

JSCC Sports Nutrition

Proper nutrition is vital to you regardless of what sport you play, your gender or if you need to gain or lose weight. Nutrition is roughly defined as the act of nourishing the body for all metabolic processes to be able to take place at an optimal level. Optimal is the key word in the last sentence. Yes, you will survive, at least for a little while, by eating fast food and tons of calories that provide little or no nutrition, but your health, body composition and athletic performance will be far from optimal. Every human needs proper nourishment to survive and live a healthy life. Athletes in particular must have outstanding dietary practices because of the increased demands that are placed on their bodies. Remember, to become a better athlete you must 1) Train Properly, 2) Sleep properly (7-9 hours), 3) Recover properly and 4) Eat properly. If you want to get better and your team wants to get better, you have to educate yourself with what proper nutrition is, just like you have to educate yourself on anything else. I can't be with you every day so you will have to take responsibility with this knowledge and put it to good use.
-Ryan Sheppard

The 10 Habits

- Proper nutrition is all about educating yourself as to WHAT to eat, HOW MUCH to eat and WHEN to eat it. If you can begin to understand these things better you will be headed towards a leaner, stronger and better conditioned body. These habits are researched and have been practiced by the most knowledgeable sports nutritionists out there. Whether your goal is to lose weight, gain weight or just become a little leaner, this is top-notch information and you need to take advantage of it and make these habits a part of your everyday life. Don't come to me and say you can't gain weight or you can't get lean. Here is how you do it, now go and do it!
- The following information was adapted from John Berardi's Precision Nutrition book. His websites are:
www.johnberardi.com and www.precisionnutrition.com. He is the best that I have found in the area of sports nutrition and if you want to learn more, check out his websites and the articles he has written on nutrition. You can also purchase his Precision Nutrition book on his website. It goes into much greater detail than we will be able to here. The Precision Nutrition Resource also has a Gourmet Nutrition cookbook that is awesome.

Habit 1: Eat every 2-3 hours.

Scientific evidence has shown that abiding by this rule is probably the most important change you can make to your diet. Now don't freak out. I know some of you are pulling out your calculators and saying "that's 5-7 meals a day!" You are correct, but that isn't 5-7 meals at the country buffet.

Insulin is a hormone that is released when food is ingested. Carbohydrates, some amino acids and to a lesser extent fat all secrete insulin at varying degrees. Insulin's job is to distribute and store macronutrients as glycogen (stored carbohydrate in the muscle and liver) or fat for energy. Depicted in the above graph is the body's insulin

response to two different meal plans. The X-axis is the time of day and the Y-axis is an arbitrary number for the amount of insulin secreted and corresponding blood sugar amount. Both meal plans are set at 3000 calories per day.

Meal plan #1 is divided into three 1000 calorie meals. Meal plan #2 is divided into three meals (700 calories each) and two snacks (450 calories each). Both meal plans supply the same amount of calories over a day but the way the body reacts to them is totally different. The more insulin that is secreted when you eat the more likely you are to store and produce body-fat.

This is what meal plan #1 is doing because of such high calorie meals. The amount of insulin secreted is correlated with the amount and type of calories consumed. So there are three very high spikes in insulin with Meal plan #1.

Meal plan #2 is spreading the calories out more evenly so the amount of insulin needed is much less and there is a much less likely chance of body-fat being produced. Just remember, Sumo wrestlers gorge themselves with food and then fall asleep to gain weight. Samurai eat just enough to fuel themselves and then they go to work. Eat like a Samurai and "graze" throughout the day every 2-3 hours. Your calorie needs may be more or less than the example given. The main thing is that you get in the habit of following this rule, we'll worry about calories later.

Habit 2: Eat complete, lean protein with each feeding opportunity.

