

Athlete Nutrition Seminar

Sunday, February 10th in Main High School Gym

Nutrition Basics - 1pm | **Breakout Sessions** - 1:45pm

Weight Gain

Strategies for athletes looking to gain weight and build muscle

Female Athlete

Strategies to fuel female athletes unique needs in sport

Athlete Nutrition

Strategies for proper fuel and refueling as a middle school or high school athlete

Performance Health & Fitness Experts:

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IMPACT OF CAFFEINE

ASHLEY PEARSON, RDN, LDN – Registered Dietitian

Facts on Caffeine

- | Caffeine is a stimulant to the central nervous system.
- | It is considered safe if consumed in moderate amounts. (200-300mg/day or 2 cups of 8oz coffee)
- | There is some evidence to support benefits of consuming caffeine for athletic performance, but timing, amount, and form of caffeine should be carefully considered due to risks associated with it.

Caffeine Considerations

- | Check the labels of sports bars and gels for caffeine content.
- | Amount of caffeine in brewed coffee and tea varies.
- | Caffeine can provide a false perception of increased energy, but does not replace actual energy from food. Athletic performance is dependant on eating balanced meals and snacks to meet energy needs.
- | If you regularly consume caffeine, you may not notice any effect on performance from consumption of caffeine.

Amounts of Caffeine in Common Products

Source of Caffeine	Amount of Caffeine (mg)
Brewed Coffee (8oz)	80-100mg
Espresso (2oz)	65-100mg
Tea (8oz)	30-80mg
Soda (12oz)	35-55mg
Energy Drink	50-200+mg
Energy Bar	50-100mg
Dark Chocolate (1.5oz)	30mg
Excedrin Capsule (2)	130mg
Caffeine Tablet	200mg

Benefits of Caffeine

- | Decreased perception of fatigue.
- | Decreased perceived exertion.
- | Improved performance in endurance and high-intensity training.
- | Increased focus and concentration.

Risks of Caffeine

- | Consumed without adequate amounts of fluids can cause dehydration, which impacts body's ability to regulate temperature.
- | Some caffeine containing products, like energy drinks or supplements, do not disclose amount of caffeine or may contain other stimulates, which can cause serious health complications.
- | Consumed in high amounts it can cause: GI issues, nausea, jitters, anxiety, disrupted sleep and increased heart rate.
- | Caffeine is an addictive substance.
- | It is a banned substance by the NCAA, if urine concentration is >15ug/ml.

**Use caffeine in moderation. Always check labels for caffeine content, and stay adequately hydrated if consuming caffeine.*

***Do NOT rely on caffeine for energy, and should not replace balanced meals and snacks. Meet with a registered dietitian if you have specific questions about caffeine consumption.*

ENERGY AVAILABILITY

ASHLEY PEARSON, RDN, LDN – Registered Dietitian

WHAT IS ENERGY AVAILABILITY (EA)?

Food Energy Intake – Exercise Energy Expenditure = Energy Availability

- | Energy availability is the amount of energy left over and available for your body's functions after the energy expended for training is subtracted from the energy you consume from food.
- | Athletes need enough energy available to support the body's health, daily activity, growth and training.
- | The goal is to be able to adjust dietary intake to cover all the expenditures from exercise and training.
- | Energy balance is important for health and performance.
- | Athletes can unknowingly have a negative EA due to increased training, over-exercising, or decreased amount of food consumed
- | Low EA can lead to changes to our body's systems that impact hormones, metabolism, physical and physiological functions that affect overall health and athletic performance.

SIGNS OF LOW EA

- Chronic fatigue
- Stress fractures
- Repeated bone injuries
- Anemia
- Decreased muscle strength
- Recurring infections or illness
- Irritability
- Depression
- Repeated injuries
- Disordered-eating thoughts
- Training hard, but not improving
- Inability to gain or build muscle
- GI problems
- Poor performance
- Weight loss
- Absent or irregular menstrual cycle

ENERGY AVAILABILITY

HOW TO ESTIMATE YOUR ENERGY

Step 1: Calculate your Basal Metabolic Rate (BMR)

