



# ***A Coach's Guide to Nutrition***

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# ***A NOTE TO COACHES***

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## A Note to Coaches

# WHY CONSIDER NUTRITION?

Nutrition can impact, positively or negatively, everyone's daily life. It may affect your student athletes in everything they do from the classroom to the court. Nutrition may not be the single factor that wins games, events or meets, but it may give your athletes and team an edge over those who may not eat for performance. Proper nutrition paired with great training can make a noticeable difference in your team's performance. As you know, teens are growing quickly! That means student athletes need a lot of quality energy through food to support growth as well as to support the demands of physical activity. Teens grow very quickly and may have different needs than adult athletes. As a coach, you can help student athletes learn how to fuel their bodies (and brains!) properly.

In this resource you will find a variety of nutrition topics that may impact the performance of your student athletes. Each topic will have an overview for coaches and 1-2 questions for a coach to ask their team. These can serve as conversation starters for you and your team at the beginning or end of practice. This brainstorm style conversation may help spark interest or help your student athletes learn and implement something new which may positively impact their training and performance. Feel free to go in order as topics are listed or to jump around to topics you feel are most important or applicable to your team. Use it every day, once a week, or as topics come up among your team members.

This resource is not all-inclusive and is not sport specific. We encourage you to reach out to a Registered Dietitian Nutritionist (RDN) to speak with your team about sports nutrition to set the scene and get everyone on the same page for a successful season. Consider a RDN with a Board Certification in Sports Dietetics (CSSD) to tailor the conversation more specifically to athletes. To find an RDN, visit [eatright.org](http://eatright.org) to find an RDN, CSSD in your area or contact Milk Means More.



## A Note to Coaches

# DIFFICULT CONVERSATIONS

We understand that your job as a coach is much more than teaching the fundamentals of sport. There are many things you teach your athletes, but you must also keep an eye on their overall well-being. Body image, disordered eating and mental health struggles are very real issues that student athletes regularly face. These issues change how nutrition education should be approached. Before you begin any nutrition education, familiarize yourself with these signs, symptoms and next steps to help identify if these issues may be a problem on your team.

## Disordered Eating

Disordered eating can present itself in a multitude of different ways: food restriction, bingeing, purging, excessive exercise, obsessive behaviors or a need for control. These can be very difficult for an outsider to spot and often the person who is experiencing disordered eating is an expert at hiding this behavior. Sometimes, the person may not even know their eating behaviors are taking a negative toll on their body. In a culture of social media and an emphasis on 'thinness' rather than health, the pressure young people are under is extreme. Keep in mind that eating disorders are NOT something that only females experience. Be proactive. Have a health expert, like an RDN, come speak with your team about a healthy approach to eating and performance.

As a coach, avoid comments about weight. Weight loss will not automatically enhance an athlete's performance, and sometimes will decrease performance due to loss of muscle, speed and power or energy losses as a result of weight loss efforts. Do not weigh athletes or ask what they weigh. There is no good reason to discuss weight with high school athletes. If you have concerns about an athlete's weight, discuss with his/her parents separate from the athlete and provide contact information for a RDN for follow-up and assessment.

### SIGNS & SYMPTOMS OF DISORDERED EATING

While not necessarily an indication of an eating disorder, some things to watch and listen for are

1. Recurrent bone fractures
2. Dizziness or passing out during exercise
3. Skipping meals or arriving to practice having not eaten anything
4. Obsession, control and/or anxiety associated with calories and/or 'good' and 'bad' foods
5. Frequent dieting
6. Guilt or shame related to eating
7. Large or sudden changes in weight
8. Obsession with body image or weight
9. Excessive exercise, including refusal to take rest days or continuing to exercise through injury
10. Depression
11. Loss of menstrual cycle

To find out more about the role coaches play in decreasing the impact of disordered eating, visit

[WWW.NATIONALEATINGDISORDERS.ORG](http://WWW.NATIONALEATINGDISORDERS.ORG).

## Mental Health

Kids are under an incredible amount of pressure, real and perceived. This pressure can come from home, school, sports, friendships and/or relationships. These can all impact mental health. As with eating disorders, be proactive. Have an expert come speak with your team on mental health. This may create a more supportive and open environment should something arise.

### SIGNS & SYMPTOMS OF MENTAL HEALTH STRUGGLES

1. **Feelings of sadness, hopelessness or irrational fear**
2. **Loss of interest in things the person once enjoyed**
3. **Excessive sleep or insomnia**
4. **Anxiety**
5. **Unexplained loss of appetite or weight loss/gain**
6. **Difficulty concentrating or remembering things**
7. **Irritability**
8. **Slowed reaction or speech**
9. **Unexplained angry outbursts**
10. **Suicidal thoughts or self-harm**

**Post the National Suicide Prevention Lifeline number in a highly visible area** (*feel free to photocopy page 5*):

**988**

## What to Do Next (APPLIES TO EATING DISORDERS AND MENTAL HEALTH)

Often coaches are the first people to spot issues or athletes and teammates confide in coaches. If you suspect a problem, first do no harm by taking these steps:

1. Take warning signs seriously, but do not jump to conclusions.
2. If you choose to speak with the athlete, do not make accusations. Express concern in private. Again, do not make any comments about weight.
3. If appropriate, have a conversation with parents. Be sure to express concern without judgement.
4. Engage school health services, like a nurse or counselor. If they feel it is necessary, they can engage other health professionals like a doctor, therapist or RDN.
5. Be supportive – especially if athletes need to miss practice for treatment appointments. Even after eating disorders, depression, anxiety and other mental health disorders are treated, they can return. Open communication and genuine support can help facilitate long-term healing.
6. Remember to always maintain privacy and confidentiality with these issues.



9888

SUICIDE  
& CRISIS  
LIFELINE



# ***MACROS***



# MACROS

## Building a Balanced Diet

Macronutrients, or macros, are three **nutrients** found in food that the body uses for energy: carbohydrates (carbs), protein and fat. Each is essential in the body because they are used for unique functions:

### CARBOHYDRATES

The body loves carbs and for good reason! Carbs are the body's first choice for fuel when you exercise above a moderate intensity. At least half (50-65%) of an athlete's calories should come from **high nutrient carbohydrate** foods.

### PROTEIN

Helps build, repair and maintain muscles. Some protein is needed every day, between 10-35% of total calories.

### FAT

Healthy fats in the diet are important to help the body absorb certain vitamins. About 20-35% of calories should come from fat.

It is important to remember that there are no 'good' foods and 'bad' foods, but foods that have more nutrients or less nutrients. Choose high nutrient foods more often, leaving room for low nutrient foods on special occasions.

### NUTRIENTS

provide nourishment that is essential to growth and nourishment, like calories (energy), vitamins and minerals

### Choose HIGH NUTRIENT

**CARBOHYDRATE** foods that contain more micronutrients like vitamins and minerals more frequently like whole grains, low fat dairy, fruits and vegetables. Choose low nutrient foods less frequently, such as highly refined foods like candy, sodas and sports drinks, white breads and pastas.

### LOOKING FOR MORE SPECIFICS?

See page 60 for a worksheet on macronutrient needs or consult with a RDN who specializes in sports nutrition.

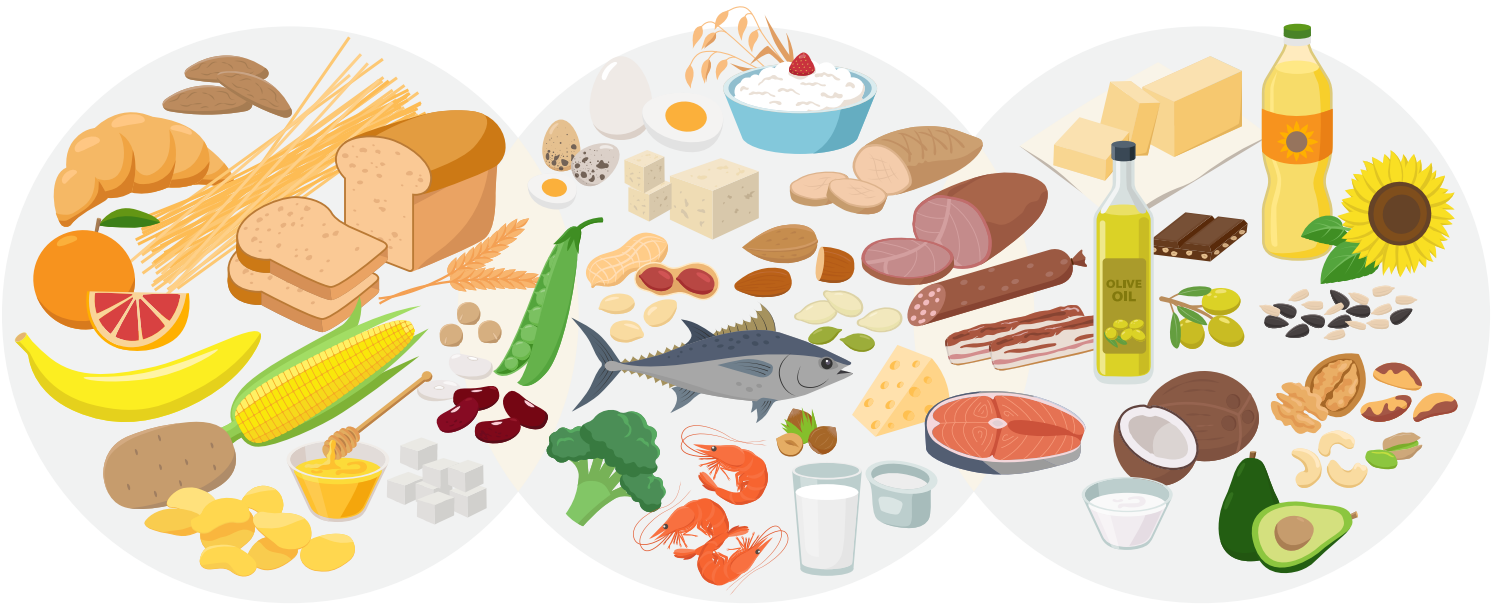
### Team Question:

- What are Macronutrients or Macros?