Complete protein is a protein that contains all twenty-two of the essential amino acids. Amino acids are the building blocks of protein and protein is what your muscles are made of. Adequate protein is essential to consume within your diet. If you are an athlete you should consume 1 gram per pound of bodyweight of protein per day if you want to keep getting faster, leaner and stronger. If you are a vegetarian you must be very intentional about your meal combinations and making sure that you are getting adequate amino acid intake. Fruits, nuts, beans, vegetables are almost always deficient in one or more amino acids. This is why it is very difficult to be a vegetarian and get adequate essential amino acid intake. Just remember, if it comes from an animal then it is a complete protein. You will continue to find it difficult to get lean or gain muscle if you don't practice this rule. Ladies, you should shoot for 15-25 grams of protein per meal. Guys, you should shoot for 35-55 grams of protein per meal.

Meat the size of a deck of cards is equal to about 20-30 grams of protein depending on what type meat that it is. Don't worry if you can't get these amounts in every meal, remember that some is better than none.

Examples:

1. Lean meats (ground beef – 90/10, chicken, turkey, venison)
2. Fish (salmon, tuna, cod, roughy, ect.)
3. Eggs (egg whites, whole eggs, egg beaters)
4. Low Fat Dairy (cottage cheese, yogurt, mozzarella)
5. Milk Protein Supplements (whey, casein, milk protein blends)

Habit 3: Eat vegetables with each feeding opportunity.

I promise your mothers did not pay me to say this! Science has finally caught up with what our parents have always known, that you need your veggies. Vegetables are very high in micronutrients (vitamins and minerals) and phytochemicals which are nutrients that scientists are just finding out about. Veggies should be your primary source of vitamins and minerals, not a multivitamin/multi-mineral pill. Vegetables and fruits help provide an alkaline load to the blood. This is very important because protein and grains put an acidic load on the body. If you are too acidic over a period of time you will lose bone and muscle strength. Get at least 1-2 servings of veggies per meal (a serving is about ½ cup).

Habit 4: Eat veggies and fruits with any meal; "other carbs" only after exercise.

In other words, eat non-fruit and vegetable carbohydrates (sugars, sports drinks, post-workout shakes, rice, potatoes, pasta, whole wheat bread, oatmeal, pancakes, etc.) during and within 2-3 hours after exercise. Want pancakes and eggs? Wait until after your workout to have them. The reason for this rule is that your body is in a unique state after intense exercise. Your body is better able to absorb higher carbohydrate foods into muscle energy reserves and not into fat cells within this post-workout window. The only exception to this rule is breakfast. Because you have been fasting all night long when you sleep, you may need some carbs at breakfast to bring your blood sugar up. So something like a bowl of oatmeal with breakfast would be a good carb choice in the morning. Otherwise, take advantage of the post-workout window (2-3 hours after exercise) and save the non-fruit and vegetable carbs for that time as a reward for your hard work.

Habit 5: Eat healthy fats daily.

First of all, fats are not bad. Fat is a part of every cell in your body and one of its many functions is to cover the nerve cells within your body. If you aren't getting enough healthy fat within your diet, the ability for your muscles to contract may be compromised by not having an efficient nervous system. This is just one example of how important fats are in your diet. Your diet needs to consist of approximately 30% fats. You should try to have 1/3 monounsaturated, 1/3 polyunsaturated and 1/3 saturated so that you get the benefits that each type provides. This is not as complicated as it sounds, most of American's diets are way too high in saturated fats which can lead to heart disease and various other things. Just add some monounsaturated fats (olive oil) and some polyunsaturated (Omega 3's from fish and/or fish oil) and this will help balance out your fat intake. Adding a fish oil supplement to your diet will ensure that you are getting healthy fats in your diet. Research has also shown that getting between 6-10 grams of fish oil a day in your diet will increase your metabolism and help you get leaner. They are quite inexpensive and can be found at Sam's, Wal-Mart or any other discount grocery store.

Habit 6: Don't drink beverages with more than 0 calories.

