



# Power Back Diet

**Diet Nutrition Summary  
for Athletes**

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## **“WHAT YOU PUT IN YOUR BODY IS WHAT YOU WILL GET OUT OF IT... “**

Start with that simple statement and remember it every time you think about eating some junk food or grease or sugar or prefab microwave meals.

Some years ago I had a highly successful wrestling coach ask me if I could help his top ranked program with some dietary advice. He recounted a story of finding his top athlete who had just barely made weight in the locker room eating a bag of Boston Crème donuts and washing them down with a quart of Cola. Unfortunately that pre match meal was not going to have any positive effect on performance.

**1 can of Cola = 150 Calories**



**4 Donuts = 840 Calories**



**Nutritional value for sport = 0**

It is nearly impossible to monitor and control all nutritional aspects of food choice and diet. To be fueled and have the nutrients to perform at optimal levels, there are many givens. Educating yourself, as much as possible in the science of nutrition, will improve your success rate.

**The Power Back Diet for Athletes simplifies nutritional goals and presents them in a way that is easy to implement, immediately.**

Research has shown that practicing proper methods of nutrition:

- ◆ Provides the vitamins, minerals and nutrients critical to repairing after a workout
- ◆ Improves performance
- ◆ Improves how you feel

### **Improper diet will :**

- ◆ decrease your level of performance
- ◆ delay recovery
- ◆ greatly reduce the quality of your training.



In training, the body will require much greater energy sources than those less active. This means you need extra feedings. snacks keep the energy systems ready to train and leaves the body with enough energy to recover. When an athlete is training, The body is in a constant state of repair. Most athletes are also growing, which also requires incredible amounts of energy.

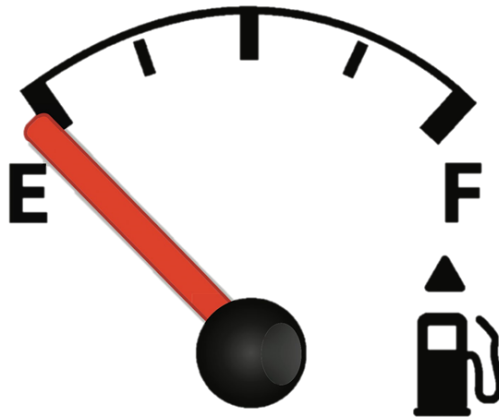
There is also the ongoing process of maintaining and repairing muscle mass to you remain structurally capable for the requirements of your sport.

### **Healthy snacks between meals will fuel your brain and muscles**

Most athletes training at a high level must take some food into the body every four hours. This maintains the blood sugar levels needed to fuel the brain and muscles .In turn this will reduce the amount of the stress hormone from being released. The stress hormone tears down muscle capacity. If the blood glucose levels reach critical low levels, nearly every measurable parameter of body and brain function rapidly declines.

**Even borderline low blood sugar levels negate most training effect!**

**YOU CANNOT RUN ON EMPTY.**



A couple fig bars, a hand full of raisins, some fruit gummies, dried fruit, a couple bites of a power bar or a few sips of watered down Gatorade or fruit drink can keep you blood sugar level up and you alert and physically responsive. Remember your brain and your muscles run off the blood sugar levels. Prior to training or competing you should get these levels up and keep them up. . Use 4-6 ounces of a sports drink about an hour prior to competition or training to insure proper blood sugar levels.

During training or competition, mix glucose sport drinks half and half with water. This is for two purposes:

1. Sports Drinks tend to be very sweet
2. The water will keep your hydration level up while the sport drink will keep your blood sugar levels up.

You need not gulp or consume large volumes of this drink, rather just sip it and remember even between training/competing, how important it is to maintain hydration and blood sugar requirements, otherwise *you will crash!*

**If you have special dietary needs you will need to consult with a medical professional and adjust your diet in accordance with their recommendations.**

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## PRINCIPLES OF GOOD NUTRITION

### Four Food Groups

Athletes can achieve a balanced diet by eating foods from the four basic food groups. Table 1 lists the minimum number of servings from each food group for each day.

**Meat Group:** includes high protein foods:



Meats



Poultry



Eggs



Fish



Legumes

Choose lean meats, fish, and poultry (without skin) to help keep your fat intake low. Remember to keep portion sizes moderate.

**Dairy Group:** is rich in protein, calcium, and other nutrients needed for healthy bones and muscles. Choose products labeled "low-fat" or "non-fat" to get the full nutritional value without the extra fat calories found in whole milk products. Calcium deficiencies lead to stress fractures and minimal bone density. Since the vast majority of bone density and skeletal formation is laid down during the late teen to early adult years it is critical that calcium is available in the diet. Even if an individual increases calcium intake in later years, the damage is irreversible.

**Nearly 14% of today's military enlistees suffer a stress fracture during basic training, presumably related to calcium deficiency.**

Many athletes have mentioned that they are lactose intolerant. Most have self-diagnosed this condition as a result of perhaps using a dairy based product prior to a workout or competition and experiencing a gastro-intestinal problem before, during or after.