### Big Takeaway:

A diet balanced with all three Macros (Carbs, Protein and Fat) will help student athletes on the court and in the classroom.

# WHAT ARE MACROS?



**CARBS**



**EXERCISE  
FUEL**

**PROTEIN**



**MUSCLE  
FUEL**

**FAT**



**VITAMIN  
ABSORPTION**

## NOTES



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# CARBOHYDRATES

aka “Carbs”

Carbs are one of the three macros (See Macros - Building a Balanced Diet) that are the energy or fuel sources of the body. Carbs are the preferred source of energy of the brain and the body during exercise. The storage form of carbs is glycogen, and our body can tap into this storage form to use for energy when needed. An athlete’s diet should be 50-65% carbs.

The majority of carbs should come from high nutrient foods like whole grains, dairy, fruits and vegetables. These foods contain vitamins, minerals, antioxidants and often fiber to provide long lasting, nutrient-dense energy. Whole grains, fruits and vegetables contain fiber, which helps the body feel full for longer.

While most carbs should come from nutrient rich foods, quickly digesting foods are important for exercise. Right before and during exercise, foods like crackers (not whole grain), sports drinks or energy gels can give a quick burst of energy without causing stomach upset, which is ideal for exercising muscles. However, these types of foods outside of exercise are digested quickly, which may cause an energy crash.

## Team Question:

- *Why are carbs important?*

## Big Takeaway:

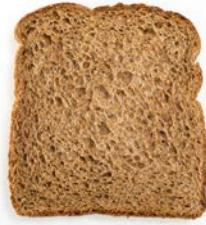
Carbs fuel both muscle and brain. They are the body’s preferred fuel for exercise.

# CARBOHYDRATES *aka "Carbs"*

## Typical Serving Sizes



**WHOLE GRAIN PASTA**  
( $\frac{1}{2}$  cup)  
18g



**WHOLE GRAIN BREAD**  
(1 slice)  
22g



**BROWN RICE**  
( $\frac{1}{2}$  cup)  
17g



**OATMEAL**  
( $\frac{1}{2}$  cup, cooked)  
12g



**BROCCOLI**  
(1 cup)  
6g



**SWEET POTATO**  
(1 cup, or 1 large)  
27g



**RED BELL PEPPER**  
(1 cup, sliced)  
9g



**PEAS**  
(1 cup)  
21g



**CARROTS**  
(1 cup)  
11g



**APPLE**  
(1 cup, or 1 small)  
15g



**BANANA**  
(1 cup sliced, or 1 large)  
51g



**STRAWBERRIES**  
(1 cup)  
13g



**ORANGE**  
(1 cup, or 1 large)  
18g



**GRAPES**  
(1 cup)  
16g



**PEAR**  
(1 cup, or 1 medium)  
27g



**MILK**  
(1 cup)  
12g



**VANILLA GREEK YOGURT**  
(1 cup)  
22g



# PROTEIN

Protein is one of the three macros (Macros - Building a Balanced Diet) that are the energy sources of the body. Protein contains amino acids, which are the building blocks of muscle. Some of these amino acids are essential, meaning your body cannot make them; they must come from foods. If you don't eat enough carbs, then protein (aka muscle!) can be used for energy, so it is important to have enough protein in the diet. Athletes need slightly more protein than the average person. It is important to note that most athletes can consume all the protein they need from food alone. Only about **10-35%** of total calories should come from protein.

Adding things like Greek yogurt or eggs with breakfast, three ounces (about the size of a deck of cards) of chicken at lunch, three ounces of lean beef with dinner and a glass of milk with each meal is often enough to meet your body's protein requirements. Along with protein found in foods like meat, fish, dairy, eggs, beans, tofu and lentils, protein is also found in whole grains and some vegetables.

See the Protein chart on page 13 for grams of protein in common foods.

*At meals, this should be about 20-30 g of protein, which is  $\frac{1}{4}$  of your plate, or a serving size about a deck of cards. Aim for 10-15 g protein at snacks.*

## Team Questions:

- *Why is protein important?*
- *How much protein does an athlete need?*

## Big Takeaway:

Protein builds and repairs muscle and provides energy. About 10-35% of calories should come from protein. Most people do NOT need a protein supplement if they eat according to the Athlete's Plate.



# PROTEIN



**FISH** (*tuna, salmon; 3 ounces*)  
19g



**CHICKEN** (*3 ounces*)  
23g



**HAMBURGER** (*90% lean; 4 ounces*)  
22g



**BEANS** (*1/2 cup*)  
20g



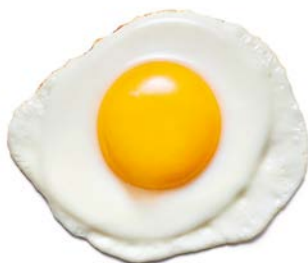
**MILK** (*1 cup*)  
8g



**CHEESE** (*1 ounce*)  
7g



**GREEK YOGURT** (*3/4 cup*)  
16g



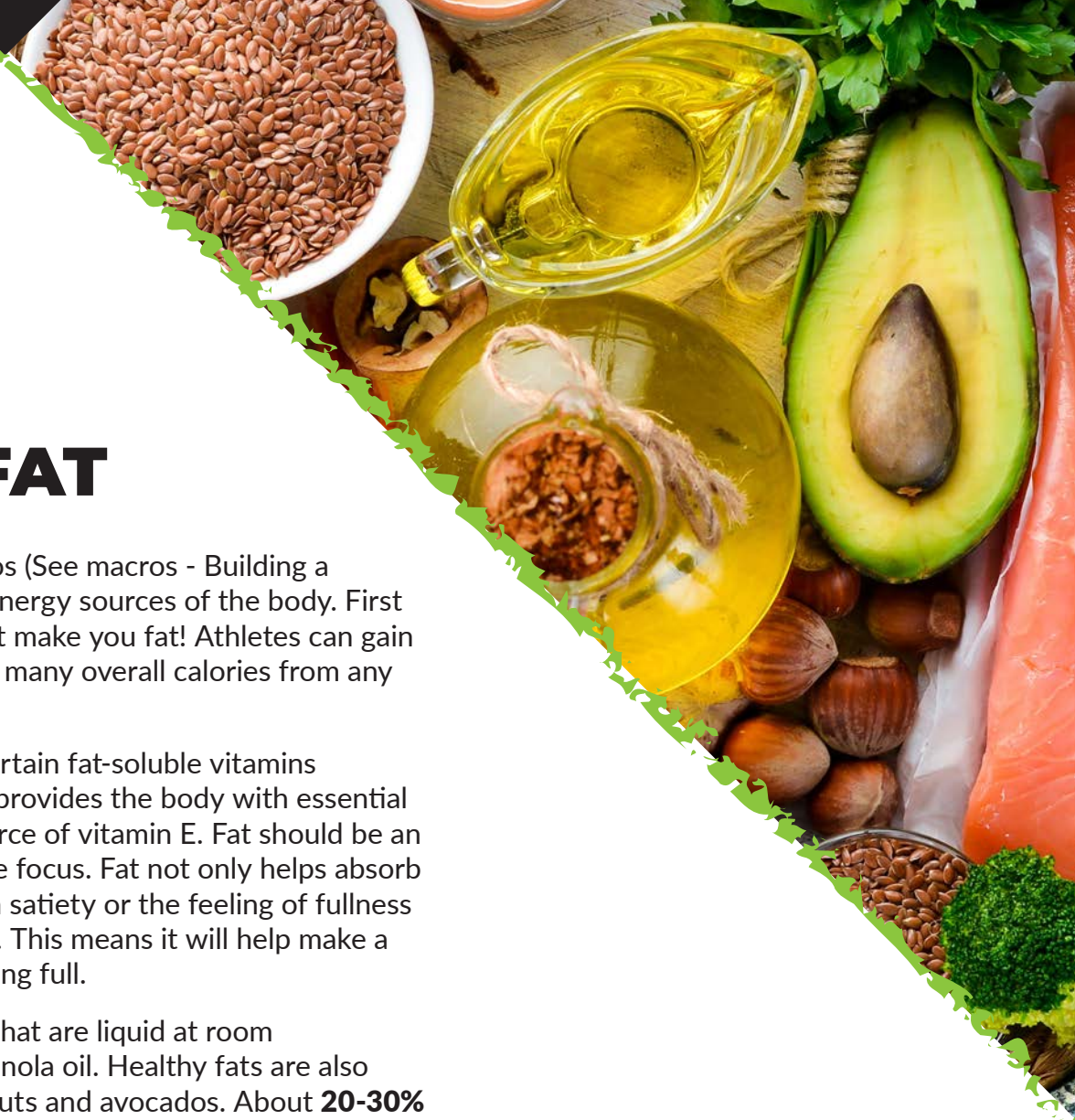
**EGGS** (*1 egg*)  
6g



**TOFU** (*1/2 cup*)  
10g



**PEANUT BUTTER** (*2 tablespoons*)  
8g



# DIETARY FAT

Fat is one of the three Macros (See macros - Building a Balanced Diet) that are the energy sources of the body. First things first, eating fat will not make you fat! Athletes can gain body fat due to taking in too many overall calories from any macronutrient source.

Fat helps the body absorb certain fat-soluble vitamins (vitamins A, D, E and K) and provides the body with essential fatty acids and are a rich source of vitamin E. Fat should be an 'add-on' to your meal, not the focus. Fat not only helps absorb nutrients, but also helps with satiety or the feeling of fullness while adding flavor to dishes. This means it will help make a person feel full and stay feeling full.

Focus on heart-healthy fats that are liquid at room temperature like olive and canola oil. Healthy fats are also found in foods like salmon, nuts and avocados. About **20-30%** of calories should come from fat.

