

The *Show and Go* Nutrition Guide

Brian St. Pierre

Copyright 2010 © by Eric Cressey and Brian St. Pierre. All Rights Reserved.

No portion of this manual may be used, reproduced or transmitted in any form or by any means, electronic or mechanical, including fax, photocopy, recording or any information storage and retrieval system by anyone but the purchaser for their own personal use. This manual may not be reproduced in any form without the express written permission of Eric Cressey and Brian St. Pierre, except in the case of a reviewer who wishes to quote brief passages for the sake of a review written for inclusions in a magazine, newspaper, or journal – and these cases require written approval from Eric Cressey and Brian St. Pierre prior to publication.

For more information, please contact:

Cressey Training Systems, LLC
577 Main St.
Suite 150
Hudson, MA 01749

Email: ec@ericccressey.com
Websites: www.EricCressey.com

Disclaimer

The writing and information that follows is not intended for the prevention or treatment of a disease, and should not be used in place of treatment or advice from a qualified medical professional. It is purely a presentation of scientific findings that should be used for informational purposes only. The guidelines set forth are to be pursued only at the sole discretion and risk of the reader. The author assumes no liability for the consequences of dietary changes; this is purely an educational manual.

Introduction

Everyone “knows” what a healthy diet is, right? Well, at least they think they do. The problem is that most people’s idea of a healthy diet involves eating lots of poorly produced food products and “low-fat” or “low-carb” man-made crap that shouldn’t even qualify as food.

You want to improve your health, body composition and performance by consuming a high-quality diet, don’t you? The problem is you don’t even know where to start. You have heard so many mixed messages – low-fat, low-carb, no dairy, no grains, paleo, etc. – that you are left more confused than before!

So what should you actually eat? Hopefully, this nutrition guide will provide you with a lot of answers to that question. To truly maximize your nutrition your focus should mainly be on one thing: consuming real, whole, unprocessed food. It’s as simple as that.

The healthiest of diets are composed of real, whole, unprocessed foods full of high-quality protein, carbohydrates, fats, vegetables, fruits, vitamins, minerals, phytonutrients and antioxidants that provide your body with the raw materials needed to optimize your health, performance and body composition.

I am a firm believer that the quality of food intake plays a tremendous role in determining whether or not you reach your goals. Unfortunately, our bodies do not defy the Laws of Thermodynamics, so total calories do still matter, but they are most certainly not the *sole* factor that many make them out to be.

To me these two aspects of food intake are not mutually exclusive, and in fact I would go so far as to say that the combination of food quality *and* quantity is the real key to your success in achieving the health, body composition and performance goals that led you here.

At the end of the day, whether or not you make the progress you desire does depend upon whether you have consumed the right amount of calories to meet your goals. There is, however, one huge caveat to that statement that most people tend to overlook: the “calories-out” portion of the famous “calories-in vs. calories-out” equation is a very fluid and dynamic number that is highly dependent upon hormonal status, micronutrient status and food quality.

It is not just some static number; it is highly subject to change, and food quality has a massive impact on that. Again, this is why the focus should be on real, whole, unprocessed foods, as they are of the highest quality, and will optimize your micronutrient and hormonal status.

So while calories are important, I would never tell a client, or you, to actually count your calories. It is a mind-numbing and futile exercise that will dominate your life and just drive you mad. Instead, I ask you to focus on consuming lots of real food, containing plenty of protein, healthy fat, vegetables, fruits and some quality grains. If you are not achieving your desired goals, adjust your food intake accordingly.

It may sound crazy, but it really is that simple. People like to over-complicate nutrition, when in reality, eating and maintaining a healthy bodyweight is something that humans did for hundreds of thousands of years without counting a single calorie.

Sure, there are circumstances (e.g., medical conditions) where you need to make it more complicated, or if you are one of those crazies who likes to step on stage in your skivvies all oiled up and leaner than any human should healthily be.

Okay, maybe they aren't crazy, but other than those rare situations where extreme dietary manipulation is necessary, nutrition can be summed up in a few simple words that you will see repeated continually throughout this guide: Eat. Real. Food. Period.

As a species we ate a huge variety of diets throughout human history. Contrary to popular belief, there is no one "perfect" human diet. We have thrived on high-carb, high-fat, high-protein and everything in between throughout history and all around the world.

Some societies consumed nearly all animal-based foods with nary a plant in sight. Others lived on huge amounts of saturated fat, while some even had their diets made up of nearly all tubers and other high carbohydrate foods. And you know what? These societies had little to no incidence of the diseases of civilization – obesity, diabetes, heart disease, cancer – that plague us today.

The underlying theme to all of these diets was they all focused on one thing - real food - and were entirely devoid of another thing: man-made food products. Sugar and refined carbohydrates were not a part of the diet, and neither were industrial vegetable oils nor trans-fats. And, even beyond that, humans certainly didn't eat reduced-fat or artificially sugar-free "health foods" either.

These people ate foods that they could hunt, fish, pluck, grow or ferment. They didn't worry about calories, protein, carbs, saturated fats, or the glycemic index; they simply ate food. Granted, they also lived in wild environments and often died of infectious diseases that we can treat today, but the fact remains that regardless of whatever real foods they consumed, they were almost completely free of heart disease, cancer and diabetes.

Another important point is that these foods were not yet tarnished by industrial agriculture, mass-production, toxic pesticides and herbicides, and Concentrated Animal Feeding Operations. They ate foods that were grown as they were evolved to grow: in their natural environments, consuming proper foods (like grass instead of corn), and grown in nutrient-rich soils. This made a huge difference, as regardless of the type of food they consumed, it was still real food, and it wasn't yet tainted by politics and big-money corporations.

Changing gears a little bit, I hope I have made clear by now I don't subscribe to any one dietary strategy. I am a results-oriented guy, so I encourage you to do what works best for you, as long as it is within the context of real food. I hope I have drilled that into your head by now.

If you are someone who thrives on a high-carb diet, then go for it (though I think you are in the minority). If you are someone who thrives on a low-carb diet, then go for it as well. And, maybe you fit somewhere in the middle like most people, and perform and feel your best on a relatively balanced diet. Just like most things, nutritional preference is a bell curve; the trick is to find where you fit on that continuum.

For those of you who just can't live without numbers, macronutrient ratios and the like, I generally like to keep macronutrient amounts in these approximate ranges:

Protein: 20-40% of calories
Fat: 20-40% of calories
Carbohydrate: 20-40% of calories

I will point out that protein and fats are essential to optimal health and performance; you can't live without them! As such, I wouldn't let either of them fall below 20% of caloric intake.

Carbohydrates, however, can be dropped lower if you are someone who thrives on low-carb or ketogenic diets, but it is certainly not necessary. They can also be raised above that 40% if you are someone, especially an endurance athlete, who performs their best at that level.

While I do recommend, repeatedly, that you focus on real food, trying to be too strict or too perfect can actually be quite detrimental to your results. Depriving yourself of a few beloved comfort foods will eventually lead to binges.

I do encourage you minimize refined carbohydrates, sugar and man-made food products, but a slice of cheesecake or a club sandwich with fries once in a while won't kill you or hinder your progress, either. Smartly building in some splurges will prevent those feelings of deprivation, the ensuing binges, and the guilt that follows it all, without diminishing your results!

I can't stress enough that this is not a "diet;" it is a lifestyle. Trying to lead a perfect lifestyle is an exercise in futility, and will actually be more stressful and self-defeating than anything else.

While that just about wraps up this quick introduction, one more thing I wanted to mention is this other belief that pervades not only the nutrition industry, but our society in general. People have this misguided concept that there is this perfect hierarchy of foods, which is just generally not true.

Maybe it is our incessant need to categorize and list everything, but to try and state that broccoli is healthier than blueberries or any such thing is impossible and ridiculous. While some foods may be more nutrient-dense than others, they all contain their own unique blend of nutrients, and all bring something to the table.

People who only consume green vegetables and limit their fruit intake to just berries because these are the “best”, are missing the point. They are not only greatly limiting their food intake and accompanying nutrients, but they are also missing out on tons of delicious and kickass produce.

My goal is to hopefully get you to expand your horizons to a whole world of food. There are tons of great foods out there just waiting to be tried, and sooner or later one of them will probably be declared the latest and greatest “superfood.” You will not only know how ridiculous that is; you will also be that far ahead of the curve.

In this nutrition guide, I will take you through the strategies, tips, and tools you will need to maximize your results and optimize your health – and look damn good doing it.

The information I provide is the same information that I give to my personal consulting clients, though in far greater detail. It covers a lot of ground, including the application of ideas as well as the theories behind them.

I like to think of this guide as two parts: the application section and the explanation section. The application section allows you to just focus on implementing the methods, and not get caught up in any paralysis-by-analysis or superfluous theory.

The explanation section on the other hand, allows you to dig in deep as I provide detailed and thorough rationale behind the thought process, dispelling many myths and slaying many dragons, figuratively speaking.

Application Section

In the application section, you have my 10 Principles of Successful Nutrition, Proper Food Choices, Meal Preparation, Tips and Ideas, Grocery Shopping 101, and The Grocery List for Successful Nutrition. These aspects of the nutrition guide are easily applied, with little superfluous theory and explanation.

Explanation Section

The explanation section of the guide is packed with tremendous information. It contains *The Truth About Saturated Fat & Cholesterol*, *Grass-Fed Meat or Conventional: What's the Deal?*, *Organic Produce or Conventional: Is There a Difference?*, *BSP's Thoughts on Vegetarian Diets*, Supplements, Personalization, Meal Plan Templates, 3-Day Food Logs, and Online Nutrition Consulting.

I have also included 26 Recommended Meals & Snacks that are delicious, made with real food, and all come with complete nutritional breakdowns.

Good luck!

The 10 Principles of Successful Nutrition

1. Eat mostly REAL, whole, unprocessed food.

- If you couldn't hunt, fish, pluck, grow, or ferment/culture the food, you probably shouldn't eat it.
- If it wasn't food 100 years ago, it isn't food today.
- If it comes in a box or a plastic wrapper, it most likely isn't food; it is a *food product*.

2. Eat food as close to its natural state as possible.

- Meat, eggs and dairy should mainly be from pasture-raised, grass-fed animals.
- Eat mostly full fat versions of these foods for the greatest profile and absorption of nutrients.
- Produce would ideally be from local, seasonal, and sustainably grown sources.

3. Eat every 3-4 hours, 4-6 times per day.

- This prevents overeating at meals, and consumption of foods that don't follow Principles 1 and 2.

4. Eat protein with every meal and most snacks.

- Builds more muscle and improves recovery from exercise.
- Maintains muscle mass when trying to lose fat.
- Is the most satiating macronutrient, keeping you fuller for longer.

5. Eat at least 1 full serving of vegetables and/or fruits every time you eat.

- Just a simple way to reach that daily quota of 10+ servings of vegetables and fruits.
- Contain powerful anti-aging phytonutrients, antioxidants, vitamins and minerals to optimize health.

6. Eat healthy fat and plenty of it.

- Fat is essential and necessary for proper hormone production, and, NO, it does not make you fat.
- Do not fear saturated fat, as long as it comes from food following Principles 1 & 2.

- Minimize consumption of industrial vegetable oils: corn, cottonseed, safflower, soybean, sunflower, etc.

7. Drink mainly single ingredient, zero calorie beverages.

- Liquid calories go unnoticed by the body, so they add up quickly.
- Best choices: water, tea, black coffee; unsweetened almond milk and fresh juice are okay in moderation.
- Exception: if trying to gain weight, liquid calories from high quality sources are very helpful.

8. Ensure carbohydrate intake is from high quality sources.

- Carbohydrates should be mainly from nutrient dense fruits and vegetables.
- Grains should mainly be from real whole grains. Quality is more important than quantity.
- Minimize added sugar and high-fructose corn syrup.

9. Utilize supplementation when appropriate.

- Use to enhance, not replace a healthy balanced diet.
- Best basic choices – fish oil, vitamin D, probiotic and whey protein.
- Are most beneficial when the rest of your diet is optimized.

10. Live a little!

- Break the rules once in a while! Just understand what once in a while is; it is not a daily occurrence.
- Do not fear eating a piece of cake or some french fries; just do not make a habit of it.
- Don't always be "that person" who never eats anything at social gatherings; it is ok to not be perfect.