Rather than revisit the timeline for causative effects they simply give up dairy products. At the very least, calcium supplements must be used to offset the deficits for growth and physical work.

LOWFAT CHOCOLATE MILK ▪ EGGS ▪ CHEESE ▪ YOGURT

**Fruit/Vegetable Group:** Fresh, frozen, canned, and dried fruits and vegetables and juices. Fruits and Vegetables are loaded with vitamins and minerals and fiber. Foods in this group are mostly composed of carbohydrates. **The more color there is to fruit and vegetable servings the more content there is nutrient wise.** Try to put together colorful salad combinations.

**Grain Group:** is the main source of complex carbohydrates and fiber.

- ◆ Oats
- ◆ Rice
- ◆ Wheat
- ◆ breads
- ◆ cereals
- ◆ Noodles
- ◆ pasta



TABLE 1: Minimum Daily Serving Sizes

	Serving Size
Meat	5-7 oz /day
Milk	1 Cup
Fruit	1 medium size piece of fruit
	½ cup of Juice
Vegetable	½ cup cooked or 1 cup raw
Grain	1 slice of bread
	1 cup of cereal
	½ cup pasta





## CALORIES

A "calorie" is a unit used to describe the energy content of foods. You can often use caloric content of foods to plan appropriate calories per day diet. During a phase of heavy training you need more fuels to burn so you need to increase the caloric content of your daily diet. The food you eat is that fuel. When you take in more food calories than you use, those extra calories are stored as fat, and you gain weight. When you take in less calories than you use, those calories are stored in fat are burned, and you lose weight. Losing weight gradually helps assure that mostly fat will be lost. **Losing weight too quickly will cause you to lose muscle and water in addition to fat, sapping your strength and endurance in the process.** Gradual weight loss is best accomplished by combining your training with a *slight reduction* in food intake.

Remember, your body requires a certain amount of energy and nutrients just to keep you alive and healthy. Daily metabolism just to function for daily tasks requires lots of energy. For this reason, your caloric Intake should never fall below 1,700-2,000 calories per day. Many weight restricted sports like wrestling, compromise their training and competitive abilities because they are simply out of fuels most of the time. In planning your diet, it will be helpful to estimate how many calories you need each day. Caloric needs differ from athlete to athlete, sport to sport and training phase to training phase depending upon body size and activity level and many other factors.

### **Eating fast food is a huge problem for any athletes.**

- ◆ they barely qualify as foods.
- ◆ Fat contents are very high
- ◆ one meal provides enough calories for the entire day.
- ◆ Body fat levels are increasing in athletes in all sports today
- ◆ Fast food provides little energy for an athlete.

Even 1x in ten days is too often to eat this garbage!



## FAT

Despite societal issues with overweight and obese syndromes in America, you must have some fat in your diet. Often fat obsessed athletes are greatly at risk for problems of overtraining...

### No fat.... No Hormones to train...

Many of the hormones needed to train and recover come from fat. Fat should make up about 20-30% of the calories you consume. Most of the fat we consume is:

- ◆ Naturally found in foods (meats, nuts, and dairy products)
- ◆ Added during the preparation of food (e.g. fried foods).
- ◆ Found in margarine, peanut butter, and salad dressings.

Hormones come from fat. If an athlete is so fat conscious that they have minimized their fat intake too much, they may have extremely low hormone levels and although they are lean, they experience many of the symptoms of overtraining syndrome:



- ◆ Fatigue
- ◆ Irritability
- ◆ Sleep disorders
- ◆ Appetite suppression
- ◆ Recovery delays

When your stored muscle fuels are used up, fat is the most valuable fuel source. This occurs 30-40 minutes into a workout or competition when you are involved with intermittent high energy bursts ex. Intervals, plyos, lifting, sprints, etc. and 60-90 minutes during steady state energy output such as a long aerobic run or bike.

## PROTEIN

Protein is used for growth and repair of all the cells in your body. It also determines how much muscle mass you can maintain. Often over the course of a long wrestling season, a wrestler may get thinner and thinner. You lose mass, you lose structural power and strength, You thin out you are weaker and weaker.

### Good sources of protein are:

- ◆ Meat
- ◆ Fish
- ◆ Poultry
- ◆ beans
- ◆ nuts



Keep in mind, nuts are high in fat and so should be eaten only in small quantities. Your diet should provide 12-15% of its calories from protein. The typical American diet provides more than enough protein, so you don't need to worry too much about your protein intake. Include a quality source of protein with each meal and mini-meal or snack, every three to five hours. Be consistent with your nutritional goals. Include a quality protein source regularly. **Missing a protein source at one meal is not going to doom your efforts. Likewise, consuming a quality protein, once, is not going to make a significant impact on your development. Consistency is crucial.**



**Select a protein about the size of the palm of your hand and include it at each meal or mini-meal / snack**



### **1ST CHOICE PROTEINS:**

Whey Protein

Fish

Protein Powders

Eggs/ Egg Whites

Low Fat Dairy Products

Yogurt

Chocolate Milk

Cheese

Cottage cheese



### **2ND CHOICE PROTEINS:**

Turkey

Chicken

Duck



### **3RD CHOICE PROTEINS:**

Lean Beef

Lean Pork

Lamb



### **PRACTICE, WORKOUT, COMPETE. PRACTICE, WORKOUT, COMPETE**

For the competitive athlete, this may be the typical scenario during the season. Include a long school day, attention to homework, poor diet and less than perfect sleep habits, and you have a potential disaster on your hands.

