Cori Ann's Active Girl Nutrition Plan

Education: Fueling Young Female Athletes for Performance

You can alleviate the typical wear and tear that comes with being active by educating yourself on how to fuel your body for performance. This information is provided free of charge with the hopes that this education will help to not only fuel you or your young female athlete properly, but will also help to inspire healthy nutritional change within our entire country.

By teaching young girls how to fuel their bodies now, we are not only reducing their likelihood of injury, we are also changing the health of our nation. The education you, your daughter, niece, sister, or cousin learns now, will shape how she feeds her family in the future.

Let's increase our nutritional education and end the trend of obesity in America.

Cori Ann Lentz

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Why I created the Active Teen Girl Nutrition Guide

The past few weeks have included a lot of changes for my family and, most likely, your family as well.

My daughter started high school at San Ramon Valley High. My step-son started school at De La Salle. A new school year always involves organization, structure, and logistical management, but with two kids starting high school at two different schools, I have felt these needs compounded.

Both kids in our blended family are very active. My step-son is involved in hockey, which makes sense since my husband played hockey professionally before getting injured. My husband often coaches his team and is extremely involved in his hockey league.

My daughter is in gymnastics and cheer, and has done diving in the past. I don't have expertise in her specific sports, so I don't coach. I do stay involved by designing nutrition and conditioning plans for her, so she has the tools she needs to reach the goals she sets for herself.

This past week my little girl, my 14-year old-freshman, was pulled up to varsity cheer.

She is excited to the point of being bubbly and giddy like only a 14-year-old girl can be, and of course the whole family is tremendously proud of her. She is truly talented, and I'm pretty sure I'm not just saying that as her mom.

With her skill set, she has the potential to earn cheer scholarships for college. Beyond that, it is something she really enjoys.

She actually wants to achieve within her sport. It gives her confidence, pride, a feeling of accomplishment, and a physical outlet for all of the stresses that go along with being a teenager.

What this specific achievement means though, is that she now has freshman practice, varsity practice, competition practice, tumbling practice, and the games. Some nights she will be practicing for three hours. This isn't uncommon for athletes in any sport. The flip side is that it is also common for young athletes to get overuse injuries.

How many soccer players do you personally know who have had to have ACL surgery before they are 18?

How many tennis players have rotator cuff issues?

Training hard is a part of being an athlete, but so is eating properly. It takes more than just practice to be great. It takes the proper fuel you need to get through the practice, to recover from injuries, and to bring your best to each competition, each game, each match.

An injury would end my daughter's dream before it has even had a chance to begin, as it would for all young athletes hoping to play college sports.

A Nutrition Plan for Performance

I recently put my daughter on a nutrition plan so she can get through her practices and competitions, with the primary intent of repairing the typical wear and tear that goes with being active.

We are fueling her body for her activity, to reduce the likelihood of an injury that she would end up living with for the rest of her life.

I increased her calories to 3,000 to 5,000 clean calories each day. Lean protein, veggies, fruits, whole grain, etc.

She is eating every two hours in the morning and every three hours after lunch.

Keep in mind she is only 5 feet tall and a little over 100 lbs. A young athlete who is taller or who weighs more who is doing the same amount of activity would need *more* calories.

If you are serious about performance you should eat five to seven meals daily. When eating to enhance performance you should concentrate on low fat protein, clean carbohydrates (that means vegetables, fruit, and whole grains), and limit fat intake.

When she went to school with the snacks, lunch, and more snacks on her eating plan her friends (lovingly) said, “Geez Nicky! That’s a lot of food!”

When she went on to explain that she is on a new eating plan to avoid injuries and get through all of her practices, one of her friends said, “I have a hard time eating 1,000 calories a day.” My daughter (thank goodness) replied, “That is NOT healthy!” Her friend answered with, “I know, but I just don’t get hungry.”

The Risk of Not Eating Enough

The problem is that sometimes we don't get hungry, whether we are young athletes, or adults.

Although it may seem counter-intuitive, to wait until you are hungry to eat, can slow down your metabolism. I can say with confidence that eating only 1,000 calories per day is definitely not healthy. Not eating enough weakens your body and sets you up for poor nutritional habits later on in life.

So what happens if teen athletes don't eat enough? Their bodies are less likely to achieve peak performance and may even break down rather than build up muscles.

Athletes who don't take in enough calories every day won't be as fast and as strong as they could be. Girls may stop menstruating, which causes even more health problems. Extreme calorie restriction could lead to growth problems and other serious health risks in addition to hindering performance.