Proper Food Choices

Macronutrients	Great Food Choices	Good Food Choices	Poor Food Choices
Protein Sources:	Organic whole yogurt Organic Greek yogurt Organic hard cheese Whey protein powder <i>Wild-caught:</i> Salmon Mackerel Herring Tuna Shrimp Lobster Haddock Cod Tilapia Scallops <i>Grass-fed:</i> Beef Ground beef Buffalo <i>Pasture-raised:</i> Chicken Turkey Lamb Duck Pork Ham Whole eggs	Lean chicken sausage Lean turkey sausage Whole omega-3 eggs Egg whites Pork Tenderloin Canadian Style Bacon Organic cottage cheese Organic whole milk Nitrate-free beef jerky Tempeh <i>Conventionally-raised:</i> Yogurt Lean Beef Buffalo Chicken Turkey Pork Ham Eggs Lean ground beef Lean ground turkey Lean ground chicken	Farm-raised seafood Unfermented soy Soy-based protein bars Bologna Sausage Hot dogs Pepperoni Slim jims <i>Conventionally-raised:</i> Milk Cheese
Carbohydrate Sources:	All Vegetables, fresh or frozen All Fruit, fresh, frozen or dried Sweet potatoes Potatoes Corn Beans (all) Lentils Old-fashioned oats Quinoa Buckwheat <i>Sprouted grain:</i> Breads/Wraps Pastas	Whole grain brown rice Wild rice Basmati rice Instant oatmeal (plain) Whole-grain couscous <i>Whole wheat:</i> Breads/Wraps Pastas Bagels	Waffles Pancakes Donuts Muffins Pastries Sugar High fructose corn syrup Commercial fruit juices Cereal bars Soda <i>White:</i> Breads/Wraps Pastas Bagels

Macronutrients	Great Food Choices	Good Food Choices	Poor Food Choices
Fat Sources:	Extra virgin olive oil Pesto from extra virgin olive oil Olives Coconut Organic extra virgin coconut oil Coldwater fatty fish Fish oil Avocado Guacamole 85%+ dark chocolate Peanuts Natural nut butters <i>Tree Nuts:</i> Almonds Walnuts Pecans Cashews Brazil <i>Seeds:</i> Chia Flax Hemp Sunflower <i>Pasture-raised:</i> Dairy fat Red meat fat Whole eggs	Whole omega-3 eggs Light olive oil High-oleic sunflower oil Expeller-pressed sesame oil Expeller-pressed canola oil Salad dressings made with expeller-pressed canola oil Mayonnaise made with expeller-pressed canola oil	Trans fat Hydrogenated oils Margarine Vegetable Shortening Reduced-fat peanut butter Regular peanut butter Vegetable oil Corn oil Cottonseed oil Safflower oil Soybean oil Sunflower oil Salad dressing made with above oils Regular or fat-free mayo
Miscellaneous:	Spices and herbs Redmond Real Salt Salsa Organic coffee Water White tea Green tea Oolong tea Black tea Rooibos tea	POM juice Unsweetened almond, hemp or coconut milk Moderate alcohol Regular coffee <i>Stevia:</i> Sun Crystals Truvia	Soda Diet soda Sweetened iced teas Excessive alcohol Artificial Sweeteners Soy/Rice milk Sports drinks (except during physical activity)

While this is definitely not an exhaustive list, it should give you a very clear idea of what ranks as great and good, and what is poor. While I would prefer to see great foods make up the majority of your dietary intake, if availability or

budget constraints pose a problem, good foods are more than adequate. Some foods are specifically listed as organic, grass-fed or pasture-raised, because I think it makes a difference in these cases.

Meal Preparation, Tips & Ideas

1. Shop the perimeter of the grocery store

- Fruits, vegetables, fish, meat, poultry, nuts and dairy are located here, and should be the majority of your shopping list
- Make quick forays into the aisles for stuff like oatmeal, milled flaxseed, beans, tea and olive oil.
- Make a list and stick to it

2. Pre-cook chicken

- Purchase boneless skinless chicken breasts, tenders or thighs in bulk and season to taste
- Cook in large Pyrex dish, covered in tin foil at 350° for 30-40 minutes, or until thoroughly cooked
- Store in a large Tupperware container and you have a ready-made protein source for the week

3. Pre-chop chicken and beef for stir-fries

- Purchase boneless skinless chicken breasts, tenders or thighs and grass-fed beef in bulk
- Chop meat into 1-inch cubes and portion into 4-8oz servings; place in freezer baggies and freeze
- When desired, thaw bag of meat in bowl of hot water for 10-15 minutes
- Stir-fry with pre-chopped or mixed frozen vegetables with olive oil and season to taste

4. Pre-chop fresh vegetables

- Chop each vegetable into desired sizes and store in individual Tupperware
- Use for omelets, salads, stir-fries and more

5. Prepare ahead

- Make large batches of food like chili, stir-fries, and smoothies for convenient meals
- Pack your own snacks and lunch
- Failing to plan is planning to fail

6. Shop at farmer's markets whenever possible

- Provide local, fresh and sustainably grown meat, produce and eggs at reasonable prices
- You know exactly where, when and how your food was grown
- You develop a relationship with the people who grow your food

7. Order by the principles above when at restaurants or school

- Healthy principles of nutrition do not cease to exist when eating out
- You still need high quality protein, carbohydrates, fruits, vegetables and healthy fats

8. Spice up your food

- Spices add tremendous amounts of health benefits, tons of flavor and fiber to your food
- Different spices can make tired and old meals and recipes seem new and exciting

9. Use less plastic

- Chemicals like BPA and DEHP may cause endocrine disruption, cancer and cognitive impairment
- Use glass Pyrex Tupperware instead of plastic
- Use stainless steel water bottles and travel coffee/tea mugs instead of plastic
- Use a [Misto Olive Oil Sprayer](#) with your own olive oil instead of PAM

Grocery Shopping 101

Grocery shopping can be tricky. It can be easy to stray from your list as you walk up and down each aisle, overcome by clever marketing, sales and product placement. I am here to give you the tools you need to beat the system.

When it comes to grocery stores, most are set up the same way: the good stuff on the outside, the dangerous junk in the middle. If you stick to the perimeter of the store, you will find the fruits and vegetables, the fresh seafood, the fresh beef and poultry, the eggs, the yogurt, and usually the nuts. That is the vast majority of your needs!

Unfortunately, the main aisles are typically full of nutritionally-empty pre-packaged food products (we avoid these, remember?), containing processed carbohydrates, sugar and unhealthy fats. Make quick forays into the aisles when you have a specific purpose: like getting beans, frozen fruits and vegetables, natural peanut butter, old-fashioned oats, quinoa, tuna, and more. Then get back to the safe perimeter as soon as possible. The point is to make your list, and stick to it!

Example Grocery List (all items ideally organic or grass-fed, but not mandatory)

Meat, Dairy & Eggs <ul style="list-style-type: none">• Bison, 1 lb• Chicken breasts, 2-3 lbs• Lean beef, 1-2 lbs• Wild salmon fillet, 1-2 lbs• Organic cheddar cheese, 1 package• Greek yogurt, 10 6oz containers• Omega-3 eggs, 3 dozen Vegetables & Fruit <ul style="list-style-type: none">• Baby carrots, 1 bag• Bell peppers, mixed, 3 large• Broccoli crowns, 3 large heads• Cucumber, 2 large• Spinach, triple washed, 1 lb• Sweet onions, ½ lb• Tomatoes, 3 large• Mixed frozen vegetables, 2 bags• Apples, 5• Bananas, 5• Oranges, 5• Frozen wild blueberries, 2 bags• Frozen halved strawberries, 2 bags• Frozen dark sweet cherries, 2 bags• Dried plums, 1 bag	Grains <ul style="list-style-type: none">• Kidney beans, 1 can• Chickpeas, 1 can• Old-fashioned oats, 1 container• Quinoa, 1 package• Ezekiel bread, 1 loaf• Ezekiel tortillas/wraps, 1 package Miscellaneous <ul style="list-style-type: none">• Milled flax seeds, 1 container• Almonds, 1 lb• Pecans, 1 lb• Walnuts, 1 lb• Pesto, 1 container• Guacamole, 1 package• Hummus, 1 container• Salsa, 1-2 jars• Extra virgin olive oil, 1 jar• Pastured butter, 1 package• Fresh Garlic, 1 bunch• Unsweetened almond milk, 1 carton• Salt & pepper, as needed• Spices & herbs, as needed• Sun Crystals or Stevia, 1 box• Veggie wash, 1 bottle
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

*This list is ideal for 2-3 people, adjust as needed based on desires and needs.

The Truth About Saturated Fat & Cholesterol

With little actual evidence, but tons of fan-fare, cholesterol has become the indisputable cause of heart disease over the past 40 years. At first glance, this seems rather logical, as cholesterol makes up a significant portion of the plaque that accumulates on your arterial walls, and this plaque most definitely contributes to heart disease. This logical assumption seemed clear and definitive, and the pharmaceutical industry has made a fortune selling the American public pill after pill to lower your dangerous blood cholesterol levels (namely total cholesterol and LDL). Unfortunately, this logical assumption is just that, an assumption, and we all know what assuming does, right?

It makes an ass out of you and me.

Cholesterol is actually a crucial bodily substance that performs countless critical functions. It is necessary for the creation of bile acids, which are necessary for the digestion and absorption of fats. It is also necessary for the creation of several important and powerful hormones, including testosterone, estrogen, progesterone and cortisol. Vitamin D is one of the hottest topics for the health-conscious, but without cholesterol it cannot be synthesized from the sun. Cholesterol is also instrumental in the formation and maintenance of cells walls and structures. Clearly cholesterol is not the simple nuisance it is made out to be.

The ability of cholesterol to stick to the arterial walls is actually dependent on many factors: inflammation levels, type of cholesterol, and the particle size and number – not just the total level of LDL or blood cholesterol.

Recent research has made it quite clear that inflammation plays a very large role in the development of heart disease. Inflammatory markers, such as C-reactive protein, homocysteine, interleukin-6, and tumor necrosis factor are all associated with an increased risk of developing heart disease.

Though statins were created and are prescribed to lower cholesterol levels, their actual benefit may come from some of them having anti-inflammatory abilities. They are not without risk though, as they deplete coenzyme-Q10, which is vital for heart health (kind of counterintuitive, don't you think?). They can also cause muscle pain and weakness, liver problems, cognitive impairment, and a host of other issues. The crazy thing is you get all those side effects from

drugs that all lower cholesterol, but only a few anti-inflammatory ones have actually been shown to decrease risk of heart attack!

You read that right. Only a few (most notably Lipitor) actually decrease your risk of heart attack. As a group, statins actually do *not* decrease your risk of overall death, or even death from cardiovascular disease! This is an undeniable fact. It should also be noted that statins mostly work in middle-aged men, with other populations experiencing significantly less benefit.

You can get those same anti-inflammatory benefits from fish oil, stress management, and leading a healthy lifestyle. The side effects of these choices are improved body composition, energy, mood, performance and more! I know which option I would choose.

This isn't to say that there is never a time and a place for pharmaceuticals, but they are certainly not the silver bullet they have been made out to be!

So while mainstream media and medicine lead us to believe that our cholesterol levels are of utmost importance, there actually is a lot of research on the topic that sings a rather different tune. The Framingham Heart Study is one of the largest studies ever conducted, following hundreds of thousands of people for decades. It has produced absolute mountains of data. This data has actually shown that at any given blood cholesterol level, your chance of having a heart attack is the same. Let me repeat that: regardless of your amount of total cholesterol your chance of having a heart attack is the same. We will look at this study in more detail later.

Another large study looked at the blood cholesterol levels of more than 136,000 people who had recently been admitted with heart disease to hospitals nationwide. It found that more than 70% of these people had LDL (the so-called "bad" cholesterol) in the "normal" range, and 50% had LDL in the "optimal" range!

Does that sound like a powerful predictor – check that – a powerful *cause* of heart disease? Shouldn't most of these people have had LDL above the normal range? Don't we actually take those damn statins to lower our LDL? Is cholesterol the cause of heart disease, or is it merely an innocent bystander at the scene of the crime?

Let's actually dig in a little bit and help clarify a thing or two about blood cholesterol. The two main types of cholesterol are HDL and LDL, with HDL considered "good" and LDL "bad." This is a rather simplistic view, as each has several "subtypes." In particular, there are actually four major types of independently-behaving LDL. The four major types are the big and fluffy (and mostly benign) large LDL, as well as medium, small and very small LDL. People can have mostly large or mostly small LDL, depending upon genetics, lifestyle and environmental factors. The total LDL number tells us nothing about the subtypes, size or number of the particles (and therefore little about our heart disease risk). The total cholesterol level number tells us even less!

What makes this subtype discussion even more interesting is the link between the small, dense and atherogenic LDL and the "good" HDL. People with low HDL tend to have high levels of small, dense LDL; people with high HDL have low levels of small, dense LDL. To top this off, when HDL is high and small, dense LDL is low and triglycerides are low. When HDL is low and small, dense LDL is high and triglycerides are high.

What does this all mean? People who have low HDL, high amounts of small, dense LDL, and high triglycerides have what is called "Pattern B" (or pattern bad, so it is easy to remember) and are at an increased risk of heart disease. Of interesting note, to give their study participants Pattern B, researchers place them on diets high in carbohydrates, especially refined carbohydrates and sugar.

People who have high HDL, low amounts of small, dense LDL and low triglycerides have what is called Pattern A. These people with Pattern A also have the large, fluffy and mostly benign LDL, and their risk of heart disease is much lower. Diets high in saturated fat actually boosts the number of large, fluffy LDL particles.

In fact here is what has been recently shown by Dr. Ronald Krauss to be the best predictors of heart disease using blood lipids as markers:

1. High levels of small, dense LDL combined with low HDL (Pattern B, anyone?)
2. Low levels of HDL
3. High total levels of LDL

The first two scenarios are more predictive of heart disease, but the high LDL was only marginally predictive. Hmmm, total cholesterol is nowhere to be found.

But, isn't it true that the lower your total cholesterol is, the healthier you should be?

In a five year study of 4066 elderly patients, elevated total cholesterol was associated with a similar pattern of death as seen in younger adults. At first glance, this seems to follow traditional medical dogma, but when adjustments for age, pre-existing cardiovascular disease, risk factors, and general health status were made the group with the lowest total cholesterol (less than 160mg/dL) had the most actual heart disease, the highest risk factors for heart disease, the poorest overall health, and the highest mortality rate from heart disease!

Okay, so maybe total blood cholesterol and total LDL aren't what they have been made out to be, but dietary cholesterol still increases my blood cholesterol and heart disease risk, right?

Remember that Framingham Heart Study we talked about earlier? It's the one with data from hundreds of thousands of people who were followed for decades (it is actually the longest-running study of its kind). It has even more fun stuff to show us.

The data showed that, on average, dietary cholesterol had no impact on people's blood cholesterol levels. People who consumed more than the average amount of dietary cholesterol had the same blood cholesterol levels as people who consumed less than the average amount of dietary cholesterol. Total cholesterol intake had no effect on actual blood cholesterol levels. Our bodies have an amazing negative feedback system: when we consume more cholesterol, we simply produce less to make up for it (though I will say there are people whose feedback systems are broken, but this is still true for the vast majority of the population).