Practice, workouts, and games stress the body physically. Although each of these components is needed to compete successfully, the actions performed during these events, traumatize the body. At the molecular level, muscle tissue is broken down, pulled, strained, and frayed some even broken down for fuel. The joints and connective tissue around them are bruised, inflamed, and swollen. Blood plasma is ‘thinned-out’ and vital organs, like the heart, kidney, and lungs, along with various systems such as the respiratory, hormonal, and central nervous system, are stressed to the max. The processes in muscle repair and rebuilding must be constant. The body is not a machine that just takes ‘wear and tear’, slowly breaking down over the years.

**The body is a smart organism that, when sent the right signals (progressive workouts/competitions) and given the right recovery tools (rest and proper nutrition), can rebuild itself to a higher level of capability.**

Think of the practices, workouts, and games as the catalyst for making the body faster, bigger, and stronger. When proper recovery strategies are taken, these stresses are rewarded, positively. However, if the body does

not have the right nutrients available for repair, the stresses of the practices, workouts, and games becomes a negative situation for the body. Repeated trauma and less than optimum recovery tactics manifest themselves as overtraining: The body starts to breakdown, performance declines, and susceptibility to injury increases. **Human performance studies have recently proved that protein taken in a usable liquid for after training is both needed and necessary to maximize training effect, decrease intramuscular damage and speed recovery.**

Protein delivers all of the raw ingredients needed by the body for repair. When proteins are digested, our bodies break them down into amino acids that the body can use to rebuild itself as needed. Protein is critical in the rebuilding and recovery processes of the body. Inadequate intake of protein, inferior protein sources, and inadequate intake of other nutrients, such as carbohydrates, leads to the use of protein as fuel instead of to repair. This will lead to overtraining and degeneration: not optimal performance conditions.

**YOU** won't get fat by eating one unhealthy meal &

**YOU** won't get lean eating one healthy meal

**YOU** are what you repeatedly do.

Maintaining a Healthy Body is a

**LIFESTYLE**

**Not a Destination.**

## PROTEIN AND GAINING MUSCLE MASS

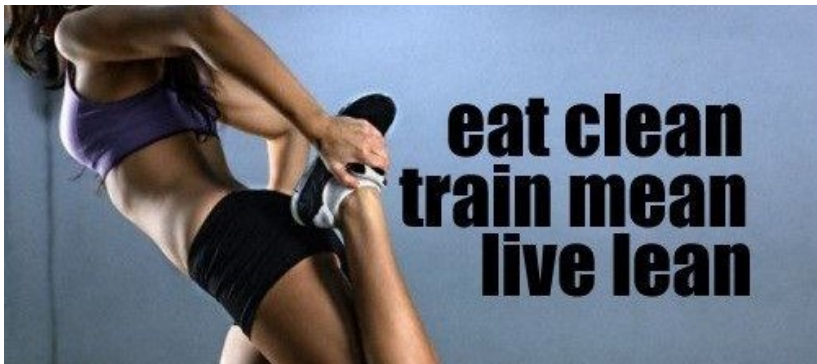
**Mass equals power equals everything!** The most significant factor in your athletic performance besides your condition is to put on muscle mass. Every pound of new muscle mass allows greater capacity for work in speed, power, endurance, skills and structural integrity. The more mass you have, the more power to move your skeleton and produce force. In order to gain new muscle mass you need protein available in your diet.

Many athletes and coaches are misled into thinking you simply just eat more protein with meals, However this is not the case. It is not about loading your plate with huge amounts of protein or eating a 24 ounce steak. It is more successful to have more protein feedings during the waking hours than to increase the grams of protein per meal.

### MUSCLE MASS GAIN FORMULA

**There are three key components or 'ingredients' that are considered essential if an athlete is to achieve their 'bulking up' goals:**

1. A well designed resistance training program
2. A high-energy diet that provides adequate protein
3. Consistency



**The human body can only utilize about 30g of protein at a time.**

If you eat a 24 ounce steak most of it will be deposited as fat because you cannot uptake that huge amount of protein or metabolize it into any form of fuel.

You need to eat just enough protein but not too much.

If you gain 10 pounds and 8 pounds is fat and 2 pounds is muscle, have you really helped yourself as an athlete? **You might as well strap on 8-pound ankle weights during a competition.** By eating protein and training hard you can reverse this and gain 8 pounds of muscle and 2 pounds of fat. Now you are a leaner, faster, and stronger athlete! Some feedings require solid protein and some require fast (liquid) protein and some require both varieties.

