

Eat to Recover



Why do I need to recover?

- Replenish energy stores
- Prevent further muscle breakdown
- Repair muscle!
- Replaces fluids
- Separates you from your competition
- You are not only refueling and recovering your muscles; you are refueling and recovering your brain as well!
- Don't let your team down. Recover after all workouts and practices!

When do I recover?

- **Must get a recovery beverage or snack within 30 minutes.**
 - Go from a 24-36 hour recovery time to a 12-16 hour recovery time if you recover within 30 minutes!
- Muscles are craving carbs and protein. Take advantage of it!
- It doesn't matter if the calories come from liquids (shakes) or solids.
- The longer you wait to recover, **the longer it will take you to recover.**
- Don't miss your window!

How do I recover?

- **CARBOHYDRATES, PROTEIN, FLUIDS**
- 45-50 grams of carbohydrates with 15-20 grams of protein coupled with 16-24 oz of a sports drink or water.
- **RECOVERY SNACKS**
 - Low-fat chocolate milk
 - Peanut butter and jelly sandwich
 - Clifbar and 8 oz Gatorade
 - Granola with Greek yogurt
 - Bowl of cereal with low-fat milk
 - Ready to drink (RTD) Gatorade shakes
 - Bagel with peanut butter
 - Trail mix with Gatorade

Hydration for High School Athletes

Do not let your teammates and coaches down. Hydration seems simple but research shows us that MANY high school athletes show up to practices and games already dehydrated which leads to a decrease in performance and increase in likelihood that you get injured.

Statistics

- High school athletes frequently show up to practices and/or games already dehydrated.
- Heart rate increases an additional 3-5 beats per minute for every 1% of weight you lose during practices/games.
- A small 2% drop in body weight can have a large impact negatively on performance.
- From my experience it is very common for a high school athlete to lose between 3-5 lbs. in one high intensity practice or game.

Consequences of Dehydration

- Negative impact on performance
- Increased risk of injury
- Increased risk of fatigue
- Increased risk of heat related illness
- Increased risk of muscle cramps
- Increased risk of letting your team and coaches down because you didn't take care of your body and didn't focus on hydrating before practices and games.

Goals and Recommendations

- *Goal is to prevent a 2% loss in body weight*
- Aim for 12-16 oz. of fluids 3-4 hours before exercise
- Aim for 7-10 oz. of fluids every 10-20 minutes while competing
- Aim for 16-24 oz. of fluids for every pound lost during competition

