JUMPSTART
GOLF NUTRITION

WAKE UP GOLF

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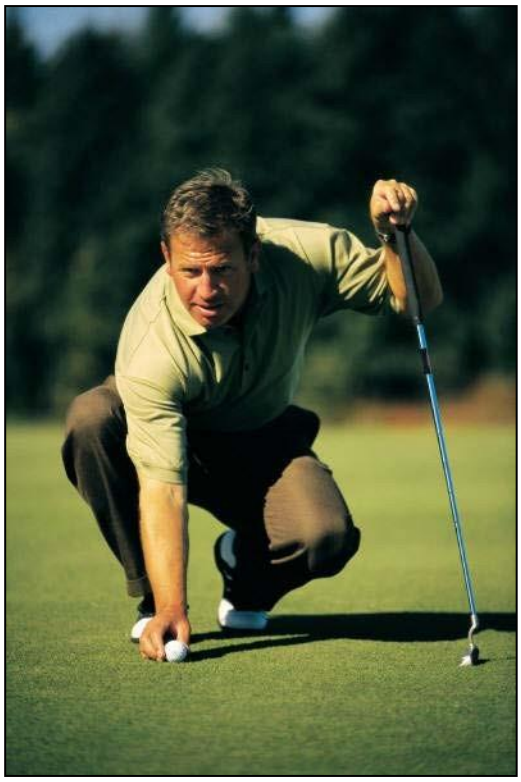
http://www.wakeupgolf.com

Introduction

Importance of Nutrition in Golf

Overall nutrition



It goes without saying that proper nutrition is important for all of us. But, if you are serious about shaving valuable strokes off your scorecard, you need to make some tough decisions on seeing your diet through.

If you travel for golf, or play competitively, it is important not to fall into the trap of 'settling' for fast food or a quick bag of chips or chocolate bar.

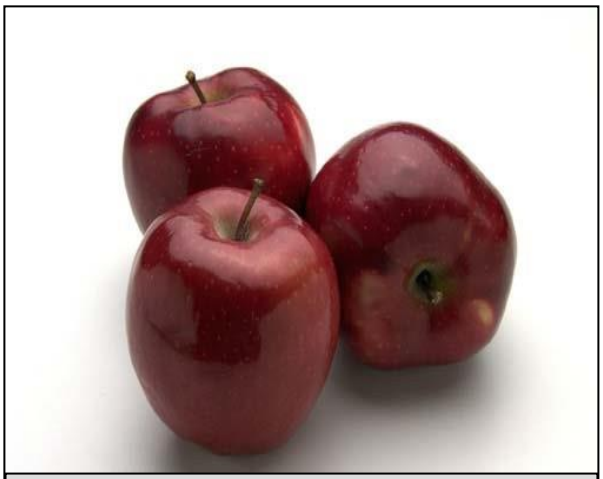
You need to be committed to your diet each and every step of the way to make sure you are getting the nutrients you need.

Make a commitment to a diet full of carbohydrates, proteins and fats along with a wealth of water and watch your score start to drop!

This book is designed to provide golfers of all levels the knowledge passed on to the top professionals on nutritional strategies that produce champions.

The role of carbohydrates in golf

Carbohydrates are the fuel your body needs to compete. They are broken down into the sugars your body needs to maintain energy levels that allow you to continue your activity.



Apples are an excellent sustained energy food to use on the golf course.

There are two types of carbohydrates your body breaks down as energy: simple and complex. All carbs are made of the same three elements: carbon, hydrogen and oxygen. To form different types of carbohydrates, the elements are arranged in a different order. Simple carbs have a very simple chemical structure, while complex carbs are, exactly as the name implies, more complex! Since they're both made of the same elements, the big difference is in how they're digested. Simple carbs are digested more quickly, and complex carbs take longer because of their more complex structure.

The simplest form of carbohydrate is glucose, or blood sugar. Simple sugars that are found in foods include sucrose (table sugar), fructose (fruit sugar), and lactose (milk sugar). So foods that contain primarily these simpler forms of carbohydrate are known as simple carbs: white sugar, brown sugar, confectioner's sugar, corn syrup, honey, maple syrup, high-fructose corn syrup, molasses. You should also include fruit juice, milk, yogurt, candy, cookies and pastries in the simple carb listing, because they're made primarily from sugar.

Complex carbs typically contain more fiber, and have a more complex chemical structure that takes longer to digest. "Starch" is the common term for complex carbs. Examples are breads, cereals, crackers, rice, pasta, potatoes, corn, peas, lima beans and legumes like chickpeas, garbanzo beans, kidney beans and lentils.

Complex carbohydrates are the type of carbohydrates that an athlete needs to maintain physical activity over an extended period of time. Simple carbs are broken down quickly and absorbed into the bloodstream much faster giving you that quick energy boost over a short period of time.

Another big difference between complex and simple carbohydrates is the number of important vitamins and minerals they contain. Complex carbs contain the nutrients to keep your body healthy and happy, while simple carbs tend to contain more sugar. Some fruits are simple carbs, however they do still contain nutrients that your body needs.

As a golfer, especially if you are of a championship caliber, it is essential to have a wide variety of complex carbohydrates to maintain your energy through an 18-hole match or a 72-hole tournament.

Complex carbs replenish the glycogen stores in your liver and your muscles, and the glycogen stores in your liver are what your brain uses as its primary energy source. While golf is a physically demanding anaerobic activity, you will always hear people talk about the game being as equally taxing on the mental side.

Mentally your brain needs to stay conditioned to tell your body what to do, not to mention calculating distances, swing strength and maintaining focus. This is another reason why eating complex carbohydrates is important for your golf game.

We mentioned that golf is primarily an anaerobic exercise. Anaerobic exercise can be summed up as “without oxygen.” It relies more heavily on the increased activity of muscles and the oxygen they need to be effective. It is typically done in quick bursts with longer periods of rest in between. Fat needs oxygen to burn completely, so when you are increasing your heart rate and your breathing from walking down a 540-yard par 5, your muscles start taking the oxygen from the bloodstream used to burn the fat cells, and start burning carbohydrates instead. As your level of activity increases, the percentage of energy derived from carbohydrates increases.