**Timing of protein feeds: Five to Six times per day**

7 a.m. —30g protein shake

11 a.m.—Lunch, with 40g of some type of chicken, lean beef or fish

3 p.m. —Protein-Bar and Whey Protein,30g

5 p.m. — Post Training nutritional Whey Protein 30g + 75g Carbohydrates

7 p.m. — Dinner with 40g of chicken, lean beef, fish

**Available protein + Available hormones= New Mass**

**This makes you leaner, stronger and more capable  
across the board as an athlete.**

## VITAMINS AND MINERALS

If you eat a balanced diet from the four basic food groups, you will consume all the vitamins and minerals your body needs.

**Including ample portions of fresh fruits and vegetables in your diet will help ensure an adequate intake of vitamins and minerals.**

Vitamin and mineral supplements are usually unnecessary, but if you like to have the added "insurance" of taking a supplement, choose a vitamin and mineral supplement that does not exceed 100% of the Recommended Daily Allowance (RDA) for each nutrient.

### IRON

If you don't have it you are doomed. It is responsible for the oxygen dynamics in human muscle. Take one iron pill (ferrous sulfate or gluconate) with vitamin C or O.J., Sunday night once per week prior to bed. Never take iron with Calcium or dairy products. (Prevents it from binding to blood cells) Remember: more is not better with iron.

### ZINC

It is critical in sweat loss sports. Low zinc levels have the same symptoms as Chronic Fatigue Syndrome. Take when training in very hot or humid conditions when fluid loss is increased.

### B VITAMINS

B vitamins are extremely important for endurance athletes, as they help the body release energy from protein, fats and carbohydrates while helping to build body tissue and increased metabolism. B1, B2, B3, B5, B6 and B12 can commonly be found in:

- ◆ Meats
- ◆ whole grains
- ◆ leafy green vegetables
- ◆ Bananas
- ◆ dairy products.





The B-complex vitamins are critical to optimizing recovery from high level training

- thiamine (B1)
- riboflavin (B2)
- niacin (B3)
- pantothenic acid (B5)
- pyridoxine (B6)
- folic acid
- biotin

### **Endurance Athletes should take B –Complex Vitamins:**

**These vitamins are essential for:**

- ◆ Providing Energy
- ◆ Repairing Muscles
- ◆ Eyesight
- ◆ Muscle tone
- ◆ Liver function
- ◆ Recovery

**Athletes who lack B-vitamins have reduced high-intensity exercise performance and are less able to repair damaged muscles or build muscle mass than their peers who eat a diet rich with B-vitamins\***

Even a small B-vitamin deficiency can result in reduced performance and recovery. Individual B-vitamin requirements vary and may depend upon the type and intensity of exercise, the amount of nutrients lost through sweat, and urine, and individual differences in diet.

The USRDA (United States Recommended Daily Allowance) for B-vitamin intake may be inadequate for athletes, especially when food and diet is often lacking in nutrition.

Those most at risk for the B-vitamin deficiencies include athletes who are limiting calories or have specialized, consistent or restricted eating plans. Wrestlers are notoriously low on B's...

\*Oregon State University study published in the International Journal of Sport Nutrition and Exercise Metabolism

### Sources for B-Vitamins

Whole and enriched grains	Cheese
Dark Green Vegetables	Chicken
Nuts	Turkey
Milk	Fish
Yogurt	

Athletes who have poor or restricted diets should consider supplementing with a multivitamin/mineral supplement.

Elite athletes should take B vitamin supplements, as they truly are the catalysts for recovery in the human body.

Alcohol consumption on a regular basis elicits an effect on the diuretic hormone, which increases the urination rate greatly. This in turn results in loss of the water soluble vitamins which leach out of the body.

**It takes 3-4 days to regain the vitamins alcohol depletes if an individual is taking supplements or eating a diet source rich B vitamins.**

Without B5 you cannot produce testosterone at levels needed for training or recovery.

One of the only side effects of B vitamins is that it changes the color of your urine to bright yellow in a matter of minutes. Literally your urine is the color of a highlighter... Don't be alarmed, it is simply how quickly it can get into your system. It may also create a surge of energy/alertness if taken prior to bedtime.