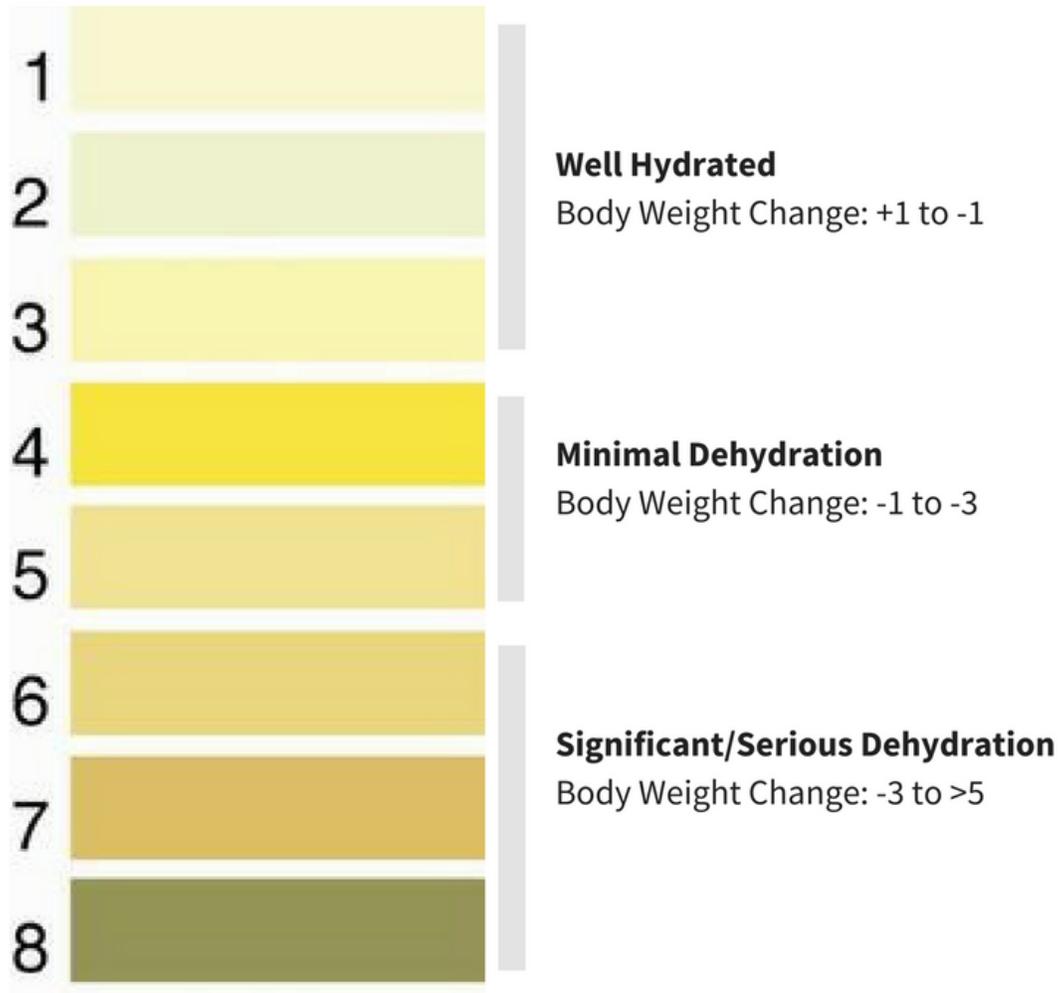
Monitoring Fluid Loss

- Check your urine! The NCAA has a fantastic urine chart that should be posted for athletes to see!
<http://www.ncaa.org/sites/default/files/Assess%2BYour%2BHydration%2BStatus.pdf>
- For high risk athletes or athletes that are concerned with becoming dehydrated, weigh before and after practices and games. Make sure you are weighing in and out in the same clothes each time to prevent inaccuracies. Drink 16-24 oz. of fluids for every 1 lb. lost.

What should you drink?

- In general, I recommend sports drinks 1 hour before, 1 hour after, and during practices/games to help with not only fluids and electrolytes but also carbohydrates to give you the fuel you need!
- Water will usually work fine all other times.
- **Note: In hot and humid climates or if you are a very salty sweater who loses significant weight during practices and games, a sports drink in addition to water may help in order to replace glycogen stores and electrolytes/fluids.**

Urine Color Chart



International Journal of Sport Nutrition, Volume 4, 1994, pages 265-279
Journal of Athletic Training 2000;35(2):212-224

Sleep and the High School Athlete

Navin Hettiarachchi, Director of Athletic Performance for the Washington Wizards sums sleep up nicely. He says "Athletes spend hours in the training room on recovery modalities and treatments. They only get 5-6 hours of sleep. Sleep is the best recovery! Sleep is 90% of recovery, regeneration and repairing the body and mind. Everything else is 10%." I would argue that sleep is the cheapest and most important thing you can do to recover and take care of your body. Sleep is overlooked and underappreciated and simply put, if you don't take sleep seriously than you don't take your sport seriously. Why? There is no point in training, eating right, hydrating, and recovering, if you aren't getting adequate sleep at night! It simply doesn't work that way! Put your phones away, turn off the video games, turn off the TV and computer, make your room dark, cool, quiet, and sleep your way to better performance!

How to optimize sleep

- Make your room like a cave! It needs to be dark, cool, quiet
- Develop a routine! Try to do the same thing in the 30 minutes leading up to bed time and try to have the same bedtime and wake time!
- Turn off the electronics! No TV, no cell-phones, no blue light!
- Avoid energy drinks and/or coffee before bed
- Get blackout shades to make room as dark as possible!

Consequences of poor sleep

- Can increase risk of injury
- Decreased reaction time
- Decrease in growth hormone
- Can decrease GPA and have impacts in the classroom
- Can decrease max bench press including leg press and dead lifts.
- Great likelihood of fatigue

How much sleep do you need?

Research shows that youth and adolescent athletes are getting between 7.5-8.5 hours of sleep per night. I know many athletes that don't come close to this! If you are an athlete that is between 7.5-8.5 hours do everything you can to push this to 9 hours! It will help you both mentally and physically throughout the long season!

Can I take a nap?

Yes, limit naps to 20-30 minutes at a time to prevent our body from hitting deep sleep, which could cause us to wake up more tired!

Dietary Supplements and Energy Drinks

There is zero reason that any high school athlete should be taking a dietary supplement or energy drink.

