Eat STOP Eat™ New and Expanded Edition

The Shocking Truth That Makes Weight Loss Simple Again

By: Brad Pilon
Before you begin any physical fitness program, please consult a doctor or qualified health care practitioner.
The Elimination Experiment

Introduction

This manual was designed to be the answer to the question “How does Brad Pilon workout?”

It’s an odd question, and one that I never really thought people would ever ask. But, as Eat Stop Eat started to grow in popularity, more and more people became curious about how I workout.

Special Note: I use the words “train” and “workout” interchangeably, so if you see the word “train” in the following pages it really just means “workout”

So, to answer this question as honestly as I can - I train as effectively (and as little) as possible.

Now, before you start asking me questions about Mike Mentzer or Dorian Yates let me be upfront with you – This has nothing to do with High Intensity Training, Heavy Duty Training, Doggcrapp Training or any of that other stuff. It’s simply an effort to train as wisely as possible.

Wisdom is the combination of age and experience. It is the knowledge needed to live a good life. And, in my opinion wisdom is what separates people who go to the gym to get results from those who go to the gym simply for the sake of going to the gym.

I have made a conscious decision not to live my life chained to the gym, or to a consistent obsessive-compulsive urge to workout simply for the sake of working out.

I WILL NOT get pulled into the latest ‘how I should train’ fad, or the latest exercise that I ‘absolutely must try’.

To put it bluntly, my days of being an exercise groupie are over.

Just as I have said NO to Obsessive Compulsive Eating, I have also said NO to Obsessive Compulsive Exercising.

To be honest, it took me a long time to come to this decision.

If you are anything like me, then your ‘fitness life’ has probably undergone the following evolution.

You started off as a rookie (just like me), clueless to what you were supposed to do in the gym and believing anything that anyone told you. Then, you went on-line, read books, asked experts and became an intelligent trainer. You were the equivalent of a teenager...when it came to working out...you knew ‘Everything’.
After years of being an *intelligent* trainer you became an *experienced* trainer...starting to understand what does and doesn’t work for you. You started to see through the B.S. and realized that nothing, not a supplement or a special way of training will ever replace consistent hard work.

I spent almost twenty years going through this exact evolution, and just recently I accepted the fact that there was one last step I needed to take. Becoming experienced and intelligent in my approach to working out wasn’t enough, I needed to become *WISE*.

This last step was very, very difficult and it forced me to move way outside of my comfort zone. However, being forced outside of your comfort zone is almost always a good thing. In my opinion, you will never see success unless you move outside of your comfort zone.

I’ve moved outside of my comfort zone three times in my life, and each time, the result has been success.

The first time was when I was in my third year at university. Back then my goal was to bench press 300 pounds. Both my workout partner and I were mid-200 pound benchers and 300 pounds seemed like ‘the ultimate bench press goal’.

By the end of my 3rd year I was benching 280 pounds. It wasn’t 300, but I thought it was pretty darn good. After all, in my group of friends, I was one of the top benchers.

That summer I decided to stay at University and take some extra courses.

I can remember the first day I went to the gym during the summer semester - It was a COMPLETELY difference crowd of people who were working out.

My usual crew was not there, instead the gym was almost empty, except for 4 or 5 guys who were A LOT bigger and A LOT stronger than me.

Adam, Steve, John and Big Jeremy were all 50 or 60 pounds heavier than me, and they ALL benched pressed in the high 300’s.

At this point I had 2 options:

1) Stay in my comfort zone; workout by myself and try to hit 300 pounds on the bench.

2) Move out of my comfort zone; start training with the big boys, and accept the fact that 300 pounds was no longer an acceptable goal.

I picked the later. It was uncomfortable. Actually, that’s not true. It was darn right SCARY.

But I’m glad I did it.

By moving outside of my comfort zone 300 pounds was no longer a mental block, and by the end of August I was bench-pressing 355 pounds for sets of 2.