*If you are eating a balanced diet, according to MyPlate or Macros to MyPlate (page 61), you are likely eating a healthy amount of fat within this range.*

## Team Questions:

- *Why is fat important in the diet?*

## Big Takeaway:

Fat in the diet provides energy, vitamin E and essential fatty acids and helps absorb certain fat-soluble vitamins (vitamins A, E, D and K). These nutrients are important for athletes to perform at their best potential.

# DIETARY FAT



**AVOCADO**  
( $\frac{1}{2}$  medium)  
**15g**



**BUTTER**  
(1 teaspoon)  
**4g**



**NUTS**  
(1 ounce)  
**13-15g**



**SALMON**  
(3 ounces)  
**11g**



**OIL**  
(1 tablespoon)  
**14g**



**GROUND FLAX SEED**  
(1 tablespoon)  
**4g**



**ITALIAN SALAD DRESSING**  
(2 tablespoons)  
**8g**

## Portion Sizes

One effective way to manage your weight is to avoid “portion distortion.” Here are a few examples of appropriate serving sizes for different foods:



**$\frac{1}{2}$  cup cooked rice or pasta,** which is equivalent to the size of a **lightbulb**



**1 cup broccoli,** which is equivalent to the size of a **baseball**



**1 medium apple,** which is equivalent to the size of a **baseball**



**3 ounces of cooked meat or poultry,** which is equivalent to the size of a **deck of cards**



**1  $\frac{1}{2}$  ounces of cheese,** which is equivalent to **3 dice**



**2 tablespoons of nut butter** which is equivalent to the size of a **golf ball**



# MACROS TO MYPLATE

While macros are important, we don't eat macros – we eat food! Share the Macros to MyPlate visual (*page 17 or 61*) with your athletes to help them create meals that have the right amount of carbs, fat and protein. The focus of your plate (or bowl) should be on quality carbohydrate foods like fruits, vegetables and whole grains. Depending on intensity of training or if you are heading into competition,  $\frac{1}{4}$ - $\frac{1}{2}$  of the plate should be fruits and veggies, and  $\frac{1}{4}$  to  $\frac{1}{2}$  of the plate should be grains or starchy veggies, like sweet potatoes, corn or peas.

Remember that carbs are the body's preferred source of energy, so more are needed for game days or hard practices. About a quarter of your plate should be protein. A glass of milk provides fluid, electrolytes, carbs and protein. Include a source of healthy fat somewhere in your meal. If possible, aim to get something from each food group at every meal.

Try to balance out your food groups at each meal and snack. Every plate should have a variety of color! Different colors contribute different vitamins and minerals that the body needs.

School meals are a great option for student athletes because they are planned with growing bodies in mind. Your athletes might need a second meal or additional snacks, though, if they are still hungry or are not meeting their calorie needs.

## COACHES:

Connect with your school food service department to learn how they can support your team's nutrition goals.

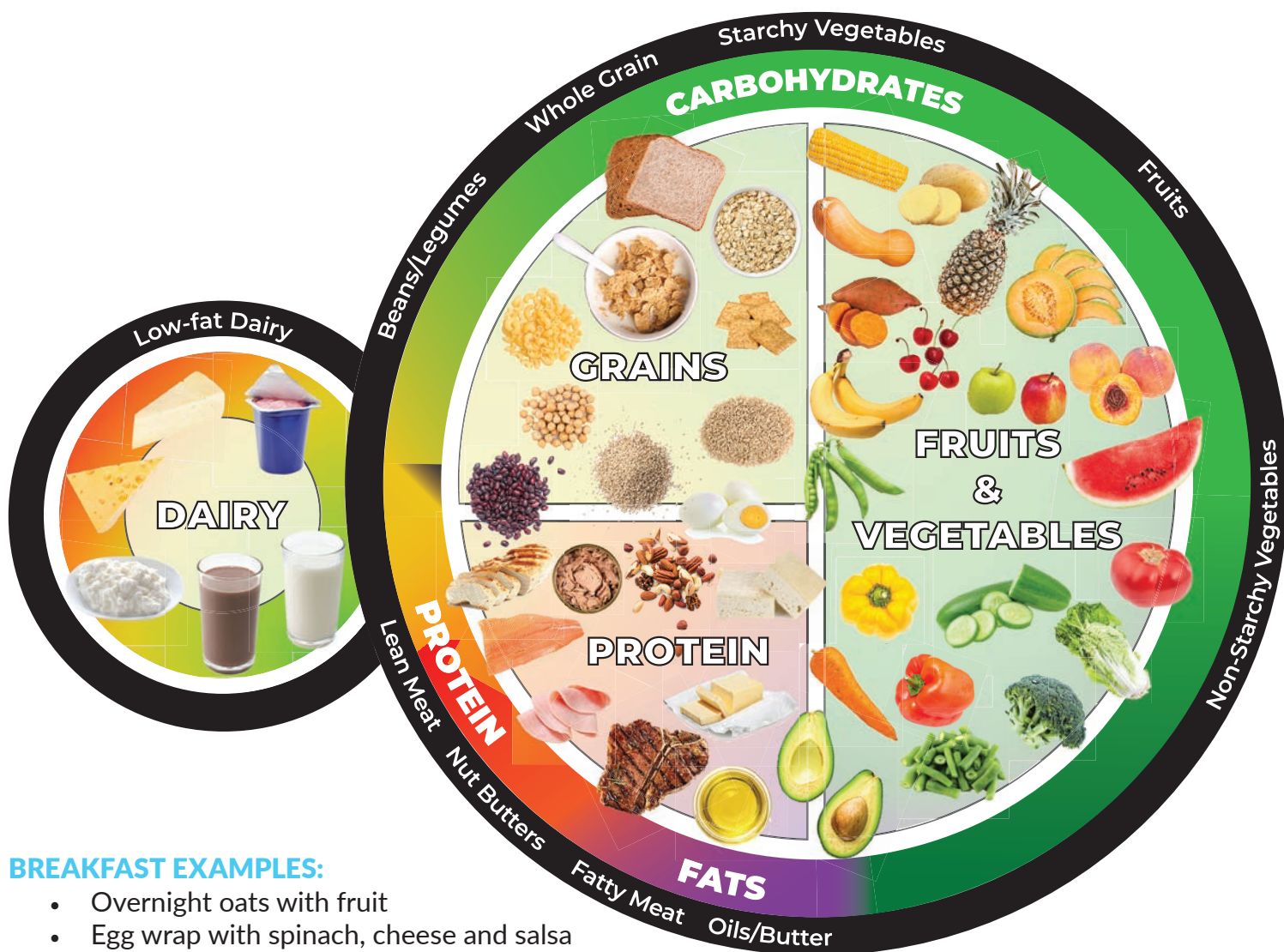
## Team Questions:

- *What does a healthy plate or meal for an athlete look like?*

## Big Takeaway:

Include variety and color in every meal. About  $\frac{1}{4}$  of the plate should be protein, with  $\frac{1}{4}$ - $\frac{1}{2}$  fruits and veggies,  $\frac{1}{4}$ - $\frac{1}{2}$  grains and starchy vegetables, with a glass of milk. Include a source of healthy fat somewhere in your meal.

# MACROS TO MYPLATE



## BREAKFAST EXAMPLES:

- Overnight oats with fruit
- Egg wrap with spinach, cheese and salsa
- Cereal with fruit and milk topped with nuts
- Smoothie made with milk, fruit, spinach and oats
- Don't forget about school breakfast!

## LUNCH EXAMPLES:

- Turkey roll up with cheese, tomato and lettuce, fruit and milk
- Grilled cheese sandwich, tomato soup, small salad, milk and pear
- Large salad with your choice of berries, grilled chicken, cheese and vinaigrette dressing, garlic bread and milk
- School lunches are made with student nutrition in mind!

## DINNER EXAMPLES:

- Pasta with chicken, pesto, tomatoes and peas with milk
- Shrimp or tofu fajita bowl with brown rice, peppers, onions and shredded cheese. Add guacamole and plain Greek yogurt instead of sour cream.
- Cheeseburger made with 90% lean beef or turkey on a whole grain bun with lettuce and tomato and a glass of milk. Add baked sweet potato fries on the side.

# NOTES



Lined writing area consisting of 25 horizontal grey lines for notes.

# ***MEALS AND SNACKS***

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# MAXIMIZING YOUR PLATE

## *Putting Macros to MyPlate into Action* (See page 61 for Macros to MyPlate)

Meals should not only fuel an athlete's body but create an enjoyable experience. Athletes need 3 meals a day. When meal planning, begin by thinking of the Athlete's Plate. While protein should not necessarily be the largest portion of the plate, that is often a good place to start. For example, if you selected turkey burger for dinner, it is easier to construct the rest of the meal around it. Add a whole wheat bun, cheese and top with veggies. Baked potato wedges and a small spinach and strawberry salad with milk round out the Athlete's Plate.

If preparing for a competition with a need to focus on a higher carbohydrate meal, start with grains and work from there. Choose spaghetti or pasta to start, then add meatballs, pasta sauce, steamed broccoli and Greek yogurt with fresh berries on the side or for dessert.

Keep in mind when talking to students, there will be a wide range of nutrition and food preparation knowledge.

Also take into consideration that not all students have access to a full kitchen or access to a wide variety of foods or, in some cases, access to food outside of school. Suggesting crock pot meals or meals that do not require a lot of cooking may be a good idea. Lasagna is a great, well rounded meal that can be prepared in a crock pot. Include extra veggies like mushrooms and spinach to make it higher in nutrients. School meals are also a great choice for student athletes. These meals are designed with growing bodies in mind.

### ANSWERS TO WHAT IS MISSING FROM THE MEAL? (page 21)

**Breakfast:** Grains—add slice of toast or oatmeal

**Lunch:** Vegetables—add tomatoes and lettuce to the sandwich or add a small side salad.

**Dinner:** Fruit—consider adding a mango salsa on top of the salmon

### Team Questions:

- *How would you plan a performance meal?*
- *What should be the focus of a meal?* (Hint: think of the Macros to MyPlate.)