B vitamin depleted athletes, exhibit many of the symptoms of overstraining, overtraining or sometimes even chronic fatigue syndrome. If you ever go through a period of training where you feel exhausted every day despite taking in to account all proper methods for recovery, try B's. **It can literally be a shot in the arm and could save your entire season.**



## MAGNESIUM:

Important factor in muscle relaxation and heart health

- ◆ Allows nerves to send messages in the brain and nervous system
- ◆ Aids and regulates the body's use of calcium and other minerals
- ◆ Assists in bone and teeth formation
- ◆ Regulates the metabolism of nutrients such as protein, nucleic acids, fats and carbohydrates
- ◆ Regulates cholesterol production and helps modulate insulin sensitivity
- ◆ Assists in energy production, DNA transcription and protein synthesis<sup>2</sup>
- ◆ Maintains the structural health of cell membranes throughout the body
- ◆ Allows the CNS to recover from stress both physical and mental

Magnesium regulates more reactions than any other mineral. It is also responsible for two of the most important cellular functions: **energy production and cellular reproduction.**

**Athletes receiving the magnesium had 2.5 times greater muscle strength gains than a placebo group.**

**Taking 450 mg of magnesium and 30mg of Zinc daily can increase testosterone levels up to 30%.**



## VITAMIN C

Vitamin C is important for connective tissue repair. Although beneficial to athletes participating in a variety of sports, vitamin C is especially important to athletes whose training causes the most connective tissue damage.

As an antioxidant, it may help to reverse some of the oxidative damage that may occur from exercise. This damage, caused by free radicals, may interfere with the cells' ability to function normally and is believed to play a role in many different health conditions, including the aging process, cancer, and heart disease.

Vitamin C promotes a healthy immune system. There is a 12 hour window after training when you are highly susceptible to sickness/ illness.



**Research has shown that taking 400 to 3,000 mg of vitamin C per day for several days before and after intense exercise may reduce pain and speed up muscle strength recovery**

Vitamin C is known to help boost the immune system, but it can also help to reduce muscle soreness after strenuous activity--soreness that is a common problem for endurance athletes in training. Vitamin C can also help the absorption of iron. Foods high in vitamin C include

- ◆ citrus fruits
- ◆ green vegetables
- ◆ berries.

Look for Vitamin C supplements without extra fillers

## VITAMIN D

Vitamin D can help to maintain bone strength while maintaining nervous system and heart health. Good sources of vitamin D include

- ◆ Eggs
- ◆ Fish
- ◆ Butter
- ◆ natural sunlight.

Vitamin D supplements are available, though they are not usually necessary for those who eat a healthy diet and who are regularly exposed to the sun.



## VITAMIN E

Vitamin E is an important vitamin for endurance athletes, It can help prevent the depletion of omega-3 fatty acids and the destruction of good body tissue resulting from training. Good sources of vitamin E include

- ◆ nuts,
- ◆ leafy vegetables
- ◆ vegetable oil.



Vitamin E supplements are not usually necessary for people with healthy diets.

## EATING BEFORE TRAINING OR COMPETITION

***When you eat can often be as important as *what* you eat***

When you eat a regular meal, it takes about three hours for the food to be completely digested and absorbed. As a result, meals are best eaten three to four hours before competition. For athletes too nervous to consume solid foods before competition, special sports nutrition supplements may be an option. Carbohydrate supplements and liquid-nutrition supplements can be taken up to one hour before training or competition, you should experiment with such products to make certain that you do not experience discomfort.

A properly-formulated sports drink can be consumed before, during, and following training or competition to help minimize dehydration and provide a source of energy to working muscles. If there is nothing in your gastro-intestinal tract, there are no nutrients leaching into your bloodstream and energy systems will simply run out over time. The nutritional timeline requires on-going food in for energy out.

### **In Between Rounds/Games**

As soon as you finish a match, round game or heat, you should take in some glucose (from Gatorade or Powerade watered down) At least 10 ounces and some simple carbs. Ex. Fig bars Powerbar or fruit. Raisins, Banana. This needs to be done as soon as possible, within minutes.

Many sporting competitions involve multiple games, a series of heats and finals in the same day, over consecutive days, and/or flexible start times. Whatever the scenario, meeting your nutritional needs to compete at your best means considering a number of key factors:

- ◆ Make up a competition day nutrient planning timeline.
- ◆ Start with breakfast and take into consideration any opportunity for ingestion, digestion and activity.
- ◆ Expect the unexpected.
- ◆ Plan for the worst-case scenario.
- ◆ Ensure you have access to foods and liquids.

**If there is a delay before you compete, food and liquids won't do you much good back in the locker room, on the bus, or up in the stadium seats with your parents.**

## SUGGESTED FOOD CHOICES

Before exercising:

- ◆ have a carbohydrate-rich meal or snack 2-4 hours before exercise
- ◆ Include a small amount of fast protein 4-6 ounces (whey) but not too much.

