



Nutrition Guidelines

Fueling Optimum Performance

Ellen Coleman. MA, MPH, RD, CSSD

Nutrition Consultant

The Sport Clinic

MISSION STATEMENT

It is the mission of the Strength and Conditioning Department to encourage each student athlete to strive for excellence. Our goal is to promote and foster an atmosphere that is conducive to the intellectual, personal and physical development of each individual. Developing a strong relationship with each student athlete is critical in motivating him or her to realize their potential. We are dedicated to providing equal opportunities to all student athletes and contributing to the total educational experience. Our primary objectives are to teach the proper fundamentals of strength and conditioning, improve athletic performance, and reduce the risk of injury.

Five Commandments for Eating Like an Athlete

- **Eat breakfast.**

Your body needs fuel after fasting all night during sleep. Starting the day with an empty tank will negatively affect your mental and physical performance.

- **Pee clear.**

Water is crucial to your health—it makes up sixty percent of your body weight. Dark urine is a sign that you're dehydrated and, especially for athletes, thirst isn't always a reliable indicator of hydration needs.

- **Eat more fruits and vegetables.**

Athletes need nutrient dense foods. Eating fruits and vegetables is the best way to get the nutrients you need to perform your best.

- **Never feel hungry.**

The best athletes graze rather than gorge. Eat smaller portions of the right foods all day instead of starving between infrequent large meals.

- **Refuel.**

Your body needs fuel immediately after training. Waiting longer than thirty minutes after exercise before refueling is stressful and hinders your body's ability to recharge.

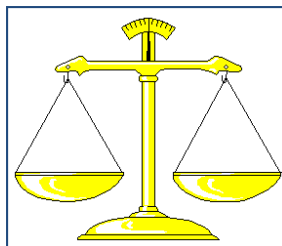
Nutrition Periodization

Always adjust calorie intake to meet training requirements

- Inadequate calorie intake during training = fatigue, weight loss (including muscle), impaired performance
- Excessive calorie intake during lighter training = increase in body fat, and impaired performance

Erratic Eating

- **Skipping breakfast or lunch:**
 - ✓ Reduces quality of training session due to reduced muscle and liver glycogen stores
 - ✓ Impairs recovery
- **Adequate calorie and carbohydrate intake is critical before, during, and after exercise to:**
 - ✓ maintain quality of training
 - ✓ promote optimum recovery



Carbohydrates

- Primary fuel for exercise (muscle glycogen) and brain (blood glucose)
- Spares muscle protein
- Helps burn fat efficiently
- Source of vitamins, minerals, fiber, and plant chemicals that promote health

Effects of Inadequate Carbohydrate Intake

- General lack of energy
- Muscle fatigue
- Difficulty concentrating
- Decreased endurance
- Loss of power and strength
- Reduces performance in stop + go sports like football and basketball



Meal Timing for Optimum Performance

- Eat 5-6 times per day, every 3 hours
- Distribute calories evenly throughout day
- Consume mixed meals and snacks (carbohydrate and protein)
- Pack a cooler so appetizing food is readily available

Benefits of Meal Timing

Proper meal timing, composition, and frequency:

- Enhances performance
- Optimizes fuel availability
- Improves body composition

Nutrient Timing

- Eat meal or snack 1 hour before resistance training and within 30 minutes after
 - ✓ Carbohydrate to stimulate insulin release
 - ✓ Protein to provide amino acids
- Consume adequate calories and protein throughout day to maintain anabolic state
- Excess protein (over 2g/kg/day) not incorporated into muscle – increases amino acid oxidation



What You Should Pack!

- ✓ Sports Drink
- ✓ Juice packs
- ✓ Water
- Granola bars, energy bars, breakfast bars
- Crackers, pretzels, baked chips
- Low-fat mini muffins
- Mini bagels, bread sticks, rice cakes
- Oatmeal raisin bars, fig bars, ginger snaps
- Fruit – banana, apple, orange, grapes
- Snack packs: fruit, pudding, applesauce
- Baby carrots
- String cheese
- Fruit yogurt
- Canned tuna in water, chicken, turkey
- Cups of Soup

What's On Your Plate?