### Big Takeaway:

Strive for something from every food group at each meal. Make fruits and veggies as well as whole grains the focus, with a 'side' of meat or protein. Don't forget to choose a fat source as well if not already in the other food groups.



# HOW TO CREATE A MEAL:

## *Putting Macros to MyPlate into Action*

### What is missing from the meal?



#### **BREAKFAST**

Two-egg omelet with sautéed spinach, tomatoes and cheese, sliced strawberries and a glass of milk



#### **LUNCH**

Hot ham and cheese sandwich with apple and chocolate milk



#### **DINNER**

Baked salmon with broccoli and brown rice, glass of milk.

*See answers on page 20.*



# TIMING IS EVERYTHING

## *What to Eat and When to Eat It*

Keeping energy levels consistent throughout the day will help ensure athletes are ready to go at practice or game time. Encourage your team to eat on a regular basis or about every 3-4 hours. Plan for three meals and three snacks daily. Even if practice or events are in the afternoon or evening, encourage student athletes to start fueling with breakfast. After an overnight fast, energy is depleted and breakfast is the first opportunity the body has to refuel. Otherwise, muscles may not get enough calories to carry them through a hard workout or competition to the best of their potential.

A typical day could look like the menu below. Encourage athletes to have a menu “game plan” so they know ahead of time what to eat and how to prepare or pack for their day. Use the Athlete’s Plate as a visual tool when creating meals. Bringing snacks in an insulated bag with an ice pack is a simple way to make sure athletes have the fuel they need. Don’t forget about school breakfast and lunch. These meals are designed specifically with students in mind.

### **Team Questions:**

- *How frequently should you eat?*
- *What should you try to include every time you eat?*
- *Why is breakfast so important?*

### **Big Takeaway:**

Eating every 3-4 hours will keep energy at a steady level. Three meals and three snacks a day is a good goal to keep in mind. Include a carb and protein food whenever possible.

Breakfast is the first opportunity to refuel since the evening before—your tank is running on empty! A small breakfast at home, on the way to school or between first and second periods will start to refuel your muscles and brain.

# TIMING IS EVERYTHING

## What to Eat and When to Eat It



### BREAKFAST

Whole Grain English Muffin with scrambled egg, cheese and spinach. Add an apple and milk on the side for breakfast on the go.



### MORNING SNACK

Whole Grain Crackers, a cheese stick and a clementine is an easy snack between classes.



### LUNCH

Nutty banana sandwich made with 2 slices of whole grain bread, 2 T nut butter and sliced banana. Add carrot sticks and a yogurt parfait with berries to round out your meal.



### PRE PRACTICE/GAME SNACK

About an hour before, try a turkey roll up: 2 oz of sliced turkey and a slice of cheese on a tortilla.



### POST PRACTICE/GAME SNACK

Within 30-45 minutes have a low fat or fat free chocolate milk and an apple or banana to help with recovery.



### DINNER

3 ounces of pork chop with a large baked potato topped with steamed broccoli and shredded cheese. Enjoy a small side salad and glass of milk.



### DRINK PLENTY OF WATER BETWEEN MEALS.

**Note:** Some athletes may need an additional snack before bed to obtain adequate daily calories and assist with recovery overnight.



# SNACKS

Snacking can be detrimental when done out of boredom or in place of regular, balanced meals. But, for an athlete, healthy snacks can aid performance and recovery. In planning to eat every 3-4 hours, a mid-morning snack may be ideal. Having a snack in the hour or two before practice and in the 'window of opportunity' following practice can help maintain energy levels and ensure proper recovery. (See page 26 – **Recovery/Window of Opportunity**.)

Work with your athletes to create simple snacks that are easy to transport. Encourage athletes to include a carb and protein in each snack when possible. Fresh fruit, granola bars with 8-10 grams of protein or trail mix that includes nuts/seeds and dried fruit are easy to keep in a gym bag and relatively affordable. A small cooler with an ice pack is a great way to keep snacks cold and fresh.

## Team Questions:

- *Why are snacks important?*
- *What should you include in a snack?*

## Big Takeaway:

Snacks are important to maintain energy between meals, before exercise and after workouts. Snacks before and after exercise help performance as well as aid optimal recovery. Try to include carbs and protein in every snack.

# SNACKS

## Healthy Snack Equation:

**CARB + PROTEIN**

(fruit, vegetable or whole grain) + (dairy, nuts or other protein source)



**FRUIT SMOOTHIE**



**APPLE & PEANUT BUTTER**



**GREEK YOGURT & FRUIT**



**CHOCOLATE MILK & ALMONDS**



**PRETZELS & HUMMUS**



**CHEESE & CRACKERS**



**BANANA ROLL UP**

Tortilla with nut butter and banana

# RECOVERY/ WINDOW OF OPPORTUNITY

After an exercise session or game, muscles are depleted of glycogen, their primary energy source, and are in need of recovery from the stress of training. The 30 minutes following exercise is the best time begin to refuel, rebuild and repair muscles. A small snack is all that is needed in this “window of opportunity.” The focus should be on carbohydrate with some protein. The ideal snack would have more carbs than protein. Chocolate milk has both carbs and protein, along with electrolytes and fluids to rehydrate. Liquids are also more easily absorbed by the body to help refueling happen more quickly. Other refueling options could include a smoothie, yogurt and granola or a cheese stick with fruit.

Within 2-3 hours, have a full meal to continue recovery. This meal should be high in carbohydrate and based on Macros to MyPlate.



## Team Questions:

- *How quickly should you refuel after exercise?*
- *What should your snack or meal include?*

## Big Takeaway:

After exercise have a snack within 30 minutes and a meal within 2-3 hours. Chocolate milk has fluids, carbs, protein and electrolytes to refuel.

# RECOVERY

## 30-45 MINUTES AFTER EXERCISE

*“Window of Opportunity”*

Choose a snack of carbs and protein.

### EXAMPLES:



Chocolate Milk  
with an Apple



Smoothie made  
with Fruit and Milk



Cheese Stick  
and a Pear

## 2-3 HOURS AFTER EXERCISE

Eat a full, balanced meal.

### EXAMPLES:



Veggie Omelet,  
Fruit, Toast, Milk

Turkey and Veggie Wrap  
with Pear, Carrots, and  
Chocolate Milk

Sandwich with Apple  
and Milk

Penne Pasta with  
Chicken, Snap Peas,  
a Peach and Milk

# NOTES



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# ***HYDRATION***

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# HYDRATION

Hydration is the foundation of performance nutrition. Water plays a key role in the body most effectively using food consumed throughout the day. The amount an athlete should drink varies based on body composition, activity level and weather, among other factors. A good place to start is by drinking half of your **body weight in ounces**.

However, awareness of hydration is the first step. Ask your athletes if they feel thirsty. Thirst is the best indicator that you may be on the way to dehydration. When you feel thirsty, water is the best way to stay hydrated throughout the day.

Milk at meals and after a workout is a great choice for hydration, electrolytes, protein and other **essential nutrients**. Due to the electrolytes it contains, milk is actually more hydrating than water; the protein and carbs it contains can also help refuel and maintain muscle. Beverages like juice or soda are ok occasionally, but water should be the most frequent choice.

Another good indication of hydration is urine amount and color. Remind student athletes to be aware of how often they urinate. If it is infrequently, they may need more fluids. When they urinate, tell them to take a peek! If urine is dark like apple juice, it is another indication that they likely need more fluids. Urine color should be similar to that of lemonade.

*A 150 pound athlete should drink at least 75 ounces of water daily.*

**ESSENTIAL NUTRIENTS** are necessary for our bodies to function and perform. They are called essential because our bodies can't make them or can't make as much as we need so we must get them from food.

## Team Questions:

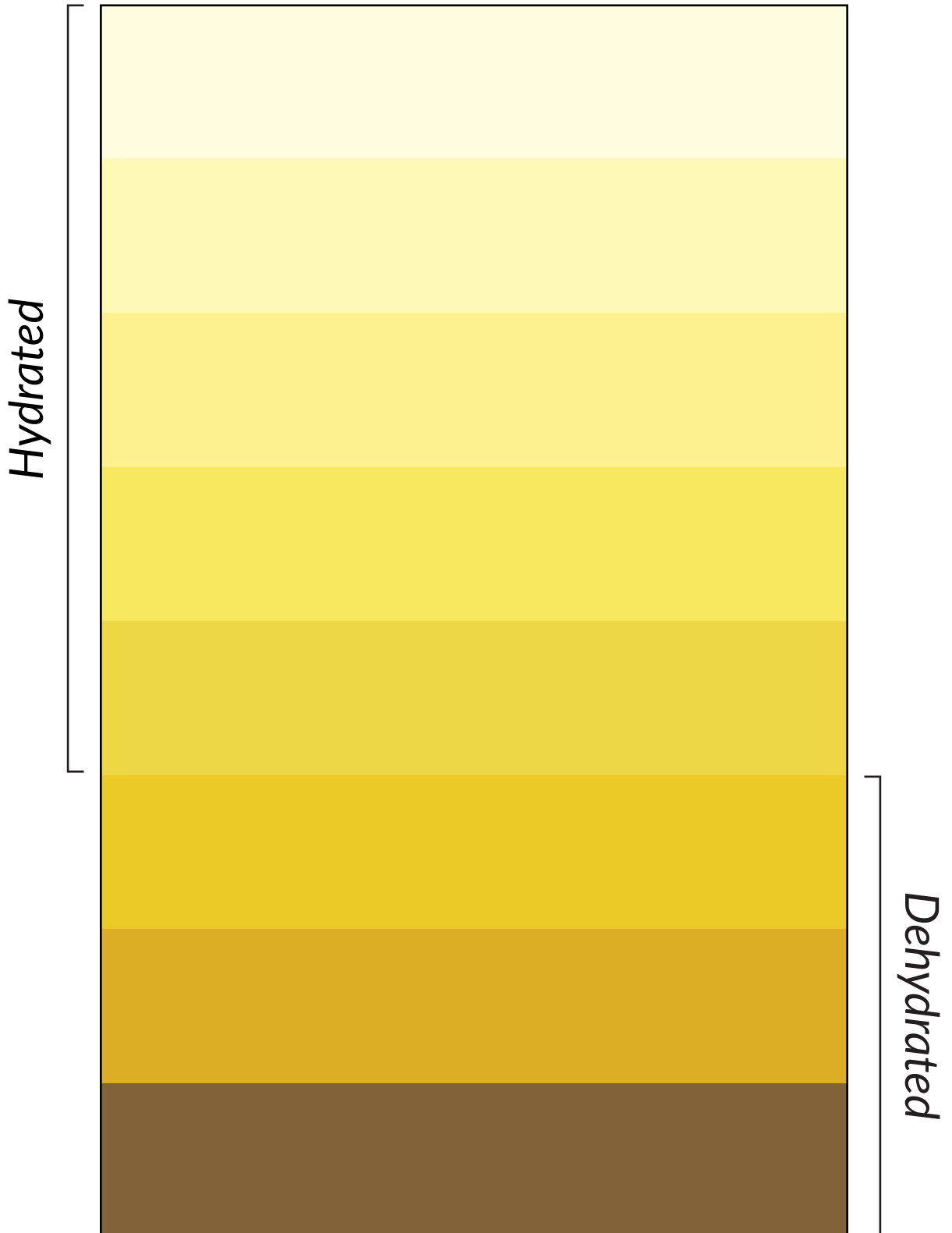
- *How do you know if you are hydrated?*
- *What are the best ways to stay hydrated?*