Female Athlete Triad

Exercising intensely and not eating enough calories can lead to decreases in estrogen, the hormone that helps to regulate the menstrual cycle. As a result, a girl's periods may become irregular or stop altogether. This is called the female athlete triad.

Some girls who participate intensively in sports may never even get their first period because they've been training so hard. Others may have had periods, but once they increase their training and change their eating habits, their periods may stop.

Of course, it's normal for teens to occasionally miss periods, especially in the first year. A missed period does not automatically constitute a female athlete triad. It could mean something else is going on, like pregnancy or a medical condition. It is always a good idea to talk to a doctor in this case.

What Are the Signs and Symptoms?

If a girl has risk factors for female athlete triad, she may already be experiencing some symptoms and signs of the disorder, such as:

- weight loss
- no periods or irregular periods
- fatigue and decreased ability to concentrate
- stress fractures (fractures that occur even if a person hasn't had a significant injury)
- muscle injuries

It might be tempting to shrug off several months of missed periods, when you're not sexually active and you're not that worried about missing a period, but getting help right away is important.

In the short term, the female athlete triad may lead to muscle weakness, stress fractures, and reduced physical performance.

Over the long term, it can cause bone weakness, long-term effects on the reproductive system, and heart problems.

Tips for Female Athletes

Here are a few tips to help teen athletes stay on top of their physical condition:

- **Keep track of your periods.** It's easy to forget when you had your last period, so keep a calendar in your gym bag and mark down when your period starts and stops and if the bleeding is particularly heavy or light. That way, if you start missing periods, you'll know right away and you'll have accurate information to give to your doctor.
- **Don't skip meals or snacks.** If you're constantly on the go between school, practice, and competitions you may be tempted to skip meals and snacks to save time. But eating now will improve performance later, so stock your locker or bag with quick and easy favorites such as crackers, string cheese, fruit, raw vegetables, and fruit.
- **Visit a dietitian or nutritionist who works with teen athletes.** He or she can help you get your dietary game plan into gear and find out if you're getting enough key nutrients such as iron, calcium, and protein. And if you need supplements, a nutritionist can recommend the best choices.
- **Do it for YOU.** Pressure from teammates, parents, or coaches can turn a fun activity into a terrible experience. If you're not enjoying your sport, make a change. Remember: It's your body and your life. You — not your coach or teammates — will have to live with any damage you do to your body now.

Nutrition and Recovery

The fact that the nutritional aspects of recovery and performance are overlooked is a mystery to many sports nutritionists. After all, it is clear that a major injury alters your nutritional requirements.

For example, studies suggest that athletes who have broken their leg, may experience an increase in basal metabolism because their bodies 'gear up' to repair the injured bone.

This means a young female athlete who might 'burn' 1,600 calories during a typical, *NON-workout* day could see her caloric requirements shoot up to 2,000 calories during that same *NON-workout* day because her body is working hard to repair the bone break.

However, it isn't as simple as just increasing calories. Various parts of the body have unique nutritional demands. The optimal nutritional plan to restore an injury to cartilage might differ from the best plan to repair muscle or a nerve.

Nutrition for Performance

There's a lot more to eating for sports than carb loading or chugging down sports drinks.

The good news is that eating for peak performance doesn't require a special diet or supplements, just some education on what types of foods fuel the body best. It's all about working the right foods into your family's nutrition plan, in the right amounts.

All nutrients are important and having a balanced nutrition plan is imperative for young athletes, but there are a few key components I want to address when it comes specifically to proteins and branched chain amino acids.

Keep in mind that receiving nutrients from whole foods is always received better by your body than supplementation. I personally do not recommend supplementation in the pill form when it comes to young athletes.

When in doubt, you should most definitely discuss your specific nutritional needs or the needs of your young athletes with your doctor, a registered dietitian, or a certified sports nutritionist.

Branched-Chain Amino Acids

Leucine is an essential amino acid. It belongs to a special group of amino acids called branched-chain amino acids (BCAAs), which are needed to help maintain and repair muscle tissue. The other two BCAAs are isoleucine and valine.

Leucine is special because research shows it helps prevent muscle proteins from breaking down during exercise. Some studies have shown that BCAAs have the special ability to boost protein synthesis and inhibit protein breakdown. This means none of the other proteins, or amino acids, have as strong of an effect as BCAAs.

How much should a young athlete have?