This is why carbohydrates are an important source of energy. Your body needs to be able to access the energy it requires to make sure the muscles function the way they are supposed to.

The Glycemic Index (GI)

The glycemic index gives certain carbohydrates a ranking on a scale from 1 to 100 based on the blood sugar level after the food ingested. High GI foods are digested quicker and cause rapid fluctuation of blood sugar levels. Low GI foods are digested slowly, and the sugars are released slowly, stabilizing blood sugar levels.

GI foods are those that have measurable carbohydrates. Low GI foods typically have a rating of 55 or less – while high GI foods are 70 or more.

Pure glucose is given a value of 100 while other foods are given an index number representing its relative effect on blood glucose levels. For example, sweet corn is assigned an index number of 55 which means sweet corn raises blood glucose levels 55 percent as much as pure glucose. In general, foods below 55 are considered low glycemic index foods, 55-70 represents mid-glycemic index foods and over 70 are considered high glycemic foods.

Only 400 foods have a GI level assigned to it.

For the golfer, low GI foods are preferred before and during a golf game. High GI foods are recommended after your game to replenish the glycogen stores in your muscles.

Foods with a low GI level:	Foods with a high GI level:
• Legumes / beans • Whole wheat • Grapefruit • Oranges • Avocados • Broccoli • Milk • Nuts	• Raisins • Bananas • Carrots • Rice • Pineapple • Muffins • Dates • Mashed potatoes

Glycemic Index Range		
Low – 55 or less	Medium – 56 –69	High – 70 or more

The balanced diet for golfers

Golfers combine endurance and spurts of power, so it is important for them to plan their nutritional intake based on three energy demands – Immediate, Mid-Distance and Endurance.

- **Immediate –** This is the type of energy you need for quick explosive strength – or short, maximum exertion. This type of energy does not use oxygen to create energy; rather it uses adenosine triphosphate (ATP) and creatine phosphate (CP). The CP is produced by the body and then broken down by the body's enzymes to regenerate ATP. When the ATP is broken down, it triggers a rush of energy and muscle contraction.

- **Mid Distance –** Repeated near-maximum exertion describes the level of activity of mid-distance. In mid-distance, the body turns to glycogen as its energy source. Glycogen, as mentioned earlier, is stored in the liver and muscles and converted to glucose when needed to produce energy.

- **Endurance –** Endurance athletes gain their energy from the oxidization of fatty acids, protein and glucose – all that generate energy.

Oxygen is needed to break these down and provide a lasting energy source for the endurance athlete. Getting enough oxygen is critical to ensure long-term energy is available.

Energy Demands For Golf (percent)

	Immediate	Mid-Distance	Endurance
18 holes	40	50	10
36 holes	50	40	10

Since the golfer has a combination of immediate, mid-distance and endurance energy requirements, a balanced diet is important to ensure all of those needs are met. You need to make sure your intake of carbohydrates and proteins are adequate, while making sure your overall fat intake is low. Since anaerobic exercise doesn't convert fat cells to energy, they end up being stored as body fat. Also, reducing the body fat in your diet will help you retain minerals that may be lost due to frequent urination when body fat is stored.

If any one of your energy sources are low or you have depleted them through long-term activity, your body experiences muscle fatigue. As a golfer, muscle fatigue results in lost shots by allowing muscle memory to slide, and strength to be lost. You may leave your shot 10 yards short, or you may not be able to generate the spin you want, because there is not enough force exerted on the ball.

During the season, making sure carbohydrates are consumed is important. They not only provide the valuable energy needed to continue performing at optimum levels, but they are necessary to refill glycogen stores before your next match or training session. If you don't maintain glycogen stores while

playing or training, your body will begin to break down muscle tissue for energy. That defeats the purpose of proper training and nutrition.

Another thing to consider while building your nutrition schedule for golf, is consuming a variety of different foods. People can often become routine with the same bowl of Corn Flakes and a glass of orange juice for breakfast, instead of adding the nutrition of a grapefruit, whole wheat bread, or a cup of yogurt.

Variety in your diet provides you with the different nutrients and minerals, ensuring you are getting all of your required substances. Many nutritionists suggest the use of a multi-vitamin to supplement the diet of an athlete. It is important for your body to have all essential nutrients, and a multi-vitamin is a great way for you to get an added measure of nutrition.

Supplementation Guidelines

Recommended Nutrients in Ranges of Intake for Golf

Vitamins	Range of Intake
Vitamin A (retinyl palmitate)	8,000 - 16,000 IU<
Beta-carotene	15,000-30,000 IU
Vitamin B1 (thiamine HIC)	40-120 mg
Vitamin B2 (riboflavin)	40-120 mg
Vitamin B3 (niacin)	20-40 mg
Vitamin B5 (pantothenic acid)	20-100 mg
Vitamin B6 (pyridoxine HIC)	20-80 mg
Vitamin B12 (cyanocobalamin triturate)	12-120 mcg
Biotin	125-175 mcg
Folate	400-800 mcg
Vitamin C	800-2,000 mg
(coated ascorbic acid/ calcuim ascorbate/ascorbyl palmaitate)	
Vitamin D (colecalciferol)	400-800 IU
Vitamin E (d-alpha tocopheryl succinate)	200-800 IU
Vitamin K	60-160 mcg
Minerals	
Boron	2-8 mcg
Calcium (kreb's cycle chelate/ascorbate/pantothenate)	800-1,500 mg
Chromium polynicotinate&	200-500 mcg
Copper (Kreb's cycle chelate)	1-4 mcg
odine (potassium iodide)	100-200 mcg
Iron	15-50 mcg
Magnesium (magnesium citrate malate)	250-650 mg
Manganese	12-35 mcg
Molydbenum (sodium molybdate)	100-200 mcg
Phosphorus	150-800 mg
Potassium (potassium malate)	50-1,000 mg
Selenium (selenomethionine)	100-200 mcg
Zinc (L-OptiZinc)	15-50 mg

Hydration

Often underestimated, maintaining proper hydration is absolutely essential for any athlete – especially golfers. Golf is typically played in the heat of summer, so making sure you have you have plenty of water on the course will help you eliminate several potential problems associated with dehydration.