## Big Takeaway:

Are you thirsty? You may be on the way to dehydration. What color is your urine – think lemonade, not apple juice. The best way to stay hydrated is to drink fluids regularly. Water is the best choice throughout the day; milk at meals and after exercise provides fluids, protein and electrolytes growing, active bodies need.

# HYDRATION

## Urine Hydration Chart



# HYDRATION DURING EXERCISE

Starting a workout well hydrated is the best way to stay hydrated throughout exercise. Encourage your team to have 8-12 ounces of water about 15 minutes prior to a workout or competition, as tolerated. Athletes shouldn't drink so much they can feel it moving around in their stomach when active. This may cause discomfort and/or nausea. About 2-3 gulps of water or sports drink (see page 36 - **Sports Drinks/Electrolytes**) every 15 minutes will help keep athletes hydrated.

Some athletes do not feel thirsty while they are active, so regular water breaks are important. As always, if they feel thirsty, let them grab a drink. If they feel dizzy, confused or nauseated, they should STOP and tell a coach or teammate. This may indicate they are dangerously dehydrated. Access to water should NEVER be used as a punishment.

Athletes should also look for these symptoms in teammates and remind them to hydrate when necessary. For a more individualized recommendation or for athletes with a cramping history, refer them to a RDN.



**Dehydration  
Warning Signs:**

- Cramping
- Nausea
- Dizziness
- Confusion

## Team Question:

- *How often and how much should you drink during exercise?*

## Big Takeaway:

Start well hydrated! Aim for two to three gulps every 15 minutes during exercise.

# HYDRATION DURING EXERCISE

**15 MINUTES BEFORE EXERCISE:**

8-12 oz. of water



**DURING EXERCISE:**

2-3 gulps every 15 minutes





# POST EXERCISE/ REHYDRATION

Once practice or competition is over, it is important to replenish the fluids and electrolytes that have been lost through sweat. Therefore, make sure plenty of fluids are available. Encourage athletes to drink plenty of fluids, even if they are not thirsty! This is an important time to be aware of urination – do they need to go? If not, or if there is only a small amount of dark urine, they need to rehydrate!

The 30 minutes following exercise (see page 26 – **Recovery/Window of Opportunity**) is the best time to refuel muscles with fluids, carbs, protein and electrolytes. Liquids (such as chocolate milk) are also more easily absorbed by the body and will begin their work of refueling quickly.

Remind athletes of the **Urine Hydration Chart** on page 31.

## Team Questions:

- *How do you know if you need to rehydrate after exercise?*
- *What should you drink post-exercise to rehydrate and refuel?*

## Big Takeaway:

Rehydrate as soon as possible after exercise with plenty of fluid, especially if you have small amounts or no urine when you visit the restroom. Chocolate Milk post exercise will help replace fluids, electrolytes, carbs and protein.

# POST-EXERCISE/REHYDRATION

**REHYDRATE**  
immediately after  
exercise.

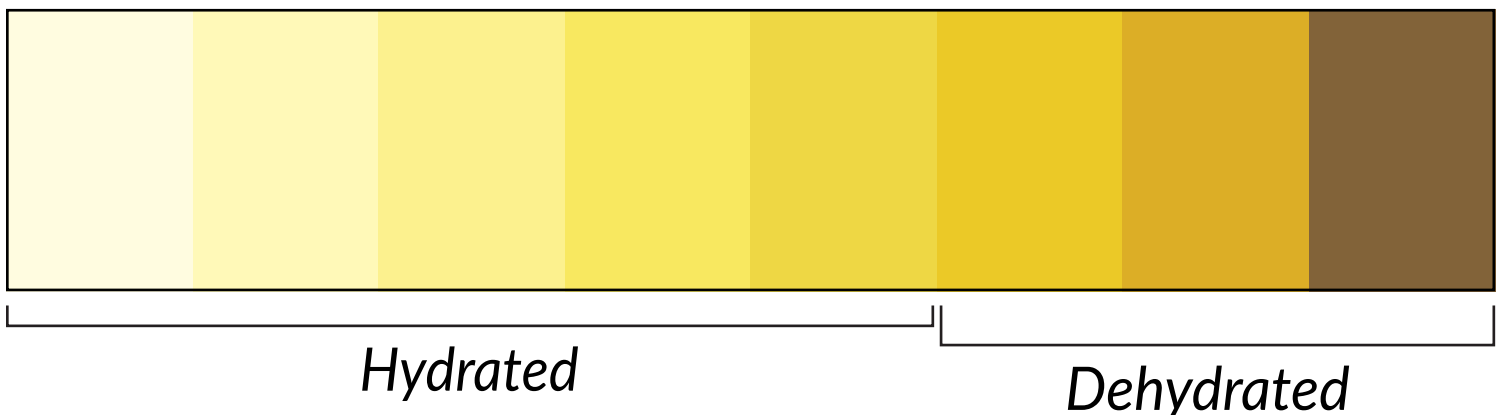
&

**Chocolate Milk to  
REFUEL** within 30  
minutes after exercise.



## **GAUGE YOUR HYDRATION**

### Urine Hydration Chart



# SPORTS DRINKS/ ELECTROLYTES

Electrolytes like sodium, chloride, potassium, magnesium and calcium are used by the body for fluid balance and muscle contraction, among other things. Sodium, mainly, is lost in sweat and must be replaced during and after exercise. When exercising for 60 minutes or more, **4-6 ounces** of sports drinks every 15-20 minutes can help replace lost electrolytes.

Electrolytes are also found in most common foods, which will contribute daily to replacing these losses. In addition, sports drinks contain sugar (carbohydrate), which is important during exercise because it is the preferred source of energy for muscles. Note that sports drinks are NOT necessary to consume outside of exercise. Athletes with a history of muscle cramping should be especially diligent with electrolyte replacement during exercise.

Milk and chocolate milk also contain electrolytes and protein that can refuel and rehydrate muscles when enjoyed in the 30 minutes following exercise (see page 34 - **Post Exercise - Rehydration**).

*Not sure how much you are drinking? One "gulp" is about one ounce.*

## Team Question:

- *When is the best time for sports drinks?*

## Big Takeaway:

When exercising 60 minutes or more, sports drinks replace fluid and electrolyte losses. For shorter exercise bouts or outside of exercise, water is best. Milk and chocolate milk contain electrolytes and protein ideal for recovery (see page 26 - **Recovery/Window of Opportunity**).



# SPORTS DRINKS/ELECTROLYTES




## SPORTS DRINK

		% Daily Value
<b>Protein</b>		<b>0%</b>
<b>Vitamin A</b>		<b>0%</b>
<b>Vitamin C</b>		<b>1%</b>
<b>Vitamin D</b>		<b>0%</b>
<b>Calcium</b>		<b>2%</b>
<b>Sugar</b>	<b>22 g</b> <small>(Includes 5.3 tsp. added sugar)</small>	






Serving Size = 12 ounces

Calories  
120

Available in Schools




## 1% LOW-FAT REDUCED SUGAR CHOCOLATE MILK

		% Daily Value
<b>Protein</b>		<b>16%</b>
<b>Vitamin A</b>		<b>15%</b>
<b>Vitamin C</b>		<b>0%</b>
<b>Vitamin D</b>		<b>17%</b>
<b>Calcium</b>		<b>21%</b>
<b>Sugar</b>	<b>16 g</b> <small>(Includes 2 tsp. added sugar)</small>	






Serving Size = 8 ounces

Calories  
128

Available in Schools



## 1% LOW-FAT MILK

		% Daily Value
<b>Protein</b>		<b>16%</b>
<b>Vitamin A</b>		<b>15%</b>
<b>Vitamin C</b>		<b>0%</b>
<b>Vitamin D</b>		<b>15%</b>
<b>Calcium</b>		<b>24%</b>
<b>Sugar</b>	<b>12 g</b> <small>(no added sugar)</small>	

Serving Size = 8 ounces

Calories  
100

# NOTES



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# ***SUPPLEMENTS***

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# DIETARY SUPPLEMENTS

Studies indicate that 24-29% of high school athletes take at least one dietary supplement, including vitamins and minerals, with the intention of improving performance. Most healthy teens do not need these products from a performance or health perspective. Student athletes should use extreme caution when using supplements and should follow the guidance of a medical professional in their use.