The usual recommendation is 25-65 mg four every 2.2 pounds of body weight. This equals to these amounts for approximate body weights:

- 100 lbs 3,000 mg
- 125 lbs 3,700 mg
- 150 lbs 4,500 mg

Foods highest in Leucine and Isoleucine and Valine

These are the foods highest in leucine, while also still being high in the other BCAAs (Isoleucine and Valine). The foods are listed from highest to still very high and are based on levels per each 200 calorie serving.

- Egg Whites
- Turkey
- Tuna
- Pike
- Cod
- Haddock
- Chicken
- Cottage Cheese, 1 percent
- Crab
- Orange Roughy
- Lamb
- Pork
- Duck
- Lobster
- Tilapia
- Shrimp
- Halibut
- Sea Bass
- Salmon
- Beef (trimmed)
- Cottage Cheese, 2 percent
- Scallops
- Cheese, lowfat Cheddar or Colby

A mixture of **amino acids, salts, glucose, B vitamins, and vitamin C** increase production of collagen, a unique protein which helps to strengthen damaged areas, according to more research.

If you try to eat the lean proteins listed above, combined with lots of colorful veggies and fruits, you are going to be in a better position to perform than if you ate a peanut butter and jelly sandwich, macaroni and cheese, a hot dog, Jamba juice, or other typical kid-friendly food.

HMB

HMB stands for beta-hydroxy-beta-methyl butyrate. Let's just stick with the acronym. HMB seems to do a great job of holding muscles together during very strenuous training and may be helpful in lowering the risk of overuse injury.

HMB is a metabolite of the branched-chain amino acid leucine. What that means is that it is created within our own bodies through our metabolism of leucine.

It is important to eat enough of the foods containing leucine to get the benefits of HMB, but you can also eat foods that are high in HMB as well. HMB is found naturally in:

- Alfalfa
- Grapefruit
- Corn silage
- Cauliflower
- Red meat
- Catfish

There is some ground breaking research showing that having this nutrient available in your body can raise anabolism (the constructive phase of metabolism) and promote recovery in trained athletes.

One of the more credible aspects of HMB is the amount of research that has been performed on it. Simply put, there are studies that show HMB's role in aiding recovery and enhancing the process of muscle building.

Iron

Dietary intake and total body stores of a key mineral, **iron**, may also have some effect on an athlete's risk of injury.

In a recent study of female cross country runners, there were 71 injuries severe enough to cause the runners to stop training. The injured runners each had low ferritin (blood iron) levels. The runners with the lowest ferritin levels had *twice as many injuries* as the runners with highest ferritin.

Since iron is a key component of hemoglobin, the compound which carries oxygen to muscles and other tissues, it's possible that athletes with low ferritin had less oxygen delivered to their tissues. They became fatigued more easily during workouts and races. Their exhausted muscles would then be less able to stabilize and support the knees and ankles, resulting in injuries.

Low ferritin might also slow the rate that muscles and connective tissues are repaired, allowing minor injuries to blow up into major problems.

How much should a young athlete have?

The usual recommendation is 15-18 mg for women over 14 years of age. Even when you are eating enough iron in your diet, there are some things that might make it so you aren't absorbing it.

What hinders iron absorption?

Drinking coffee and tea at the same time as eating an iron rich meal can reduce absorption *by up to 60%*. Some legumes, grains, cola, carbonated drinks, soybeans, and even possibly calcium and fiber can also interfere with iron absorption. Try *not* to eat these foods in combination with your iron rich foods.

What helps iron absorption?

There are also ways in increase absorption of iron. This is especially important for vegetarians and vegans. Vitamin C can increase iron absorption. Try to eat foods high in vitamin C during the same time that you eat foods high in iron. Vitamin A also helps because it releases iron and makes it more available for the body to use. Foods high in both Vitamin A and Vitamin C include:

- Acerola juice
- Mustard greens
- Kale
- Sweet yellow and red peppers
- Carrots
- Spinach
- Red leaf lettuce
- Turnip greens
- Pumpkin
- Sweet potato and most other orange and red veggies and fruits

The foods highest in iron are listed below. The foods are listed from highest to still very high and are based on levels per 200-calorie serving. I have purposely left out organ meats, even though they are very high, because most young girls (and most adults) simply won't eat them, including me.

Foods highest in Iron:

- Clams
- Spinach
- Iron fortified cereals (especially cream of wheat or malt-o-meal)
- Asparagus
- Oysters
- Broccoli Raab
- Butterhead lettuce
- Swiss Chard
- Potatoes (including skin)
- Red Leaf Lettuce
- Turnip Greens
- Unsweetened cocoa powder processed with alkali (Dutch cocoa)
- Seaweed
- Mushrooms
- Cabbage
- Beans
- Arugula
- Peas
- Many spices like thyme, parsley, marjoram, dill, and basil

Should you take iron supplements? I usually recommend that all athletes try to receive their nutrition from whole foods instead of supplements. If you eat the foods listed above, you will be well equipped to perform your best and should have healthy iron levels.