At most, dietary cholesterol has a 2-3% impact on your blood cholesterol levels. In other words, for every 100 milligrams of cholesterol you consume, you increase your blood cholesterol levels by 2-3 points. Still, as we have seen thus far, this doesn't seem to be such a bad thing at all!

Even the biggest cholesterol villain of them all, eggs, have never actually been shown to increase blood cholesterol or risk of cardiovascular disease. In fact, the literature is quite clear that egg consumption *does not* increase risk of cardiovascular disease. Eggs are loaded with a b-vitamin like compound called choline, which the body uses to make phosphatidylcholine. Phosphatidylcholine removes excess fat and cholesterol from the liver. Choline also helps to form betaine, which lowers homocysteine levels, a nasty marker of inflammation.

Eggs are also packed with tons of other nutrients like vitamin A, vitamin B12, vitamin D, vitamin E, vitamin K2, lutein, zeaxanthin, and omega-3 fatty acids.

Ancel Keys, the misguided creator of all this saturated fat/cholesterol causes heart disease nonsense stated in 1991: "There's no connection whatsoever between cholesterol in food and cholesterol in blood and we've known that all along. Cholesterol in the diet doesn't matter unless you happen to be a chicken or a rabbit."

So, we know that dietary cholesterol isn't really an issue, but what about that dangerous monster, saturated fat? Boy, am I glad you asked, because this is one of my biggest pet peeves.

Dr. Ronald Krauss is one of the most prominent lipid researchers in the whole wide world. He recently performed a meta-analysis of the observational studies evaluating the link between saturated fat intake and cardiovascular disease. Surprisingly (or maybe not at all, at this point in this guide), they found absolutely no link between the two: "A meta-analysis of prospective epidemiological studies showed that there is no significant evidence concluding that dietary saturated fat is associated with an increased risk of coronary heart disease or cardiovascular disease."

Is there research that purports to show that saturated fat raises cholesterol levels? Sure, but it is tenuous at best, as these are mostly short-term studies that show a transient rise in cholesterol, with both LDL *and* HDL rising. Longer-term studies show that over time the body adjusts to intake and total cholesterol levels return to baseline.

This brings me to foods that are high in saturated fat, another one of my favorite topics. I first want to point out that I think source of saturated fat is of

utmost importance. Eating grass-fed beef and dairy is significantly different from conventional corn-fed beef and dairy, and the fatty acids and fat-soluble components that come along are drastically different as well.

I am getting a little ahead of myself here. Let's back track to just looking at foods that contain saturated fat, regardless of whether they are grass-fed or grain-fed. A new study from the Harvard School of Public Health suggests that the problems long associated with red meat consumption are actually from the processed cuts: bacon, sausage, hot dogs and cold cuts – and not from unprocessed red meat like steak! What a surprise! Real food isn't a problem and man-made processed crap is.

This study was a meta-analysis that looked at other research, re-sorting the data with the processed and unprocessed meat put into separate groups and seeing what associations remained. They found that *only* the processed red meat was associated with heart disease, as the unprocessed red meat had absolutely *no association* with heart disease. The researchers themselves even acknowledged that since both types of meat contain saturated fat, it doesn't seem to play a role in the association to heart disease, since unprocessed red meat had no association.

Next up is dairy – perhaps the most controversial food group there is. While I do think that conventional dairy today is complete and utter garbage (and I wrote a blog on the topic [here](#)), I am fan of full-fat dairy from pasture-raised grass-fed animals.

Dr. Krauss directly showed that while saturated fat from dairy does raise LDL, it is an increase in large, fluffy and benign LDL – not the small, dense and atherogenic LDL.

While there are a lot of organic dairy options out there, not all are created equal. In fact, many organic dairies produce milk and dairy that is no better than conventionally-produced dairy. To find out whether the organic dairy available to you is of high quality, or even grass-fed, check out [this report](#) from the Cornucopia Institute.

Whole or full-fat dairy is actually a topic I want to cover in a lot of detail. I personally feel that this is a grossly misunderstood topic, and I want to clarify several things here.

There is actually a good amount of research, in several populations, that shows that full-fat dairy consumption is associated with lower BMI, lower waist circumference, and lower risk of cardiovascular disease (especially stroke). Low-fat or fat-free dairy is actually often associated with *increased* BMI and waist circumference.

What? How can this be? Low-fat dairy is lower in fat (obviously) and calories; how can it be linked to greater BMI and waist circumference? While there could be many answers, mine is simply this: (to kind of paraphrase the great Vince Lombardi), while total calories may be everything, they are not the *only* thing. There is often a lot more to the story than just the total number of calories ingested.

Foods are greater than the sum of their parts. While our bodies certainly do not defy the laws of thermodynamics, the types of foods ingested greatly impact hormones, which greatly impact “calories out.” This is why I am such a believer in the idea that the quality and nutrient-density of foods is just as important as the simple quantity.

A perfect example of this is a study done on 76 obese women over the course of six months. These women were assigned 420, 660, or 800 calories per day. At the end of the trial, there were no significant differences in weight loss or changes in body composition. Does that make sense? At the end of six months that is a difference of about 69,000 calories between the 420 cal and 800 cal group. Since 3,500 calories equals one pound of fat, that should be almost 20 more pounds lost for the 420 cal group. It didn't happen.

You can look at it from another direction. Researchers compared skim milk to whole milk in the post-training period, to see which would produce greater anabolic effects. They pitted 14oz of skim milk against 8oz of whole milk, to make them calorically equal. Theoretically, the results should be even or in the favor of skim milk, since it had six more grams of protein. The research actually showed that whole milk was more effective than skim, despite lesser protein content and equal total calories.

So, is it just about calories in comparison to your estimated caloric needs? I think not, as the “calories out” portion of the equation is a very fluid and dynamic number that is highly dependent on hormonal status, micronutrient status and food quality. I digress.

Let's jump back to dairy and cardiovascular disease. Whole fat dairy from grass-fed cows contains a boatload of powerful vitamins and healthful fatty acids. These vitamins are fat-soluble, meaning they are bonded to the fatty acids in the dairy, and are therefore nearly non-existent in fat-free dairy. The fat is where vitamins A, D, E and K2 are, as well as conjugated linoleic acid (CLA), butyric acid, omega-3 fatty acids, and medium chain triglycerides. Low-fat and fat-free dairy are woefully lacking in these properties.

You should note that dairy from grass-fed cows contain significantly more of these nutrients than dairy from grain-fed cows. For example, research has shown that the milk fat from grass-fed cows has 500% more conjugated linoleic acid (CLA) than the milk fat from grain-fed cows! 500%!

CLA is present in human body fat in proportion to dietary intake, and has been shown to be a powerful ally in the fight against cancer. I expand more on CLA in the "Grass-fed vs. Conventional" section. Vitamin A and E are powerful antioxidants. Butyric acid may help with bodyweight regulation. Vitamin D is pretty much the best thing since sliced bread (don't take that literally), and any time you can get some from food is always a good thing. I cover its benefits in great detail in the Supplements section. Omega-3s are absolutely amazing, and are also covered in great detail in the Supplements section. Medium chain triglycerides are unique fatty acids that are more readily utilized as fuel rather than stored as energy, as well as particular ones, like lauric acid, containing anti-viral and anti-microbial properties.

Notice that I didn't mention vitamin K2 yet? That is because I was saving what might be the best for last. Several studies have found that a higher vitamin K2 intake is associated with a lower risk of heart attack, ischemic stroke, cancer incidence, cancer mortality and overall mortality. Men with the highest vitamin K2 consumption had a 51% lower risk of heart attack mortality and a 26% lower risk of all cause mortality compared to men consuming the lowest amount!

One of the ways vitamin K2 improves cardiovascular health is its ability to decrease arterial calcification by 30-40%. And, this only speaks to vitamin K2's effects of cardiovascular health; it is also crucially important for proper fetal development and bone health, to name a few additional benefits.

So, not only is saturated not really a concern for heart disease (especially when it is from high-quality real food), but full-fat dairy is better for you than low-fat or fat-free!

This topic covered a lot of ground, so let's recap what have we learned:

1. Total cholesterol does not correlate to heart disease risk.
2. Inflammation does correlate to heart disease risk, and is best managed by lifestyle choices, like eating real food, taking fish oil, exercising, and getting some sunshine!
3. Total LDL is far less important than the size and density of LDL.
4. High HDL is a not only a good thing; it is highly protective of heart disease. And, contrary to popular belief, saturated fat increases HDL.
5. Dietary cholesterol has little to no impact on blood cholesterol or risk of heart disease.
6. Saturated fat may increase LDL, but if so it is in the form of large, fluffy and benign LDL.
7. Refined carbohydrates increase triglycerides, lower HDL and increase small, dense LDL.
8. Full-fat grass-fed dairy is actually linked to a decreased risk of cardiovascular disease.
9. We have been misled for decades, currently test for numbers that tell us little about our cardiovascular disease risk, expensively medicate them downward, and switch to a "heart healthy" low-fat diet, all of which accomplishes little to nothing!

To wrap this up in the simplest terms possible, I personally believe that man-made food products are probably the main contributor to heart attack risk. Cultures that subsist on traditional diets (i.e., various real foods) and don't eat these man-made food products are almost totally free of heart attacks and heart disease. Research has demonstrated this time and time again.

To take it a step further, these cultures are nearly free of the vast majority of civilization's other big diseases, like obesity, metabolic syndrome, diabetes and cancer. No drug can even dream of producing those kinds of results – not one, not all, not even close.

Grass-fed Meat or Conventional: What's The Deal?

While I am a firm believer that replacing man-made food products with foods like steak, eggs, chicken, and others will improve your health regardless of source, the source can take that improvement to a whole new level.

Meat, eggs, and dairy products from pasture-raised animals are ideal for your health. Compared with conventional feedlot-raised animals, they offer you a much greater nutrient profile. They are richer in antioxidants – including vitamin E, beta-carotene, and vitamin C – as well as vitamin K, and vitamin. Furthermore, they do not contain traces of added hormones, antibiotics or other drugs, and these animals do not eat grass that has been treated with herbicides and pesticides.

There are a number of nutritional differences between the meat of pasture-raised and conventional feedlot-raised animals. Meat from grass-fed cattle, sheep, and bison are leaner, and can have up to one third as much fat content as a similar cut from a grain-fed animal. Grass-fed pasture-raised animals aren't just leaner, but the fat content of their meat is also of a higher quality. Meat from grass-fed animals has two to four times more omega-3 fatty acids than meat from grain-fed animals. Omega-3 fats can reduce blood pressure, decrease LDL, decrease triglycerides, slow the growth of a wide array of cancers, and regulate heartbeat. They are also essential for your brain, eyes and nerves, and people with diets rich in omega-3 fats are less likely to suffer from depression, schizophrenia, attention deficit disorder, and Alzheimer's disease.

Allowing animals to graze on pasture provides higher amounts of omega-3 fats because omega-3s are formed in green leaves and algae. Sixty percent of the fatty acids in grass are omega-3. Grain-fed animals are not given access to foods rich in omega-3 fatty acids, so their meat content contains little to none.

The same issue arises with hens and their eggs. Conventionally-raised chickens are housed indoors and are deprived of greens, mainly being fed corn, causing their meat and eggs to become artificially low in omega-3 fats. Eggs from pasture-raised hens can contain up to ten times more omega-3 fats than conventionally raised hens. Only 40% of Americans consume enough omega-3 fats, and 20% have blood levels so low that they cannot be detected. Switching

to meat, dairy and eggs from grass-fed and pasture-raised animals is one way to increase your intake of these vitally important omega-3s.



The picture above compares a 3-egg omelet made with either omega-3 enriched eggs (left), or pasture-raised eggs (right). Look at the difference in color. That dark yellow color indicates a higher vitamin A and beta-carotene content, and most likely a whole lot more. The omega-3 eggs, though a step-up over completely conventional eggs, still pale in comparison to pasture-raised eggs.

Below is an illustration of the difference in nutrition in 100 grams of your average pasture-raised egg, and 100 grams of your average conventionally-raised egg. It is striking to see the significantly greater nutrient density on paper, but it is also just as striking to see and taste the difference in your morning omelet, and truly appreciate real food!

Vitamin A:

- Conventional: 487 IU
- Pastured avg: 792 IU

Vitamin D:

- Conventional: 34 IU
- Pastured avg: 136 - 204 IU

Vitamin E:

- Conventional: 0.97 mg
- Pastured avg: 3.73 mg

Beta-carotene:

- Conventional: 10 mcg
- Pastured avg: 79 mcg

Omega-3 fatty acids:

- Conventional: 0.22 g
- Pastured avg: 0.66 g

As you can clearly see, pasture-raised eggs blow conventional eggs out of the water in all measures of awesomeness. They have 4-6 times the vitamin D content, 3 times the omega-3 content, and 8 times the beta-carotene content! These are also just the averages of pasture-raised eggs from over 14 different farms, meaning some had amounts much higher!

One little caveat, though: all those nutrients listed are either fats or fat soluble nutrients, so you need to eat the yolks to actually take advantage of all the benefits an egg has to offer, and like I noted earlier, no, the cholesterol is not a bad thing.

Another benefit of eating grass-fed pasture-raised animals is their higher content of conjugated linoleic acid (CLA), another healthy fat. Meat and dairy from grass-fed animals provide the richest source of CLA on the planet, containing three to five times more CLA than feedlot-raised animals. CLA has been found to greatly reduce tumor growth in animals, and possibly in humans as well. In a Finnish study, women who had the highest levels of CLA in their diet had a 60% lower risk of breast cancer than those with the lowest levels. Simply switching from conventionally-raised grain-fed meat and dairy to pasture-raised grass-fed versions would have placed all the women in the lowest risk category.