In a tournament situation this may not always be practical. The breaks between events may not be long enough for a meal or large snack to be digested. You do not want too much food in your stomach and upper intestines, as this requires blood flow that will prevent it from being shunted to the extremities and working muscles. Plan to “graze” throughout the day on lots of small nutritious snack foods. Individual tolerance varies however, use the following as a guide:

Time Before Exercise

3-4 hours

### Suggestions:

- ◆ PB & J + Glucose Sport drink,
- ◆ Baked potato with cheese filling + Fruit Juice
- ◆ Honey on toast
- ◆ Breakfast cereal with milk
- ◆ Bread with banana
- ◆ Fruit salad with fruit-flavored yogurt
- ◆ Pasta or rice with a low-fat sauce
- ◆ Yogurt with granola
- ◆ Non acidic fruit (Peaches, Pears)
- ◆ Milk shake or fruit smoothie
- ◆ Sports bar (check labels for carbohydrate and protein content)
- ◆ Cereal bars
- ◆ Fig bars
- ◆ Fruit gummies
- ◆ Dried fruit
- ◆ Raisins
- ◆ Sports drink
- ◆ Carbohydrate gel



**Maintain proper blood sugar:**  
***You need glucose (comes from carbohydrates),***  
**Not sucralose (comes from sweets)**

**WARNING:** In rare cases, people experience an extreme reaction following the intake of carbohydrate in the hour prior to exercise., please plan accordingly to your individual needs

To avoid being hungry during a long tournament, plan for a larger snack or small meal at a strategic time, such as the longest expected break. Practice your competition eating strategies in training so that you can be confident of avoiding stomach upsets on the day.





## CHALLENGES WITH FOOD AVAILABILITY

Typically sporting venues provide a limited selection of foods and fluids, many not be conducive to athletic diet or nutrition. Try to find out in advance, what will be on offer to avoid any voids on the competition day.

The safest option is to take your own food supplies:

- ◆ Consider food freshness, refrigeration needs and perishability.
- ◆ Fragile food such as sandwiches and fruit should be kept cool and in a protective container – no one likes a warm, soggy sandwich or a squashed banana!

Robust food options that can be stored at environmental temperature include:

- |                       |                 |
|-----------------------|-----------------|
| ◆ sports bars         | ◆ fig bars      |
| ◆ sports bars         | ◆ cereal bars   |
| ◆ Raisin Bread        | ◆ dried fruit   |
| ◆ Scones              | ◆ canned fruit  |
| ◆ sport bars and gels | ◆ rice cakes    |
| ◆ Raisins             | ◆ fruit gummies |

**Flavor fatigue your exercising muscles aren't the only things that get tired, vary your food selection!**

It's always a good idea to pack a variety of foods and always pack a bit extra. You may change your mind about what you want or you may need To plan to include some salty foods in your tournament eating pattern but not too much. Options include:

- ◆ sandwiches or peanut butter
- ◆ dried biscuits
- ◆ Soup
- ◆ low-fat 2 minute noodles
- ◆ Salted or sweetened peanuts

**Liquid meal supplements empty quickly from your gut, decreasing the likelihood of stomach upset.**

Liquid supplements provide valuable nutrients such as carbohydrate and protein for refueling and recovery between events.

## CHALLENGES WITH HYDRATION

Preventing dehydration is a key to sustained performance, especially when competing for long periods and in multiple events over one or many days.

**For every 2% you dehydrate you lose 10% in performance across all physiological systems. If you lose even minimal body fluids fatigue is on the way!**

Tips for maintaining hydration in tournament situations include:

- ◆ Start exercise well hydrated.
- ◆ Drink plenty of fluids from the time you wake up and keep drinking to a plan all day.
- ◆ Sip, don't gulp!!!
- ◆ Steady drinking throughout the day/night will have you better prepared than drinking large amounts of fluid irregularly.
- ◆ Include carbohydrate-rich beverages such as sports drinks to continually top up carbohydrate stores and maintain fluid balance.
- ◆ "Still" beverages (e.g. sports drinks, water) may be better tolerated than carbonated drinks especially if you are required to compete at short notice.
- ◆ Always have drink bottles handy for regular fluid consumption.
- ◆ Keep fluids cool with ice (**alternatively, freeze drinks the night before allowing them to defrost slowly over the day of competition**).



## **AVOID DEHYDRATION AS A WEIGHT CONTROL MEASURE**

Dehydration reduces every physiological capacity for performance. Weight loss in wrestlers usually occurs in a short period of time and consists primarily of water loss.

**If you lose weight faster than 2-3 pounds per week, you are likely losing water (and perhaps muscle tissue).**

Unfortunately, when you rehydrate after weigh-in, your body absorbs water at a relatively slow rate: only about 2 pints per hour and it takes up to 48 hours for the water balance in your tissues to be restored. The ill effects of dehydration include:

- ◆ decrease in muscular strength and endurance
- ◆ decrease in blood flow to muscle tissues
- ◆ impaired ability to properly regulate your body temperature.

It is recommended that athletes avoid the following weight loss schemes:

- ◆ Diuretic drugs ("water pills")
- ◆ These drugs can cause disorders in the way your heart and kidneys function.
- ◆ Sitting in a steam room or sauna.
- ◆ Exercise in a plastic suit

**Weight loss through dehydration is strongly discouraged because it can cause rapid dehydration and heat stroke, which may be fatal.**

### **Post weigh in feeding considerations**

- ◆ **4-6 ounces of Whey Protein**
- ◆ **4-6 ounces of Glucose Sport Drink**
- ◆ **Carbohydrate meal, (solid or liquid)**
- ◆ **Non acidic juice**
- ◆ **Banana**
- ◆ **Toast with butter and jelly/honey**
- ◆ **Peaches**

## MAINTAINING IDEAL WEIGHT

Once an appropriate and realistic competition weight has been established and achieved, nutrition emphasis should be on maintaining and stabilizing weight to achieve peak performance.