A shake or smoothie made from whole foods could be a great addition, but I do not personally recommend supplements in pill form for young athletes.

High levels of iron (too high, usually from a supplement) can inhibit the absorption of another important mineral, zinc.

In addition, it's probably best not to take iron supplements when you are sick. When you're sick, your body temperature rises and the amount of iron in your blood drops. At that time, though, it does *not* mean you should ingest more iron.

The fever plus low iron combination acts as a sort of natural antibiotic because many microorganisms are simply unable to grow when they are confronted with higher temperatures and reduced levels of iron. Iron supplementation, by giving the little bugs what they are lacking, might actually make you stay sick longer, miss more practices, and put you in a position where you are at high risk for injury!

What you need when you're sick is rest, not iron supplements.

The link between depressed iron and stunted bacteria isn't exactly common knowledge. Even though many scientific studies have connected low blood-iron with reduced bacterial growth and high iron with bacterial booms, only 10 percent of doctors and 5 per cent of pharmacists in the United States are aware that iron supplementation might be harmful for infected patients.

Fats and Timing

It takes 1.5 - 2 hours to digest a typical healthy meal, but it can take up to 4 hours to digest fat. That includes good fats such as peanut butter, salmon and avocados.

The energy devoted to digestion detracts from performance as well as mental, emotional, and physical states. It is optimal to ingest fat a minimum of 4 hours before a practice, performance, workout, or even a test.

It is very common for athletes to snack on cheese, nuts or have a piece of toast with peanut butter before a long practice with the idea that it will give them sustained energy. The fact of the matter is that these 'good' fats are taking energy *away* from your body for about 4 hours after consuming them instead of giving you energy.

Good fats are great in an athlete's healthy diet, but are best when included after practice and before bed, not directly before activity. If you have a game at noon, cheese, peanut butter, avocados, or other fatty snacks would be fine to have at 8:00 am, but not after that. Ideally, let your meals digest before you exercise, have games or even have exams.

Instead of nuts, cheese or other fatty snacks, add fruit and yogurt between meals. You will recuperate faster from injury and illness, gain muscle tone and strength, and increase sensory. It's a simple progression toward eating habits that will help you not only perform better, but also develop healthy habits throughout life.

Hydration

Water is the most overlooked nutrient. **Water** is just as important to unlocking your game power as food. The metabolism of both protein and fat are dependent upon water. Without adequate water carbs also can't be stored properly.

When you sweat during exercise, it's easy to become overheated, worn out or get a headache, especially in hot or humid weather. Even mild dehydration can affect your physical *and* mental performance.

There's no one size fits all formula for how much water to drink. How much fluid you need depends on your age, size, level of physical activity, and the temperature.

Most doctors recommend 8 to 10 eight ounces glasses of water a day, but this is too little for a hard-training athlete. Current research says you may need ***1 gallon a day*** if not more.

Experts recommend that athletes drink before and after exercise as well as every 15 to 20 minutes during exercise. Don't wait until you feel thirsty because thirst is a sign that your body has needed liquids for a while, but don't force yourself to drink more fluids than you may need either. It's hard to run when there's a lot of water sloshing around in your stomach!

During practice and competitions drink just plain water. A few hours before the event, or after, you can drink fluids that have electrolytes, but during the event drink plain "cold" water. The water will replenish fluid and the "cold" will keep the body's core temperature down, which will help prevent overheating.

Avoid drinking carbonated drinks or juice because they could give you a stomachache while you're competing.

Game-Day Eating

Consider not eating anything for the hour before you compete or have practice. Digestion requires energy, energy that you want to use to win. Eating too soon before any kind of activity can leave food in the stomach, making you feel full, bloated, crampy, and sick.

Everyone is different, so get to know what works best for you. You may want to experiment with meal timing and how much to eat on practice days so that you're better prepared for game day.

Talk to a Nutritionist

Want to get an eating plan personalized for you? Contact a nutritionist who can develop a plan designed especially for your body, your level of activity, and your particular sport.

Educating yourself on how to fuel your body properly, then putting that education into *daily* practice will put you in a better position to prevent injuries. Learning how to eat properly will also inspire healthy habits that you will carry on throughout life.