Nondairy Beverages
Diluted Juice
Flavored Beverages
Coffee
Tea

The Athlete’s Plates are a collaboration between the United States Olympic Committee Sport Dietitians and the University of Colorado (UCCS) Sport Nutrition Graduate Program. For educational use only. Print and use front and back as a handout.
Weight Loss

Breakfast
Balance
Protein, Carb & Fruit

Example Meals:
• Oats, yogurt and fruit
• Egg white omelette & fruit
• Fruit Smoothie + 1 piece toast with PB

Lunch/Dinner
Plate = ½ Veggies, ¼ Protein, ¼ carb

• Lighter training days, cut the rice, pasta out at dinner – veggies and protein

Fluids/Snacks
1. Water – 6-12 cups/day
2. Skim Milk – 2-3 cups
3. PowerAde (only during training and cut with water)

Snacks: Fruit & yogurt
Staying Hydrated!

2. High osmotic pressure of blood stimulates hypothalamus.

3. Hypothalamus.


5. ADH secretion.


7. Drink of water.

8. Inhibits release.

1. Water loss.

7. Osmotic pressure decreases.
Exercise Changes for Fat Loss & Heat Acclimation

• Calories Out – in addition to training
  1. Add in one extra cardio session 4x per week (low intensity)
  2. Find extra ways to burn calories (eg. bike instead of walk to practice)
  3. Metabolic training in the gym
  4. Wear a pedometer – go for 10000 steps outside of training

• Athlete education about heat acclimation for final days
CONSISTANCY & MOTIVATION

- Consistency – at least 6/7 days per week
- Motivation & Determination – up to you

“Gold medals aren't really made of gold. They're made of sweat, determination, and a hard-to-find alloy called guts.”

Dan Gable

Track Track Track!
Regular, hydrated weights, same scale, same time of day as weigh in, ideally with hydration test
FINE TUNING WEIGHT
Phase 2 – minor tweaks
1 week out

Try to Manipulate

1. Fat
2. Stomach contents
3. Water retention
4. Sparing muscle mass & glycogen

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Fine Tune

− Continue making nutrition changes and exercise changes
− Change gut contents (0.5-2kg)
  • Lower fiber foods starting 5-10 days out
− Mild restriction of salt (>1000-1500mg/day)
− Know your float weight
− Know your sweat rate
− **STAY HYDRATED!**

Try to Manipulate

1. Fat
2. Stomach contents
3. Water retention
4. Sparing muscle mass & glycogen

# Low Sodium Options

<table>
<thead>
<tr>
<th>High Sodium</th>
<th>Low Sodium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crackers or rolls with salt topping; biscuits, cornbread; stuffing mix</td>
<td>Regular breads, unsalted crackers and breadsticks</td>
</tr>
<tr>
<td>Instant Hot cereals</td>
<td>Low fiber, Low sodium choices: Cheerios, Cornflakes, Cream of Wheat, Rice Krispies, Special K</td>
</tr>
<tr>
<td>Canned, cured, processed, smoked and other highly salted foods</td>
<td>Drained and rinsed canned salmon and tuna, fresh or frozen fish, and eggs</td>
</tr>
<tr>
<td>Cheese (other than low sodium cheeses and some cottage cheese)</td>
<td>Yogurt</td>
</tr>
<tr>
<td>Commercially prepared entrees (tv dinner type meals)</td>
<td>Plain rice and pasta</td>
</tr>
<tr>
<td>Bouillon; broth; Soups and dehydrated soups</td>
<td>Fresh frozen vegetables</td>
</tr>
<tr>
<td>Commercial spreads and dips</td>
<td>Homemade hummus with fresh products, homemade guacamole</td>
</tr>
<tr>
<td>Salted nuts</td>
<td>Natural peanut butter (no added salt)</td>
</tr>
<tr>
<td>Pasta and rice packaged mixes</td>
<td>Regular pasta and rice</td>
</tr>
<tr>
<td>Seasonings/Sauces : -celery salt, garlic salt, onion salt, seasoned salt,</td>
<td>Fresh herbs----cilantro, basil, rosemary, and thyme</td>
</tr>
<tr>
<td>poultry seasoning, BBQ, soy, steak, teriyaki, Worcestershire sauces</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
# Lower Fiber Options