Locating pasture-raised grass-fed animals may seem daunting, but with only a little searching you should be able to locate some near you. Websites like eatwild.com and localharvest.org can help you find local farms, farmer's markets and natural food stores that offer a vast array of grass-fed pasture-raised foods.

Organic Produce or Conventional: Is There a Difference?

The fact of the matter is that consuming more produce, whether organic or not, will certainly improve your health. Whether you choose to go the organic route is a decision I leave up to you.

Many people wonder if it is worth buying organic produce, or if the extra price lightens your wallet without improving your health any more than conventional produce would.

Unfortunately, evidence does not seem to provide a conclusive answer. Some research shows that organic produce have higher vitamin, mineral and antioxidant content. Other research shows the nutritional difference between organic produce and conventional to be insignificant. In reality, there may be much more to the story than simply the nutrient content; the enormous amounts of pesticides, herbicides and fungicides conventional farmers use to keep bugs and weeds at bay all play a part in the equation.

Again, some research has shown that the consumption of these chemicals in the amounts expected from daily produce consumption does not produce any harm, at least in the parameters covered in the study. Yet, there is emerging research telling us a different story. Original research on the safety of these chemicals did not take into account possible weight-regulation disruption. Many of these compounds mimic hormones in our body, disrupting the endocrine system and the delicate balance of weight maintenance and self-regulation. The combination of dozens of pesticides, herbicides, fungicides, hormones, antibiotics, xenoestrogens and the countless other chemicals we encounter everyday might be playing a much greater role in this obesity epidemic than was ever previously realized.

To illustrate this point more clearly is the fact that there is growth in obesity in a segment of the population that can't be explained by over indulgence, poor food choices or a sedentary lifestyle: infants. The Harvard School of Public Health reported that obesity in infants under six months had risen 73% since 1980.

To explain this peculiar phenomenon, recent research has focused on the possibility that chemicals present in our environment and especially prenatal exposure to those chemicals increases risk of obesity. Many of these chemicals

were once or are currently deemed safe, but this new research is showing a different story.

This recent research has been done on mice and rats, with exposure to compounds like BPA (in hard plastics), organotins (in PVC pipes, fungicides and pesticides) and atrazine (a common herbicide). It was found even with very low level exposure, and without a change in calorie intake or physical activity level, that the mice or rats exposed to the chemicals were up to 20% heavier with 36% more body fat (depending on the chemical) than mice not exposed. The exposed mice had decreased basal metabolic rates, increased body weight, increased intra-abdominal fat and insulin resistance: a recipe for disaster.

In the picture below, the control mouse is on the left, and the chemical-exposed mouse on the right. Shocking, huh?



Clearly, the effect of some, if not all, of these compounds in our food supply is contributing in some capacity to this obesity epidemic.

Beyond obesogens, these chemicals cause a plethora of other problems. Due to toxic run-off in the Mississippi River from conventional agricultural and animal production, there is a dead-zone in the Gulf of Mexico that ranges from 6,000 to 8,500 square miles (about the size of New Jersey) where oceanic life can no longer be supported. The chemicals cause the gulf to be a hypoxic wasteland where only algae can proliferate, wreaking havoc on the surrounding environment, as well as the fishing industries. Even worse, this is the most well known, but only one of more than 250 dead-zones like this around the world!

The BP oil spill may be one of the worst man-made disasters in US history, and BP is paying for it. We read and hear about the oil spills on a near daily basis, yet it is amazing how a dead zone the size of New Jersey is practically ignored, and you don't hear about those Concentrated Animal Feeding Operations and huge conglomerate farms ponying up to pay for the damage they cause to the Gulf of Mexico!

The fact of the matter is that there is still too little known about many of the chemicals used in conventional agriculture. Ones once deemed safe for human consumption are now being found to cause problems in weight-regulation, insulin sensitivity and proper endocrine function.

This is why I recommend you purchase as many organic, sustainably farmed fruits, vegetables and other foodstuffs as possible. In my opinion, removing these dangerous chemicals from our food supply, and from your body, will go a long way in improving health, energy and weight regulation.

Whether you are on a budget and need to prioritize your organic purchases, or you would simply like to know which type of produce has the highest pesticide residues—and which do not—the following guide from the Environmental Working Group will help. I recommend buying organic at least for the "Dirty Dozen", while you could still purchase conventional for the "Clean 15". Regardless of whether the produce was conventionally grown or organically, I still recommend you thoroughly wash before eating with a fruit and vegetable wash.

Dirty Dozen

1. Celery
2. Peaches
3. Strawberries
4. Apples
5. Blueberries
6. Nectarines
7. Bell Peppers
8. Spinach
9. Cherries

10. Kale/Collard Greens
11. Potatoes
12. Grapes (Imported)

Clean Fifteen

1. Onions
2. Avocado
3. Sweet Corn
4. Pineapples
5. Mangos
6. Sweet Peas
7. Asparagus
8. Kiwi Fruit
9. Cabbage
10. Eggplant
11. Cantaloupe
12. Watermelon
13. Grapefruit
14. Sweet Potato
15. Honeydew Melon

I also want to mention that if you have to choose between grass-fed meat or organic produce due to budget reasons, personally I would recommend grass-fed meat every time. You can wash pesticides off of a lot of produce (though not all), but you can't change fatty acid composition and vitamin content of meat.

On a similar note, if you have to choose between grass-fed beef and pasture-raised poultry, I would go with grass-fed beef every time as well. Poultry is naturally leaner so the improvement in fatty acid composition and the associated fat-soluble nutrients from being raised on pasture is less pronounced than in beef. Having said that, I would still encourage the purchasing of "naturally" raised poultry from your grocer, as it is still an improvement over completely conventional, though not quite as good as pasture-raised. You can also look into purchasing entire chickens rather than just breasts, as it is much more cost-effective.

Other items that are best chosen organic would be coffee and dairy.

As usual, organic coffee is more expensive than its conventional brethren. Plus, conventional coffee comes in many more awesome flavors than in available in organic coffee. A good compromise is to go half organic coffee and half of your favorite conventional coffee, and then everybody is pretty happy.

BSP's Thoughts on Vegetarian Diets

I wanted to make sure that this nutrition guide included some thoughts and musings on vegetarianism – the pros, the cons, the merits, and the fallacies. I think many people – though clearly not all – choose to become vegetarians or vegans without actually researching the requirements needed to ensure adequate intake of many nutrients, and this can cause a lot of problems down the line.

Many people choose to become vegetarians not based on a dislike for meat or animal products, but because we read about the cruel and unusual treatment of our domesticated farm animals. Animals today are not raised on small family farms with wide open pastures, allowed to graze and move along as they please. Instead, they are fed and raised in what are called concentrated animal feeding operations, or CAFOs. To reiterate: they aren't farms; they are *concentrated animal feeding operations*. Doesn't that term alone turn you off?

These CAFOs are exactly as they sound: huge vast swatches of a ruined, brown, muddy mess of a farm. They are dominated by these huge corrugated metal sheds, where animals are raised and fed in incredibly close quarters. They are force-fed corn, have their tails removed (in pigs, to prevent them from biting them off each other due to the close quarters) their beaks mutilated (in chickens, to prevent them from pecking each other to death due to the close quarters' see a trend?) and generally treated just well enough to provide food for us. The feeding of corn, which I have discussed here before, creates an incredibly acidic environment, especially in cows, leading to bacterial infections, which then leads to the overuse of antibiotics. Unfortunately, these antibiotics find their way into our bodies from the meat and the runoff into our waterways, and eventually help to create more antibiotic-resistant pathogens.

These animals are not allowed to consume their normal diet. They are denied fresh air and exercise. Personal space is sacrificed to maximize efficiency. Cows, pigs and chickens grow so fast with the force-feeding of corn that it is mind boggling. Cows that graze on grass take a few years to reach slaughter size, whereas cows fed tons of corn and grain turn eight pounds of corn into one pound of mass, and are ready for slaughter within 12 to 18 months. Chickens are incredibly efficient eating machines. They convert two pounds of corn into one pound of mass, and grow so quickly that their spindly legs cannot support their mass and often break. I didn't even mention the growth hormones given in

huge amounts to many of these animals to not only speed up the process even further, but to take it beyond normal limits.

Basically, our food production is a race to see how fast we can grow our animals by slamming corn down their throat. It comes down to how quickly we can get that meat from birth to a consumer's mouth.

This is why many vegetarians choose to no longer consume meat – because current food production methods treat animals as a commodity, not as an animal. Making animals into a commodity makes complete sense from a capitalist and pure business-based standpoint, but from an animal welfare, animal health, and therefore human health standpoint, it is utterly destructive to all. This is one of the absolute worst things ever conceived in our time, and it is just killing us slowly.

With all that info, it makes sense that some people choose to not consume meat or animal products. There are many other reasons why people become vegetarians; some people believe that avoiding meat, especially beef, is healthier, and others do so out of religious beliefs. I do want to quickly point out that if you are a vegetarian due to the books *Skinny Bitch*, *Skinny Bastard*, or *The China Study*, then you should read more books. Those books suck, and are pure propaganda, with very little hard evidence mixed in with some – and I stress *some* – actually correct info. If you want information on our food production and how this problem could be solved, check out the incredible, accurate and absolutely mesmerizing [Omnivore's Dilemma](#), which I [reviewed on my website](#).

I just outlined many (though not all) of the reasons that people choose to become vegetarians. Our food production processes have become terrifying, and the animals we consume are treated in an utterly inhumane fashion. People then choose to no longer support this corrupt industry, and instead choose to consume plant-based diets. This may not seem like such a bad choice, but unfortunately many people do not educate themselves on how to meet all of their nutritional requirements after eliminating meat from their diet, as it does contain a few nutrients that are nearly impossible find to large enough quantities in the plant kingdom. There is a ton of data showing that a diet rich in plant foods provides tremendous health benefits, but does being a vegetarian actually ensure better health?

It all depends on how much they educate themselves. In my opinion, people can be vegetarians and be incredibly healthy, but it does take education and effort. How do vegetarians get enough vitamin B-12, zinc, or iron in their diets? Many vegetarians would have no idea how to answer this question, and therein lies a big problem (to be fair, most meat eaters have no idea where to get those nutrients, either, but lucky for them, their meat contains each of them in abundant quantities).

Through my consulting practice, I have met many vegetarians, ranging from some of the most nutritionally educated people to whom I have had the pleasure to speak, to young adults (especially girls) who read that becoming vegetarian will make them thin, but knew nothing about the nutritional requirements to make it work. Becoming a vegetarian requires more effort than most people realize.

Subsisting on pasta and veggie burgers may in fact be vegetarian eating, but it is certainly far from the ideal model of health. There are just as many pitfalls (and potentially more) in eating vegetarian, if only because the food selection is now more limited, so the margin of error is smaller.

To be a healthy vegetarian, I urge you to ensure that nearly all of your food comes from more nutrient-dense, real, whole-food options. Choose grains that provide tons of nutrition – things like quinoa, buckwheat and sprouted grains, especially since all of these provide complete proteins and plenty of micronutrition along with significantly less anti-nutrients than more traditional whole-wheat products.

Eat plenty of seeds, nuts and legumes to get in healthy fats, fiber, and protein in addition to tons of vegetables and fruits. If you are trying to gain an appreciable amount of mass or are trying to maintain lean mass while losing weight and you want to up your protein intake you do have some good options. If you do still consume eggs and dairy, obviously, whey or egg protein is fine. If not, you can go with something like hemp or sprouted rice protein. Your best bets in that regard are a new hemp protein that I am quite impressed with called [**Hemp Pro 70 by Manitoba Harvest**](#), or [**Sun Warrior Rice Protein**](#), which is a high quality sprouted rice protein.

For those of you who do still eat dairy and eggs, obviously these can be great sources of protein, especially things like Greek yogurt and pastured or omega-3 eggs. Making good food choices is still the name of the game.

To actually get that vitamin B-12 I was discussing earlier, vegetarians either have to supplement or consume fermented foods like sauerkraut. For iron, the best sources are chick peas, spinach and beans. For zinc, chick peas, pumpkin seeds, and muesli are great sources. Obviously this is very doable, but how many people actually eat sauerkraut on a regular basis? Like I said, it takes education and effort.

In the end, you can do anything as a vegetarian that you can do as an omnivore. It is no more or less healthy, and it has just as many pitfalls. The food industry markets to this demographic heavily, and created a plethora of crappy food that are sold as vegetarian approved fare. The same basic rule still applies, whether omnivore or vegetarian: Eat Real Food.

So, just because you eat soy burgers and whole grains and avoid meat does not make you inherently healthier than everyone else. If more omnivores cared about where their meat came from, and chose to purchase their meat/dairy/eggs from grass-fed, pasture-raised and humanely treated sources along with eating plenty of high quality plant food, I would make the argument that you can't get much healthier than that, and it is most certainly the equal of a high quality vegetarian diet.

In conclusion, care about where your food comes from, make conscientious choices about your food selections, consume foods that make you feel good physically, mentally, emotionally and spiritually, supplement appropriately, and strive to be as healthy as you can be. That is a recipe for success whether you choose to eat meat or not.

Vegetarian Supplements

Vitamin B12: consistently consume fermented foods like sauerkraut, and/or take 100mcg/day.