- Dehydration can result in memory lapse, lightheadedness, difficulty breathing and headaches.

- Golfers need to rely on water to ensure that their mental capacity is at an optimal level. A lack of water short-circuits the brain.

- Excess water loss through perspiration if not replenished will speed up physical fatigue.

- Drink mineral water or purified water with added electrolytes. Note: Bottled water is not always healthy. You need contaminant-free water, and you can find out which bottlers have contaminant-free water by going to www.nrdc.org.

- Sports drinks with electrolytes are also a good drink. Be wary of sports drinks with sugar added, as they will give you a quick boost of energy (simple carb) but cause fatigue within an hour or two.

- Water is essential in maintaining strong and healthy muscles. Our muscles are over 75 per cent water; so proper fluid replenishing is vital.

Too many golfers wait until they are thirsty to take a quick drink from the water bottle. This is too late. Besides quenching our thirst, water transports the valuable nutrients that encourage our muscles to keep working and to continue the combustion of glycogen in our bodies.

A golfer should have a large glass of water prior to starting their round, and constantly replenish the stores every two to three holes. If you don't make sure your water consumption is maintained, concentration and overall mental function is compromised. At 1% dehydration, a golfer's body temperature is increased. At 3%, performance is impaired.

Follow these suggestions for optimal performance:

- Drink about eight, eight ounce glasses per day for the two weeks leading up to an event.
- About two hours before play, drink 16 to 20 ounces of water.
- 15 to 30 minutes before play, drink 6 to16 ounces of water.
- During the round, drink 3 to 7 ounces of water every 15 to 20 minutes or two to three holes.

Even small water losses can hinder your performance on the links! While coffee, soft drinks, teas, or alcohol are consumed regularly by golfers, they are considered diuretics and allow important fluids to be lost through urination and perspiration.

In-season Nutrition Program

We have already proven the need for a good nutrition program, but how do you apply it during the season? For a long time, golfers had been neglecting their diets, but today, more professional golfers are turning to a healthy lifestyle to help bring home a healthy paycheck.

Eating a balanced diet will help your body and your mind operate at peak performance whenever called upon.

It is crucial to maintain a steady commitment to the diet program, and incorporate it into your training schedule. You can condition your body to fend off fatigue by ensuring it has the energy stores it needs to keeps your muscles and your mind on the same page. Providing carbohydrates to build up the glycogen stores in your muscles and liver will make sure you have enough energy to compete.

Balanced Diet For Golfers

- **55 to 60% from carbohydrates**
- **15-20% from fats**
- **20-25% from proteins**
- **Make sure you are drinking lots of water!**

Training must also be taken into consideration and treated similarly as far as preparing your diet. A golfer can spend up to 8 hours a day hitting balls on the range, or spinning the wheels on a bike, maybe even doing some weight training. You need nutrients for it all, whether you are playing for a paycheck or just preparing.

Setting up your diet

Use the glycemic index and start setting up a diet for your day. Remember you want to consume primarily complex carbohydrates to keep your

glycogen stores up. Slow release carbs, or complex carbs are important to eat at every meal, to ensure that there are always adequate blood sugar levels in your body to provide the energy.

Another way to help keep a constant blood sugar level is to split your meals into five or six smaller meals instead of three square meals a day. This will also ensure you maintain your glycogen stores for when you exert yourself physically on the golf course or the gym.

Remember -- always consume fluids during your round or during training. Lack of fluids will result in mental and physical fatigue.

For lunch, another dose of complex carbs will continue to give you the energy you need to complete the second half of your round or the afternoon of your training. Healthy snacks are also an integral part of your diet. It is a good way to help split your meals and maintain energy levels.

Here are a few good snack ideas for on the course or while you are training:

Sustained energy snacks

- Apples, grapes, plums, pears, cherries
- Peanuts
- Granola
- Dark flour bread or muffins
- Yogurt
- Energy bars

Quick energy snacks

- Raisins, bananas, pineapple, watermelon
- Rice or rice cakes
- Carrots

- Honey
- Fast-release energy bars

While a balanced diet gives you the nutrients you need to stay competitive, you also need to be conscious of the types of things to avoid during your golf season. So many of our so-called snack foods or social drinks are not conducive to peak performance.

Things to avoid during the season:

- A golfer should avoid caffeine and alcohol. Both of these are diuretics and cause fluid loss. They also both affect performance. Coffee can over stimulate your mind or your muscles, making your performance uncontrolled. Excessive consumption of alcohol severely affects your coordination. Alcohol has also been linked to the interference of recovering carbohydrates stored in your body for energy.

- Avoid large amounts of food in the two hours leading up to tee time. Food in your digestive system diverts blood away from your brain and muscles, affecting concentration and physical performance. A meal two to three hours before play is preferred.

- Don’t skip meals. This will also reduce the metabolic breakdown of your glycogen and slow the release of energy for your body. Smaller meals are better to help increase metabolism.

Many golfers will be on tour and that can involve international travel. It can be a problem meeting the nutritional needs you have set out in your diet. It might be worthwhile to do a little bit of scouting ahead of time to find accommodations that can work around the nutritional needs you have.

A good idea is to find a place to stay where you can prepare your own meals. A place with a kitchenette gives you the flexibility to not only keep your meal cost down, but you can be sure to eat the foods you want to perform your best.

Make sure you have an ample supply of snacks while on the course to help you when your energy stores are down. A bunch of handy snacks are cereal bars, sports, drinks or nuts are good and easy snacks to have in your golf bag.

The following is an idea for a day's meal in order to maximize your complex carbohydrate while providing balance to your meals.