- The supplement industry and energy drink industry can be dangerous and misleading.
- In 2007 there were 5,448 cases of caffeine overdose and 46% of those cases were kids under the age of 19.
- These companies market with their fancy claims and colorful cans and they are marketed to YOU! Rarely do they actually do what they claim.
- Many energy drinks on the market have 2-3 times the amount of caffeine than a typical 8oz. soda and they have other ingredients like taurine and guarana that can have caffeine like effects!
- Your “fuel” should come from your diet including lean proteins, healthy carbohydrates, and being well hydrated. Your fuel should NOT come from caffeine.

Athletes: Ask yourself these questions the next time you “feel” like you need an energy drink.

1. Did you sleep at least 9 hours last night?
2. Did you eat a good breakfast this morning?
3. Are you well hydrated?
4. Did you recover after practice the day before with a recovery shake or snack that contained carbohydrates and protein?
5. Did you eat a good snack before your lift, practice, or game?

If you answered “NO” to ANY of these questions, you should focus on doing those things better before you slam an energy drink or take a pre-workout supplement. Many athletes are not doing these things, which can cause them to be tired, lose focus, and not feel right. Maybe by not doing these things that is the cause of you feeling tired and fatigued? This leads to the mindset of taking a pre-workout supplement or energy drink. Don’t slip into this habit! Many of the pro athletes that I have worked with DO NOT take energy drinks, because they focus on the things that will give them the natural energy they need which were the focal point of those 5 questions. Sleep better! Eat a balanced breakfast! Hydrate! Recover! Snack with a good carbohydrate source before lifts, practices, games. Do these things and you won’t “FEEL” like you need an energy drink or pre-workout supplement.

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Travel Snack List

Don't be that athlete that does everything right before the game and then forget that you have a 2-hour bus ride or car ride to the game! You need to top off the fuel tank on the way to the big game so that you are ready to go! A pre-game meal is fantastic but if you don't continue to fuel up you run to risk of being depleted before the game by the time that you arrive and warm up. Don't let this be you. Below is a great list of things to have with you for that bus ride that contains more than just carbohydrates. We want something that is going to contain protein as well as carbohydrates so that you don't feel like you are starving before the game! Take a look at the options below. Don't be afraid to pack a lunch box as well and water bottle for the trip!

- **Protein Bites**
 - 1.5 cups of oatmeal
 - ¾ cup coconut flakes
 - ¾ cup peanut butter
 - ¾ cup dark chocolate chips
 - ½ cup honey
 - 1 teaspoon of vanilla extract
 - Stir all ingredients together in a bowl, let sit in refrigerator for 45 minutes, roll in to small balls about 1-2" in diameter. This recipe should make close to 40 balls!
- Beef Jerky
- Trail Mix
- P3 Protein Snacks
- Granola Bars
- Carrots and Celery with light ranch
- Cheese and Crackers
- Breakfast Bars
- Pita chips and hummus
- Whole grain bagel with low fat cream cheese
- Whole fruit (apples, peaches, pears, plums, bananas)
- Celery with peanut butter and raisins

Antioxidants and Reducing Inflammation

As high school athletes who are constantly practicing, playing games, lifting, and doing summer camps it is important to do everything you can to reduce inflammation and keep your body healthy. Eat a VARIETY of colors in fruits and vegetables in order to fully maximize all of the potential antioxidants.

Green Fruits and Vegetables: Contain an antioxidant called Lutein, which helps with eyesight and can also help with dilation of blood vessels. Kale, collard greens, green beans, broccoli, spinach are all great options.

Purple, Blue, and Red Fruits and Vegetables: Contain phytochemicals that help with heart health, helps reduce inflammation throughout the body, and can help support mental clarity. Also are loaded with Vitamin C! Look for berries, grapes, peppers, beets, and tomatoes!

Orange Fruits and Vegetables: Contain beta-carotene and Vitamin C to help support immune function and prevent you from getting sick! Sweet potatoes, mangos, grapefruit, and carrots are great options! Don't forget that it is important to sleep and rest as part of recovery and reducing inflammation as well!

Foods that help fight off inflammation

- Green leafy vegetables
- Nuts and seeds
- Salmon
- Olive oil
- Flax seed
- Walnuts
- Beets
- Tart cherries/Tart cherry juice
- Variety of fruits and vegetables
- Avocados
- Quinoa
- Brown Rice
- Broccoli
- Peppers
- Green Tea
- Grapes



Healthy Weight Gain and Weight Maintenance

Recommendations are to add an additional 500-1000 calories per day on top of regular daily intake of calories. This process of weight/mass gain is best done in the off-season. Don't overanalyze the process! Many athletes show up dehydrated and under-fueled to practices and games and they also don't recover properly after lifts and games. Focus on doing those things right and add another 1000 calories daily to your normal calories and you should see some results!