Fruit juice, alcohol and other sugary beverages should be eliminated or kept to a minimum within your diet. Yes, even fruit juice because it is fruit that has been stripped of its fiber and it causes a very high insulin response. This is the main issue with calorie containing beverages is that they are seen as a high sugar load to the body and they typically have very little nutritional value. Check out the examples below and see if this looks like what you would consume in a week's time.

1 can beer = 153 calories x 12 cans per week = **1836 calories**

1 20 oz. Coca-Cola = 241 calories x 12 cans per week = **2892 calories**

1 8 oz. cup Orange Juice from concentrate = 112 calories x 12 cups per week = **1344 calories**

- Total calories from liquids in a week = **6,072** (it takes 3,500 calories to form 1 lb. of body-fat)
- The amount of water you should consume each day: (your bodyweight in pounds) x (0.5 ounces) = Ounces of water.
- Your metabolism slows way down when you are in a dehydrated state. So stay hydrated and you will get leaner!

Habit 7: Eat whole foods instead of supplements whenever possible.

For the most part try to adhere to the previously stated habits to select the meals that you eat. Liquid nutrition, protein bars and meal replacements have their place during and immediately after exercise and even when you are traveling. Whole foods provide fiber and a lot more nutrition than a meal replacement will ever be able to. When it comes to vitamins, minerals and overall nutritional content of food, no pill even comes close to what God created in the first place. Just remember the closer a food is to it's original state the better. For example, the best choice would be an apple. The okay choice would be applesauce. The worst choice would be apple juice. Get the idea?

Habit 8: Plan ahead and prepare feedings in advance.

Preparation will bring all of these habits together. It doesn't matter if you know what, when and how much to eat if you don't prepare your food in advance then you will end up grabbing whatever is convenient which will usually be fast food. Plan the night before or get up a little early to pack a lunch and some snacks for the day, whatever system works for you. This is where discipline comes into play.

Habit 9: Eat as wide a variety of good foods as possible.

The deal here is, don't get stuck in a rut and eat the same foods over and over. Branch out and eat each color of the rainbow (red, yellow, orange, blue, green, etc.). Red, yellow and green bell peppers each have different ratios of vitamins, minerals and phytochemicals. If you just stick to one color you miss what the other colors provide. If you have one of each color they compliment each other and you get the benefits of each. This same concept can be applied to proteins, carbohydrates and fats. There is a synergistic effect when we combine a wide variety of foods that isn't there when we don't.

Habit 10: Plan to break the rules 10% of the time.

You don't have to be perfect 100% of the time when it comes to your diet. There is very little difference when it comes to adhering 90% of the time as opposed to 100% adherence. This 10% is the reward for being disciplined the other 90% of the time. If you start eating every 2-3 hours and eat 5 meals a day, that comes out to 35 meals a week. So, if you eat disciplined and follow habits 1-9 for 32 meals a week you can have 3 meals a week in which you splurge. By the way the 32 meals should not break any of the habits 1-9, otherwise it is a 10% meal. Plan for these 10% meals so that you can be motivated to be disciplined until that 10% meal.

10 Habits Cheat Sheet

- 1. When did you last eat?** If it's been longer than 2-3 hours, feed immediately.
- 2. Where is the complete protein?** Are you about to eat at least one serving of complete protein? If not, find some protein! (One serving is 15-25g for women and 35-55g for men).
- 3. Where are the veggies?** Are you about to eat at least 1-2 servings of veggies? Prepare them anyway you like, but eat them with every feeding opportunity. (One serving is about ½ cup of veggies).
- 4. Where are the carbs?** If you haven't just worked out, put down the pasta, bread, rice and other starchy carbs in favor of a double serving of fruits and veggies – yep, even at restaurants. If you just worked out, a mix of carb sources is fine.
- 5. Where are your fats coming from?** Today you need some fat from animal sources of protein, olive oil, mixed nuts, and flaxseeds/flaxseed oil. Spread them throughout the day.
- 6. Did you take your fish oil yet?** Make sure you don't miss taking a capsule or two with each feeding opportunity in order to get your 6-10 grams of fish oil.
- 7. Are you drinking water or green tea?** Avoid the calorie-containing drinks; send back the soda, fruit juice, and anything else with more than 0 calories.
- 8. Are you breaking the 10% rule?** Are you breaking any of the rules above? If so, count this feeding opportunity as part of your 10% and get back on track with your very next meal.