Breakfast:

Raspberry oatmeal
with peanut butter toast
Fruit cup
Non-fat milk

Lunch:

Turkey sub on whole wheat
Apple
Ice Tea

Dinner:

Chili with beans and rice
Garden Salad
Large glass of water
Mixed berries

Snacks:

Apple Stuffed with Soy Nut Butter
Saltine Crackers with Soy Nut Butter
Peanut Butter Wrap with Grapes (or sliced banana)
Nuts

You can research different combinations to meet your nutritional needs and your preferred taste.

Following a particular diet on the day of a tournament should include the following. Before the game, eat foods that will give you sustained energy. Apples, grapes, pears, breakfast cereal, or energy bars.

During your golf match or at the 9th hole turn, you can eat foods like bananas, dates, raisins or energy bars to rebuild glycogen stores that have been lost during the expenditure of energy on the course.

After your game, it is important to quickly replace any lost glycogen stores and replenish your fluids. A chocolate bar could be a good start to quickly

regaining glycogen, but a healthier alternative would be trail mix with dried fruit, fig newtons, or you could drink a sports drink.

Choosing a proper meal plan during the season can be the difference between winning and losing, or petering out at the 16th hole or making it through to 18. Pay attention to what you eat and it will benefit you in the end.

Off-season Nutrition

Even though you aren't on tour and maybe not practicing everyday, you still need to pay close attention to your diet. Loss of muscles due to lack of protein, or increase in body fat because of increased calories can make the road back when the season starts a little more difficult.

What many golfers try to achieve in the off-season is get in better aerobic shape and develop muscle tone and lose body fat.

Losing body fat or fighting it off during the off-season can be a challenge, but here are a few tips to help you keep the extra pounds from leaving you behind in the upcoming season.

- Eat less than your body can burn off in a day. Don't starve your body to the point it starts dissolving muscle tissue to create energy.

- To keep your metabolism high, maintain your pace of five to six meals per day.

- Consume balanced meals to most effectively manage blood sugar levels.

- Become aware of meal timing. Keep portion sizes relatively equal so you don't end up with a 300 calorie breakfast and an 800 calorie dinner.

- Keep your fluid levels up. It makes your mind sharp and your muscles tuned, even during the off-season.

- Write down what you eat and when. A food diary can aide in evaluating your strengths and weaknesses as well as opportunities to improve your nutrition plan.

- Read food labels. If you don't know what you're putting in your body, it's difficult to know where you're at and how best to improve.

- Exercise consistently. It's the secret to maintaining a lean physique.

Nutrition is extremely important during the off-season, but of equal importance is an exercise program. An athlete needs to keep his muscles tuned up for the next season, or the road back could be a steep uphill battle.

Maintaining muscles tone and flexibility during the off-season is one of the most important aspects of your physical training program. You need to concentrate on the hips, torso, wrists and back muscles. These need to stay in condition over the course of an entire season - including when you are off – or you will find your progress in the upcoming season slowed because of the need to re-emphasize physical fitness at the beginning of the year.

Weight training has become something golfers are taking more seriously every year. It has become more prevalent with the top golfers in the world, to keep their body in tune even during the offseason. Take Tiger Woods for example. He spends an inordinate amount of time making sure his body is primed to play golf – at any time of the year.

Dedicate some time to physical fitness including building stamina through cardiovascular activities and weight training to promote more functional golf strength. Be sure to take the time to stretch regularly to keep your body flexible and capable of achieving a full range of motion in your joints.

Nutrition serves to compliment all of the hard work you put in with practice, play and physical preparation. In the absence of sound nutrition, it's very difficult to achieve a reduction in body fat levels.

One last thing… when you are unable to physically practice your golf game, practice it mentally. Your mind needs to stay sharp, too.

Tournament Nutrition

So, you are preparing to play in a weekend tournament of 54 holes. You are going to be up against other golfers, not only mentally, but also physically. Your commitment to nutrition will come through on the fairways and greens and lift you above the competition.

You must be able to maintain your physical skills and concentration for three to five hours at a time, depending on how you play and how those around you are playing as well. If you start experiencing fatigue, you can expect your shot making and concentration to wane as well. Low blood sugar and/or dehydration may be the main culprits.

If the tournament is played over several days, you may fall victim to a compounded condition of lack of energy and dehydration, almost ensuring a poor tournament.

You can avoid all of this by following a simple diet plan for the weekend.

You want your morning meal to be packed with complex carbohydrates. You want them to breakdown slowly to make sure you have a constant flow of glycogen to your liver and muscles. Lunch looks much the same, but with a little more variety in your foods. Plus, you can add a couple of quick hit foods like a banana or iced tea along with a meal of complex carbs. Suppertime is

the time of day you need to do your best to replenish simple and complex carbs. Of course, you need to make sure you are keeping fluid levels high either with water or an electrolyte-added sports drink.
A good plan for each of the three days for breakfast would be as follows.

- **Breakfast –** Whole grain waffles with a touch of maple syrup, nuts and low-fat milk. You can also substitute the waffles with un-sweetened cereal, or oatmeal. These are all complex carbs that are full of nutrients. Add a couple of fruits and a large glass of water and you are set to begin your day.

- **Fluids are important –** Never let yourself become thirsty. As we mentioned before, if you feel thirsty, it is probably already too late. It is important to take two or three fluid ounces every hole, or at least every other hole. This is a must, because a lack of fluid will cause havoc on your mental capacity.

- **Snack it up –** Now would be a great time to open a pack of raisins, or bite an apple or take a drink or two of a sport drink. You will continue to maintain your glucose levels in the short term while breaking down the complex carb (apple) to tide you over until lunch. Take this break around the fifth hole.