Eat 5-6 times per day!

You should be eating a breakfast, snack, lunch, snack, dinner, snack. Plan ahead, eat breakfast, pack snacks in your gym bag and school bag to keep with you throughout the day!

High Calorie Snacks:

- Greek yogurt with granola (516 calories)
- PB&J with chocolate milk (733 calories)
- Handful of trail mix with an apple (619 calories)
- Bowl of cereal with KIND bar (500-600 calories)
- 1 cup of nuts (between 500-800 calories depending on nut)
- Whole wheat bagel with peanut butter and honey (500-600 calories)
- Bowl of power oatmeal with peanut butter, sliced almonds, honey, dried fruit (600-700 calories)
- Avocado (234 calories in 1 avocado)
- High calorie bars including Clif Builder Bars, Rx Bars, Gatorade Bars and KIND bars

High Calorie Shakes/Smoothies:

Great way to find another 500-1000 calories per day that are easy to drink at night after dinner or make the night before and have it throughout the day.

Options include:

- Chocolate Banana Peanut Butter (1,065 calories)
- Cinnamon Almond (983 calories)
- Vanilla Cherry Banana (652 calories)

Recipes are in "Shakes and Smoothies" handout:

Focus on protein!

In order to make sure that the weight that is being gained is actually muscle, we need to make sure that we not only boost up calories, but that we boost up protein as well! Make sure you are getting a variety of lean proteins including:

- Chicken, turkey, fish, bison, eggs, low fat dairy including yogurt and low-fat milk.
- Other sources of protein include beans, lentils and nuts/seeds

Before Bed Snack:

Eat something before bed! It doesn't matter if you feel like you did good eating for the day, if your goal is to gain weight and muscle mass than you should eat something before bed! String cheese, bowl of cereal, chocolate milk, smoothie/shake!

Tips for Parents

It doesn't have to be complicated

It doesn't have to be expensive

I get questions all the time from parents that want to know what to keep around the house for their kids to eat and what they should be telling their athletes to eat before practices and games. Often times parents (like many of us) will resort to just going online and asking Google for recommendations. The problem with this is that sometimes that information you get on the Internet is good and sometimes it is not! Pulling the wrong information off the Internet and applying it to what you are making and recommending for your kids to consume could potentially cause them to be dehydrated and under fueled before practices and games! This is a completely reasonable approach if you are looking for answers but hopefully this handout can help give you the science and evidence based answers you need to help you simplify and put your mind at ease about what you are giving and recommending to your kids before practices and games!

The Basics: Carbohydrates and Fluids

The two most important areas of nutrition for high school athletes in order for them to perform at the highest level is making sure they are getting adequate carbohydrates throughout the day and specifically around their practices and games.

Carbohydrates

- Carbohydrates are our body's fuel for both our muscles and our brain! It is the gas in the gas tank! No carbs = no energy.
- 55-60% needs are often times higher than adults because their bodies are growing, developing, and maturing plus with as active as they are with practices, lifting weights, and games it is important to land in this range. This means that with each meal, 55-60% of every meal should be from healthy carbohydrates. This means for breakfast we want to focus on items like yogurt, oatmeal, cereal with low fat milk, whole grain pancakes and waffles, hash-browns, fresh fruit and low fat dairy! For lunch and dinner we can focus on items like baked potatoes and baked sweet potatoes, sandwiches, fresh fruits and vegetables, brown rice and quinoa, and pasta with red sauce which is better the night before a game.

Fluids/Hydration

- Research has shown us that many high school athletes already show up to practices and games dehydrated. We know through practical application that many athletes can lose weight during practices and games which is an indication that they are not hydrating properly during those events. Dehydration is preventable! I recommend that your children always have a

water bottle with them. A 32 oz. Nalgene is a great option for them and encourage them to drink at least 2 full bottles per day!