Dietary supplements, including vitamins and minerals, are not classified as food or medication by the government, so they do not fall under the same strict regulations for safety. Instead, manufacturers are responsible for ensuring the safety and purity of these products. Studies have shown that some supplements do not contain what is listed on the label, contain ingredients not listed on the label or do not contain the quantities of ingredients listed. When purchasing, look for supplements marked with a “USP Verified” seal, which indicate that the product has been tested for quality and proper labeling. If a multivitamin is taken, it should contain 100% or less of the daily value (DV) of each ingredient listed.

Be aware that the Michigan High School Athletic Association (MHSAA) and the National Collegiate Athletic Association (NCAA) have banned certain supplements and set a limit for caffeine.

Also, of note, energy drinks may contain banned substances, so should be used with extreme caution or preferably not used at all by student athletes.

## Team Questions:

- *Do athletes need to take vitamins or supplements?*
- *Why or why not?*

## Big Takeaway:

Supplements are meant to supplement the diet – NOT act as food or complete nutrition. Supplements are not necessary for most athletes, and some supplements are banned by the MHSAA and NCAA. Not all supplements are created equal—use caution when choosing a supplement. To find out if supplements, including vitamins or minerals, are necessary athletes should be assessed by an RDN.



Look for the **USP** label to ensure supplements have been independently tested for quality.

Choose a multivitamin with up to **100%** of the daily value of most of its ingredients.

## NOTES

A decorative green brushstroke line is positioned above a series of horizontal white lines for taking notes.



# CAFFEINE/ENERGY DRINKS

Studies conducted in adults have shown that small amounts of caffeine (about 200-300 milligrams (mg), or about 16 ounces of coffee) may have a positive impact on mental and athletic performance. While caffeine can help some to feel more alert, others can feel more fatigued.

## EXCESS CAFFEINE CAN CAUSE

- Dehydration
- Feelings of anxiety
- Increased heart rate
- Elevated blood pressure
- Impact calcium metabolism
- Upset stomach
- Disrupted sleep

The MHSAA and NCAA list caffeine as a banned substance. Consumption of approximately 500 mg of caffeine in the 2-3 hours prior to competition can result in a positive drug test. The recommendation for teens is no more than 100 mg of caffeine daily (about one 8-ounce cup).

Energy drinks not only contain high amounts of caffeine but are also classified as dietary supplements (see page 40 - **Dietary Supplements**), meaning the amount of caffeine and other ingredients may not be accurate on the label. Energy drinks should not be a regular part of an athlete's fueling program.

## Team Questions:

- *Should athletes drink caffeine and/or energy drinks?*

## Big Takeaway:

A small amount of caffeine may help keep you alert and may positively impact performance, though this has not been studied in high school athletes. Excessive caffeine can be dangerous and can impact athletic eligibility if tested and cause negative side effects. Due to excessive amounts of caffeine, energy drinks should never be used to consume caffeine.

# CAFFEINE



**COFFEE** (8 ounces)  
96 mg



**BLACK TEA** (8 ounces)  
47 mg



**GREEN TEA** (8 ounces)  
28 mg



**COLA** (8 ounces)  
22 mg



**ENERGY SHOT** (1 ounce)  
215 mg



**ENERGY DRINK** (8 ounces)  
72 mg

# NOTES



Lined area for writing notes, consisting of multiple horizontal lines.



# ***SPECIAL TOPICS***

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# VEGETARIAN DIET

Protein in the diet is critical for everyone, particularly athletes, to aid in muscle repair and maintenance. If executed properly, a vegetarian diet can contain enough protein for athletes and support healthy training. There are different types of vegetarian diets.

**VEGAN:** Excludes all animal -based proteins, including meat, fish, eggs and dairy. All protein sources come from plant-based products, like beans, legumes, vegetables, nuts, nut butters, soy and grains, among others.

**LACTO-VEGETARIAN:** Excludes all animal-based proteins except dairy (milk, cheese, yogurt).

**LACTO-OVO VEGETARIAN:** Excludes animal-based proteins except dairy and eggs

**PESCATARIAN:** Includes fish, but no other animal-based proteins

All forms of vegetarianism can provide sufficient protein for a student athlete. Special care should be taken to focus on high-quality protein sources at each meal and snack. Vegetarian diets may also be low in other nutrients like iron, omega-3, calcium, and vitamins D and B-12. An RDN can help ensure adequate protein and nutrient intake for a healthy student athlete. Athletes who are new to vegetarian eating should be referred to a RDN to assure this does not impair performance.

## Team Questions:

- *Are vegetarian diets healthy or beneficial for athletes?*

## Big Takeaway:

Vegetarian diets can be healthy but don't have specific benefits for athletes. A vegetarian must pay close attention to get the amount and quality of protein that active bodies need. Some vegetarian diets include some animal-based proteins like dairy, fish or eggs. These options may help vegetarian athletes with recovery, muscle maintenance and muscle gain in the absence of meats.

# VEGETARIAN DIETS

## VEGAN

Excludes all animal-based proteins, including meat, fish, eggs and dairy. All protein sources come from plant-based products, like beans, legumes, vegetables, nuts, nut butters, soy and grains, among others.



## LACTO-VEGETARIAN

Excludes all animal-based proteins except dairy (milk, cheese, yogurt).



## LACTO-OVO VEGETARIAN

Excludes animal-based proteins except dairy and eggs.



## PESCATARIAN

Includes fish, but no other animal-based proteins.



# KEY NUTRIENTS FOR TEEN ATHLETES

*(Calcium, Vitamin D, Iron)*

Teens are growing quickly! That means student athletes need a lot of nutrient dense energy (food!) to support growth as well as to support the demands of physical activity.

High school athletes require adequate amounts of three key micronutrients to assure proper performance, recovery and growth: calcium, vitamin D and iron.

Calcium and vitamin D are of particular importance for healthy bone growth. Not only are bones growing quickly, but athletes regularly put significant stress on bones. Ensuring that growing bodies get enough calcium and **vitamin D** from foods like milk, cheese and yogurt may help reduce risk of breaks and fractures which could sideline a season. Athletes should aim for 3 servings of these high calcium foods daily.

Female athletes and male endurance athletes also need to pay close attention to iron-containing foods in the diet. Iron is carried in the blood and aids in energy metabolism. As females lose blood through their menstrual cycle monthly, this puts them at greater risk for iron-deficiency anemia. Iron is most absorbable in meats and animal products but is also found in leafy greens, beans, whole grains and enriched cereals. Endurance athletes should consider having iron levels screened annually for deficiency by a physician.

*DYK: your body, when exposed to sunlight, can make vitamin D! But, in areas that do not have year round access to sun, or if you wear sunscreen, vitamin D containing foods are necessary.*

## Team Questions:

- *What nutrients are of high importance for teenagers?*

## Big Takeaway:

Teenage bodies are growing at a very fast rate, particularly bones. Calcium and vitamin D are important for strong bones and teeth. Strong bones help minimize injuries like bone fractures and breaks that might sideline an athlete's season. Milk contains both calcium and vitamin D to help build strong bones. Female athletes should eat plenty of iron containing foods due to blood loss in the menstrual cycle. Low iron levels may negatively impact energy.

# NUTRIENTS SO IMPORTANT, THEY ARE CALLED **ESSENTIAL.**

Milk has thirteen of them and here's what they do:



## **Calcium** 25% DV

Helps build and maintain strong bones and teeth. It helps reduce the risk of stress fractures and osteoporosis later in life. Plays a role in promoting normal blood pressure.

## **Vitamin D** 15% DV

Helps absorb calcium for healthy bones.

## **Phosphorus** 20% DV

Works with calcium and vitamin D to help keep bones strong.

## **Riboflavin** 30% DV

Helps convert food into energy. Plays a vital role in the development of the central nervous system.

## **Protein** 16% DV

Helps build and maintain lean muscle. Contains all the essential amino acids (the building blocks for protein).

## **Vitamin B-12** 50% DV

Helps build red blood cells and helps maintain the central nervous system.

## **Niacin** 15% DV\*

Helps the body's enzymes function normally by converting nutrients into energy.

- 1 Calcium
- 2 Vitamin D
- 3 Phosphorus
- 4 Riboflavin
- 5 Protein
- 6 Vitamin B-12
- 7 Vitamin A
- 8 Niacin
- 9 Pantothenic Acid
- 10 Zinc
- 11 Selenium
- 12 Iodine
- 13 Potassium

## **Vitamin A** 15% DV

Important for good vision, healthy skin, and a healthy immune system.

## **Pantothenic Acid (Vitamin B-5)** 20% DV

Helps convert fuel into energy. Also helps the body use fats and protein.

## **Zinc** 10% DV

Helps maintain a healthy immune system, helps support normal growth and development and helps maintain healthy skin.

## **Selenium** 10% DV

Helps maintain a healthy immune system, helps regulate metabolism and helps protect healthy cells from damage.

## **Iodine** 60% DV

Necessary for proper bone and brain development during pregnancy and infancy; linked to cognitive function in childhood.

## **Potassium**<sup>†</sup> 10% DV

Helps maintain a healthy blood pressure and supports heart health. Helps regulate body fluid balance and helps normal muscle function.

Nutrient totals sourced from USDA Food Data Central, based on Milk, reduced fat, fluid, 2% milkfat, with added vitamin A and vitamin D

% Daily Values are based on a 2,000 calorie diet.

\*As niacin equivalents

<sup>†</sup>Source: USDA Food Data Central. FDA's Daily Value (DV) for potassium of 4700 mg is based on a 2005 DRI recommendation. In 2019, NASEM updated the DRI to 3400mg. Based on the 2019 DRI, a serving of milk provides 10% of the DRI. FDA rule-making is needed to update this value for the purpose of food labeling.

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Adapted by United Dairy Industry of Michigan, 2021



# BODY IMAGE

## *Health at Any Size and Social Media Influence*

With the world of social media, the pressure to be thin is stronger than ever before. But thin does not always equal healthy. Many factors determine a healthy body and body composition, such as genetics and environmental factors. A larger person can be just as healthy, or healthier, than a 'thin' person. A balanced diet that includes a variety of nutrient rich foods are the best determinants of a healthy body. Encourage student athletes to unfollow accounts that only emphasize 'skinny' as beautiful or focus on unrealistic diets.