- **Lunch -** You may not have a lot of time but a quick and healthy sandwich is a great way to replenish your body with much needed carbohydrates. A submarine sandwich, bean burrito, or if you have time a grilled chicken sandwich (all using whole wheat breads or pitas) will get you on the right track for the back nine. It is important not to overeat here, because it is a natural time for your body to slow down before it gets recharged shortly after lunch. Other good meals are a garden salad, an egg-salad sandwich on whole wheat, and a citrus fruit like an orange or grapefruit. Add a large glass of cool water to replenish any lost fluid.
- **Time to snack again –** Once you have hit the 14th hole and you can see the finish line ahead of you, it's time to make sure your energy levels can take you through to the finish. Grapes, peanuts, fruit cup and even trail mix with dried fruit make great snacks to get you to the finish line in first place. After a long day on the links, likely in hot, or humid weather

get your fluids in you. This will be crucial for the final holes. You can't afford a mistake, and without proper fluids a mistake on a shot is imminent. Take a drink and continue small drinks for the final five holes.

- **Ahhhh… Dinner! –** You have finished a long day on the course and it is time to make sure you replace your spent glycogen storage. How about a pasta meal? Pizza with vegetables? Grilled salmon? Anything that will replace both your immediate glycogen storage and your complex carbohydrates. Fluids are important. How you choose to eat at night, will affect how you awake in the morning. Make sure whatever you choose for dinner, you don't indulge, and you eat a balanced meal. You need the nutrients lost through your exertion during the day.

For each meal, make sure you eat a variety of foods related to the way you want to eat. There are numerous complex carbs to choose from at each meal. By changing the foods you eat you give yourself the opportunity to fill up on all of the nutrients your have been expending throughout the tournament.

During tournament play, as enticing as it might be to grab an after dinner beer, try and steer clear. One lager won't hurt you, but keep in mind it can affect rehydration and the glycogen production that evening. Coffee and tea should also be avoided, unless they are decaffeinated.

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For those that want to alter their diet to take into account muscle gain or fat loss, here is the information you need.

HOW TO COUNT CALORIES

Do calories matter?

Ask a bodybuilder just before he walks on stage if he thinks calories matter.

Ask a woman who has been overweight for years, but is 5 pounds away from fitting in the bikini of her dreams if she thinks that calories matter.

Ask a friend who is overweight and complains that she can't seem to lose weight despite all of her efforts if counting calories might make a difference.

The truth is not everyone wants to count calories and for good reason. It can feel overwhelming and tedious. And, you don't have to count calories to lose weight. You can follow a program that has the calories already accounted for and simply follow it. You can also learn how to consume foods and drinks that are super low in calories so it is hard to overeat, no matter how hard you try.

You can make a weight loss or muscle gain program work for you whether you count calories or not. It really depends on what timeframe you are working with and what specific goals you want to accomplish, right?

And, whether you do or not is entirely up to you. In either case, it is important to know how to count calories if you ever want to trouble shoot your diet or you're faced with a strict timeline where every calorie counts.

Most people know that eating less calories than your body expends is the secret to fat loss. That's the plain and simple truth about losing weight.

So, let's talk about a few things you likely don't know.

First, many people believe you do not need to weigh and measure your food to be successful at weight loss. On the other hand, if you have absolutely no idea at all how much you are taking in daily, then how can you know for certain you are creating a caloric deficit?

Did you know there is a simple secret math formula you can use to make sure you are losing weight? Want to know what it is? Grab your phone or calculator and follow along. Keep in mind, there is a different formula for men and women.

Here is how to calculate your specific BMR (basal metabolic rate).

Men:

BMR=66 + (6.23 x weight in pounds) + (12.7 X height in inches) – (6.8 x age in years)

Women:

BMR=655 + (4.35 x weight in pounds) + (4.7 X height in inches) – (4.7 x age in years)

Now, let's take a look at your current activity factor.

Sedentary=multiply BMR x 1.2

Lightly active=multiply BMR x 1.2

Moderately active=multiply BMR x 1.55

Very active=multiply BMR x 1.725

What's your final number? _____

How Math Helps You Shed Fat and Gain Muscle

To shed a pound of fat, you have to consider the body's minimum caloric requirements and your expenditure of them – not only through exercise, but through its basic daily metabolic consumption – in context to the incoming calories from food. The goal is to create a daily caloric deficit that doesn't go anywhere near triggering a starvation response.

To get rid of two pounds of body fat each week, which is a reasonable and healthy goal, you'll need a caloric deficit of about 7000 calories per week (3500 per pound) or, about 1000 calories per day. In other words, you need to burn about 1000 calories more than you consume.

Now, let's say you want to lose 10 lbs. Here is a real life example for you to follow.

Let's meet 'Dave'.

Current weight: 185 lbs.

Goal: 10 lbs. of fat loss

3500 calories in one lb. so he needs to create a deficit of 35,000 calories

Period of time: 10 weeks (this is how long he has to lose the weight because of an upcoming event)

Calories per week: 3500 per week over 10 weeks

Deficit per day: 500 per day

Current BMR = 2500

Now, Dave has three choices:

Choices:

- Food only (subtract 500). This means he is restricting his diet only and is not exercising. However, his food intake is going to be very strict.
- Exercise only (work off 500). This means he is eating exactly what he needs to maintain his current weight (2500 calories) and burning off the rest.
- Exercise and food together (500 total). This means he can choose to exercise moderately and make moderate adjustments to reach his goal.

Most people would choose (C) because they know and understand the importance of exercise and they also want to live a reasonably normal lifestyle without

subjecting themselves to such tight dietary restrictions. (C) is the best, most healthful way to achieve his objective.

For Muscle Gain

Now that you have the hang of the math for losing weight, what about gaining muscle?

The muscle formula is a little different. In order to gain a pound of muscle, we need to increase calories by 2,500. Using the same formula above to find our basal metabolic rate, you would need to increase your caloric count by 2500 above that number to gain 1 pound of muscle.