Please print this page out and put it somewhere where you can see it every day.

Daily Calorie Needs

So, how many calories do you burn in a day? Scientifically speaking, what is your metabolism or Basal Metabolic Rate (BMR) plus activity level? If you did nothing all day except lie in bed awake, your BMR is how many calories it would take to supply your body with enough energy to maintain normal bodily functions (body temperature, digestion, circulation, etc.) Your BMR + your Activity Level will tell you approximately how many calories you burn a day. Here is a way of determining your daily caloric needs:

Men's BMR in calories = $1 \times (\text{Body weight}/2.2) \times 24 \text{ hours}$

Women's BMR in calories = $.9 \times (\text{Body weight}/2.2) \times 24 \text{ hours}$

(The formulas used above are an *estimate* of your daily caloric needs – you may need a few more calories a day or a few less. Use these equations as a starting point!)

Example:

Men's BMR in calories = $1 \times (\text{Body weight}/2.2) \times 24 \text{ hours}$
= $1 \times ((200)/2.2) \times 24 \text{ hours}$
= $1 \times (200/2.2) \times 24 \text{ hours}$
= $1 \times 90.9 \times 24 \text{ hours}$
BMR = 2180 calories a day

Now that you know your BMR (2180 calories) you need to add in your activity level. Take your BMR and multiply it by the corresponding activity level chart below.

- *Activity Level Description BMR x Activity Level*
- Sedentary Desk job, very little if any exercise BMR x 1.2
- Lightly Active Light exercise 1-3 days a week BMR x 1.35
- Moderately Active Moderate exercise 3-5 days a week BMR x 1.55
- Very Active Hard exercise 6 or more days a week BMR x 1.7
- Extremely Active Extreme exercise 2 a day training, marathon, etc. BMR x 1.9

Continuing with our example: If your BMR was 2180 and you were lightly active, meaning you walked for an hour 1-3 days a week, then – *Total Daily Energy Expenditure* = BMR x Activity Level = $(2180) \times (1.35)$ *Total Daily Energy Expenditure* = 2943calories!

Now you can use this calorie calculation to help you if you need to GAIN MUSCLE or LOSE FAT.

The Zig Zag Method for FAT LOSS or MUSCLE GAIN

The zig zag method is a method of varying the amount calories you consume from day to day. Your body is always fighting to maintain a state of equilibrium and interventions through training and diet help to break this equilibrium in order to reach new levels of fitness, strength and body composition, which is the percentage of fat and muscle that you are made up of. When we eat below our total daily energy expenditure (TDEE) we will lose fat if we are following the 10 habits. However, if you eat below your TDEE for too many consecutive days then your metabolism will start to slow down and your ability to lose body fat will also slow down and you will begin to lose muscle mass. Conversely, if you eat above your TDEE and you have an excess of calories you are signaling your body to grow. How your body grows is a result of your training. If you are not training the growth will be in the form of added body fat. If you are training properly, you will begin to add muscle when you eat above your TDEE. Whether you are wanting to LOSE FAT or GAIN MUSCLE this method will help you succeed at your individual goal. Remember, you must make the 10 habits that are talked about at the first of this article a part of your eating before you move onto this more advanced method of zig zagging your diet.

Fat Loss

To achieve fat loss using the zigzag method you will have “low calorie” and “high calorie” days. The high calorie days will be like adding another log to the fire and help stoke the flame of your metabolism. If you miss this high calorie day you will begin to lose muscle and your ability to lose fat will slow down. So, to maintain your muscle mass while burning fat you must follow these guidelines:

- Zigzag Rotation for FAT LOSS
- Low Calorie Days (15-20% below TDEE)
- High Calorie Days (at TDEE)

Take Home Message: The low calorie days you'll be burning fat and the high calorie days keep your metabolism up by maintaining your muscle mass.