55 pounds more than what I previously thought was the ‘perfect’ Bench Press.
This was the first time I reaped the rewards of moving out of my comfort zone. The second time was when I walked away from my career in the supplement industry. I had a great job, a great title, a massive office, financial stability, good co-workers, a great staff, even the commute wasn’t too bad. But deep down I knew it wasn’t where I was meant to be.

I moved out of my comfort zone the day I resigned. And while this isn’t a rags to riches story, now I’m doing something I love. And this wouldn’t have been possible if I didn’t move outside of my comfort zone.

The third time I moved outside of my comfort zone was when I conducted the experiment I am about to describe to you in this manual. Oddly, it was this experiment that was the most difficult, because it challenged my ENTIRE belief system – And this is exactly what I am going to ask you to do.

I am going to ask you to make a 12-week commitment to move outside of your comfort zone and do the things YOU need to do to become successful.

Here is THE BEST PIECE OF ADVICE I have ever been given:

“If you want to be successful you have to do the things that unsuccessful people aren’t willing to do.”

Here is the second best piece of advice I have ever been given:

“There are things in your life that you do out of habit or because you THINK you should do them. If you aren’t benefiting in any way from these things, you need to eliminate them.”

It was this advice that drove me to conduct the experiment that has shaped the way I workout today.
A Goal-Driven Training Philosophy

The philosophy behind my approach to working out is simple: I want to maintain or build muscle while losing fat and I want to reach this goal as efficiently and effectively as possible.

There are a number of truths that I had to accept in order to really focus on this goal, and since this manual is written for people who want to become goal driven and reach their goals as easily as possible it only makes sense that I share these truths with you.

Firstly, most likely we are both passed the age where we can become a professional athlete. Our time to make multiple millions of dollars by playing a sport has past. Considering my draft year to become a professional hockey player was 1995, I really don’t see a need for me to dedicate my life to sports-specific training to become better at hockey.

I know athletic training is very popular right now – but no matter how many celebrity trainers try to convince me that I NEED to train like an athlete, the fact remains that athletic training is really only great for athletes... This is simply not an ideal use of my time and does NOT move me closer to my PERSONAL goals as quickly as I want. The same goes for power lifting.

If you are a power lifter then by definition you COMPETE in power lifting. It is your sport. And since it is your sport, the extreme wear and tear you put your body through is worthwhile. However, If you do not compete in power lifting then please...please...take it easy on your body.

I’ve competed in power lifting ONCE. When I was 23. This was over a decade ago. So, while the bench press, dead lift and squat are all extremely useful exercises, my goal is to be able to lift weight and look good for the rest of my life (or at least as long as possible). A torn pec, mangled rotator cuffs and herniated discs tend to get in the way of this goal.

The bottom line – As much as I love these lifts, OVERUSING them does not move me closer to MY SPECIFIC GOAL. The big lifts are incredibly effective at building muscle and strength when used properly, and can be incredibly destructive when used improperly and abused.

While some power lifters do follow a routine where they bench, squat and deadlift almost every day, for our goal of building larger, stronger muscles while losing body fat, we must use these exercises in the way that best suits our goal. In other words, we want to get the most ‘bang for our buck’ WITHOUT injuring ourselves.

The last truth was the hardest one for me to accept; the fact that muscle building is a painfully slow process, especially at my current age and advanced level of training experience, and outside of taking anabolic steroids (which is simply not an option for me) there is not much I can do to speed up this process.
What you need to know 1 – The Two Types of Muscle Growth

If you are reading this report then I’m going to make the assumption that you are interested in either building muscle or at least maintaining the muscle you already have while also losing as much body fat as possible.

With this in mind, it is important for you to know that there are actually two different types of muscle growth.

1) Juvenile Muscle Growth

2) Work Induced Muscle Growth

It is this little known fact that allows people to tell you their success stories of how they put on thirty pounds of muscle using their ‘patented’ workout program.

Upon closer inspection you will find that in most of the ‘before’ pictures these people are almost always teenagers, 17 or 18 years old, and in the ‘after’ pictures they are in their early twenties.