Your weight in pounds _____ lbs

Your weight divided by 2.2 _____ kg

Your height in inches _____ in

Your height multiplied by 2.54 _____ cm

MALES

13.75 x weight in kg A: _____

5.003 x height in cm B: _____

6.755 x age C: _____

66.5 + A + B - C =

_____ **BMR**

FEMALES

9.56 x weight in kg A: _____

1.85 x height in cm B: _____

4.676 x age C: _____

655.1 + A + B - C =

_____ **BMR**

Step 2: Calculate your Total Daily Energy Expenditure (TDEE)

Choose your average activity level

Sedentary = 1.2

Little or no exercise

Lightly Active = 1.375

Light exercise/sport 1-3 days/week

Moderately Active = 1.55

Moderate exercise/sport 3-5 days/week

Very Active = 1.755

Hard exercise/sports 6-7 days/week

Extra Active = 1.9

Hard daily exercise/sports & physical job or 2x/day training

Total Daily Energy Expenditure

BMR _____ x Activity Level _____

Estimated calories for energy balance per day

TDEE = _____

Step 3: Calculate For Weight Gain (optional)

TDEE x 1.2 (20% increase)

**This is just a way to estimate energy needs. If you have questions about specific energy needs meet with a registered dietitian to help you.*

***We are not promoting counting calories, but rather a way to see how many calories are needed to support activities of daily living, growth, overall-health, and physical activity, and avoid low EA.*

Exercise Hydration

ASHLEY PEARSON, RDN, LDN – Registered dietitian

Hydration is essential to regulate blood volume and maintain body temperature. Even 1% fluid loss can negatively impact teen athletes.

Benefits of hydration

- | Delay fatigue
- | maintain s mental focus
- | Helps with agility
- | Reduces stress on the heart
- | Improves regulation of body temperature
- | Aids with recovery

Impact of dehydration

- | Raises body temperature, makes your body work harder, causes fatigue, and can lead to muscle cramping
- | Signs of dehydration are:
 - | dark urination
 - | infrequent urination
 - | weight loss
 - | muscle cramping
- | The best way to gauge hydration status is by monitoring urine color and amount

Tips to Stay Hydrated

- ✓ Drink water throughout the day
- ✓ Drink water before, during, and after exercise
- ✓ Drink sports drink if exercise is longer than 60 minutes or in hot and humid conditions
- ✓ Limit Sugary beverages like soda or juice, coffee drinks, and energy drinks

How much do you need?

Males

At least 13 cups/day

Females

At least 9 cups/day

Pre-exercise hydration

Body weight	Oz. of fluid
<100lbs	8-12
100-119lbs	8-14
120-139lbs	8-18
140-159lbs	10-20
160-179lbs	12-22
180-199lbs	12-16
200-219lbs	14-28
220-239lbs	16-30
240+lbs	16-32

During exercise hydration

Activity <60 minutes or moderate intensity only water is necessary for fluid replacement

Aim for 20oz/hour of water or 4oz every 15 minutes

Activity >60 minutes or high intensity an electrolyte replacement drink is preferred

Aim for 4oz sports drink every 15 minutes

Experiment during training to find the types and amounts of fluids that work for you

Post-exercise hydration

Include fluids and electrolytes as part of your post workout recovery

Aim to drink ~20 fl oz for every lb of body weight lost during exercise

How to calculate sweat rate:

Weight yourself prior to exercise _____

Weight yourself immediately after exercise _____

Pre-workout weight – Post-workout weight = **Sweat rate**

Pounds lost	Fl. Oz. within 30 minutes
0-1	18-22
1-2	22-44
2-3	44-64
3+	Consult with physician or dietitian

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THE IMPORTANCE OF IRON

ASHLEY PEARSON, RDN, LDN – Registered Dietitian

WHAT IS IRON & WHY DO YOU NEED IT?

- | Iron is an important component of proteins (hemoglobin and myoglobin) that deliver oxygen to muscle cells.
- | Inadequate iron may lead to impaired muscle function and aerobic capacity.
- | Iron depletion can progress to iron deficiency anemia.
- | Athletic performance can be impacted before anemia occurs.
- | Females and vegan/vegetarians are at increased risk of depleted iron stores.

HOW MUCH IS ENOUGH?