Vitamin D: same recommendations as in Supplements section

Calcium: consistently consume leafy greens, beans and fortified foods, and/or take 500mg/day

Iodine: consistently consume seaweeds or salt with iodine, and/or take 150mcg/day

Algae Oil: 300mg DHA daily

Iron: get checked and talk to your doctor

Supplements

There are tens of thousands of nutrition supplements on the market today, and unfortunately, very few actually do what they promise. Many people fall for slick marketing rather than solid scientific basis, and choose products that do nothing but lighten their wallet.

If you eat a diet rich in pasture-raised whole foods you will be provided with an incredibly nutrient-dense diet that should provide you with the vast majority of your needs. However, supplements can fill gaps that are hard to come by nutritionally (vitamin D, sufficient omega-3, iodine, etc.).

There are only a handful of supplements that I think are worth just about anyone's time and money, though there are a few other options that may provide benefits to certain populations. I will discuss each at length.

The Big 5

Fish Oil

This is one supplement that virtually everybody agrees can be tough to ensure adequate amounts from diet alone. While consuming pasture-raised animals and eggs helps, as does getting the plant-based omega-3 fatty acids (ALA, SDA), to truly reap the benefits of the marine-based omega-3 fatty acids (EPA, DHA), you would need to consume more seafood than most people desire or might be considered safe from a heavy metal or mercury standpoint.

Many people who supplement with fish oil tend to either be too conservative, taking only 1-2 pills per day, or go overboard and take 6-10 or more pills per day. In my opinion the sweet spot is somewhere in the middle, probably closer to the lower end.

I usually recommend people aim for 1-2 grams of combined EPA/DHA from fish oil per day. Any less and you are not at the levels found to provide a therapeutic dose, and any more and you tend to go past the point of diminishing returns. Plus omega-3s are polyunsaturated fats, and are therefore less stable than saturated and monounsaturated fats, leaving them more prone to oxidation, so more is not necessarily better.

While extra strength pills are very convenient, it has been anecdotally reported that taking fish oil in liquid form is more effective. I am a fan of [Carlson's The Very Finest Fish Oil](#), and I would highly recommend it. It is of the highest quality, exceeds even the highest standards for purity, tastes good and is well-priced. If you do go with pills, make sure that they are molecularly distilled.

Whether you choose the liquid form or pills, fish oil supplementation can improve nerve, brain, eye, heart and cardiovascular function as well as decreasing inflammation, joint pain, arthritis, psychological disorders, and risk of breast cancer and heart disease all while improving mood and body composition!

Vitamin D

Vitamin D is a hot new supplement topic that is rapidly gaining status as a must-have. New research comes out seemingly every single day linking vitamin D status to a myriad of diseases and other markers of health.

Low blood levels of vitamin D are associated with lowered immunity, increased risk of 17 cancers and counting, increased risk of heart disease, psychological and neurological disorders including ADD and depression, diabetes, stroke, hypertension, bone loss, loss of muscle mass and strength as we age and more. Clearly, this is not a situation we want to be in.

While we make vitamin D from sun exposure, we spend so much time inside or slathered in sun screen that nearly 80% of Americans are deemed deficient in vitamin D, leaving us at a higher risk for all of the above mentioned problems.

Fortunately, vitamin D supplementation is one of the cheapest ways to improve your health, as it shouldn't cost you more than \$3/month. There are several options available, including capsules, soft-gels, liquids and sprays. While there has been some anecdotal evidence that liquids and sprays might be more effective at raising your blood levels, softgels are probably still the best combination of efficacy and cost, in my opinion.

While it is in your best interest to have your physician test your vitamin D levels, you can safely supplement with at least 2,000-4,000IU of vitamin D3 per day. Getting tested is still essential to knowing whether you are deficient or not,

and can help you maximize the benefits of supplements, because you can know exactly how much you should or should not be supplementing with.

Once you know your baseline level you should strive to be in the 50-80ng/mL range. Generally speaking, it takes an additional 1,000IU of vitamin D3 per day to raise your blood levels by 10ng/mL. I suggest you find your baseline, take as many IUs as should be necessary to reach the ideal range for at least 8-12 weeks and then get re-tested. From there, you can see if you need to increase, decrease or just maintain your dose, as age, skin color, body composition, location, time of year and health can all affect vitamin D status.

For example, if you have your vitamin D levels checked and your blood levels are at 25ng/mL, to get to 65ng/mL (right smack in the middle of the ideal range) you would need to ingest approximately 4,000IU of vitamin D per day *above your current intake* to raise your blood levels by 40ng/mL.

Vitamin D has also been shown to improve athletic performance and possibly play a role in bodyweight and body fat regulation, so it has benefits all across the board.

Whey Protein

Protein is a key component to healthy body composition and improved performance. Striving to get about one gram of protein per pound of body weight, or thereabouts, is a good starting place for most people.

Consuming that amount with whole foods is definitely achievable, but not always easily so, especially for those on the go. This is where a good protein powder comes in. My favorite option is a high quality, undenatured whey protein. Egg protein is another popular choice, and for you vegetarians out there, hemp or sprouted rice protein – and not soy – would be the way to go.

Whey protein is one of the main proteins in milk (the other being casein), contains all 20 amino acids, is the richest dietary source of branched chain amino acids, is very high in cysteine, and also contains over 60 native enzymes, vitamin-binding proteins, metal-binding proteins and other beneficial biological components.

The branched chain amino acids make up about 25% of the protein in whey. One of these branched chain amino acids is leucine, which has been shown to stimulate protein synthesis in and of itself. These BCAAs are one of the main reasons why whey is so valued for its muscle-building properties.

As great as these muscle-building properties are, whey has benefits that go far beyond the muscle. The BCAAs can help to keep the immune system running optimally and reduce risk of illness after intense training. It also contains high levels of an amino acid known as cysteine, which is the key building block of a compound called glutathione.

Glutathione is arguably the body's most important antioxidant, as it has many immune-boosting properties. It neutralizes free radicals and peroxides, maintains blood levels of antioxidant vitamins C and E, helps the liver and white blood cells in the detoxification of foreign compounds and carcinogens, and plays a key role in DNA synthesis, protein synthesis and many more metabolic and biological processes.

Whey – especially undenatured whey – contains high levels of many immune-boosting and health-promoting biological compounds. These compounds include beta-lactoglobulin, alpha-lactalbumin, glycomacropeptides, immunoglobulins, and lactoferrin. Each of these components has unique health benefits, such as being anti-bacterial, anti-microbial, anti-fungal, anti-parasitic, anti-allergenic. They possess anti-cancer activity, as well as being able to chelate heavy metals, increase satiety and feelings of fullness, while aiding in the growth of good bacteria like bifidobacterium.

Clearly, whey protein has benefits that go far beyond its ability to aid in muscular growth and strength increases, but those should not be overlooked, either. All in all, whey gives a great combination of body composition and performance improvements and overall health and vitality benefits.

Probiotics

Probiotics are a really interesting supplement class. Naturally occurring in fermented foods like yogurt, kefir and sauerkraut, probiotics are live microorganisms that impart health benefits on their host. It may seem strange to purposely ingest bacteria, but there are an estimated 100 trillion

microorganisms from more than 500 different species in every normal, healthy bowel!

It is important to replace these excreted microorganisms with beneficial bacteria to prevent harmful pathogens like E. coli and salmonella from taking root. The healthy bacteria keep those harmful pathogens at bay, contribute to proper digestion, increase absorption of nutrients, and keep the immune system in optimal condition.

In fact, the entire gastrointestinal tract comprises 75% of the body's immune system, contains more neurons than the entire spinal cord, is the only bodily system with its own independently-operating nervous system, has a surface area the size of a tennis court, and contains more than 500 species of flora that total over 15 pounds of mass! Keeping that system running at full speed will go a long way to keeping you healthy and fit, as well as improving recovery and performance.

Another point to keep in mind is that many conditions are often treated with probiotics, but precise health benefits are strain-specific, and not all strains are necessarily useful for particular conditions. From a general health standpoint, the health-promoting strains to look for are Lactobacillus and Bifidobacteria, which have been studied in great detail. For acute conditions, consult your physician. I personally like and recommend a basic probiotic such as [**Integrative Therapeutics Probiotic Peals**](#).

Multi-vitamin/multi-mineral

While a basic multi-vitamin/multi-mineral is not necessarily going to cure many particular ills like the above-mentioned supplements, it is a solid addition to any supplement regimen. Think of it as simple insurance that may prevent any minor micronutrient deficiencies.

There is evidence that hard-training individuals have an increased need for vitamins and minerals. As such, a simple daily multi can help to ensure adequate micronutrient intake.

For the vast majority of the population, I see absolutely no need for the expensive multi-pill formulas out there; a simple formula in conjunction with a whole-food based diet will provide more than adequate nutrition. I would

recommend that men choose a product without iron, while women choose a product with iron due to losses from menstruation.

Other Supplements

Fruit/Vegetable & Powdered Greens Products

Generally speaking, only about 25% of Americans consume at least five servings of fruits and vegetables per day. Hopefully, after reading this nutrition guide, you are among that 25%, and preferably consuming well above that amount.

To help in this department – especially for those who dislike the taste of vegetables – are powdered fruit and vegetable products. They provide a convenient and healthful way to consume more produce without the added sugars, flavors, artificial sweeteners or other fillers that liquid products contain.

While I will emphasize that these products do not replace whole fruits and vegetables, they can be a worthwhile addition to any diet.

These can also be especially helpful for those who travel a lot, as they can provide a convenient and portable fruit and vegetable source. A product I particularly like is [**Biotest Superfood**](#), due to the fact that it is just powdered fruits and vegetables without any fillers.

Creatine

Creatine is probably the most researched sports supplement in history. It has hundreds of studies demonstrating its safety and effectiveness, not to mention absolute mountains of anecdotal evidence touting its efficacy.

Its benefits include increased ability to maintain repeated sprint speeds, increased size and strength, as well as noted cognitive improvements.

While many people mistakenly assume otherwise, the one and only consistently demonstrated side effect to creatine supplementation is weight gain! This is advantageous to many team-sport and strength-training athletes, but is something to be kept in mind for endurance athletes and athletes in weight classes.

While creatine is often loaded with 20-25 grams consumed daily for the first 5-7 days, and then 5 grams daily consumed thereafter, I suggest eliminating the loading phase and instead simply consuming the daily 5 gram maintenance dose only. Research has shown that within 28 days each protocol has reached the same amount of intra-muscular creatine, so the loading phase is an unnecessary waste of product and money.

The only reason creatine is not in the Big Five is due to the fact that it could negatively impact some athletic populations, and on the whole it offers little benefit to overall health compared to the others. To those seeking to gain size, strength, power and repeated sprint performance, this is a highly endorsed supplement.

I would also be remiss if I didn't mention that while there are tons of "high-tech" creatines on the market today, none has ever been shown to actually be more effective than a simple micronized creatine monohydrate. They are also drastically more expensive. Stick to the simple, cheap and proven micronized monohydrate for the best results.

BCAAs

The branched-chain amino acids are leucine, isoleucine and valine. As I noted in the piece on whey protein, branched-chain amino acids (leucine, in particular), are vitally important for stimulating protein synthesis.

One of the other benefits of BCAA consumption is their ability to boost the immune system. Those of you following this program are training rather intensely, and the immune system can suffer for it. Research has shown that BCAA consumption can help prevent the loss of glutamine stores (which are essential for the immune system) and markedly reduce risk of illness after intense training.

BCAA supplementation can also be beneficial to people on highly-restrictive fat-loss diets, as they can help to maintain muscle mass as well as being a minor source of energy, sparing muscle tissue. People who are on intense fat-loss diets in conjunction with an intense training program are also at a higher risk of lowered immunity, so BCAA supplementation can provide a two-fold benefit for this population.

While I do feel that most people will get more than adequate amounts of BCAAs from whole-food protein sources and whey protein, supplementation can be appropriate in the above situations.

Beta-alanine

Beta-alanine is a relative newcomer to the athletic performance supplementation world. Beta-alanine supplementation increases our stores of carnosine, which is used by muscle tissue to buffer the acidity caused by intense anaerobic effort. This increase in carnosine and the buffering of acidosis is thought to delay the onset of fatigue caused by the condition.

While there is some research supporting its efficacy, with at least one study showing that in conjunction with creatine subjects increased strength and power, other research has been rather inconclusive.

If you are an endurance athlete or an athlete whose sport or event requires repeated high-intensity bursts with minimal rest (e.g., boxing, soccer), then this could be a supplement to consider. For everyone else, at this point in time there simply is not enough evidence for me to recommend beta-alanine supplementation, but it remains a supplement with promise which just needs more research.

Personalization

While thus far in this guide I have focused on quality of food rather than quantity, quantity does matter. As much as I am a firm believer in the notion that we eat food and not calories, calories do still count.

In the sample meal plans that follow, you will see different amounts of food, macronutrients, macronutrient ratios and calories for different populations.

As an example, endurance athletes have a rather large caloric demand, and generally also require a higher carbohydrate intake and a higher percentage of calories from carbohydrates than most other athletes. Unfortunately, they also tend to focus on carbohydrates at the expense of quality proteins and healthy fats, which is definitely not ideal, so increasing the right protein and fat can actually improve results.

Team sport athletes also require a lot of calories, though usually not to the same degree as endurance athletes. They tend to have many competing demands – strength training, conditioning, skill work – and they require a relative balance of macronutrients.

People looking to get lean in the simplest terms just require a caloric deficit. To maximize results, it is imperative that they still get in adequate protein to maintain lean muscle tissue, as well as adequate healthy fats to maintain proper hormonal status.

Ectomorphic scrawny beanpoles simply require tons of calories. Things are actually the least scientific for this crowd. It is more of a situation where you are just trying to find ways to squeeze in healthy calories. Generally speaking, I find that this population just needs to eat! Reduced-fat and reduced-carb foods are definitely not on the menu!