2/3 of the plate:

- ✓ Whole grains
- ✓ Vegetables
- ✓ Fruits
- ✓ Beans



1/3 of the plate:

- ✓ Lean animal protein



Example of a Good Meal for an Athlete



	kcal
Chicken Breast:	165
Rice:	200
Bread:	160
Margarine:	45
Vegetable Salad:	150
Broccoli:	50
Fruit:	120
Nonfat Milk:	80
Total =	970 Kcal

Pre-Exercise Meal before Training or Competition

- Improves performance by 12.5-15%
- Prevents hunger
- Supplies energy for muscles

Focus on:

- Eating about 300-800 calories
- Reduce size of meal close to exercise:
 - ✓ 300 calories 1 hour before
 - ✓ 800 calories 4 hours before

Meal Should Consist of:

- High carbohydrate
- Moderate protein
- Low in fat, fiber
- Fluids with meal



Sample of Pre-Exercise Meals

Breakfast

- ½ to 1 cup oatmeal
- ½ to 1 banana
- 1 egg
- 1-2 slices whole grain toast
- 6 to 12 oz. orange juice
- 1 cup fruit yogurt

Lunch/Dinner

- 3 to 4 oz. chicken
- ¾ to 1 ½ cups rice
- 1 cup salad
- ½ to 1 cup broccoli
- ¾ to 1 ½ cups fruit salad
- 1 to 2 slices whole grain bread
- 8 to 16 oz. milk

Fueling During Exercise

Consuming carbohydrates during training session lasting less than 1 hr:

- Enables athletes to exercise longer and/or sprint harder at end of exercise
- Improves quality of exercise session, thereby promoting greater adaptation to training
- Decreases stress response and bolsters immune system

Sample of During Exercise Fuels

- Consume 30 to 60 grams of carbohydrate (120 to 240 calories) per hour
- 32 oz. sports drink = 60 g carbohydrate
- 2 gels = 50 g carbohydrate
- 1 sports bar = 47 g carbohydrate
- 1 banana = 30 g carbohydrate
- 4 small fig bars, 2 large graham crackers = 42 g carbohydrate



Nutrition Immediately After Training or Competition

- Speeds muscle recovery and repair

- Replaces fluid losses

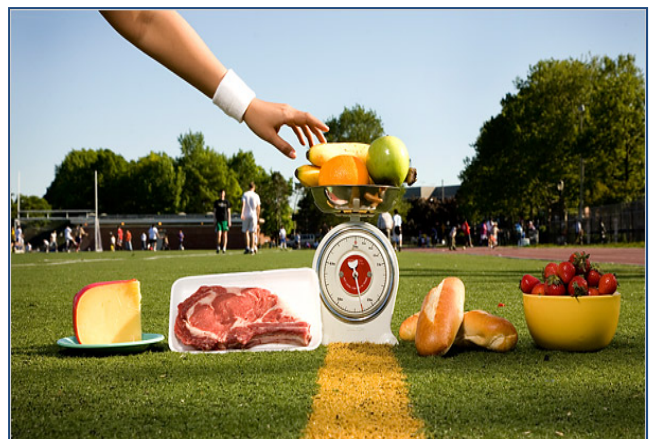
Focus on:

- High carbohydrates
- Small amounts of protein
- Fluids

Sample of Recovery Snacks

- Turkey sandwich and banana
- Fruit yogurt, Grape Nuts, and raisins
- Fruit yogurt and fresh fruit
- Pretzels and mozzarella cheese
- Bagel, banana, and peanut butter
- Cottage cheese, whole grain crackers, and apple
- Cottage cheese and fruit salad

- Whole grain cereal with low-fat milk
- Liquid meal (e.g. Collegiate Muscle Milk)
- Juice, whole grain bread, and peanut butter
- Graham crackers and peanut butter
- Sports bar and sports drink
- 1% fat chocolate milk



Hydration

Dehydration

- Sweat losses as little as 2% of body weight can begin to impair athletic performance and temperature regulation
- Consuming fluid during exercise improves athletic performance and protects health

Individual Hydration Plan

- Weight before and after activity to determine average sweat rate:
(Pre-Weight – Post Weight)
+ Fluid Intake During Activity
= Athlete's Individual Sweat Rate
- Drink to minimize loss of body weight without over-drinking
- Drinking too much or too little fluid can be dangerous

Example of Individual Sweat Rate

During a 1 hour workout:

Pre-Weight: 130 lbs

Post Weight: 129 lbs

Fluid Intake: 16 ounces

$(130 - 129 \text{ lbs}) = 16 \text{ ounces of fluid lost}$

$+ 16 \text{ ounces of fluid consumed}$

$= 32 \text{ ounces (2 lb) of sweat loss per hour}$

Drink to match sweat rate!