<table>
<thead>
<tr>
<th>High Fiber</th>
<th>Low Fiber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salads! Many vegetables are high in fiber</td>
<td>Alfalfa sprouts, beets, green / yellow beans, carrots, cauliflower, celery, cucumber, eggplant, lettuce, mushrooms, green / red peppers, potatoes (peeled), squash, zucchini</td>
</tr>
<tr>
<td>Whole fruits or juice with lots of pulp</td>
<td>applesauce, apricots, 1/2 banana, cantaloupe, canned fruit cocktail, grapes, honeydew melon, peaches, watermelon</td>
</tr>
<tr>
<td>Bran cereals or other fiber-rich breakfast</td>
<td>Plain cereals e.g. Cheerios, cornflakes, Cream of Wheat, Rice Krispies, Special K</td>
</tr>
<tr>
<td>cereals/foods (kashi), oatmeal, bran muffins,</td>
<td></td>
</tr>
<tr>
<td>whole wheat waffles/pancakes</td>
<td></td>
</tr>
<tr>
<td>Whole grains---in bread, cereals, buns, bags,</td>
<td>Enriched white breads, buns, bagels and English muffins</td>
</tr>
<tr>
<td>buns, bagels, some pastas, rice, and barley</td>
<td></td>
</tr>
<tr>
<td>Popcorn and some nuts</td>
<td>Soda crackers, plain melba toast, and rice cakes</td>
</tr>
<tr>
<td>Legumes</td>
<td></td>
</tr>
<tr>
<td>Edible seeds: Berries, kiwi, figs, etc</td>
<td>Vegetable juice</td>
</tr>
<tr>
<td></td>
<td>Fruit juices- except prune juice</td>
</tr>
</tbody>
</table>
Last 24 hours
Final Acute Weight Loss

Try to Manipulate

1. Water
2. Sparing muscle mass & glycogen
Knowing your float weight and sweat rate:

- Passive sweating with heart rate and heat regulation (i.e., hot baths)
- Active sweating with heart rate and heat regulation
- Decrease water intake 48 hours out (remembering - 24oz, 3 cups = 1lbs)
After Weigh In

- Replace
  - ~28ml/kg of volume fluid
  - ~34 mg/kg sodium
  - ~2.3g/kg CHO
- Familiar tested food, small snacks over big meals
- Watch fiber content if athlete has been reducing intake
- Avoid high sugar beverages like soda & juice in high volume = Diarrhea
- SLOW progress
**Competition Nutrition**

**During Competition:**

- Breakfast is most important
- Avoid high fat, greasy foods, may cause cramping and stomach upset
- Avoid high fiber vegetables.
- Small frequent snacking and hydration during the day, aim for a hydrated urine color
- If appetite is low, aim for liquid over solid calories
- Carbohydrates, small protein and fluids
**Competition Nutrition**