Finally, you have you general health and fitness crowd. This population is in some ways similar to team sport athletes, though to a lesser degree, because they also tend to have competing demands like strength training, aerobic exercise as well as recreational sporting events. They also require a relative balance of nutrients, but should mainly just focus on consuming real food, and the rest will take care of itself.

Having said all that, and having painstakingly designed 10 different meal plans, all with calculated macronutrients, no one – not even me – can exactly predict how many calories and macronutrients *you* need.

The good news is that you don't have to know it either. This is why I suggest you simply start by focusing on real food. In doing so, you will maximize the quality and nutrient-density of your diet, while also minimizing problematic trans-fats, refined carbohydrates and industrial vegetable oils.

From there, I suggest you begin logging your food intake and progress on a weekly basis on the 3-Day Food Log that accompanies this guide. With that 3-Day Food Log is a Progress Check-In sheet for you to monitor your results. You can track weight, body measurements at multiple sites, as well as how you look and feel.

This is a tremendous tool for you to also see how different food choices and meals affect your moods, energy and digestion, as well as how your different moods and life events affect your food choices. These relationships can help you to unlock many of the possible barriers to your success.

The simplest way to use the food logs is to follow your intake (I prefer one training day, one conditioning or off-day, and one weekend day) for 2-4 weeks and see if your food intake on a consistent basis matches up with your goals.

If your intake is not consistent with your goals, then the first step is to improve the consistency of your food choices. Once you are choosing high-quality, real, whole foods on a consistent basis, recheck your progress. Improving consistency alone often causes the greatest improvement to your nutritional success, overall health and ability to reach your goals.

If you are consistently making good food choices, but are not progressing towards your goals at your desired rate, it is now time to assess portions.

I like to keep things simple. If you are not losing weight, simply eat a little bit less (say, 250 calories worth of food) for 2-4 weeks. Reassess and see where your progress stands. If you are reaching your goals, maintain this intake unless progress stalls, then repeat the process if necessary. If you are not reaching your goals, simply eat a little bit less again (maybe 150 calories less this time)

for another 2-4 weeks and reassess again. Do this until you are progressing towards your goals at your desired rate.

This process also teaches you to be in tune with your body, and truly allows you to see what works best for you and your weight loss, and what does not.

I will point out that it is imperative that you do not severely under-eat. While there may be a time and a place for hardcore dieting, this is not it.

Severely under-eating for extended periods of time can decrease important hormones that are necessary for optimal health and weight loss (testosterone, leptin, thyroid) and can increase hormones that can inhibit weight loss (cortisol, estrogen). It can also lead to micronutrient deficiencies, which will diminish overall health and ability to lose body fat. Finally, it can decrease your ability to recover from exercise, decrease sleep quality and increase your risk of falling ill. In a training program like *Show and Go* – which emphasizes performance, health, and aesthetics – all of these decrements will have dramatically negative consequences. Slow and steady is the name of the game.

The best bet is to eat as much food as you can while still making progress towards your fat loss goals. This will ensure adequate intake of nutrients, proper hormonal status and improved overall health and vitality. It will also leave you some leeway to decrease food intake more if progress stalls at some point.

Now, if you are not gaining weight, simply eat a little more (again probably around 250 calories from food) for 2-4 weeks while continuing to track your intake and progress. In reality gaining weight is easy: eat a ton of food. Track progress. If you are not gaining weight at desired rate, simply eat more for 2-4 weeks. Repeat. If you are gaining too much weight, simply eat a little less for 2-4 weeks. Track progress. Repeat if necessary. Yes, it really is that simple.

Again, the key here is to eat as much food as you need to progress towards your goals, but this time without gaining significant body fat. To completely zero in on that intake will require effort and dedication, but if you want to truly maximize your results, you have the tools at your disposal in this guide to help you get there.

While you can get all fancy and calculate your needs with the Harris-Benedict equation plus your activity needs plus energy needs for your desired weight gain, this is merely an *estimation*, not your *actual* needs.

The Harris-Benedict equation is based on a bell curve. It generally fits about 68% of the population within one standard deviation. Another 27% of the population are two standard deviations above or below the calculation, with a final 5% of the population three or more deviations away. And, in reality, those are just standard bell curve statistics; the bell curve for caloric requirements may be different, and possibly even less accurate.

So, to remove all of the math and frustration, simply track the intake of your *food*, and adjust accordingly. The same rules also apply for supplementation. Though I give my recommendations, you might have to adjust your intakes based on your needs and results.

If you just absolutely must have some numbers to work with, I like the simple table that Dr. John Berardi and his *Precision Nutrition* team have created.

Your Activity Level	Your Goal		
	Lose Weight	Maintain Weight	Gain Weight
Sedentary	Bodyweight(lbs) x 10-12	Bodyweight(lbs) x 12-14	Bodyweight(lbs) x 16-18
Moderately Active	Bodyweight(lbs) x 12-14	Bodyweight(lbs) x 14-16	Bodyweight(lbs) x 18-20
Very Active	Bodyweight(lbs) x 14-16	Bodyweight(lbs) x 16-18	Bodyweight(lbs) x 20-22

(Table from Precision Nutrition 3, Individualization Guide, pg. 4)

Another point that I must discuss is your expectations about your rate of progress. Though people “know” that they won’t lose 20lbs of fat or gain 10lbs of muscle in a month, we all secretly hope that *we* are different, and that with the right plan and dedication *we* can make it happen.

Sorry, folks; it just isn’t going to happen. The human body has amazing abilities, but it does have its limits.

If your goal is fat loss, then aim for 1-2lbs/week loss. Now, this can vary quite widely, as the more fat you have to lose the faster it will come off, and the leaner you are the slower that loss is. Shows like *The Biggest Loser* lead people

to believe that they, too, will lose 10lbs/week, but unless you are as big as those people, exercising multiple hours per day, and eating a near-starvation diet, it isn't likely.

While rates faster than 1-2lbs/week are achievable, they will not last long and are not a sustainable rate of progress. As I mentioned, the leaner you are, the slower fat loss occurs – often around 0.5lbs/week. If you calculate it out, 1-2lbs/week would equate to 52-104lbs lost in a year! Does that rate of loss seem so slow and conservative now? Even 0.5lbs/week would be 26lbs in a year...not too shabby!

People need to keep the big picture in mind and remember that this is a lifestyle, not just some quick “health kick” to lose 15lbs and then simply return to old habits and quickly regain that lost weight.

If weight gain is your goal, there is a genetic limit there as well. Below is a table that Lyle McDonald came up with that I agree with wholeheartedly, so rather than reinvent the wheel...

Years of Proper Training	Potential Rate of Muscle Gain per Year
1	20-25 pounds (2 pounds per month)
2	10-12 pounds (1 pound per month)
3	5-6 pounds (0.5 pound per month)
4+	2-3 pounds (not worth calculating)

(Table from bodyrecomposition.com: *What's My Genetic Muscular Potential?*)

These results are more appropriate for males, as females would achieve approximately half the rate of gain. Age plays a factor as well, as the older you are (and the less testosterone and other anabolic hormones you have), the slower your rate of gain usually is.

It is possible to gain muscle mass at more rapid rates, as I have personally assisted many underweight high school athletes gain up to double the projected 20-25lbs of mass in a year. The key to note here is the kids that made these incredible gains were generally very tall and very underweight, as well as being in the midst of the incredibly anabolic time period known as puberty. This, unfortunately, is not the norm.

The point is to keep your expected rate of progress within reason. Raising expectations beyond the possible limits of bodily adaptation is a surefire recipe for failure.

One final note on personalization that I want to make is in the area of pre and post-training nutrition. This is an area that I feel is rife with mythology, misconception and just downright tomfoolery.

The goal of the pre-training time period (3-hours to 0-min pre-training) is to fuel the upcoming training session, maintain hydration, boost training performance, increase muscle protein synthesis, decrease muscle protein breakdown and spare muscle and liver glycogen.

The goal of the post-training time period (0-min to 2-hours post-training) is to recover from the completed training session, maintain hydration, increase muscle protein synthesis, decrease muscle protein breakdown and restore muscle and liver glycogen.

Contrary to popular belief, it is not necessary – and possibly even less optimal – to use refined carbohydrates and sugars to “spike” insulin and restore muscle and liver glycogen as rapidly as possible.

The research is pretty clear that in the majority of situations, a blend of unrefined carbohydrates, as well as some fructose from fruit (to restore or maintain liver glycogen), is actually better tolerated, restores glycogen equally as rapidly over a 24-hour time period, and leads to better next day performance. The *only* exception to this may be endurance athletes who have two glycogen-depleting sessions within eight hours of each other, as speed of glycogen replenishment is vastly important in this case.

What about the need to maximally spike insulin? Well, the research is also pretty clear on that topic. It has been shown that muscle protein breakdown is maximally inhibited when insulin is only 2-3 times above normal, which is easily accomplished by a balanced meal or smoothie a few hours *before* training. In fact, proper pre-training nutrition is at least equal, and probably even more important than post-training nutrition.

Spiking insulin post-training does not require huge intakes of refined carbohydrates either, as it should already be elevated from your pre-training

meal or smoothie. A high quality mixed meal has been shown to stimulate insulin production well above the levels needed for maximal anabolic and anti-catabolic needs for at least 5 hours.

Well, what about the need for the fastest acting proteins ever? Research has also shown that proteins like whey hydrolysate, which are pre-digested for faster absorption, may actually be too fast. They are in and out of the bloodstream too rapidly to maximally stimulate protein synthesis and inhibit protein breakdown. Any high quality complete protein will be sufficient to maximize muscle protein synthesis.

Finally, what about fat around training? Many people have noted that fat will delay the speed with which the proteins and carbohydrates will reach the blood stream. I say, so what? We have already covered that speed of glycogen replenishment and speed of protein assimilation are clearly not what they have been made out to be.

In fact, as has already been noted in this guide there was research done comparing skim milk to whole milk post-training, with whole milk providing a higher net protein balance. There is also other research showing that consuming as much as 55 grams of fat post-training, and in the two subsequent meals did not inhibit glycogen replenishment. Clearly, fat does not inhibit the benefits of protein and carbohydrate consumption around training; it actually seems to provide some benefits of its own!

The best pre- and post-training meals will contain a combination of high quality protein, high quality carbohydrates, healthy fats and some fruit and/or vegetables. These whole foods provide a plethora of nutrients: protein, carbohydrates, fats, fiber, vitamins, minerals, antioxidants, and phytonutrients that supply energy, decrease inflammation and boost recovery.

These meals can come in the form of solid food or smoothies, and the amount of each macronutrient can vary depending on your needs as well as personal preferences and tolerances. I will also note that for those who train in the morning, your pre-training smoothies can be sipped throughout the training session if you prefer, rather than trying to drink it all before. It is all about finding what works best for you, within the context of real, whole food.

Online Nutrition Consulting



If you truly want to take your nutrition and your results to the next level, consider enrolling in Online Nutrition Consulting with me, Brian St. Pierre.

I am a Certified Sports Nutritionist (CISSN) through the International Society of Sports Nutritionists (ISSN) as well as a Certified Strength and Conditioning Specialist (CSCS) through the National Strength and Conditioning Association (NSCA). I received my degree in Human Nutrition and Dietetics from the University of Maine, where I am now pursuing my Master's degree in Human Nutrition and Dietetics, as well as completing a Dietetic Internship to become a Registered Dietitian.

I worked for three years with Eric Cressey at Cressey Performance as the Nutritionist and a Strength and Conditioning Coach. At Cressey Performance, I had the privilege and experience of working with dozens of professional and Olympic athletes, hundreds of college and high school athletes as well as weekend warriors, 9-5ers and the general population. From that experience, I have developed a tested and proven nutritional system that will produce dramatic improvements in body composition, athletic performance and overall health and vitality.

My method is based on making your nutritional habits work for you. My goal is not to make you eat like me; it is to help you discover how to take what you are currently eating and improve upon it, using mostly foods you already know and enjoy. This is not a one-size-fits-all system; it is completely customized from the ground up to fit you and your needs.

When you do Online Nutrition Consulting with me you have a few options at your disposal, depending on needs and budget. Each option is described in detail on the next page, but if you have more questions, please feel free to contact me.

As an owner of the *Show and Go Nutrition Guide*, you get Online Nutrition Consulting at a discounted rate, so be sure to let me know by making the subject line of your email "Show and Go Nutrition Consulting." To find out more, you can contact me at brian@brianstpierretraining.com or check out my website www.brianstpierretraining.com. Act soon, because space is limited!