As a coach, focus on performance outcomes rather than body size or structure. Avoid comments about weight. Unless necessary for the sport (i.e. wrestling), weighing of athletes should not take place. If it is necessary, do so privately. If you have concerns about disordered eating, please reference page 3 - ***Difficult Conversations, Disordered Eating***.

### **Words Matter**

Use the affirmations on page 51 as a "repeat after me" activity with your athletes.

### **Team Questions:**

- *What does a healthy body look like?*

### **Big Takeaway:**

No two bodies are the same. Make sure your body gets the nutrients and exercise that it needs and your body will find the right weight and composition. There are many factors that go in to how a body looks, including genetics and environmental factors. Don't compare yourself to your friends, teammates or others you see on social media, rather focus on a healthy diet and lifestyle.

# AFFIRMATIONS



*How you speak to yourself matters. Say these affirmations out loud to help build confidence and respect for your body.*

**This is my body, my only body.**

**I give it LOVE, RESPECT,  
and GRATITUDE.**

**I am WORTHY, WHOLE, and GOOD.**

**Right now. No proof required.**

**I am GRATEFUL for everything my body  
allows me to do.**

**My body is my home and I will  
BUILD IT UP, not tear it down.**



# BUILDING MUSCLE

A diet based on the Macros to MyPlate can help facilitate weight gain or loss. When necessary, the proportions of the plate should not change, rather the quantity of food (i.e more food = weight gain, less food = weight loss) should change.

Regardless of weight goals, the focus of the student athlete's diet should still primarily come from carbohydrate sources like whole grains, fruits and vegetables. Athletes often believe that to gain muscle, a high protein diet must be consumed. In fact, a balanced diet with 10-35% of calories coming from protein is enough for supporting muscle health and growth.

Exercise in the form of weightlifting and resistance training will facilitate muscle gain. Repeated high intensity exercise bouts will best facilitate weight loss. Too much focus on a high protein diet may mean that you are missing other nutrients found in carbohydrate and fat sources. Expensive supplements are not necessary to facilitate muscle gain, as protein needs can be easily met through **food**.

*All adolescents gain muscle depending on where they are in their growth cycle. Significant muscle gains may not be seen in earlier stages of puberty.*

## Team Questions:

- *What role does nutrition play in weight gain or loss and building muscle?*

## Big Takeaway:

Exercise (resistance training, weight, etc.) builds muscle. High intensity training helps weight loss. Balanced nutrition, including eating more calories than you burn leads to weight (muscle) gain. About 10-35% of calories should come from protein which is enough to support muscle health and growth. Slow and steady gain or loss is best. A goal of 1-2 pounds per week for weight loss or gain is healthiest.

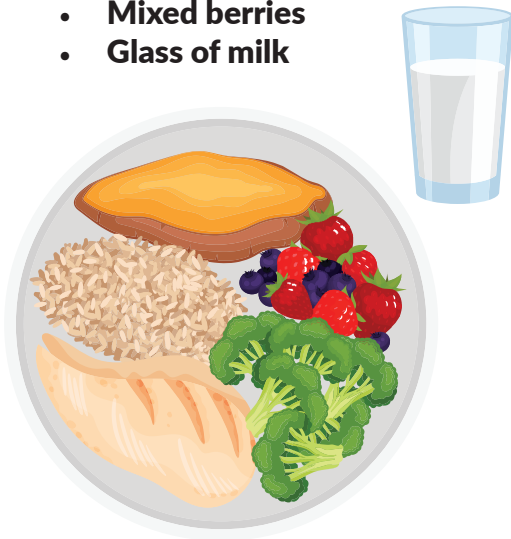


# HOW TO BUILD MUSCLE

*More Food = Weight Gain*

## WEIGHT MAINTENANCE MEAL

- Grilled chicken
- Brown rice
- Baked sweet potato
- Broccoli
- Mixed berries
- Glass of milk



## WEIGHT GAIN MEAL

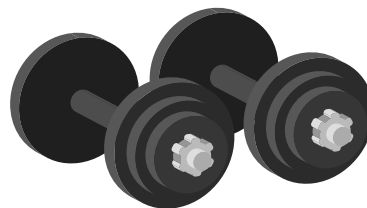
The meal on the left PLUS:

- Side Salad
  - Spinach or dark leafy greens
  - Colorful veggies and/or fruit
  - Beans or chickpeas
  - Cheese
  - Oil-based salad dressing
- Larger glass of milk



+

*Weight Lifting and  
Resistance Training*





# SLEEP

Sleep plays a critical role in the life of a student athlete. While sleeping, the brain is committing new things learned in the classroom and on the court to memory. Muscles are repairing themselves and growing stronger. Adequate sleep also lowers the risk of certain mental health disorders. Studies have shown that sleep deprived athletes make more errors during game play than those who are well-rested. Teens need more sleep than adults: up to 10 hours a night!

## HOW TO GET A GOOD NIGHTS SLEEP?

- **Keep a regular sleep schedule - try to go to bed and get up at the same time daily**
- **Limit distractions such as screens and phones before bedtime**
- **Avoid caffeine in the 8 hours before bedtime**
- **Keep the room at a cool temperature**

These small changes may set them up for a restful night and productive day.

### Team Questions:

- *How much sleep should you get nightly?*
- *Why is sleep important?*

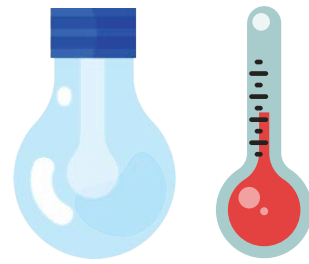
### Big Takeaway:

The average teen requires 8-10 hours of sleep a night. Lack of sleep may negatively impact classroom performance, muscle recovery and performance.

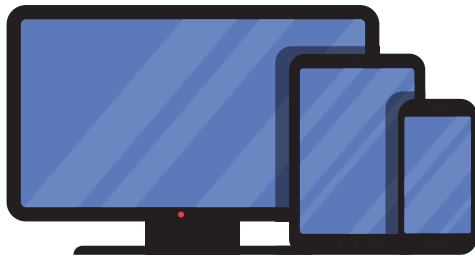
# TIPS FOR HEALTHY SLEEP



WAKE UP AND GO TO SLEEP  
AROUND THE SAME TIME EVERY DAY



KEEP YOUR ROOM DARK  
AND COOL (AROUND 65° F)



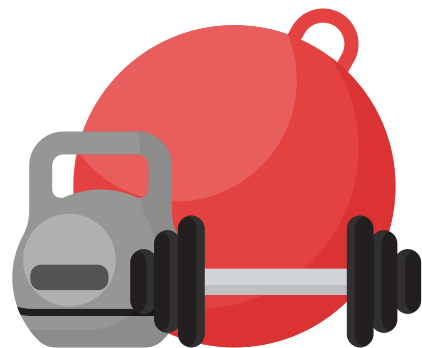
TURN OFF SCREENS  
AN HOUR BEFORE BED



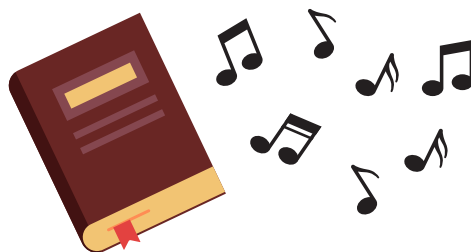
PUT YOUR PHONE ON SILENT  
AND OUT OF YOUR ROOM



AVOID CAFFEINE  
AND JUNK FOOD



EXERCISE REGULARLY



READ A BOOK OR LISTEN TO  
RELAXING MUSIC BEFORE BED



# ***APPENDIX***

---

# SPORTS NUTRITION TERMS

**AMINO ACIDS:** The building blocks of protein. There are 20 total. Your body makes 11 of them. You need to get the other 9 from eating a variety of foods. If you consume extra amino acids your body doesn't need they are excreted by your kidneys.

**AMMENORHEA:** When a woman or girl who has previously been menstruating monthly stops. This can be because a female athlete exercises too much, eats too few calories or both. In order to have regular periods women need to consume a certain number of calories and maintain around 16 percent body fat or more. If a woman has too little body fat the ovaries stop producing estrogen and the woman stops menstruating. This is not healthy and can lead to weak bones and osteoporosis.

**BONKING:** When your brain is out of fuel. The liver supplies glycogen (stored energy) for the brain. Once that's gone an athlete may feel lightheaded, uncoordinated, confused and weak. That's why it's so important to consume adequate energy (carbs) before strenuous activity, so your muscles, and your brain have the energy they need.

**CARBOHYDRATE LOADING:** When an athlete prepares for an endurance (more than 90 minutes) event by eating lots of high carb food to saturate his/her muscles with glycogen (stored energy).

**CALCIUM:** A mineral your body needs to build strong bones. Foods high in calcium include milk, yogurt, cheese, fish with edible bones, leafy greens, almonds and calcium fortified food such as some kinds of orange juice, some cereals, and soy and almond milk-type beverages. Most people can get all the calcium they need by eating three servings of dairy foods each day.

**CALORIES:** The form of energy found in food. Female athletes need about 10% fewer calories than male athletes. Calorie needs for athletes range from about 1800 to 5000 calories per day, depending on age, sex, and activity level. Too few calories can result in muscle loss or wasting, while too many calories can cause unwanted weight gain.

**CREATINE:** A natural compound found in muscles that is an important source of fuel for quick-burst athletes such as sprinters and basketball or racket sports. Some athletes supplement with creatine to improve performance. Too much creatine can cause water retention and stress on the kidneys. Teen athletes should not supplement with creatine.

**DRIS:** Dietary reference intakes (DRI) are a set of reference values for vitamins, minerals, and other nutrients important to for health. DRIs provide guidance about how much of eat nutrient should be consumed. DRIs are specific to age group, gender, and for women, reproductive status.