Let's say you set your goal at 1 pound per week of muscle gain. That would mean you would need to eat 360 calories per day above your typical calories. (360 x 7 days)

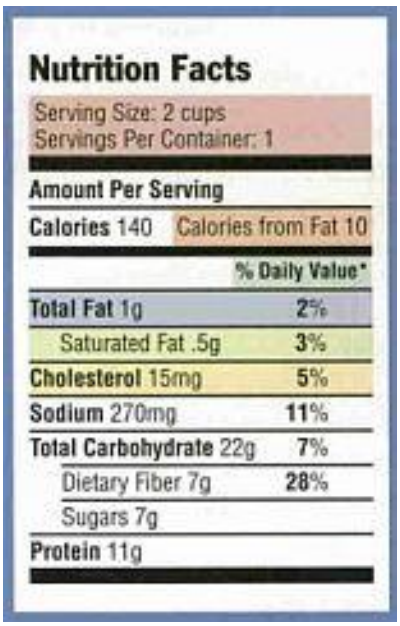
If you're not into math, there is still good news for you. Fortunately, times have changed and technology has brought us many new innovations with apps that allow you to enter what you eat and store a perfect recording of your daily and weekly intake which can be viewed at any time. Many of you may be familiar with apps like MyFitnessPal that helps you report and manage your daily food intake and fitness efforts. Of course, there are many other apps available as well. The important thing is to find the right combination of support tools that help you achieve your goals.

Calories in Food

It's time to take it one step further so you understand the calories in each food you eat. Notice that calories from fat are more than twice as much as the calories from protein and carbohydrates. That is why most weight loss plans say to enjoy good fats 'sparingly'.

Carbohydrates	4 Calories per gram
Proteins	4 Calories per gram
Fats	9 Calories per gram
Alcohol	7 Calories per gram

To learn how to apply this information for everyday use, let's take a look at this sample label.



Nutrition Facts

Serving Size: 2 cups
Servings Per Container: 1

Amount Per Serving

Calories 140 Calories from Fat 10

	% Daily Value*
Total Fat 1g	2%
Saturated Fat .5g	3%
Cholesterol 15mg	5%
Sodium 270mg	11%
Total Carbohydrate 22g	7%
Dietary Fiber 7g	28%
Sugars 7g	
Protein 11g	

We see:

22g carbs (x 4) =88 calories=62%

11g protein(x 4) =44 calories=31%

1g fat (x 9) =9 calories=6%

140 calories per cup

BEST WAY TO BULK

Depending on where your body fat is at and what goals and deadlines you have set, you will either be in a cutting phase or bulking phase. The purpose of a bulking phase is to gain muscle while minimizing any fat gains you may experience due to the extra calories. If you are cutting, then you are trying to lose weight while protecting your hard earned muscle.

For now, let's focus on bulking.

The first thing to keep in mind is that while your goal is to put on extra weight, how the weight shows up is important. So, let's be more specific. The real goal is to learn how to 'clean bulk'. Clean bulking is placing all of the emphasis on gaining lean muscle and as little fat as possible.

While many bodybuilders have learned to stay clear of cardio, it is going to be a vital part of your clean bulking plan. Cardio offers some wonderful benefits during your bulking phase as long as you keep the session's short and high intensity. Long duration cardio is counter-productive as it is muscle wasting. However, short duration cardio can be highly effective at burning any excess fat as you accumulate more calories.

Here are some of the principles of clean bulking:

- Eating with excess calories is not an excuse for overeating. Be careful when adding calories to make sure your meals serve a purpose.
- Eat clean meals every couple of hours and add in complex carbs to increase calories
- Try to eat 5 to 6 small meals to make sure you are hitting your caloric goals
- Keep cardio to a minimum with a few short intense sessions per week

BEST WAY TO CUT

Once you've achieved your muscle gain goals, it's time to start 'cutting'. Remember the goal is to lose weight and get that lean chiseled look without compromising any (or minimal) muscle.

Here are the best ways to begin cutting:

- Start by cutting back on the complex carbs you added in the bulking phase. Keep low glycemic carbs.
- Cut down on your meals with smaller portions even more frequently than before (every 2 to 3 hours)
- Slowly increase your cardio workouts in time and duration.
- Make sure your weight isn't coming off too quickly so you don't jeopardize muscle.

It's time to think about your water intake as well. Once your ending date is in sight, slowly begin cutting back on your hydration about 5 days out. At day 5, drink 2 gallons of water every day. The same for day 4. At day 3, cut that in half to 1 gallon per day. At day 2, bring it down to 2 liters. With 1 day to go, drink 1 liter. Then, on the final day, just take sips as needed.

HOW TO COOK IN BULK

One of the easiest and best ways to stay on an eating program is to shop and cook in bulk. By shopping in bulk, you can take advantage of select grocery store specials and coupon discounts. Since you already know your food plan has lots of lean meats including beef, chicken, and seafood, it is better to buy them in larger quantities for the best savings.

While saving money is always a top priority for most people, it is also a huge timesaver when you have a busy job and hectic schedule. By shopping just once a week or less, you will always have prepared meals available no matter how crazy things become in your life from one week to the next.

Almost every fit person learns how to buy and prepare food in advance. This way your fitness and weight loss goals are not left to chance, but rather carefully monitored through preparation.

Chicken:

• Fill a full-sized crock pot halfway with water

• Add 8 pounds of raw chicken breast

• Cook 8.5 hours on LOW

This makes chicken that literally falls apart and is great for any dish. To add flavor, try liquid smoke or Mrs. Dash seasonings.

For storage, measure out portions, place in a Ziploc baggie, and freeze chicken that is not consumed within 5-7 days.

Freezer life: 1 year

Fish:

• Thaw out 2 pounds of fish

• Preheat oven to 325 degrees

• Line an extra-large cookie sheet with aluminum foil

• Spray cookie sheet with olive oil

• Place fish on cookie sheet

• Cook 15 minutes or until the center flakes

To add flavor, try flavored olive oil, natural herbs, or Mrs. Dash.

For storage, measure out portions, place in a Ziploc baggie, and freeze fish that is not going to be consumed within 5 days.