- ◆ Following the Food Guide Pyramid, choose a training diet that is high in
  - complex carbohydrates (55-60% of total energy)
  - moderate in protein (20%), and low in fat (20-25%).
- ◆ Drink to stay hydrated, and replace sweat lost from exercise.
- ◆ Before a match, consume a high-carbohydrate, easily digested meal. Eat or drink carbohydrates to replenish glycogen after practice or matches.
- ◆ Maintain strength and energy by avoiding weight cycling or rapid weight loss.
- ◆ Eat small-to-moderate sized meals every 3-4 hours to help maintain steady glucose levels and avoid "crashing."

This will help control appetite and reduce binge eating.

If you train early in the morning you should opt for a light snack about an hour before exercise, some fruit or a cereal bar on the way to training along with some fluid such as sports drink. Make up for your smaller carbohydrate intake by consuming carbohydrate during the event or just after the training session.





### WHAT IF I AM TOO NERVOUS TO EAT?

You will perform better when you are well-fuelled and well hydrated. Experiment to find a routine that works and foods that are safe and familiar to you. Liquid meal supplements such as Power Bar Protein Plus powder provide an alternative for anyone who has difficulty tolerating solid foods pre-exercise. You may also find that foods such as cereal bars and sports bars can be eaten if you nibble them slowly over the hours leading up to your competition.

### SHOULD I AVOID CARBOHYDRATE 1 HOUR BEFORE EXERCISE?

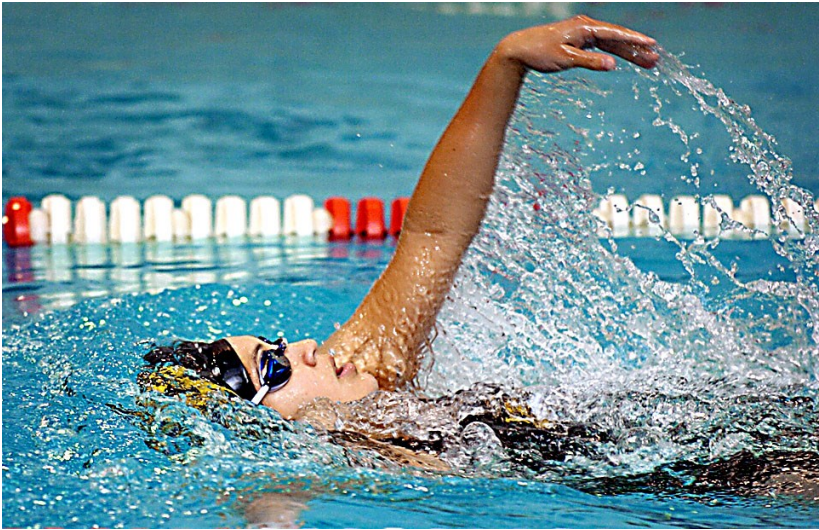
Most athletes are able to consume carbohydrate in the hour before exercise without affecting performance, and in some cases it can even improve the outcome of the session. However, a small percentage of athletes experience a drop in blood glucose levels and symptoms such as fatigue, shakiness and dizziness after consuming carbohydrate immediately before exercise. This reaction is a response to the increase in carbohydrate use that occurs after carbohydrate intake, associated with a rise in the levels of the hormone, insulin

### WHAT ARE THE PRIORITIES FOR RECOVERY NUTRITION?

Recovery is a challenge for athletes who are undertaking two or more sessions each day, training for prolonged periods, or competing in a program that involves multiple events. **Between each work-out, the body needs to adapt to the physiological stress.** Correct planning of the workload and the recovery time, adaptation allows the body to become fitter, stronger and faster.

## **MULTIPLE COMPETITIONS OR ALL DAY NUTRITIONAL REQUIREMENTS**

Many athletes are competing at levels which may require multiple competitions in one day or over the course of several days. This is very difficult for many to maintain good nutritional status for a prolonged time line. It is critical to have a good plan or random performance sets in, based on random energy levels available from nutritional deficits.



