

CURRENT TRENDS IN SPORT NUTRITION

IMPORTANT CONSIDERATIONS FOR PEAK PERFORMANCE

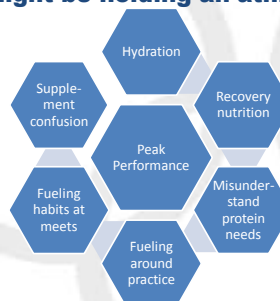
Shawn Hueglin, PhD, RD, CSSD
USOC Sport Dietitian



UNITED STATES OLYMPIC COMMITTEE



Peak Performance: What might be holding an athlete back?



UNITED STATES OLYMPIC COMMITTEE

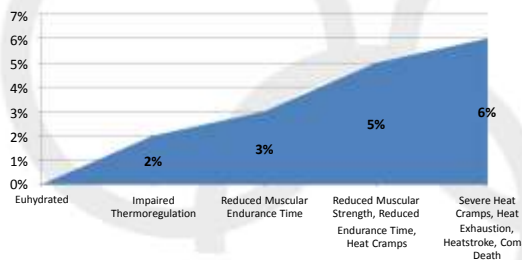
Peak Performance and Hydration Habits

- Lower fluid losses (highest in anaerobic threshold sessions)
- Wide range of intake (highest in males)
- Habits during training vs. outside training
- Poor hydration status prior to practice
- Drink plain water only



UNITED STATES OLYMPIC COMMITTEE

Effects of Dehydration on Performance



1 pound of weight loss should be balanced with 16 fl oz of water

For a 170 lbs male swimmer: $170 \times .02 = 3.4$ lbs
For a 140 lbs female swimmer: $140 \times .02 = 2.8$ lbs

General Hydration Recommendations

- **BEFORE:** 1 – 4 cups fluid
 - Critical: opportunities, GI issues
- **DURING:** prevent fluid loss < 2-3% body weight or weight gain
 - Individual hydration plan (sweat rate), Na loss
 - Opportunities and reminders to drink
 - Observe what is on deck
- **AFTER:** 2 – 3 cups fluid per lb of weight lost



UNITED STATES OLYMPIC COMMITTEE

Assessment of Hydration Status

Urine Color Volume, Frequency	Pre-post Weight (nude) (fluid loss during)	Urine Specific Gravity										
 1 2 3 4 5		 <table border="1"> <thead> <tr> <th>Hydration Status</th> <th>USG</th> </tr> </thead> <tbody> <tr> <td>Well hydrated</td> <td>< 1.010</td> </tr> <tr> <td>Minimal dehydration</td> <td>1.010 – 1.020</td> </tr> <tr> <td>Significant dehydration</td> <td>1.021 – 1.030</td> </tr> <tr> <td>Serious dehydration</td> <td>> 1.030</td> </tr> </tbody> </table>	Hydration Status	USG	Well hydrated	< 1.010	Minimal dehydration	1.010 – 1.020	Significant dehydration	1.021 – 1.030	Serious dehydration	> 1.030
Hydration Status	USG											
Well hydrated	< 1.010											
Minimal dehydration	1.010 – 1.020											
Significant dehydration	1.021 – 1.030											
Serious dehydration	> 1.030											



UNITED STATES OLYMPIC COMMITTEE

Peak Performance: Fueling for Practice and Competition

SWIM TRAINING



Weekly (~15-30 hr)
 5-12 swim sessions = 60-180 min/ea
 0-3 strength sessions = 75-90 min/ea
 1-3 dry land sessions = 30-60 min/ea

SWIM COMPETITION



Events = 30 sec – 20 min
 Multiple heats, events per day
 Multiple days



UNITED STATES OLYMPIC COMMITTEE

Peak Performance: Fueling for Practice and Competition

SWIM TRAINING

- Energy availability during training
- Adjust nutrient intake to support different training phases
- Prioritize fueling around training

SWIM COMPETITION

- “Mock Meet” days to practice fueling
- Familiar foods, easily digestible, deck/weather stable
- Prepare, shop, pack for meets



UNITED STATES OLYMPIC COMMITTEE

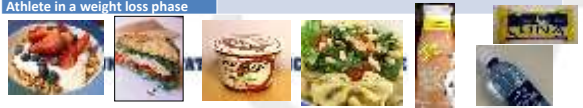
4 R's of Recovery Nutrition

Physical Consequences of Hard Training	The 4 R's of Recovery Nutrition
Dehydration	Re-hydrate with fluids and electrolytes
Depletion of glycogen (carbohydrate stored in muscle and liver)	Replenish muscle glycogen stores with carbohydrates
Breakdown of muscle	Repair and regenerate muscle tissue with high quality protein
Cell damage and inflammation	Reinforce your immune system with nutritious, fresh foods and color (e.g., fruits, vegetables, whole grains, fish, nuts, olive oil)