Freezer life: 6-9 months

Flank Steak:

• Pound out both sides of a 2-3 pound flank steak

• Place in a baking dish

• Add an acidic marinate (red wine, garlic, olive oil, lemon juice and pepper)

• Cover with foil and refrigerate for 8 hours, flipping once to get both sides marinated

• Set oven to BROIL

• Put steak on a broiling pan and don't forget to add a little water to the bottom of the pan

• Broil for 18 minutes

• Let cool and thinly slice against the grain

For storage, measure portions, wrap in foil, and freeze steak that is not consumed within 5-7 days.

Freezer life: 6-8 months

Sweet potatoes:

• Peel the desired amount (usually 4 large potatoes at a time)

• Slice in 1-2 inch pieces with a large knife

• Place in a large microwave-safe bowl

• Cover with saran wrap

• Microwave on the potato setting

• Let stand for 15-20 minutes, covered

• Sprinkle with desired seasoning (I use a cinnamon and Stevia mix)

For storage, measure out portions, place in a Ziploc baggie, and freeze potatoes that will not be consumed within 7 days.

Freezer life: 4-6 months

Note: Only put COOKED sweet potatoes in the fridge. If RAW potatoes are put in the fridge, it will alter the taste.

Asparagus:

- Preheat oven to 475 degrees
- Wash a bundle with cold water for 15 seconds
- Line a large cookie sheet with aluminum foil
- Spray with olive oil
- Line asparagus on the cookie sheet and spray them with olive oil (I like sesame olive oil)
- Top with your favorite seasoning such as garlic, salt and sesame seeds
- Bake for 15 minutes

For storage, measure out portions, wrap in foil, and place asparagus that is not consumed right away in the fridge.

Fridge life: 5 days

Cooking in bulk is a great way to stay on track with ready-made meals.

Storage Times for the Refrigerator and Freezer

Category	Food	Refrigerator (40 °F or below)	Freezer (0 °F or below)
Salads	**Egg, chicken, ham, tuna & macaroni salads**	3 to 5 days	Does not freeze well
Hot dogs	**opened package**	1 week	1 to 2 months
	unopened package	2 weeks	1 to 2 months
Luncheon meat	**opened package or deli sliced**	3 to 5 days	1 to 2 months
	unopened package	2 weeks	1 to 2 months
Bacon & Sausage	**Bacon**	7 days	1 month
	Sausage, raw — from chicken, turkey, pork, beef	1 to 2 days	1 to 2 months
Hamburger & Other Ground Meats	**Hamburger, ground beef, turkey, veal, pork, lamb, & mixtures of them**	1 to 2 days	3 to 4 months
Fresh Beef, Veal, Lamb & Pork	**Steaks**	3 to 5 days	6 to 12 months
	Chops	3 to 5 days	4 to 6 months

	Roasts	3 to 5 days	4 to 12 months
Fresh Poultry	**Chicken or turkey, whole**	1 to 2 days	1 year
	Chicken or turkey, pieces	1 to 2 days	9 months
Soups & Stews	**Vegetable or meat added**	3 to 4 days	2 to 3 months
Leftovers	**Cooked meat or poultry**	3 to 4 days	2 to 6 months
	Chicken nuggets or patties	3 to 4 days	1 to 3 months

Egg Storage Chart

Product	Refrigerator	Freezer
Raw eggs in shell	3 to 5 weeks	Do not freeze. Instead, beat yolks and whites together; then freeze.
Raw egg whites	2 to 4 days	12 months
Raw egg yolks	2 to 4 days	Yolks do not freeze well.
Raw egg accidentally frozen in shell	Use immediately after thawing.	Keep frozen; then refrigerate to thaw.
Hard-cooked eggs	1 week	Do not freeze.

Egg substitutes, liquid *Unopened*	10 days	12 months
Egg substitutes, liquid *Opened*	3 days	Do not freeze.
Egg substitutes, frozen *Unopened*	After thawing, 7 days or refer to “Use-By” date.	12 months
Egg substitutes, frozen *Opened*	After thawing, 3 days or refer to “Use-By” date.	Do not freeze.
Casseroles with eggs	3 to 4 days	After baking, 2 to 3 months.
Eggnog *Commercial*	3 to 5 days	6 months
Eggnog *Homemade*	2 to 4 days	Do not freeze.
Pies Pumpkin or pecan	3 to 4 days	After baking, 1 to 2 months.
Quiche with filling	3 to 4 days	After baking, 1 to 2 months.

The Color of Meat and Poultry

“I've just opened a package of fresh chicken and the skin looks blue. Is it safe to use?”

“My package of ground beef is dark in the center. Is this old meat?”

“The turkey was cooked according to the directions, but the breast meat is pink. Will it make me sick?”

These are just a few of the many questions received at the U.S. Department of Agriculture's Meat and Poultry Hotline concerning the color of meat and poultry.

Color is important when meat and poultry are purchased, stored, and cooked. Often an attractive, bright color is a consideration for the purchase. So, why are there differences in the color and what do they mean? Listed below are some questions and answers to help you understand the color differences.

1. What factors affect the color of meat and poultry?

Myoglobin, a protein, is responsible for the majority of the red color. Myoglobin doesn't circulate in the blood but is fixed in the tissue cells and is purplish in color. When it is mixed with oxygen, it becomes oxymyoglobin and produces a bright red color. The remaining color comes from the hemoglobin which occurs mainly in the circulating blood, but a small amount can be found in the tissues after slaughter.

Color is also influenced by the age of the animal, the species, sex, diet, and even the exercise it gets. The meat from older animals will be darker in color because the myoglobin level increases with age. Exercised muscles are always darker in color, which means the same animal can have variations of color in its muscles.

In addition, the color of meat and poultry can change as it is being stored at retail and in the home (see explanation in question 5). When safely stored in the refrigerator or freezer, color changes are normal for fresh meat and poultry.

2. Does a change in color indicate spoilage?

Change in color alone does not mean the product is spoiled. Color changes are normal for fresh product. With spoilage there can be a change in color—often a fading or darkening. In addition to the color change, the meat or poultry will have an off odor, be sticky or tacky to the touch, or it may be slimy. If meat has developed these characteristics, it should not be used.