**ELECTROLYTES:** Electrolytes are minerals in your blood and other body fluids. They affect the amount of water in your body, the acidity of your blood (pH), your muscle function, and other important processes. You lose electrolytes when you sweat. You replace electrolytes by drinking fluids like sports drinks or water. Common electrolytes are: Calcium, Chloride, Magnesium, Phosphorous, Potassium and Sodium

**ENERGY DRINKS:** Energy comes from calories so most (but not all) energy drinks are high in carbohydrates and calories. Energy drinks often contain other substances thought to enhance energy such as caffeine and Guarana. If you are looking for a competitive edge, prevent the need for a quick energy fix by fueling your body with healthy meals and snacks. No energy drink will make up for a suboptimal sports diet.

**FEMALE ATHLETE TRIAD:** Three conditions ranging in severity: Energy Deficit/Disordered Eating, Menstrual Disturbances/Amenorrhea and Bone Loss/Osteoporosis. Because of the clear associations between the three conditions it is likely that an athlete suffering from one condition is also suffering from the others.

**GLUCORONLACTONE:** A substance often added to energy drinks to increase feelings of well-being, reduce sleepiness, and enhance reaction time. The safety of high doses has not been established.

**GLYCOGEN:** A form of carbohydrates that are stored in your muscles and liver and are broken down into glucose when your body needs energy.

**GUARANA:** A common ingredient in energy drinks that is a natural stimulant. One gram of Guarana equates to about 40 mg of caffeine.

**HYPONATREMIA:** A low concentration of sodium in the blood. It can occur when an athlete drinks too much water (over hydrates) or sweats a lot but does not replace lost sodium. The early warning signs are often subtle and may be similar to dehydration and include nausea, muscle cramps, disorientation, slurred speech, and confusion.

**IRON DEFICIENCY ANEMIA:** When your body does not get the iron it needs to help transport oxygen to your muscles. Athletes at the highest risk of developing iron deficiency anemia are: athletes who are growing quickly, endurance athletes who lose extra iron through sweat, females who have heavy periods (blood loss), vegetarians who do not consume foods high in iron, and long distance runners who may damage red blood cells by pounding their feet excessively.

**LACTIC ACID:** A by-product of metabolizing glucose or glycogen for energy. Lactic acid is partly responsible for muscle soreness.

**OMEGA 3 FATS:** Healthy fats that are good for your heart. Fish, nuts, seeds and some leafy greens are good sources.

**OSTEOPOROSIS:** A weakening and thinning of the bones that leads to fractures. Eating three servings from the dairy group every day can help prevent osteoporosis.

**SODIUM:** An important mineral that helps control how much water goes in and out of your body's cells.

**SUNSHINE VITAMIN (VITAMIN D):** A vitamin that controls the way your body uses calcium. Sources of Vitamin D are fortified dairy foods like milk, cheese, and yogurt.

**TAURINE:** An amino acid found in high concentrations in the brain, heart, and muscles. Taurine is often added to energy drinks. When combined with caffeine, taurine is reputed to enhance concentration and reaction time. More research is needed.

**WHEY PROTEIN:** 20% of the protein found in milk is whey protein, while 80% is casein. Whey protein is digested and absorbed into the blood faster than other proteins so some athletes like to supplement with whey protein after a workout to refuel their muscles quickly. Casein, also found in milk, takes longer to absorb but is longer lasting.

# CALCULATING MACROS

Are you looking for more specifics on the amount of energy and macros you should be eating to fuel for sport? Follow this worksheet for a guideline.

Determine your **Activity Intensity** or **Type of Activity** (column 1). Using the corresponding **Recommended Carbohydrates/Protein** (column 2), multiply your body weight by the number in column 2. (See example below)

## CARBOHYDRATES

Activity Intensity	Recommended Carbohydrates (grams/pound)	Your Total (grams)
Very light intensity program	1.4-2.3	
Moderate intensity training (60 minutes/day)	2.3-3.2	
Moderate to high intensity (1-3 hours/day)	2.7-4.5	
Moderate to high intensity (4-5 hours/day)	3.6-5.5	

## PROTEIN

Type of Activity	Recommended Protein (grams/pound)	Your Total (grams)
Endurance Athletes	0.55-0.66	
Strength/Resistance Athletes	0.73-0.77	

## EXAMPLE

A 150-pound endurance athlete participating in moderate intensity training:

### Carbohydrates

$$150 \times 2.3 = 345 \text{ grams}$$

$$150 \times 3.2 = 480 \text{ grams}$$

### Protein

$$150 \times 0.55 = 82.5 \text{ grams}$$

$$150 \times 0.66 = 99 \text{ grams}$$

This athlete needs approximately 345-480 grams of carbohydrates and 82.5-99 grams of protein spread throughout the day to support training.

*Note: These are guidelines, not recommendations. If you are looking for specific recommendations to help you fuel for sport, consult a Registered Dietitian Nutritionist (RDN) who specializes in Sports Nutrition.*

**See page 61 for the Macros to MyPlate visual guide.**



# Macros to MyPlate

Macronutrients, or macros, are the three parts of food that the body uses for energy: carbohydrates, protein and fat. Each is essential for the body.

**What is protein?** Protein helps build, repair and maintain muscle.

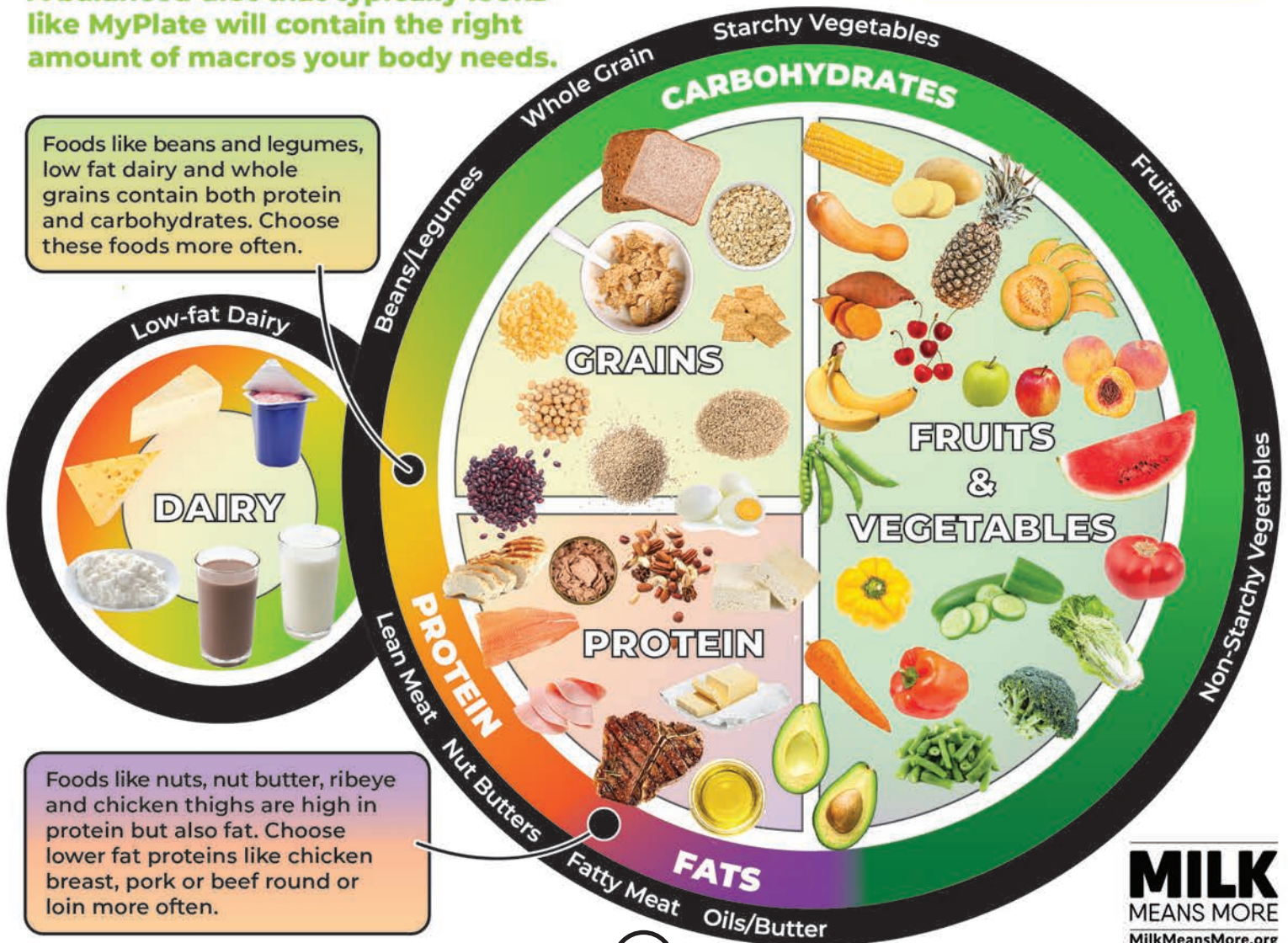
**What is a carbohydrate?** Carbohydrates are the preferred energy source of the body and brain. Carbs come in two forms – complex and simple – and each play an important role. Complex carbohydrates are long lasting energy that break down slowly in the body. Simple carbohydrates are quick acting energy ideal for immediate use and should be eaten less frequently. They can be helpful in providing quick energy right before or during exercise. At least half of the calories that are consumed should come from healthy, high quality complex carbohydrates.

**What is a fat?** Healthy fats help absorb certain vitamins (Vitamins A, E, D & K) and provide energy. The healthiest fats will be liquid at room temperature. Fat not only helps absorb nutrients, but also helps with satiety or the feeling of fullness.

Choose high quality complex carbohydrate foods more frequently, like whole grains, low fat dairy, fruits and vegetables. Limit simple carbohydrates like sugars and white bread.

**Most foods contain more than one macronutrient.**

**A balanced diet that typically looks like MyPlate will contain the right amount of macros your body needs.**



# NOTES



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# NOTES

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# MILK

MEANS MORE

[MilkMeansMore.org](http://MilkMeansMore.org)