Females

14-18 years old – 15mg/day

Males

14-18 years old – at least 11mg/day

If iron intake is inadequate through food, a supplement may be needed. If you are concerned about your iron status, consult your physician.

WAYS TO BOOST IRON STORES

- ✔ Consume heme-iron containing foods such as red meat, poultry, eggs, and fish.
- ✔ Consume non-heme containing foods such as whole grains, fortified cereals, tofu, lentils beans, leafy greens, nuts, and seeds.
- ✔ Foods containing vitamin C enhance absorption of iron from foods. Examples include citrus fruits, tomatoes, bell peppers, and broccoli
- ✔ Avoid consuming dairy foods, tea or coffee with iron rich foods, because they can inhibit absorption

MACRONUTRIENT BASICS

ASHLEY PEARSON, RDN, LDN – Registered dietitian

Macronutrients are the 3 nutrients your body needs in large amounts to function. The macronutrients are: **carbohydrates, protein, and fat**

Carbohydrates are your body's preferred energy source

- Carbohydrates provide fuel for your body and brain, it also prevents muscle breakdown.
- Aim for 30-60 grams of carbohydrates within in hour prior to exercise to fuel your workout
- Aim for .75-1.5g of carbohydrate/kg of body weight within an hour post-exercise to replenish glycogen stores
- A limited amount of glycogen is stored in your body, and must be replaced, which can take up to 24 hours

Recommended amount

50-65% of calories from carbohydrates

Good sources of carbohydrates include:

Fruits, vegetables, whole grains: oats, wheat bread or pasta, brown rice, beans, dairy

Low carbohydrate intake can lead to decreased performance, muscle breakdown, low energy, and nutrient deficiency

Protein (amino acids) are the building blocks of growth

- Protein cannot be stored and should be spread throughout the day - try to include 25-30g of protein at each meal and 10-15g of protein at each snack
- Helps with muscle recovery and repair
Aids in proper hormone and enzyme function
Helps with immune function
- Aim for 15-25g of protein within an hour post exercise to help repair and rebuild muscle and tissues

Recommended amount

12-25% of calories from protein

Good sources of protein include:

Animal - meat, poultry, fish, eggs
Dairy - yogurt, milk, cheese, whey
Plant - nuts, nut butter, beans, seeds, lentils

Fat aids in many essential body functions

- | Helps maintain body temperature
Cushions and protects organs
Assists in vitamin absorption and nerve transmission
Provides lasting energy source
- | Unsaturated fats, like omega-3 fatty acids, are linked to reducing inflammation and supporting brain health
- | Saturated fats can lead to high cholesterol, risk of heart disease, and inflammation in the body
- | Not enough fat may cause low energy levels during aerobic exercise, compromise immune function and cause inefficient digestion of fat-soluble vitamins

Recommended amount
20-30% of calories from fat

Unsaturated fats include:
Olive oil, nuts, avocados, fatty fish, eggs, seeds, peanut butter

Saturated fats include:
Dairy, fatty cuts of meat, fried foods, baked goods

Too much saturated fat may cause undesirable weight gain, feeling sluggish, and inadequate intakes of other macronutrients

	Example 2500 Calorie Day	Example 4000 Calorie Day
Breakfast	1 wheat English muffin, 1 slice cheese, 1 scrambled egg, 1 banana, 8oz milk	3 eggs with ½ cup cheese, ½ avocado and ½ cup diced vegetables, 2 slices wheat bread, 1 banana, 8oz milk
AM snack	1 apple, ¼ cup nuts	1 cup Greek Yogurt, 1 cup berries, ¼ cup granola, ¼ cup nuts, 1 string cheese
Lunch	1 wheat bun, 4oz grilled chicken breast with lettuce, tomato and mayo, 1 cup carrot sticks, 1 orange, 8oz milk	1 wheat bun, 6oz grilled chicken with 1 slice cheese, lettuce, tomato, and mayo, 1 cup carrots, 1 orange, 1 cup wheat crackers, 12oz milk
PM Snack	1 wheat mini bagel, 2 tbsp peanut butter, 1 tbsp jelly, 12oz sports drink	2 slices wheat bread, 2 tbsp peanut butter, 1 banana sliced, 1tbsp honey, ¼ cup dried fruit, ¼ cup nuts, 12oz sports drink
Dinner	4oz lean steak, 1 sweet potato, 1 cup rice, 1 cup broccoli, 8oz milk	6oz lean steak, 1 wheat roll, 1 sweet potato, 2 cups broccoli, 1 cup rice, 8oz milk
Evening Snack	1 Greek Yogurt, 1 cup berries	Smoothie- 1 cup milk, 1 Greek yogurt, 1 cup fruit, 1 tbsp chia seeds, 1 tbsp peanut butter