UNITED STATES OLYMPIC COMMITTEE

Type of Training	Recovery Nutrition Recommendations
Hard Training Higher volume/intensity Physical adaptation training Competition Multi-day training bouts	Timing is critical, refueling with 4 R's immediately after training will optimize recovery 1 g/kg carbs 15-20 g protein 3 cups fluid per lb lost from session
Moderate Training Single session, training the next day Maintenance of fitness/strength	Refuel within 30-60 min Balanced snack with carbs, pro, fluid, electrolytes
Easy Training One session in day, rest day Recovery day Athlete in a weight loss phase	Timing is less critical, eat within 2 hours Balanced snack or next meal



Recovery Nutrition Ideas

Natural Foods	Sport Nutrition Products
Low-fat chocolate milk	Clif Bar, Luna Bar, Harvest Bar
Half bagel with fruit preserve & PB	Powerbar Performance Bar
Low-Fat yogurt with cereal and fruit	Recovery Drink Mix (Endurox, PowerBar, Gatorade)
Cereal with low-fat milk	Muscle Milk Powder (carb & pro)
Cottage cheese with honey and fruit	Core Power, Rockin Refuel, Muscle Milk
Fruit Smoothie (yogurt, fruit, protein)	Liquid Meal Supplement (Boost, Ensure)
Turkey Sandwich	

Myth or Fact: The more protein you eat, the more muscle you will gain.

- Excess protein ≠ stronger or bigger muscles
 - Shift in metabolism: decrease utilization of fat
 - Appropriate hormonal environment, overload stimulus, amino acid concentration
 - 10-25 g protein in each meal/snack, daily distribution
 - Adequate calories from CHO and fat
 - Leucine – AA that triggers Mtorc (role in synthesis)
- Adequate protein = repair, building blocks muscle tissue, iron storage



UNITED STATES OLYMPIC COMMITTEE

Protein Ideas (10-25 g)

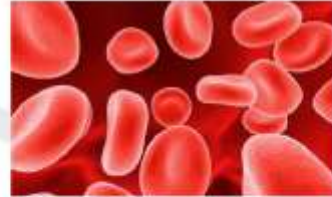
- ½ cup cottage cheese
- 1 – 2 cups milk (chocolate, white, soy) or yogurt
- 2 – 3 pieces turkey jerky
- 2 – 3 slices deli meat
- 1 piece of fish, poultry, steak, tofu, tempeh
- ½ cup black beans or lentils
- 1- 2 Tbsp. nut butter
- Sport bar (Powerbar, Clif, Luna bar)
- 1 scoop protein powder
- ½ cup hummus
- ½ cup edamame (soy beans)
- 2 hardboiled or scrambled eggs
- 1 – 2 string cheese
- 1 cup quinoa



UNITED STATES OLYMPIC COMMITTEE

Oxygen Transporting Nutrients

- Iron, Folate, Vitamin B12
- Involved in the formation and integrity of Red Blood Cells



UNITED STATES OLYMPIC COMMITTEE

Iron Insufficiency

Causes

- Diet low in dietary iron
- Blood Loss
- Nutrient interaction and inefficient absorption
- High altitude and increased training volume

Symptoms

- Fatigue and weakness
- Shortness of breath
- Increased heart rate



UNITED STATES OLYMPIC COMMITTEE

Iron Status

- Periodic CBC screening
 - Hemoglobin (Hgb)
 - Hematocrit (Hct)
 - RBC
- ***Serum Ferritin***
 - Usually have to request



UNITED STATES OLYMPIC COMMITTEE

Supplement Savvy






Concerns

- Regulation (US)
- Classification
- Contamination
- 3rd Party Testing
- Illegal labeling
- Teammate Trickle
- Banned & Non-Permissible
- Who to trust?



UNITED STATES OLYMPIC COMMITTEE

3rd Party Testing Programs

			
GMP Audits		x	x
Tests for WADA Banned Substances	x	-	x
# of Banned Substances or analytes screened for	"Only specific banned substances"	-	165
Toxicology Assessment	x		x
Testing of Raw Materials	x	x	x
Label Verification	x	x	x



UNITED STATES OLYMPIC COMMITTEE

Introduce and Incorporate Nutrition in your Program

Find a SCAN Registered Dietitian

A SCAN RD is a Registered Dietitian with the training, experience, and abilities to help you eat and perform optimally through good nutrition at every stage of life. We can help you to: (A) (SCAN)

Your ZIP / City / State: Radius (in Miles):

Or



<http://www.scandpg.org/>

UNITED STATES OLYMPIC COMMITTEE



USOC
ATHLETE
PLATES

<http://www.teamusa.org/About-the-USOC/Athlete-Development/Sport-Performance/Nutrition/Resources-and-Fact-Sheets>



Nutrition Education Activities



Grocery Store
Education Tour



Team Cooking Night

Create Awareness in Habits
<http://www.myfitnesspal.com/>



UNITED STATES OLYMPIC COMMITTEE

Take Home Message

Identify Peak Potential Performance
Issues – Proactive vs. Reactive

Identify and consult with a qualified
nutrition professional – RD, CSSD

Incorporate nutrition education
activities into team activities



UNITED STATES OLYMPIC COMMITTEE

Thank You!



UNITED STATES OLYMPIC COMMITTEE