Option 1: One-Time Phone Consultation

- Comprehensive Nutrition Questionnaire
 - Dietary restrictions, allergies, intolerances, likes and dislikes, cultural food preferences
- 3-Day Food Log
 - Client logs everything they eat and drink for 3 days
- One 30-Minute Phone Consult
 - Analyze and discuss 3-Day Food Log and diet
 - Discuss everything client is doing well and anything that needs to be modified or added
 - Comprehensive Q & A

Option 2: One-Month Nutrition Consultation

- Comprehensive Nutrition Questionnaire
 - Dietary restrictions, allergies, intolerances, likes and dislikes, cultural food preferences
- Weekly 3-Day Food Logs
 - Every week, client logs everything they eat and drink for 3 days
 - Analyzed and emailed back with recommended changes, tips, ideas, recipes and more
 - Ensure that client is making incremental and progressive improvements
- One 30-Minute Phone Consult
 - Analyze and discuss initial 3-Day Food Log and diet
 - Discuss everything client is doing well and anything that needs to be modified or added
 - Comprehensive Q & A
- 1 Month of Unlimited Email Access (48 hour return time)
 - Unlimited questions, thoughts or ideas that I will gladly answer

References

Introduction

1. Prior IA, et al. Cholesterol, Coconuts, and Diet on Polynesian Atolls: A Natural Experiment: The Pukapuka and Tokelau Island Studies. *Amer J Clin Nutr.* 1981 Aug;34(8):1552-1561.
2. Stanhope JM, et al. The Tokelau Island Migrant Study: serum lipid concentrations in two environments. *J Chronic Dis.* 1981;34(2-3):45-55.
3. Bjerregaard P, Mulvad G, Pedersen HS. Cardiovascular risk factors in Inuit of Greenland. *Int J Epidemiol.* 1997; 26:1182–90.
4. Lindeberg S, Lundh B. Apparent absence of stroke and ischaemic heart disease in a traditional Melanesian island: a clinical study in Kitava. *J Intern Med.* 1993 Mar;233(3):269-75.
5. Lindeberg S, et al. Cardiovascular risk factors in a Melanesian population apparently free from stroke and ischaemic heart disease: the Kitava study. *J Intern Med.* 1994 Sep;236(3):331-40.
6. Mann GV, et al. Cardiovascular disease in the Masai. *I Atheroscler Res.* 4: 289, 1964.
7. Cordain L, Eaton SB, Miller JB, Mann N, Hill K. The paradoxical nature of hunter-gatherer diets: meat-based, yet non-atherogenic. *Eur J Clin Nutr.* 2002 Mar;56 Suppl 1:S42-52.

The Truth About Saturated Fat & Cholesterol

1. Hume R, Boyd GS. Cholesterol metabolism and steroid-hormone production. *Biochem Soc Trans* 1978;6:893-898.
2. Bouillon R, Okamura WH, Norman AW. Structure-function relationships in the vitamin D endocrine system. *Endocrin Rev.* 1995;16:200-257
3. Alberts B, Bray D, Lewis J, et al. *Molecular Biology of the Cell.* 3rd ed. New York, N.Y.: Garland Publishing; 1994.
4. Girao H, Mota C, Pereira P. Cholesterol may act as an antioxidant in lens membranes. *Curr Eye Res.* 1999;18:448-454.
5. Barres BA, Smith SJ. Cholesterol – making or breaking the synapse. *Science* 2001;294:1296-1297.
6. American Heart Association Scientific Sessions, 2008
7. Mager A, Orvid K, et al. Impact of Homocystein-Lowering Vitamin Therapy on Long-Term Outcome of Patients with coronary artery disease. *Am J Card.* 2009;104(6):745-749.

8. Kastelein JJ, Akdim F, Stroes ES, et al; ENHANCE Investigators. Simvastatin with or without ezetimibe in familial hypercholesterolemia. *N Engl J Med*. 2008;358(14):1431-1443.
9. Cowell SJ, Newby DE, Prescott RJ, et al; Scottish Aortic Stenosis and Lipid Lowering Trial, Impact on Regression (SALTIRE) Investigators. A randomized trial of intensive lipid-lowering therapy in calcific aortic stenosis. *N Engl J Med*. 2005;352(23):2389-2397.
10. Knopp RH, d'Emden M, Smilde JG, Pocock SJ. Efficacy and safety of atorvastatin in the prevention of cardiovascular end points in subjects with type 2 diabetes: the Atorvastatin Study of Prevention of Coronary Heart Disease Endpoints in Non-Insulin-Dependent Diabetes Mellitus (ASPEN). *Diabetes Care*. 2006;29(7):1478-1485.
11. Tavazzi L, Maggioni AP, Marchioli R, et al; GISSI-HF Investigators. Effect of rosuvastatin in patients with chronic heart failure (the GISSI-HF trial): a randomized, double-blind, placebo-controlled trial. *Lancet*. 2008;372(9645):1231-1239.
12. Barter PJ, Caulfield M, Eriksson M, et al; ILLUMINATE Investigators. Effects of torcetrapib in patients at high risk for coronary events. *N Engl J Med*. 2007;357(21):2109-2122.
13. Sachdeva A, Cannon C, et al. Lipid levels in patients hospitalized with coronary artery disease: An analysis of 136,905 hospitalizations in Get With The Guidelines. *Am Heart J*. Jan 2009:111-117.
14. Krauss RM, et al. Changes in lipoprotein(a), oxidized phospholipids and LDL subclasses with a low-fat, high-carbohydrate diet. *J Lipid Res*. 2010 Aug 16.
15. Krauss RM. Atherogenic lipoprotein phenotype and diet-gene interactions. *J Nutr*. 2001 Feb;131(2):340S-35S.
16. Krauss RM, et al. Change in dietary saturated fat intake is correlated with change in mass of large low-density-lipoprotein particles in men. *Am J Clin Nutr*. 1998 May;67(5):828-36.
17. Dreon DM, Fernstrom HA, Miller B, Krauss RM. Low-density lipoprotein subclass patterns and lipoprotein response to a reduced-fat diet in men. *Federation of American Societies for Experimental Biology*. 1994 Jan;8(1):121-6.
18. Krauss RM, et al. Ion mobility analysis of lipoprotein subfractions identifies three independent axes of cardiovascular risk. *Arterioscler Thromb Vasc Biol*. 2009 Nov;29(11):1975-80.
19. Corti MC, Guralnick JM, Salive ME, et al. Clarifying the direct relation between total cholesterol levels and death from coronary heart disease in older persons. *Ann Intern Med*. 1997;126:539-544.
20. Malcolm Kendrick. Why the Cholesterol-Heart Disease Theory is Wrong. http://www.redflagsweekly.com/kendrick/2002_nov28.html. (November 28, 2002).

21. McNamara DJ. Dietary cholesterol and atherosclerosis. *Biochim Biophys Acta*. 2000 Dec 15;1529(1-3):310-20.
22. McNamara DJ. The impact of egg limitations on coronary heart disease risk: do the numbers add up? *J Am Coll Nutr*. 2000 Oct;19(5 Suppl):540S-548S.
23. Kritchevsky SB, Kritchevsky D. Egg consumption and coronary heart disease: an epidemiologic overview. *J Am Coll Nutr*. 2000 Oct;19(5 Suppl):549S-555S.
Ancel Keys, "Letter: Normal Plasma Cholesterol in a Man Who Eats 25 Eggs a Day," *N Engl J Med*. 1991 Aug;325(8):584.
24. Krauss RM, et al. Saturated fat, carbohydrate, and cardiovascular disease. *Am J Clin Nutr*. 2010 March;91(3): 502 - 509.
25. Siri-Tarino PW, Sun Q, Hu FB, and Krauss RM. Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular disease. *Am J Clin Nutr*. 2010 March;91(3): 535-546.
26. Paul O, Lepper MH, Phelan WH. A Longitudinal Study of Coronary Heart Disease. *Circulation*. 1963;28:20.
27. Morris JN, Marr JW, and Clayton DG. Diet and heart: a postscript. *Br Med J*. 1977 November 19; 2(6098):1307–1314.
28. Yano K, et al. Dietary intake and the risk of coronary heart disease in Japanese men living in Hawaii. *Am J Clin Nutr*. 31(7):1270-1279.
29. Garcia-Palmieri MR, et al. Relationship of dietary intake to subsequent coronary heart disease incidence: The Puerto Rico Heart Health Program. *Am J Clin Nutr*. 33(8):1818-1827.
30. Shekelle RB, Shryock AM, Oglesby P, et al. Diet, Serum Cholesterol, and Death from Coronary Heart Disease — The Western Electric Study. *N Engl J Med*. 1981;304:65–70.
31. Farchi G, Mariotti S, Menotti A, et al. Diet and 20-y mortality in two rural population groups of middle-aged men in Italy. *Am J Clin Nutr*. 50(5):1095-1103.
32. Ascherio A, et al. Dietary fat and risk of coronary heart disease in men: cohort follow up study in the United States. *Br Med J*. 1996;313:84.
33. Hu FB, et al. Dietary Fat Intake and the Risk of Coronary Heart Disease in Women. *N Engl J Med* 1997; 337:1491-1499.
34. McAfee AJ, McSorley EM, Cuskelly GJ, et al. Red meat from animals offered a grass diet increases plasma and platelet n-3 PUFA in healthy consumers. *Br J Nutr*. 2010 Sep 1:1-10.

35. Daley CA, Abbott A, Doyle PS, Nader GA, Larson S. A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef. *Nutr J*. 2010 Mar 10;9:10.
36. Micha R, Wallace SK, Mozaffarian D. Red and processed meat consumption and risk of incident coronary heart disease, stroke, and diabetes mellitus: a systematic review and meta-analysis. *Circulation*. 2010 Jun 1;121(21):2271-83.
37. German JB, Gibson RA, Krauss RM, et al. A reappraisal of the impact of dairy foods and milk fat on cardiovascular disease risk. *Eur J Nutr*. 2009 Jun;48(4):191-203.
38. Bonthuis M, Hughes MCB, Ibiebele TI, Green AC, and van der Pols JC. Dairy consumption and patterns of mortality of Australian adults. *Eur J Clin Nutr*. 2010;64:569–577.
39. Elwood PC, Strain JJ, Robson PJ, et al. Milk consumption, stroke, and heart attack risk: evidence from the Caerphilly cohort of older men. *J Epidemiol Community Health*. 2005;59:502-505
40. Elwood PC, Pickering JE, Hughes J, Fehily AM, Ness AR. Milk drinking, ischaemic heart disease and ischaemic stroke II. Evidence from cohort studies. *Eur J Clin Nutr*. 2004 May;58(5):718-24.
41. Berkey CS, Rockett HR, Willett WC, Colditz GA. Milk, dairy fat, dietary calcium, and weight gain: a longitudinal study of adolescents. *Arch Pediatr Adolesc Med*. 2005 Jun;159(6):543-50.
42. Rosell M, Håkansson NN, Wolk A. Association between dairy food consumption and weight change over 9 y in 19 352 perimenopausal women. *Am J Clin Nutr*. 2006 Dec;84(6):1481-1488.
43. University of Gothenburg (2009, November 4). Children Who Often Drink Full-fat Milk Weigh Less, Swedish Research Finds. *ScienceDaily*.
44. Foster GD, Wadden TA, Peterson FJ. A controlled comparison of three very-low-calorie diets: effects on weight, body composition, and symptoms. *Am J Clin Nutr*. 1992;55:811-817.
45. Elliot TA, Cree MG, Sanford AP, Wolfe RR, Tipton KD. Milk ingestion stimulates net muscle protein synthesis following resistance exercise. *Med Sci Sports Exerc*. 2006 Apr;38(4):667-74.
46. Dhiman TR, Anand GR, et al. Conjugated linoleic acid content of milk from cows fed different diets. *J Dairy Sci*. 1999;82(10):2146-56.
47. Smit LA, Baylin A, Campos H. Conjugated linoleic acid in adipose tissue and risk of myocardial infarction. *Am J Clin Nutr*. 2010 Jul;92(1):34-40.
48. Geleijnse JM, Vermeer C, Grobbee DE, et al. Dietary Intake of Menaquinone Is Associated with a Reduced Risk of Coronary Heart Disease: The Rotterdam Study. *J Nutr*. 2004 Nov;134:3100-3105.

49. Gast GC, de Roos NM, Sluijs I, et al. A high menaquinone intake reduces the incidence of coronary heart disease. *Nutr Metab Cardiovasc Dis*. 2009 Sep;19(7):504-10.
50. Nimptsch K, Rohrmann S, Kaaks R, Linseisen J. Dietary vitamin K intake in relation to cancer incidence and mortality: results from the Heidelberg cohort of the European Prospective Investigation into Cancer and Nutrition (EPIC-Heidelberg). *Am J Clin Nutr*. 2010 May;91(5):1348-58.
51. Spronk HM, Soute BA, Schurgers LJ, et al. Tissue-specific utilization of menaquinone-4 results in the prevention of arterial calcification in warfarin-treated rats. *J Vasc Res*. 2003 Nov-Dec;40(6):531-7.
52. Lee KT, Nail R, Sherman LA, et al. Geographic pathology of myocardial infarction. *Am J Cardiol*. 1964 Jan;13:30-40.
53. Mann GV, Spoerry A, Gray M, Jarashow D. Atherosclerosis in the Masai. *Am J Epidemiol*. 1972 Jan;95(1):26-37.
54. Prior IA, et al. Cholesterol, Coconuts, and Diet on Polynesian Atolls: A Natural Experiment: The Pukapuka and Tokelau Island Studies. *Amer J Clin Nutr*. 1981 Aug;34(8):1552-1561.
55. Stanhope JM, et al. The Tokelau Island Migrant Study: serum lipid concentrations in two environments. *J Chronic Dis*. 1981;34(2-3):45-55.
56. Bjerregaard P, Mulvad G, Pedersen HS. Cardiovascular risk factors in Inuit of Greenland. *Int J Epidemiol*. 1997; 26:1182-90.
57. Lindeberg S, Lundh B. Apparent absence of stroke and ischaemic heart disease in a traditional Melanesian island: a clinical study in Kitava. *J Intern Med*. 1993 Mar;233(3):269-75.
58. Lindeberg S, et al. Cardiovascular risk factors in a Melanesian population apparently free from stroke and ischaemic heart disease: the Kitava study. *J Intern Med*. 1994 Sep;236(3):331-40.
59. Mann GV, et al. Cardiovascular disease in the Masai. I Atheroscler Res. 4: 289, 1964.
60. Cordain L, Eaton SB, Miller JB, Mann N, Hill K. The paradoxical nature of hunter-gatherer diets: meat-based, yet non-atherogenic. *Eur J Clin Nutr*. 2002 Mar;56 Suppl 1:S42-52.

Grass-fed Meat or Conventional: What's the Deal?