3. If the color of meat and poultry changes while frozen, is it safe?

Color changes, while meat and poultry are frozen, occur just as they do in the refrigerator. Fading and darkening, for example, do not affect their safety. These changes are minimized by using freezer-type wrapping and by expelling as much air as possible from the package.

4. What are the white dried patches on frozen meat and poultry?

The white dried patches indicate freezer burn. When meat and poultry have been frozen for an extended period of time or have not been wrapped and sealed properly, this will occur. The product remains safe to eat, but the areas with freezer burn will be dried out and tasteless and can be trimmed away if desired.

THE COLOR OF MEAT

5. When displayed at the grocery store, why is some meat bright red and other meat very dark in color?

Optimum surface color of fresh meat (i.e., cherry-red for beef; dark cherry-red for lamb; grayish-pink for pork; and pale pink for veal) is highly unstable and short-lived. When meat is fresh and protected from contact with air (such as in vacuum packages), it has the purple-red color that comes from myoglobin, one of the two key pigments responsible for the color of meat. When exposed to air, myoglobin forms the pigment, oxymyoglobin, which gives meat a pleasingly cherry-red color. The use of a plastic wrap that allows oxygen to pass through it helps ensure that the cut meats will retain this bright red color. However, exposure to store lighting as well as the continued contact of myoglobin and oxymyoglobin with oxygen leads to the formation of metmyoglobin, a pigment that turns meat brownish-red. This

color change alone does not mean the product is spoiled (see explanation in question 2).

6. Why is pre-packaged ground beef red on the outside and sometimes grayish-brown on the inside?

These color differences do not indicate that the meat is spoiled or old. As discussed earlier, fresh cut meat is purplish in color. Oxygen from the air reacts with meat pigments to form a bright red color which is usually seen on the surface of ground beef purchased in the supermarket. The interior of the meat may be grayish-brown due to the lack of oxygen penetrating below the surface.

7. A beef roast has darkened in the refrigerator, is it safe?

Yes, it is safe. The darkening is due to oxidation, the chemical changes in myoglobin due to the oxygen content. This is a normal change during refrigerator storage.

8. Can cooked ground beef still be pink inside?

Yes, ground beef can be pink inside after it is safely cooked. The pink color can be due to a reaction between the oven heat and myoglobin, which causes a red or pink color. It can also occur when vegetables containing nitrites are cooked along with the meat. Because doneness and safety cannot be judged by color, it is very important to use a food thermometer when cooking ground beef. To be sure all harmful bacteria are destroyed, cook raw ground beef to an internal temperature of 160 °F as measured with a food thermometer.

9. What causes iridescent colors on meats?

Meat contains iron, fat, and other compounds. When light hits a slice of meat, it splits into colors like a rainbow. There are various pigments in meat compounds that can give it an iridescent or greenish cast when exposed to heat and processing. Wrapping the meat in airtight packages and storing it away from light will help prevent this situation. Iridescence does not represent decreased quality or safety of the meat.

10. What causes grayish or green color on cured meats?

Exposure to light and oxygen causes oxidation to take place, which causes the breaking down of color pigments formed during the curing process. Chemicals in the cure and oxygen, as well as energy from ultraviolet and visible light, contribute to both the chemical breakdown and microbial spoilage of the product. Cure, such as nitrite, chemically changes the color of muscle. Curing solutions are colored in order to distinguish them from other ingredients (such as sugar or salt) used in fresh and cured meat products. For example, cured raw pork is gray, but cured cooked pork (e.g., ham) is light pink.

THE COLOR OF POULTRY

11. What is the usual color of raw poultry?

Raw poultry can vary from a bluish-white to yellow. All of these colors are normal and are a direct result of breed, exercise, age, and/or diet. Younger poultry has less fat under the skin, which can cause the bluish cast, and the yellow skin could be a result of marigolds in the feed.

12. What causes the differences in color of raw ground poultry?

Ground poultry varies in color according to the part being ground. Darker pink means more dark meat was used and a lighter pink means more white meat was

included (or skin was included). Ground poultry can contain only muscle meat and skin with attached fat in proportion to the whole bird.

13. What causes dark bones in cooked poultry?

Darkening of bones and meat around the bones occurs primarily in young (6-8 weeks) broiler-fryer chickens. Since the bones have not calcified or hardened completely, pigment from the bone marrow seeps through the bones and into the surrounding area. Freezing can also contribute to this darkening. This is an aesthetic issue and not a safety one. The meat is safe to eat when all parts have reached a safe minimum internal temperature of 165 °F as measured with a food thermometer.

14. What color is safely cooked poultry?

Safely cooked poultry can vary in color from white to pink to tan. For safety when cooking poultry, use a food thermometer to check the internal temperature. For a whole chicken or turkey, check the internal temperature in the innermost part of the thigh and wing and the thickest part of the breast. All the meat—including any that remains pink—is safe to eat as soon as all parts reach at least 165 °F as measured with a food thermometer.

15. Why is some cooked poultry pink?

Chemical changes occur during cooking. Oven gases in a heated gas or electric oven react chemically with hemoglobin in the meat tissues to give it a pink tinge. Often meat of younger birds shows the most pink because their thinner skins permit oven gases to reach the flesh. Older animals have a fat layer under their skin, giving the flesh added protection from the gases. Older poultry may be pink in spots where fat is absent from the skin. Also, nitrates and nitrites, which are often

used as preservatives or may occur naturally in the feed or water supply used, can cause a pink color.

16. If fully cooked smoked poultry is pink, is it safe?

Poultry grilled or smoked outdoors can be pink, even when all parts have attained temperatures well above 165 °F as measured with a food thermometer. There may be a pink-colored rim about one-half inch wide around the outside of the cooked product. Commercially prepared, smoked poultry is usually pink because it is prepared with natural smoke and liquid smoke flavor.