So with the above calculations as an example, the TDEE of the individual is 2,943 calories. The Low Calorie Days will be 2,354 calories and the High Calorie Days will be at the TDEE or 2,934 calories.

The rotation that will probably work best for you as a college athlete is (this is just an example but the basic idea is to have 3 days low, 1 day high, 2 days low, 1 day high):

- Sunday – Low Calorie Day (Burning Fat)
- Monday – Low Calorie Day (Burning Fat)
- Tuesday – Low Calorie Day (Burning Fat)
- Wednesday – High Calorie Day (Maintaining Muscle Mass and Metabolism)
- Thursday - Low Calorie Day (Burning Fat)
- Friday - Low Calorie Day (Burning Fat)
- Saturday - High Calorie Day (Maintaining Muscle Mass and Metabolism)

Repeat Muscle Gain

The zigzag method can also be used to gain muscle if that is your current goal. The zigzag method is valuable in this situation because on Low Calorie Days you are helping your body shed any excess body fat that may be gained when eating above your TDEE and the high calorie days are providing your body enough calories to fuel the growth of your muscles.

- Zigzag Rotation for MUSCLE GAIN
- Low Calorie Days (10% below TDEE)
- High Calorie Days (15-20% above TDEE)

Take Home Message: The low calorie days you'll be burning any excess fat that you may gain from the high calorie days which help to provide enough calories to signal muscle growth. So with the above calculations as an example, the TDEE of the individual is 2,943 calories. The Low Calorie Days will be 2,648 calories and the High Calorie Days will be 3,531 calories. In order to meet the goal of gaining muscle mass this is an example of a schedule: (this is just an example but the basic idea is to have 1 day low, 2 days high, 1 day low, 3 days high):

- Sunday – Low Calorie Day (Burning Fat)
- Monday – High Calorie Day (Provide Enough Calories to Increase Muscle Mass)
- Tuesday – High Calorie Day (Provide Enough Calories to Increase Muscle Mass)
- Wednesday – Low Calorie Day (Burning Fat)
- Thursday - High Calorie Day (Provide Enough Calories to Increase Muscle Mass)
- Friday - High Calorie Day (Provide Enough Calories to Increase Muscle Mass)
- Saturday - High Calorie Day (Provide Enough Calories to Increase Muscle Mass)

Repeat Post-Workout Guidelines for Burning Fat and Maximizing Lean Muscle Gains

The most important time to fuel your muscles and body is directly after you finish a workout. The timing of this post-workout meal is crucial because you have a window of time directly after your workout that allows for nutrients to be more readily absorbed. This time period is within about 30-45 minutes after you cease exercise and the sooner the better with this meal. If you take advantage of this time, you will begin to increase your lean muscle at a much higher rate and subsequently burn more body-fat. If you don't feed your muscles, especially if you are training hard, you can actually lose muscle. This happens because of the increased demand for calories and if you aren't feeding your muscles then they aren't able to be maintained, much less grow. Research shows a drastic increase in protein synthesis (building of lean muscle) if you eat something after you workout as opposed to not eating anything. This is a no-brainer if you ask me. Why workout if you're not going to optimize what you're trying to do? Ladies, you shouldn't be afraid of building muscle, just like for guys muscle is your friend and is going to help you become leaner as you eat properly and continue to work out. For each additional pound of muscle that is gained you increase your daily calorie usage by approximately 50 calories although this varies by the person.