- A lack of energy can primarily be caused by dehydration! High school athletes need:
 - 12-16 oz. of water or sports drinks at least 3-4 hours before exercise
 - 7-10 oz. of water or sports drinks every 10-20 oz. minutes while competing
 - 16-24 oz. for every pound lost during competition
- Monitoring fluid loss is important and as a parent who could be concerned with hydration status, don't be afraid to encourage your kids to weigh themselves before and after practices and games. It is very common for both male and female high school athletes to lose between 3-5 lbs. of fluids per practice or games, which can impact their health, and performance. It is also very easy and inexpensive to help them stay healthy during the season.
- Another way to monitor fluid loss is encouraging your children to check the color of their urine. Gross? Yes. Effective? Yes. Urine color should be clear/lemonade and if it is darker than that it is a sign of dehydration.

If you only take away the importance of carbs and hydration and can take some of these rules and apply them to your children it will help keep kids healthy and performing at the highest level!

Recovery:

With proper planning, getting your kids recovered properly is not difficult or expensive! It is extremely important for a variety of reasons. Recovery nutrition is sometimes overlooked but in my opinion next to sleep it is the most important thing you can do as a high school athlete. We want a 3:1 ratio of carbohydrates to protein within 30 minutes of coming off the field or court. The carbohydrates give our muscles energy and the protein helps the damaged muscles get repaired. Some easy and inexpensive options include:

- Low fat chocolate milk
- Greek yogurt with granola
- Clif Builder Bar and piece of fruit
- Banana with peanut butter
- Turkey sandwich with apple slices
- Bowl of cereal with low fat milk

Dietary Supplements and Energy Drinks

I do not recommend dietary supplements or energy drinks for high school athletes. Energy drinks are dangerous, they are unregulated, the labels rarely are accurate, and they spend millions of dollars marketing to your kids. It isn't just the caffeine that we are concerned about. It is the fact that often times the labels are incorrectly labeled and there are numerous other ingredients including gaurana and taurine that can cause harm as well. Children could be getting 3-4 times the amount of caffeine in a product than what is listed in the label. Studies have shown that

between 30-50% of adolescents and young adults have consumed energy drinks. My advice is to stay away from energy drinks and supplements! I often times meet with athletes who feel that they need an energy drink for a variety of reasons but the main reason is because they want...ENERGY! From my experience however, these same athletes probably aren't sleeping enough, are poorly hydrated and poorly fueled and they usually aren't recovering properly after lifting weights and practices/games. All of those things cause poor energy. I recommend fixing those other things first and see if that fixes the lack of energy problem! Energy drinks were not designed for athletes and they are dangerous for high school athletes. 3

Sleep

Parents, you are right! I know you tell your kids constantly that they need to "get to sleep" and they should be sleeping more. You are absolutely correct. Sleep is the cheapest and most impactful thing you can do to take care of your body. Sleep helps our bodies recover and get prepared for the next day. With some of the schedules that high school athletes have, it is amazing to me that they can make it through the long season sleeping as little as they do. Studies tell us that high school athletes are getting about 7.5 hours of sleep per night on average. High school athletes need 9 hours of sleep per night! Many athletes that I meet with are getting less than that! Here are some statistics:

- Chronic sleep loss can increase the chances your son or daughter gets injured.
- Not sleeping enough makes you feel like you are working harder than you actually are!
- Not sleeping enough makes your reaction time slower
- Not sleeping enough can impact muscle recovery and growth

So what can we do to make sleep better?

- Their rooms should be like a cave! It should be dark, cool, quiet.
- TURN OFF ELECTRONICS!
- Develop a bed-time routine in order to help wind-down!
- No energy drinks or food before bed.
- Try to encourage kids to go to sleep just 30 minutes earlier than usual. If they are getting 7.5 hour of sleep it will put them at 8 hours. Work your way up from there!

Parents:

I have met with hundreds of high school athletes and many of them tell me the same thing. Many of them skip breakfast, aren't sleeping enough, are poorly fueled and hydrated, and are not recovering after practices, games, and lifting weights. These things wreck havoc on their system and it can genuinely cause them to be at an increased risk of getting sick and/or injured. Parents ask me all the time. "What can I do?" My advice? Cover the big things. Make sure they are sleeping better, make sure they are properly hydrated, make sure they are recovering and fueling properly and make sure they stay away from dietary supplements and energy

drinks which can be extremely dangerous. As a parent, if you cover these things you will be way ahead of the curve and will set your kids up for success in sports!