### Practical Example : Swim Meet

7:00 am	Breakfast Cereal + Lowfat Mil + Clice of Toast with Jam
9:00 am	<b>Warm up</b> and Race 50 m freestyle heats; Drink at least 1 cup of Glucose based sport drink and water in the half hour before race
10:00 am	<b>Break</b> Fruit Smoothie/ Banana + Water and Sports Drink
11:00 am	<b>Warm up</b> and race 50 m Backstroke
11:30 am	<b>Recovery</b> , warm up and race 50m freestyle final
Lunch	PowerBar, Ham sandwich + fruit raisins, pineapple
1:30 pm	<b>Warm up</b> and race 100 m medley
3:00 pm	<b>Break</b> Power Bar or Cereal bar + sports drink
4:00 pm	<b>Warm up</b> and race 4X50 m freestyle relay Remember fluids between races.
4:30 pm	<b>Recovery</b> , warm up and race 4X50 m medley relay Don't forget post-race recovery nutrition regimen. Fig bars and Sports drinks will help to replenish carbohydrate until you get home for dinner
6:00 pm	<b>Dinner</b> Chicken + rice Whey Protein /real meal

Preparing for a competition or tournament involves putting the basics of sports nutrition into practice. Planning ahead will help you have a successful competition and avoid food-related stresses on the day(s) of competition. Don't forget fluids as part of your plan!

**Every 2% dehydration will decrease capacity outputs 10%**

## IMMEDIATE TIMING OF NUTRITIONAL RECOVERY

\*\*\*\*\*READ THIS CAREFULLY\*\*\*\*\*

- ◆ As soon as you finish training or competing you need to refuel your energy depleted muscles.
- ◆ Without reloaded muscles optimal performance is compromised.
- ◆ There is a very important timing and nutritional window for recovery to take place
- ◆ recovery nutrition is a huge factor in determining if training effect has taken place or not.

**If you wait after training to take in nutrients there is lost training effect.**

Athletes in these landmark studies that failed to take in any nutrients immediately after training

- ◆ ended up losing the majority of training effect in muscle
- ◆ experienced significant increases in intra muscular damage

While the group that took in nutrients had huge gains in muscle strength, Muscle fiber size, actual muscle size (hypertrophy), and **minimized muscle damage by as much as 83%.**





The three steps described in the table below work together. Skipping a step will reduce the impact of your training.

**Maximize your potential within 5 minutes of your workout**

	Action- Repair muscles:	Suggestion:	Reason
Step 1	Release insulin	Drink 4-6oz of Gatorade or fruit punch	Start the refueling process
Step 2	Take in Liquid Protein	Drink 12-16oz of lowfat chocolate milk	Optimize training effect
Step 3	Take in 75g of Carbohydrates	Eat 2 handfuls of raisins or 2-3 fig bars	Gain conditioning

An additional 150g of Carbs (at a minimum ) must be consumed within the next hour which would be part of an actual meal.

**If you wait to take any nutrients in after training, your workout can all be for nothing.**

## FAST PROTEIN AND QUICK MUSCLE RECOVERY

Consuming a liquid form of protein like a whey protein shake or chocolate milk post- workout maximizes training effect, minimizes muscle damage and helps your muscles recover faster.

**Lowfat chocolate milk helps the body to recover after workouts by building up the levels of protein in the muscles.**



While many athletes only take protein after a workout, combining carbohydrates with a post workout whey protein shake yields better results than a protein shake alone. This is why we suggest including 75g of carbs as part of the post training nutritional recovery regiment.

Besides powdered mixes from a canister, whey protein can often be found in a variety of other sources. These sources:

- ◆ Yogurt
- ◆ Energy Bars
- ◆ Dairy based beverage

These are quick and convenient snacks that provide exceptional dietary nutrition. They are also terrific snacks to get you through the day because whey protein provides a feeling of fullness.



**The following table provides ideas for snacks providing carbohydrate, as well as carbohydrate-protein combinations.**

<b>CARBOHYDRATE(CHO)-RECOVERY SNACKS</b>	<b>CARBOHYDRATE-PROTEIN SNACKS</b>
700-800ml sports drink	250-300ml liquid meal supplement
60-70g packet jelly beans	1-2 sports bars (check labels for carbohydrate and protein content)
slices toast/bread with jam or honey or banana topping	1 large or 2 small cereal bars + 200g carton fruit-flavored yogurt
3 fig bars (80g)	1 bread roll with cheese/meat filling + large banana
1 cup vegetable soup + large roll	2 crumpets with thick spread peanut butter + 200ml low-fat milk
300g rice	250-300ml milk shake or fruit smoothie
100g pancakes (2 stack) + 30g syrup	1 large bowl (2 cups) breakfast cereal with milk
2 sports gels	220g 3 slices of toast
500ml fruit juice or sport drink	300g (bowl) fruit salad with 200g fruit-flavored yoghurt
300ml carbohydrate loader drink	300g (large) baked potato + cheese filling + glass of milk
2 cereal bars	
115g (1 large or 2 small) American muffins, fruit buns or scones	
300g (large) baked potato filling	

It is important for athletes to avoid the common restrictive eating patterns prior to competition, followed by binge eating afterwards. This pattern is detrimental both to athletic performance and psychological well-being.

**Athletes who are in tune with their body needs are much more likely to be successful and enjoy competing to its full potential**

These are given suggestions for nutrition that can help you have more energy and be a better athlete...

The rest is mostly up to you! Unlock your potential with **POWER BACK DIET NUTRITION.**



# Life *of an* Athlete

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