The magic lies in the fact that, for a brief period of your life, these two types of muscle growth actually overlap.

Juvenile Muscle Growth

When you are young your body is undergoing a type of growth called ‘juvenile growth’. Your muscles are growing at an unparalleled rate while your body grows both in height and maturity.

It is this type of muscle growth that is very sensitive to nutrient status, specifically calorie and protein intake.

This is why poorly fed children tend to be smaller than normally fed children. This is also why re-feeding a group of poorly fed children will quickly return them to normal ranges of muscle mass.

Juvenile growth continues until you’ve reached full skeletal maturity (when your bones fuse and stop growing), this typically happens when you’re a young adult in your early twenties.

Once you have reached your full mature size, this high-speed nutrient dependent growth comes screeching to a halt. In other words, you are simply done growing.
Work Induced Muscle Growth

Work induced growth is the second type of muscle growth. This type of muscle growth is caused by placing ‘mechanical stress’ (such as lifting weights) on your muscles.

The explanation behind Work Induced Muscle Growth is as follows: As you stress your muscles and challenge them by making them contract against some form of resistance, they respond by adapting to become stronger and larger. Work induced muscle growth is much slower than juvenile muscle growth and nutrient status (what, or how much you eat) has far less influence over this type of growth.

In other words, once you are a full grown adult, it is the work you do in the gym that determines how much more your muscles will grow! (not some magical diet). In fact, with the proper amount of work, human muscles can maintain or even increase in size during extended periods of very low calorie and moderate protein diets (for more information on this see www.EatStopEat.com)

Why You Grew So Quickly When You Were Younger

After puberty, when sex steroids like Testosterone are at their highest, the human body is in a unique state when work induced AND juvenile growth happen at the same time. This typically happens in the early to mid twenties.

This is why young (18-25 year old) men with little or no training experience are always the ones who see the most impressive weight gain results in clinical research trials (and I suspect this is also the reason why this is the type of person who is always asked to take part in muscle building research studies).

I think this overlapping effect of juvenile and work induced muscle growth is the reason today’s workout advice confuses so many of us, including me. The idea of training 6 days a week, while eating high amounts of calories and high protein may have worked great when we were 21, but not anymore.

The cold hard truth is that if you are older than 30 or you’ve been training for more than 10 years your days of gaining fifteen pounds of muscle over a summer are long gone. Protein and calories have a minimal, almost undetectable effect on our muscle growth.

For advanced trainers, we are left with nothing but hard work and proper recovery to stimulate our muscles to grow, and even when they do grow, they are going to grow very slowly.

Because of these facts we must slightly alter our goal. We can no longer simply have the goal of building muscle. We must now have the goal of progressively gaining a small amount of muscle in the areas of our bodies that make the MOST DIFFERENCE. For us the old mantra of “Eat, Train, Grow” simply does not apply any more.
The Specifics of Work Induced Growth

There are 3 major components to work induced growth:

1) Stress/Intensity – Most commonly referring to how much weight you are lifting, or more specifically how much force is being applied to each contraction.

2) Volume – Referring to how much work you do in a given time. You will most likely track your volume by reps x sets. For example 1 set of 10 reps is twice as much volume as 1 set of 5 reps.

3) Frequency – How often you workout, usually this is best thought of as how many times you workout per week. For example if you workout two times per week, you would say that you’re frequency is twice a week.

There are also external factors such as conditioning and recovery that play a large role in our ability to manage the amount of stress, volume, or frequency that we can place on our muscles before they simply break down.

And herein lies the philosophy behind this approach to fitness – we want to apply the minimum amount of stress, volume, and frequency necessary to make our muscles grow.

Now, this is NOT a program that promotes doing less for the sake of doing less. Our ultimate goal with our workouts is to build or maintain our muscle mass. We just want to find the RIGHT amount of work needed to reach this goal.

If, through trial and error, you discover that five days of working out every week, with 20 sets per workout is your minimum, then so be it. The important thing is you now know what your minimum is. There is nowhere to go from here but up.