These additional calories needed by muscle are fueled by stored body-fat throughout the day. In other words you become a fat burning machine all day long the more well conditioned and strong muscle that you have. I can hear you ladies, "I don't want to gain weight", stop thinking of weight and think of muscle or fat. For instance, if you weigh 150 pounds and you have a 30% body-fat that means 105 pounds are muscle and 45 pounds are fat. If you were to build 5 pounds of lean muscle but lose 10 lbs. of fat your new body-weight would be 145 pounds. You might be discouraged to say that you only lost 5 lbs. But, you would look very different because your body composition has changed, you would now be 110 pounds of muscle and 35 pounds of fat and you would have decreased your body-fat percentage by 6%!

Remember this and don't become obsessed with the scale and bodyweight! Bodyweight is only a small part of the picture.

Your workouts are seen as a stressor on your body and your body is screaming out for nourishment. Your muscle is comprised of protein and when you workout you actually break some muscle down in order for it to repair and adapt to be able to do what you are signaling it to do through exercise. You also have stored carbohydrate within your muscle called glycogen. This is the "gas" in your tank that helps you complete intense efforts of exercise. Both protein and carbohydrate need to be replenished in this post-workout time period of 30-45 minutes after you cease exercising. Any food that has some carbohydrate and protein would be good, but just like anything, optimal and okay are two different things. Liquid beverages are optimal

over solid foods ONLY in this post-workout period because they will digest and get to the muscle quicker. Remember, this is all about timing! Also remember that if you are looking at what affects your fitness goals, exercise is about 3% of your week in time. Diet is about 97% of your week in time and these post-workout meals ARE THE MOST IMPORTANT MEALS OF YOUR WEEK! Also remember to rehydrate with water after your workouts.

Here are few options to help you reach your goals:

Optimal Choices:

1. Protein Greens Plus – This shake will provide the best nutrition that any supplement could provide. If you are interested just email me and I can get you a discounted price.
2. Muscle Milk Collegiate - ~\$29.99 for 16-32 servings (depending on calorie needs). About \$1.88-\$0.98 per serving.
3. Gatorade+Whey Protein+Water – Sam’s Club has Powder Gatorade (9 Gal.) and Powder EAS Whey Protein (5 lb.). You can mix one scoop of protein with one scoop of Gatorade and have a great post-workout meal. Gatorade – \$9.50 and EAS Whey Protein - \$30 and each serving would come out to be about \$.0.65. This is probably the cheapest way to go for a good shake.
4. Milk or Chocolate Milk + Whey Protein – One scoop of the above whey and some good milk or chocolate milk will do your body good after a tough workout.
5. Milk or Chocolate Milk + Whey Protein + Fruit – Make a smoothie with your favorite fruit and it will add some nutrition to the carbs and protein found in the milk.

Good Choices:

1. Chocolate or regular milk. Milk has a good bit of protein and carbohydrate as well as many other nutritious components. Drink 8-16 ounces after a workout based on your calorie needs.
2. Add a piece of fruit to some milk for some extra nutrition and blend it up to make a great smoothie.

Okay Choices:

1. Peanut butter and jelly on wheat bread.
2. Protein or nutrition bar like a Clif bar or Pure Protein bar.
3. These choices will still provide you with calories that you need but will take some time digesting since they are solid foods.

Bad Choices:

Would be to starve yourself for the next 3 hours after you workout and not take advantage with eating something in this post-workout window! Whether your choice is “optimal” or just “okay” make sure you choose something.

Resources and Suggested Supplements:

- **Greens Plus** – www.greensplus.com
- **Con-Cret Creatine** – www.con-cret.com
- **Mix One** - www.mix1life.com
- **Whey Protein and Gatorade** – www.samsclub.com
- **Clif Bar** – www.clifbar.com
- **Pure Protein Bar** – www.pureprotein.net
- **GNC** - www.gnc.com
- **Vitamin Shoppe** - www.vitaminshoppe.com
- Bird SP, Tarpenning KM, Marino FE. **Independent and combined effects of liquid carbohydrate/essential amino acid ingestion on hormonal and muscular adaptations following resistance training in untrained men.** *Eur J Appl Physiol.* 2006 May; 97(2):239.