**These are just general guidelines and examples. If you have questions about specific macronutrient needs meet with a registered dietitian to help you.*

THE POWER OF PROTEIN

ASHLEY PEARSON, RDN, LDN – Registered Dietitian

Protein is important for muscle recovery and repair. Protein is made up of amino acids, which are the building blocks for growth. Your body is able to produce some amino acids, but cannot produce some. Those are considered essential amino acids, because you must consume them through diet.

CHOOSE HIGH QUALITY PROTEIN

- Animal proteins are high quality because they contain all essential amino acids (EAA)

Animal protein sources include:

Eggs, meat, poultry, and fish

- Some plant-based proteins contain all EAA, but most are low in one or more EAA

Plant-based proteins with all EAA include:

soy, quinoa, amaranth, and buckwheat

Plant-based proteins without all EAA include:

legumes, grains, nuts, and seeds

HOW MUCH IS ENOUGH?

Endurance Athletes

1.2-1.6g/kg a day

Strength Athletes

1.4-2.0g/kg a day

To maximize muscle growth aim for 15-25g of high quality protein within 1-2 hours after training

TIPS TO MEET PROTEIN NEEDS

- ✓ Spread protein throughout the day, aim to consume 20-30g protein at each meal and 10-15g protein at each snack
- ✓ Choose high-quality proteins at meals and snacks
- ✓ Include 15-25g protein with carbohydrates after exercise to aid in muscle recovery and growth
- ✓ Supplements can be a convenient way to consume protein, but evaluate safety and effectiveness before use.

If you are thinking about starting a supplement, consult with a physician or registered dietitian.

SLEEP LIKE A CHAMPION

ASHLEY PEARSON, RDN, LDN – Registered Dietitian

WHY IS SLEEP IMPORTANT?

- Deep sleep helps enhance the release of growth hormone – leading to enhanced muscle repair and protein synthesis.
- Sleep deprivation decreases growth hormone, increases stress hormones and affects appetite-regulating hormones.
- Research has shown that inadequate, and even irregular sleep can lead to reduced performance in school and sports.

HOW MUCH IS ENOUGH?

Females

8-15 years old – 9.5-10 hours of sleep
15-21 years old – 8-10 hours of sleep

Males

9-16 years old – 9.5-10 hours of sleep
16-23 years old – 8-10 hours of sleep

TIPS FOR QUALITY SLEEP

- ✓ Have a sleep schedule – regular bedtime and wake time
- ✓ Create a relaxing bedtime routine – like reading, taking a bath, listening to music, etc.
- ✓ Avoid stimulating activities or electronics – like T.V., video games, computer or phones
- ✓ Find a stress release activity
- ✓ Reduce intake of spicy foods, fried foods, or acidic foods at night
- ✓ Limit caffeine consumption in the afternoon/evening

SNACK SMART

ASHLEY PEARSON, RDN, LDN – Registered Dietitian

Pre-Workout Snacks

- Focus on carbohydrates for energy. Aim for 30-60g of carbs within an hour before exercise.
- Include moderate amounts of protein, and limit fat, which can make you feel sluggish.

Pre-workout snack ideas:

- Pretzels or crackers
- Trail mix
- Cereal or granola
- Fresh or dried fruit
- Sports bar
- Yogurt
- PB&J sandwich

During Workout

- If workout is longer than 60 minutes, aim to consume 30-60g of carbohydrates per hour during exercise.
- Consume water with carbohydrates to aid with gastric emptying.
- Sports drinks are a good way to get fluids, electrolytes and carbohydrates all at once.