Game Day Checklist

“Proper Preparation Prevents Poor Performance.” Charlie Batch

As a high school athlete, you may be more gifted or work harder than your opponent which give you an advantage when it comes to game days. The more likely scenario, however, is that there are many teams and many athletes that may be just as good as you and when you play them on game days you are going to have to do SOMETHING that separates you from them. Without a doubt, if you are fueled properly, hydrated correctly, sleeping well, and you have been recovering properly daily than THAT can be the thing that separates you from them. How do I know that? I have seen first hand at everything single level what happens to athletes that are dehydrated, under fueled, not recovered, and who are functioning on little sleep. It impacts their performance on game-days in a negative way. They get tired quicker than their opponents, they have lost muscle mass through the season, they are more prone to injury and get injured and sick more often. This impacts you as an athlete but you also let your teammates, coaches, and parents down as well all because you didn't prepare the right way and take care of your body the right way. Maybe you are such a gifted athlete that you can “get away” with not sleeping much or hydrating properly. It will catch up to you. It always does! Taking care of yourself isn't difficult if you plan ahead and make it a priority.

1. The first step actually starts the night before. Plan ahead and pack your lunch box/cooler for the day.
2. Make a morning shake/smoothie if necessary. If you are short on time or have an early game/match than make your shake the night before and have it ready to go for the next morning!
3. We need to focus on hydration, pre-game fuel, in-game fuel, and recovery.
4. Don't depend on the concession stand!

<u>Fluids</u>	<u>Pre-Game</u>	<u>In-Game</u>	<u>Recovery</u>	<u>Misc.</u>
Water Bottle	Fruit	Sports Drinks	PB&J	Cooler/Lunch Box
Water	Yogurt	Bananas	Chocolate Milk	Spoon
Sports Drinks	Cereal/low fat milk	Applesauce	RTD Protein Shake	No concession stand
	Goldfish	Fig Newtons	Bagel with PB	
	Animal Crackers	Pretzels	Piece of fruit and Clif Builder Bar	
	Turkey and cheese sandwich	Chews and Gels	Banana with PB	
	String cheese	Orange Slices	Greek yogurt and Granola	

Shake and Smoothie Recipes

High Calorie Gainer Shakes

These shakes are for the kids that are having a tough time maintaining weight through the season or having a tough time with gaining weight. We want to try and get in an additional 500-1000 calories per day in addition to their normal daily calories and place a focal point on protein as well. Having one of these shakes after dinner in the evening while doing homework is a great way to get these extra calories in! You can also make one of these shakes and have it ready in the refrigerator and drink it throughout the day.

Chocolate/Banana Peanut Butter	Calories	Protein
8 oz low fat chocolate milk	140	8g
1 Banana	105	1g
1 cup raw oats	360	12g
2 TBSP peanut butter	190	7g
1/2 cup granola	270	6g
Blender plus Ice	0	0
Totals	1,065	34g

Cinnamon Almond	Calories	Protein
1 Vanilla Ensure	220	9g
½ TSP cinnamon	3	0g
4 oz almonds	655	24g
1 banana	105	1g
Blender and Ice	0	0g
Totals	983	34g

Vanilla Cherry Banana	Calories	Protein
1 Vanilla Rockin Protein Recovery (Rockin Refuel)	280	20
1 cup cherries	90	0g
1 Banana	105	1g
1 cup vanilla Greek Yogurt	177	20
Blender and Ice	0	0g
Totals	652	41g

Recovery shakes/Breakfast Smoothies

Great for post practice or post game. These smoothies are also great for adding fruits and vegetables into your diet and to reduce inflammation and keep your immune systems strong. I recommend that you make one of these smoothies each night and drink it in addition to your breakfast. This is not to be used as a calorie replacement but more to supplement your normal calories and adding in items that will reduce inflammation.

Berry Banana	Calories	Protein
8 oz almond milk	35	1g
1 cup frozen strawberries	50	<1g
½ cup frozen blueberries	40	<1g
½ cup frozen raspberries	130	<1g
1 banana	105	1g
1 cup Greek yogurt	220	20g
1 TBSP Honey	64	0g
Blender and Ice	0	0g
Totals	644	25g

Green Anti-Inflammatory Smoothie	Calories	Protein
8 oz. 1% Milk	96	7g
1 cup pineapple	82	<1g
1 cup spinach	7	<1g
1 banana	105	1g
1 avocado	322	4g
½ cup kale	17	1g
Totals	629	15g

Pineapple Mango	Calories	Protein
8 oz. Almond Milk	40	1g
1 cup pineapple	82	0
1 cup mango	99	1g
1 banana	105	1g
½ cup vanilla Greek yogurt	90	9g
Totals	416	12g