And this is what we are striving for: A fundamental baseline to which we can add the necessary component of “more”.

Progress is always measured by the ability to do slightly more than before. But for weight training we need to know the minimum as well. Otherwise, we can very quickly become the obsessive-compulsive exerciser who does kettle bell workouts in the morning, bodyweight circuits in the afternoon, with power-lifting style workouts 2-3 times per week with some Olympic lifting thrown in for fun.

As I said in the introduction, my goal is not to live my life in the gym. Nor do I want to be the world’s greatest kettle bell thrower or Olympic lifter. I simply want to (as I have stated multiple times by now) build or maintain my muscle mass while losing as much body fat as
possible, and I want to do this with as little work as possible. Or, more precisely I want to do the exact amount of work necessary. No more, no less.

I am going to show you a simple and effective way to measure and calculate this EXACT amount. Not a rough estimate, not someone else’s answer, but your own unique answer to the question “How often, and with what amount of volume, and weight do I need to workout in order to maintain my current muscle mass?”

As an advanced lifter, you absolutely must know the answer to this question if you want to continue to make progress with your lifting and your goal of building or maintaining your muscle mass while losing body fat.

Without knowing this answer you are simply going to the gym for the sake of going to the gym.
What you need to know 2 – There are no Magic fat burning exercises.

It’s completely true that activity burns calories, and that some exercises burn more calories than others, but the truth is (as the old cliché goes) you can’t out exercise a bad diet.

Exercising to lose fat is a futile practice for a couple of reasons. First and foremost it is not nearly as effective as it’s made out to be.

Using running as an example, for me to ‘burn’ and extra 500 Calories every day I would have to run (or walk) roughly 7 kilometers (a little under 4.5 miles) EVERY. SINGLE. DAY.

Now, the idea of running 4.5 miles doesn’t bother me. The idea of running 4.5 miles EVERY SINGLE DAY scares the heck out of me. If we look back at the idea of efficiency and the fact that the body can only do so much work before it begins to breaks down, this is simply not an ideal use of my time.

If my goal were to become a better runner, then this would be a different story. However, for my goal of losing body fat, this is clearly not the most efficient method to use in my quest.

The exact same rule applies for interval training, bodyweight circuits, kettle bells etc. Generally, they all burn calories. They all elevate your heart rate, and will all burn fat. However, in terms of the value of your time, they all have relatively minor effects on fat burning when compared to diet.

I don’t do any of these types of exercise on a regular basis. I will dabble in them from time to time when the mood strikes me (specifically interval training since it is the best use of my time), but I don’t feel the need to exercise simply for the sake of exercising, so many of these styles of training I simply avoid.

Special note: If you go to the gym to unwind or clear your mind or just because it makes you feel better that is great and by all means continue. I’m just pointing out that you should be aware of the reason you are really working out.

I use my diet to lose fat and I use my workouts to maintain my muscle mass and strength.

Once you are using your diet to lose fat and your workouts to build or maintain muscle then you can do things like interval training and circuits to help speed up the process, but remember - without a proper diet, these techniques are practically useless for weight loss.

The bottom line is the absolute most efficient way to get amazing results is to workout for muscle growth and change your eating habits for fat loss. When it comes to weight loss, it is the total CALORIE DEFICIT that matters, not the way the deficit was created.

Trying to use your diet for muscle growth and exercise for weight loss is a recipe for failure.
The Process – How to start this program

The first thing you need is a set of metrics to work from. In other words, I want you to have a system of measurement that you use to track your progress.

Without measuring and tracking you could be completely wasting your time in the gym.

This process is relatively easy. I want you to get a measuring tape and keep a detailed log of the shape of your body.

These measurements, combined with your strength and bodyweight will give you a true accurate picture of what is happening to your body.

This is exactly what I did, and it had profound results on my ability to truly track the changes (or lack thereof) that were occurring in my body.

Measurements

In total, I want you to measure 13 different circumferences. These measurements are to be taken as accurately as possible. Try your best to measure them in the same manner each and every time.