During workout snack ideas:

- Pretzels or crackers
- Dried fruit
- Cereal or granola
- Sports gels or gummies

Post-workout Snacks

- Consume a balanced snack within 30-60 minutes after exercise that includes carbohydrates, protein and fluids. Your heart rate and blood flow is higher during the first hour post-exercise, which delivers nutrients to your muscles and cells quicker. This is a critical time for recovery.
- Aim for 0.75-1g carbohydrate/kg body weight to replace glycogen stores, and 15-25g protein to help repair and rebuild muscles and tissues.

Post-workout snack ideas:

- Chocolate milk
- Smoothie or protein shake
- PB&J sandwich
- Deli meat sandwich
- Protein bar
- Vegetables and hummus
- Trail mix
- Fruit and peanut butter
- Yogurt with fruit and granola
- Hard boiled eggs and crackers

UNDERSTANDING SUPPLEMENTS

ASHLEY PEARSON, RDN, LDN – Registered Dietitian

Facts on Supplements

- Supplements are loosely regulated by the FDA, but companies are not required to prove the purity, safety or effectiveness of the product
- A supplement may contain banned substances, even if it is not on the label due to contamination or poor manufacturing
- Using more than the recommended dosage will not provide greater gains, but can lead to serious health consequences-
Increased blood pressure, irregular heart rate, enlarged organs or liver failure
- Everyone responds differently to supplements, and there are risks associated with any supplement use
- Before you consume a supplement evaluate the label

How to Evaluate a Supplement

- Use reliable sources to gather information**
 - The National Center for Drug Free Sport
 - NCAA
 - United States Anti-Doping Agency
 - International Olympic Committee
- Check for third-party testing and certification of the product's purity and quality**
 - NSF
 - Informed Choice
 - USP
 - Consumer Labs
- Be cautious of big claims or promises for quick and unrealistic results like:**
 - Energizer
 - Fat burner or metabolic booster
 - Proprietary ingredients
- Exaggerated claims to energy metabolism, body fat loss and muscle mass gain are usually high risk for containing banned substances**

Try Foods First

- Nutrient dense foods will keep your immune system strong, as well as provide adequate energy and nutrients to fuel exercise
- Most athletes consume adequate nutrients through a balanced diet, and do NOT require supplementation. Supplements may be convenient, and can supplement a balanced diet, but does not make up for a poor diet.

COMMON SUPPLEMENTS

Supplement	Claims	Risks	Food Equivalent
Multivitamin and Mineral	Prevent deficiency, boost immune system	Potential toxicity if taken in amounts greater than recommended	Meats, poultry, fish, whole grains, vegetables, fruits, beans & peas, nuts, dairy
Caffeine	Improved endurance and intensity	Anxiety, irritability, poor sleep, jitters, headaches, GI distress	Coffee, tea, chocolate
Creatine Monohydrate	Increase lean mass, strength, and anaerobic power	GI distress or cramps NOT recommended for athletes under 18 due to unknown effects on heart, kidneys & reproductive organs	Red meat, poultry, fish
Whey Protein Isolate	Build muscle, fuel exercise	Potential contamination	Dairy - derived from milk protein Enters blood faster than any other protein
Casein Protein	Enhance muscle building	Potential contamination	Dairy - derived from milk Absorbed slower than whey protein
Branched Chain Amino Acids (BCAA)	Help with endurance & delay fatigue	Nausea, pain, headache	Dairy, red meat, poultry, fish, eggs, lentils, whole wheat, almonds, cashews, brazil nuts
Omega-3 Fatty Acids	Reduce inflammation, muscle soreness, joint soreness, and enhance brain health	In larger doses can increase risk of bleeding, hypoglycemia, low blood pressure, nausea, or diarrhea	Fatty fish, flaxseed, walnuts, olive or canola oil
Beta-Alanine	Enhance muscular endurance	Potential toxicity, flushing and tingling of skin	Meat, fish, poultry
Beta-hydroxy-beta-methylbutyrate (HMB)	Increase lean muscle & enhance recovery	Potential contamination or toxicity	Fish, citrus fruits
Probiotics	Help eliminate waste products in digestive tract, and may improve immune health	Gas, bloating, diarrhea, and stomach pains	Yogurt, fermented foods

**If you are thinking about starting a supplement consult your physician or a Registered Dietitian.*