For this example, drink 8 ounces of fluid every 15 minutes

Hydration Before and After Exercise

- Drink 1 oz per 10 lb two hours before exercise
- Drink ½ oz per 10 lb 20 minutes before exercise
- Drink 3 cups (24 oz) for every 1 lb lost after exercise (150% of sweat losses)



Supplements

Supplements

- not regulated or standardized
- Natural does not mean safe
- Possible side effects
- May contain banned substances
- Consult with Strength Coach

Energy Drinks

- Usually contain stimulants: caffeine, citrus aurantium, yohimbine
- Side effects: diuresis, nausea, muscle tremor, palpitations and headache
- High sugar content: may cause gut distress during exercise
- Not recommended

Meal Replacement Products

- Provide carbohydrate, protein, and calories
- Should not routinely replace meals
- Are not superior to food protein or carbohydrate

Caffeine

- Central nervous system stimulant: increases epinephrine levels
- Does not increase risk of dehydration
- 3 mg caffeine/kg may improve short-term intense exercise and prolonged aerobic exercise
- Side effects: diuresis, nausea, muscle tremor, palpitations and headache

- Caffeine increases effect of citrus aurantium, yohimbine, and other stimulants
- Many energy drinks contain synthetic and/or herbal caffeine (guarana, kola nut, mate)
- Since ephedra ban, caffeine content of many supplements and energy drinks has increased

Protein

To gain 1 lb of muscle:

- 3,500 calories
- 100 grams protein

To gain 1 lb in a week:

- 500 extra calories per day
- 14 extra grams protein per day

Citrus Aurantium

- Citrus aurantium (bitter orange) contains synephrine, octopamine, and other stimulant amines
- Synephrine is structurally similar to epinephrine; octopamine to norepinephrine
- Citrus aurantium replaced ephedra in many supplements (banned by FDA in 2004 due to adverse health effects)
- Increases heart rate; also increases blood pressure when combined with caffeine
- Combination of citrus aurantium and caffeine has significant cardiovascular stimulant actions that are similar to ephedra
- Reports of heart attack, ischemic colitis, exercise induced syncope, and ischemic stroke associated with use

Choosing a Supplement

- Products eligible for ConsumerLab seal of approval – www.consumerlab.com
- Products that have USP (United States Pharmacopeia) or NSF on the supplement label
- Consumer Lab is an independent lab and tests supplements for purity and potency
- Nationally known food and drug companies with tight manufacturing controls
- Supplement label should provide appropriate and accurate information
- Be wary if statements are unclear or label makes preposterous claims
- Avoid products with claims that sound too good to be true
- No dietary supplement can guarantee optimum performance or health

Banned Substances

NOTE: There is no complete list of banned drug examples!!

Stimulants:

- amphetamine (Adderall), caffeine (guarana), cocaine, ephedrine, fenfluramine (Fen), methamphetamine, methylphenidate (Ritalin), phentermine (Phen), synephrine (bitter orange), etc.

Anabolic Agents:

- Steroids, boldenone, clenbuterol, DHEA, nandrolone, stanozolol, testosterone; methasterone, androstenedione, norandrostenedione, methandienone, etiocholanolone, trenbolone, etc.

Alcohol and Beta Blockers:

- Alcohol, atenolol, metoprolol, nadolol, pindolol, propranolol, timolol, etc.

Diuretics and Other Masking Agents:

- Bumetanide, chlorothiazide, furosemide, hydrochlorothiazide, probenecid, spironolactone (canrenone), triameterene, trichlormethiazide, etc.

Street Drugs:

- Heroin, marijuana, tetrahydrocannabinol (THC).

Peptide Hormones and Analogues:

- human growth hormone (HGH), human chorionic gonadotropin (HCG), erythropoietin (EPO), etc.

Anti-Estrogens :

- Anastrozole, clomiphene, tamoxifen, formestane, etc.

Beta-2 Agonists:

- Bambuterol, formoterol, salbutamol, salmeterol, etc.

Any substance that is chemically related to the class of banned drugs, unless otherwise noted, is also banned!

It is your responsibility to check with your athletics staff