These 13 circumferences will be your new metrics, and combined with your weight and strength, they are what will guide you through this process.

1. Neck Measurement
2. Shoulders at their widest point (halfway between your nipples and your clavicle)
3. Chest (measuring tape right across your nipples and under your arms)
4. Waist 3 inches above your bellybutton*
5. Waist at your belly button
6. Waist 3 inches below your belly button*
7. Hips at their widest point
8. Thigh 9 inches above the top of your kneecap*
9. Thigh 6 inches above the top of your kneecap*
10. Thigh 3 inches above the top of your kneecap*
11. Calf at its widest point
12. Bicep (flexed) measure the widest point
13. Forearm at its widest point.

• Depending on your height, you may want to use 2 inch jumps instead. As a rough guess I’d say that anyone under 5’6” should use 2 inch instead of 3 inch jumps.
The Thirteen Measurements

NOTE: For the most accurate results always take your measurements (including your weight) on the morning of a fast day.
Once you have these measurements you are now ready to begin your transition. The key here is that you need to be consistent. Measure the same places every time, measure them the same way.

Take these measurements on a Monday, Wednesday and Friday of one week, and get a good feel for your numbers and any variation that occurs (there will always be slight variations).

Always take your measurements in the morning while fasted.

BE HONEST! This isn't a competition to see who has the best measurements; it is a tool for you to use to measure progress.

**Strength**

I also want you to keep a concise measurement of you strength gains and or losses. This being said, I know that it is very impractical to test your 1 rep max on a number of lifts every week or two.

Instead I would like you to use the following equation:

\[
\text{Your 1 Rep Max} = \left(\frac{\text{Number of reps}}{30}\right) + 1 \times \text{the weight you used.}
\]

So if I Squatted 335 for 3 reps then my predicted one rep max would be:

\[
\text{My 1 Rep Max} = \left(\frac{3}{30}\right) + 1 \times 335
\]

\[
\text{My 1 Rep Max} = 1.1 \times 335
\]

\[
\text{My 1 Rep Max} = 365 \text{ (always round DOWN to the nearest 5)}
\]

This equation may not be perfect, but it allows for us to track improvements without having to test our 1 rep max every week.

So if I squatted 335 for 3 reps one week, then two weeks later I squatted 320 for 5 reps, I can see that my strength has actually improved (my estimated 1 rep max would now be 370).

Use this equation to track your core lifts and to chart your progress.

**NOTE:** I find it easiest to track the big lifts like bench, squat, shoulder press, dead lifts, chins etc rather than trying to track my strength on EVERY lift. So pick the big lifts that you currently use in your program and use these to track your strength.
**Getting Started**

OK, once you have your measurements and your estimated 1 rep maxes this is where the fun begins.

You are going to slowly start to lower the amount of training that you do, using your metrics to determine whether or not you are losing any muscle size.

This is exactly what I did...and I will take you through my journal using my exact numbers and workout routines.

After you have your measurements the next thing you need to do in order to complete this program successfully is to start (if you aren’t already) following **Eat Stop Eat**.

As I have said before, to be successful your weight loss must come from your diet and there is no better way to lose fat than by following the eat stop eat lifestyle – a commitment to working out to build muscle and eating to lose fat.

While most people think of Eat Stop Eat as only flexible intermittent fasting, the truth is that the Eat Stop Eat lifestyle is the COMBINATION of flexible intermittent fasting and weight training. And make no mistake about this point - the weight training is very important! So this manual fits perfectly into the Eat Stop Eat lifestyle.

If you get caught up in the idea of eating to build muscle or working out to lose fat you will quickly become discouraged. If you need more information on this than you can find it in my book “How Much Protein?” ([www.truthaboutprotein.com](http://www.truthaboutprotein.com)) but otherwise I want you to forget about protein, protein supplements, calories or any of that type of stuff.

(Remember, you only have work induced muscle growth on your side now)

Lastly, (and this is the part that moves you outside of your comfort zone) you have to be open to the idea that you can get the EXACT SAME results you are getting right now by working out a lot less.