1. McAfee AJ, McSorley EM, Cuskelly GJ, et al. Red meat from animals offered a grass diet increases plasma and platelet n-3 PUFA in healthy consumers. *Br J Nutr*. 2010 Sep 1:1-10.
2. Daley CA, Abbott A, Doyle PS, Nader GA, Larson S. A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef. *Nutr J*. 2010 Mar 10;9:10.

3. Leheska JM, Thompson LD, Howe JC, et al. Effects of conventional and grass-feeding systems on the nutrient composition of beef. *J Anim Sci.* 2008 Dec;86(12):3575-85.
4. Ponnampalam EN, Mann NJ, Sinclair AJ. Effect of feeding systems on omega-3 fatty acids, conjugated linoleic acid and trans fatty acids in Australian beef cuts: potential impact on human health. *Asia Pac J Clin Nutr.* 2006;15(1):21-9.
5. Manerba A, Vizzardì E, Metra M, Dei Cas L. n-3 PUFAs and cardiovascular disease prevention. *Future Cardiol.* 2010 May;6(3):343-50.
6. Lavie CJ, Milani RV, Mehra MR, Ventura HO. Omega-3 polyunsaturated fatty acids and cardiovascular diseases. *J Am Coll Cardiol.* 2009 Aug 11;54(7):585-94.
7. Berquin IM, Edwards IJ, Chen YQ. Multi-targeted therapy of cancer by omega-3 fatty acids. *Cancer Lett.* 2008 Oct 8;269(2):363-77.
8. Lin PY, Su KP. A meta-analytic review of double-blind, placebo-controlled trials of antidepressant efficacy of omega-3 fatty acids. *J Clin Psychiatry.* 2007 Jul;68(7):1056-61.
9. Fotuhi M, Mohassel P, Yaffe K. Fish consumption, long-chain omega-3 fatty acids and risk of cognitive decline or Alzheimer disease: a complex association. *Nat Clin Pract Neurol.* 2009 Mar;5(3):140-52.
10. Cheryl Long and Tabitha Alterman. Meet Real Free-Range Eggs. <http://www.motherearthnews.com/Real-Food/2007-10-01/Tests-Reveal-Healthier-Eggs.aspx>. (October 1, 2010).
11. Aro A, Mannisto S, Salminen I, et al. Inverse Association between Dietary and Serum Conjugated Linoleic Acid and Risk of Breast Cancer in Postmenopausal Women. 2000;38(2):151-157.

Organic Produce or Conventional: Is There a Difference?

1. Holt EM, Steffen LM, Moran A, et al. Fruit and vegetable consumption and its relation to markers of inflammation and oxidative stress in adolescents. *J Am Diet Assoc.* 2009 Mar;109(3):414-21.
2. Györéne KG, Varga A, Lugasi A. A comparison of chemical composition and nutritional value of organically and conventionally grown plant derived foods. *Orv Hetil.* 2006 Oct 29;147(43):2081-90.
3. Dangour AD, Dodhia SK, Hayter A, Allen E, Lock K, Uauy R. Nutritional quality of organic foods: a systematic review. *Am J Clin Nutr.* 2009 Sep;90(3):680-5.
4. Alavanja MC, Hoppin JA, Kamel F. Health Effects of Chronic Pesticide Exposure: Cancer and Neurotoxicity. *Ann Rev Pub Health.* 2004 Apr;25:155-197.

5. Alavanja MC, Ward MH, Reynolds P. Carcinogenicity of agricultural pesticides in adults and children. *J Agromedicine*. 2007;12(1):39-56.
6. Kim J, Peterson KE, Scanlon KS, Fitzmaurice GM, et al. Trends in overweight from 1980 through 2001 among preschool-aged children enrolled in a health maintenance organization. *Obesity (Silver Spring)*. 2006 Jul;14(7):1107-12.
7. Grün F, Blumberg B. Environmental obesogens: organotins and endocrine disruption via nuclear receptor signaling. *Endocrinology*. 2006 Jun;147(6 Suppl):S50-5.
8. Newbold RR, Padilla-Banks E, Jefferson WN. Adverse effects of the model environmental estrogen diethylstilbestrol are transmitted to subsequent generations. *Endocrinology*. 2006 Jun;147(6 Suppl):S11-7.
9. Newbold RR, Padilla-Banks E, Snyder RJ, Jefferson WN. Perinatal exposure to environmental estrogens and the development of obesity. *Mol Nutr Food Res*. 2007 Jul;51(7):912-7.
10. Newbold RR. Impact of environmental endocrine disrupting chemicals on the development of obesity. *Hormones (Athens)*. 2010 Jul-Sep;9(3):206-17.
11. EWG's 2010 Shopper's Guide to Pesticides. <http://www.foodnews.org/>. (March 10,2009)

BSP's Thoughts on Vegetarian Diets

1. Michael Pollan. *The Omnivore's Dilemma*. 2006.
2. Key TJ, Appleby PN, Rosell MS. Health effects of vegetarian and vegan diets. *Proc Nutr Soc*. 2006 Feb;65(1):35-41.
3. Dagnelie PC. Nutrition and health--potential health benefits and risks of vegetarianism and limited consumption of meat in the Netherlands. *Ned Tijdschr Geneesk*. 2003 Jul 5;147(27):1308-13.
4. Ginter E. Vegetarian diets, chronic diseases and longevity. *Bratisl Lek Listy*. 2008;109(10):463-6.

Supplements

1. Manerba A, Vizzard E, Metra M, Dei Cas L. n-3 PUFAs and cardiovascular disease prevention. *Future Cardiol*. 2010 May;6(3):343-50.
2. Lavie CJ, Milani RV, Mehra MR, Ventura HO. Omega-3 polyunsaturated fatty acids and cardiovascular diseases. *J Am Coll Cardiol*. 2009 Aug 11;54(7):585-94.
3. Berquin IM, Edwards IJ, Chen YQ. Multi-targeted therapy of cancer by omega-3 fatty acids. *Cancer Lett*. 2008 Oct 8;269(2):363-77.

4. Lin PY, Su KP. A meta-analytic review of double-blind, placebo-controlled trials of antidepressant efficacy of omega-3 fatty acids. *J Clin Psychiatry*. 2007 Jul;68(7):1056-61.
5. Fotuhi M, Mohassel P, Yaffe K. Fish consumption, long-chain omega-3 fatty acids and risk of cognitive decline or Alzheimer disease: a complex association. *Nat Clin Pract Neurol*. 2009 Mar;5(3):140-52.
6. Martins JG. EPA but not DHA appears to be responsible for the efficacy of omega-3 long chain polyunsaturated fatty acid supplementation in depression: evidence from a meta-analysis of randomized controlled trials. *J Am Coll Nutr*. 2009 Oct;28(5):525-42.
7. <http://www.vitamindcouncil.org/>
8. Grant WB, Juzeniene A, Moan JE. Health benefit of increased serum 25(OH)D levels from oral intake and ultraviolet-B irradiance in the Nordic countries. *Scand J Public Health*. 2010 Sep 3.
9. Grant WB, Schuitmaker GE. Health benefits of higher serum 25-hydroxyvitamin D levels in The Netherlands. *J Steroid Biochem Mol Biol*. 2010 Jul;121(1-2):456-458.
10. Bischoff-Ferrari HA, Shao A, Dawson-Hughes B, Hathcock J, Giovannucci E, Willett WC. Benefit-risk assessment of vitamin D supplementation. *Osteoporos Int*. 2010 Jul;21(7):1121-32.
11. Calder P. Branched-chain amino acids and immunity. *Journal of Nutrition*. 2006. 136(1 Suppl):288S-293S.
12. Bassit R. The effect of BCAA supplementation upon the immune response of triathletes. *Medicine and Science in Sports and Exercise*. 2000. 32(7):1214-1219.
13. Marshall K. Therapeutic applications of whey protein. *Altern Med Rev*. 2004. 9(2):136-156.
14. Bounous G. The influences of dietary whey protein on tissue glutathione and the diseases of aging. *Clin Invest Med*. 1989. 12:343-349.
15. Bounous G. Whey protein concentrate and glutathione modulation in cancer treatment. *Anticancer Res*. 2000. 20:4785-4792.
16. Gill H, Prasad J. Probiotics, immunomodulation, and health benefits. *Adv Exp Med Biol*. 2008;606:423-54.
17. Giorgi PL. Probiotics. A review. *Recent Prog Med*. 2009 Jan;100(1):40-7.
Haller D, Antoine JM, Bengmark S, Enck P, Rijkers GT, Lenoir-Wijnkoop I. Guidance for substantiating the evidence for beneficial effects of probiotics: probiotics in chronic inflammatory bowel disease and the functional disorder irritable bowel syndrome. *J Nutr*. 2010 Mar;140(3):690S-7S.

18. Rodriguez NR, DiMarco NM, Langley S; American Dietetic Association; Dietitians of Canada; American College of Sports Medicine. Position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and athletic performance. *J Am Diet Assoc.* 2009 Mar;109(3):509-27.
19. Bemben MG, Lamont HS. Creatine supplementation and exercise performance: recent findings. *Sports Med.* 2005;35(2):107-25.
20. Ling J, Kritikos M, Tiplady B. Cognitive effects of creatine ethyl ester supplementation. *Behav Pharmacol.* 2009 Dec;20(8):673-9.
21. Rae C, Digney AL, McEwan SR, Bates TC. Oral creatine monohydrate supplementation improves brain performance: a double-blind, placebo-controlled, cross-over trial. *Proc Biol Sci.* 2003 Oct 22;270(1529):2147-50.
22. Kendrick IP, Harris RC, Kim HJ, Kim CK, Dang VH, Lam TQ, Bui TT, Smith M, Wise JA. The effects of 10 weeks of resistance training combined with beta-alanine supplementation on whole body strength, force production, muscular endurance and body composition. *Amino Acids.* 2008 May;34(4):547-54.
23. Derave W, Everaert I, Beeckman S, Baguet A. Muscle carnosine metabolism and beta-alanine supplementation in relation to exercise and training. *Sports Med.* 2010 Mar 1;40(3):247-63.
24. Artioli GG, Gualano B, Smith A, Stout J, Lancha AH Jr. Role of beta-alanine supplementation on muscle carnosine and exercise performance. *Med Sci Sports Exerc.* 2010 Jun;42(6):1162-73.

Personalization

1. Dr. John Berardi. Precision Nutrition 3. Individualization Guide. Pg. 4. 2009.
2. Lyle McDonald. What's My Genetic Muscular Potential? www.bodyrecomposition.com. (June 19, 2009)
3. Erith S, et al. The effect of high carbohydrate meals with different glycemic indices on recovery of performance during prolonged intermittent high-intensity shuttle running. *Int J Sport Nutr Exerc Metab.* 2006 Aug;16(4):393-404.
4. Stevenson E. Improved recovery from prolonged exercise following the consumption of low glycemic index carbohydrate meals. *Int J Sport Nutr Exerc Metab.* 2005 Aug;15(4):333-49.
5. Jentjens RL, Jeukendrup AE. High rates of exogenous carbohydrate oxidation from a mixture of glucose and fructose ingested during prolonged cycling exercise. *Br J Nutr.* 2005 Apr;93(4):485-92.

6. Jentjens RL, et al. Oxidation of exogenous glucose, sucrose and maltose during prolonged cycling exercise. *J Apply Physiol.* 2004 Apr;96(4):1285-91.
7. Jentjens RL, et al. Oxidation of combined ingestion of glucose and fructose during exercise. *J Apply Physiol.* 2004 Apr;96(4):1277-84.
8. Jentjens RL, Jeukendrup AE. Determinants of postexercise glycogen synthesis during short-term recovery. *Sports Med.* 2003;33(2):117-44.
9. Bloom PC, et al. Effect of different post-exercise sugar diets on the rate of muscle glycogen synthesis. *Med Sci Sports Exerc.* 1987 Oct;19(5):491-6.
10. Burke LM, et al. Effect of coingestion of fat and protein with carbohydrate feedings on muscle glycogen storage. *J Appl Physiol.* 1995 Jun;78(6):2187-92.
11. Rennie MJ, et al. Branched-chain amino acids as fuels and anabolic signals in human muscle. *J Nutr.* 2006 Jan;136(1 Suppl):264S-8S.
12. Tipton KD, et al. Timing of amino acid-carbohydrate ingestion alters anabolic response of muscle to resistance exercise. *Am J Physiol Endocrinol Metab.* 2001 Aug;281(2):E197-206.
13. Tipton KD, et al. Stimulation of net muscle protein synthesis by whey protein ingestion before and after exercise. *Am J Physiol Endocrinol Metab.* 2007 Jan;292(1):E71-6.
14. Farnfield MM, et al. Plasma amino acid response after ingestion of different whey protein fractions. *Int J Food Sci Nutr.* 2008 May 8:1-11.
15. LaCroix M, et al. Compared with casein or total milk protein, digestion of milk soluble proteins is too rapid to sustain the anabolic postprandial amino acid requirement. *Am J Clin Nutr.* 2006 Nov;84(5):1070-9.
16. Elliot TA, et al. Milk ingestion stimulates net muscle protein synthesis following resistance exercise. *Med Sci Sports Exerc.* 2006 Apr;38(4):667-74.
17. Fox AK, et al. Adding fat calories to meals after exercise does not alter glucose tolerance. *J Appl Physiol.* 2004 Jul;97(1):11-6.
18. Keizer HA, et al. Influence of liquid and solid meals on muscle glycogen resynthesis, plasma fuel hormone response, and maximal physical working capacity. *Int J Sports Med.* 1987 Apr;8(2):99-104.
19. Reed MJ, et al. Muscle glycogen storage postexercise: effect of mode of carbohydrate administration. *J Appl Physiol.* 1989 Feb;66(2):99-104.