**In between prelims and finals**

- **Light meal/snacks/hydration**
  - **Eat:**
    - Plain carbs - rice, pasta, bread, bananas, applesauce, crackers,
    - Lean protein - chicken, fish or lean meat
  - **Avoid** – vegetables, fried foods, cream sauces, cream soups or fruits with skin on them
<table>
<thead>
<tr>
<th>Time</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:05 - 3:30pm</td>
<td><strong>Drink:</strong> 12 - 24 oz Water/Sport drink sipping</td>
</tr>
</tbody>
</table>
| 3:30 – 4:00pm| **Drink:** 12- 24 oz Sport drink (add a pinch of salt to it) – sipping  
**Eat:** (one of these snack options)  
- 5-8 salty crackers  
- 2 handfuls salty tortillas  
- 2 handfuls pretzels |
| 4:00-6:00pm  | **Drink:** 12- 24 oz sport drink (sip)  
**Eat:** (50-70g easy to digest carbs – one of these small snacks)  
- 1- 2 Bananas  
- Plain Bagel with jam or honey  
- 1-2 chocolate puddings  
- Cliff bar |
| 6:00 – 7:00pm (dinner meal) | **Drink:** 12 -24oz water (sipping)  
**Eat:** (70-80g easy to digest carbs, no more than 20g protein, low fat, avoid vegetables/beans at this point). Sample meals:  
- 1.5-2 cups rice, chicken breast  
- Baked potato or 1-2 cups mashed + grilled fish  
- Meal replacement (Boost or instant breakfast) + banana  
- Chicken noodle soup (or ramen noodles) with tuna |
| 7:00 – 9:00pm| **Drink:** 12- 24 oz sport drink (Sip) Need to (pee) before going to bed. |
COMPETITION DAY

Wake Up: Drink: 12-24 oz sport drink and water (Sipping). Check urine color.

Breakfast:

Drink: 12-24 oz sport drink (Sipping)
Eat: (70-80g carbs, mod protein, low fat)
- 2 pieces toast/plain bagel with honey + eggs
- 2 packets oatmeal + eggs
- 2 cups cheerios/rice krispies with low fat milk + banana
- Meal replacement + banana

Pee color = Light color during comp!

<table>
<thead>
<tr>
<th>Tournament Foods (between matches/graazing)</th>
<th>Serving Size</th>
<th>Calories (kcal)</th>
<th>Carb (g)</th>
<th>Protein (g)</th>
<th>Fat (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1% chocolate milk</td>
<td>2 cups</td>
<td>320</td>
<td>54</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Low fat (fruit) yogurt</td>
<td>175g</td>
<td>150</td>
<td>26</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Peanut butter &amp; jam sandwich</td>
<td>1</td>
<td>430</td>
<td>73</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Raisin bagel</td>
<td>1 small</td>
<td>200</td>
<td>39</td>
<td>7</td>
<td>1.7</td>
</tr>
<tr>
<td>Sport drink</td>
<td>591ml</td>
<td>150</td>
<td>37</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sport bar</td>
<td>1 bar</td>
<td>250</td>
<td>44</td>
<td>10</td>
<td>3.7</td>
</tr>
<tr>
<td>Dried fruit bar</td>
<td>1 bar</td>
<td>135</td>
<td>34</td>
<td>0.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Bananas</td>
<td>1 large</td>
<td>109</td>
<td>28</td>
<td>1.2</td>
<td>0.6</td>
</tr>
<tr>
<td>Low fat granola cereal</td>
<td>¼ cup</td>
<td>120</td>
<td>28</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Commercial fruit smoothie</td>
<td>300 ml</td>
<td>270</td>
<td>49</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Meal replacement</td>
<td>1 bar</td>
<td>229</td>
<td>33</td>
<td>14</td>
<td>4.5</td>
</tr>
<tr>
<td>Meal replacement drink</td>
<td>1 can</td>
<td>240</td>
<td>41</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>
Summary

– Develop a long term weight management program with the athlete and coach that includes a sensible choice of weight class
– Do not lose more than 3-5% in the last weight cut for best success
– Long term moderate energy restriction at least 6-8 weeks out from competition
– Work with the sport health team professionals: exercise scientists, sport psychologist, sports physician and coach
– Fine tune techniques in training before competition and track and record plan that works best

Questions?
ADDITIONAL RESOURCES

American Dietetic Association
Sports, Cardiovascular and Wellness Nutrition (SCAN)
Locate a Sports Dietitian:
http://www.scandpg.org/
http://www.scandpg.org/sports-nutrition/consult-a-sports-dietitian/

Australian Institute of Sport
Australian Institute of Sport

United States: Human Kinetics
REFERENCES