This may be the hardest part of this entire program. I am going to ask you to cut down on the amount of working out you do. The amount of time you spend in the gym AND the amount of days you spend working out all together.

If your dedication to fitness is what defines you as a person, this process may come as a shock, but if you follow through, it might be the most liberating and freeing experience of your life.
The Program

I started my program with the basic premise of “I’m probably doing more than I need to do, what can I cut out”

At the time, I was following a workout called “Turbulence Training” by Craig Ballantyne. I was training 4 times per week, with each workout being roughly full body workouts.

(If you need a program to use with Elimination Workout, I highly suggest the original Turbulence Training program -> www.AbsLikeCraig.com)

I found this to be an enjoyable and well thought out program so I used it as my ‘base starting point’ for this experiment.

My very first experiment was to cut out all of my “extra” workouts. I took my kettle bells and put them in the closet and made a conscious decision that I would fight the urge to do any at-home bodyweight workouts.

Since you now have your measurements you are ready to begin this exact same experiment. So the very first step is to remove any ‘extra’ workouts you may be doing.

Many people currently have routines where they weight train 4-5 times per week, but also do extra kettle bell or bodyweight training.

This creates a vicious cycle of adding more and more exercise to your life as you strive for more weight loss, muscle gain, or to simply keep up with what is trendy.

So your first step is to remove any extra work that you are doing in the name of muscle gains or fat losses.

If you do extra work such as classes (dance, martial arts) that you do for pure enjoyment than you can keep this work. After all, the point of this program is not to become a lazy sloth doing only the bare minimum. It is to do the bare minimum so we can pursue other activities in our lives.

After two weeks of this, I re-took all my measurements to find that I had not lost any mass in my chest, shoulders, arms or legs. I had lost a ¼ of an inch around one of my stomach measurements, but that was just a normal fluctuation. My strength had increased in all of my lifts.

So after two weeks with no ‘extra’ workouts I want you to re-take all of your measurements.

You may just find that your strength in the gym has not suffered, and that your measurements are where you would expect them to be.
Once these two weeks are up, your next step is to start to remove any of the smaller ‘isolation’ style lifts from your workout.

Just as before, this may sound scary, but remember, you have your measurements so you will know if you start to lose muscle mass, AND this is only an experiment, when you are done you can add these exercises back in if you wish.

Start by removing any forms of bicep curls, triceps extensions, calf raises, shoulder raises (like dumbbell lateral raise and front raises), wrist curls and even leg extensions and leg curls.

This will be uncomfortable, and you will be extremely tempted to keep some of your favorites (It took a giant internal fight for me to let go of doing additional triceps work) but remember – you have your measurements – so you will know if you are shrinking.

After two weeks using no isolation exercises retake all of your measurements and check your strength using the equation in this manual.

If you don’t experience any negative changes, then keep eliminating from your program.

Your next step is to add an entire extra rest day in-between ALL of your workouts.

So if you traditionally workout on a 2 on, 1 off, 2 on, 2 off split, your training may look something like this:

<table>
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<tr>
<th>Monday</th>
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<th>Wednesday</th>
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<tbody>
<tr>
<td>Workout</td>
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<td>Rest</td>
<td>Workout</td>
<td>Workout</td>
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I want you to change your workout so an extra day is added in after EVERY WORKOUT. So your new routine would look something like this:

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After 4 weeks of this routine, I want you to move to having 2-3 days of rest between EVERY workout.

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I followed this exact plan, adding days until I was working out twice per week with my workouts looking roughly like this:
This was all I was doing.

Each workout lasted roughly 30 minutes. I continued this program for 4 weeks with no noticeable changes in any of my measurements or my strength (it was still going up, albeit slowly). I then decided to reduce my total volume even further.

So my entire workout plan looked like this:

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Sets x Reps</th>
<th>Day 2</th>
<th>Sets x Reps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoulder Press</td>
<td>3 x 5</td>
<td>Bench Press</td>
<td>3 x 5</td>
</tr>
<tr>
<td>Weighted Dips</td>
<td>2 x 10</td>
<td>Dumbbell Bench Press</td>
<td>2 x 10</td>
</tr>
<tr>
<td>Weighted Chins</td>
<td>2 x 10</td>
<td>Dumbbell Row</td>
<td>2 x 10</td>
</tr>
<tr>
<td>Squats</td>
<td>3 x 5</td>
<td>Deadlifts</td>
<td>3 x 5</td>
</tr>
<tr>
<td>Straight Leg Deadlifts</td>
<td>4 x 10</td>
<td>Leg Press</td>
<td>4 x 10</td>
</tr>
</tbody>
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And this is exactly what I want you to do as well. Keep removing all extra work until you are left with a workout that consists of 4-6 exercises with only 2 days of lifting per week.

**Special Note about Exercise Selection using the Elimination Experiment:**

*If you notice the four exercises I have left here actually cover all the muscles of my entire body. These are all major compound lifts that involve multiple joints and lots of muscles. These are the types of lifts that you should be using for the elimination system to ensure you are working all of your muscles without doing extra work.*

After two weeks of following this workout I knew this was as low as I wanted to go with my volume. I may have been able to go lower, but this was a personal decision based on my enjoyment levels.

If I was going to make the effort to go to the gym I needed it to FEEL worthwhile. Anything less than 20 minutes of work just did NOT feel like it was worth the drive.

This was my ‘volume’ breaking point.

Since I was no longer willing to reduce my volume, I decided to decrease my frequency even further. I moved to working out once every 5 days. After 4 weeks of this I noticed two interesting things.

1) My strength had stalled and my lifts felt ‘awkward’
2) My waist measurement had crept up to be consistently measuring at $\frac{1}{2}$ inch more than it used to be.

From these observations I knew I had found my own personal ‘minimal’. I could successfully maintain my muscle mass, strength and interest level training twice per week with minimal exercises.

This level of training was manageable, and allowed much more freedom in my daily activities. I wasn’t chained to the gym. And I know I had something that I could build upon.

Using this as my starting point, I then experimented (one month at a time) with adding in different exercises. It was this experimentation that led me to realize that I get the best results, and enjoy working out the most, when I am training with weights twice per week, and training with blast straps doing weighted body weight exercises like dips, chin-ups, rows and suspended pushups an additional 2-3 times per week.

This approach also allowed me to eliminate a whole host of workouts and exercises because they simply did not give me any extra results during their one month trial.

So my personal minimum and optimum workouts look like this:

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**My Personal Minimum**

Two workouts per week doing only the core foundations lifts of squats, dead lift, shoulder press and bench press.

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**My Personal Optimum**

Two workouts per week doing core foundations lifts of squats, dead lift, shoulder press and bench press.

AND

Two or three accessory workouts (about 15-20 minutes long) that consist of weight body weight exercises using blast straps for dips, chin ups, rows and suspended push-ups.
This knowledge allows me the freedom of knowing that as long as I get my two workouts in, and my strength is increasing then I am doing the things I need to do to progress. AND, if I get in my extra workouts I know I am reaping some benefit.

It also allows me the knowledge that moving above this, adding in more workouts, more exercises or even more time to each workout DOES not result in better measurements or strength for me.

This type of knowledge is freeing. No more obsessive-compulsive exercise for me.

Using these facts I can now, at any time I wish, add in exercises to my routine and after a given amount of time (usually 4-8 weeks) look and see if any of my measurements have changed.

If I feel the need to increase the size of my arms using close grip bench presses, I can add them into my routine. After 6 weeks I can measure my arms. If there is no change, then I drop close-grip bench presses. It is this simple.

If I feel that I want to increase the amount of weight I can squat by doing extra sets of lunges I can simply add them into my routine. After 4 weeks if my squat has gone up, then I keep the lunges in my routine until my squat strength stops increasing. It is this simple.

The process of elimination – if you let the numbers (your measurements) do the work for you, will save you lots of time and needless work.

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In the first picture I was working out 5 times per week while doing cardio twice per day and following a SUPER STRICT diet.

In the second picture I have been following Eat Stop Eat for over 2 years, training twice per week with 2-3 quick extra workouts thrown in whenever possible.

My workouts were goal-driven with the aim of increasing the size of my chest and shoulders.

The result of this change in philosophy were obvious, I reached my goal with less wear and tear on my body. I did the work I needed to do to get the results I wanted, without obsessive compulsive exercising or obsessive compulsive Eating.
Your Next Steps

Once you have discovered your minimum – that is to say, the amount of training needed to keep you exactly where you are today, then you can start adding things back into your program – as long as you know the EXACT REASON that you are adding in that particular exercise.

Because it’s ‘good for you’ doesn’t cut it.

You absolutely MUST have some sort of objective measurement that you can use to track and measure your results (or lack thereof).

If you’re a guy and want to build a better looking physique without adding countless pounds of bulk, then add in John Barban’s Adonis Effect workout (www.AdonisEffect.com).

Keep a record of the measurements of your shoulders and your waist. I helped John review the science behind this program so I can easily stand behind the scientific theory of this program. In fact, this is the approach I have been using for the last two years.

If you are a man or woman and want to lose fat using Craig Ballantyne’s Turbulence Training, then add in one of Craig’s interval training programs (www.AbsLikeCraig.com) and keep track of your measurements looking for decreases in your waist measurement for guys and your waist and hips for girls.

I know Craig personally and I can assure you that his programs are well designed and can easily fit into a goal-oriented training style.

If you are looking to add muscle then you can try Vince Delmonte’s Nononsense Body Building Program (www.BuiltLikeVince.com).

Just remember to always assess your improvements.

The bottom line is that there are COUNTLESS workouts available on line. Some are amazingly effective, and some are simply a scam.

The ONLY way to know if a workout is working for YOU is to have some way of measuring and tracking your progress. If you do not see SPECIFIC and MEASURABLE results within 4 to 8 weeks, then drop the program back to your minimum and try something new!

This process of elimination and measurements will save your from exercising simply for the sake of exercising, and will save you needless extra wear and tear on your body.

Remember – the key to looking good and being functional well into the later years of your life is to be able to keep working out well into the later years of your life. Getting the results you want without injuring yourself should always be your number one priority!
Conclusions

Just as Eat Stop Eat is the simplest and most practical method to lose weight, I believe Elimination Training is the simplest most practical way to maintain or build muscle.

Simply make measurements, identify your goals, and then test different methods of reaching your goal.

Strive to identify the minimum amount of work you need to do and the optimum amount of work (and type of work) you should be doing.

Avoid exercise fads, and doing exercises simply because they are trendy or in style. If you don't see measurable improvements with a specific exercise then stop doing it.

This is practicality at its best, and it forces you to continually ask yourself “why am I doing this exercise?”

The bottom line and the conclusion of this entire manual is this – Measure and assess everything you do in the gym. Don't be afraid to cut back and don't be afraid to let go of the things that are not moving you towards your goal.

Finally, in order to progress your goals must be clear concise and measurable.

Setting a goal like “bigger muscles” isn’t a goal at all, it’s a day dream. Setting a goal of adding 1.5 inches to your chest circumference is clear and measurable, and is something you can make a plan to achieve.

These sounds like similar ideas but you have to be very specific if you want to actually achieve any goal. The more specific you lay out the goal, the easier it is to make it happen.

Finally, remember:

“If you want to be successful you have to do the things that unsuccessful people aren’t willing to do.”

AND

“There are things in your life that you do out of habit or because you THINK you should do them. If you aren't benefiting in any way from these things, you need to eliminate them.”
The Elimination Experiment

~Elimination Workout Cheat Sheets

1. Take your measurements
2. Measure your strength
3. Cut out all extra workouts
4. Cut out all isolation movements
5. Add an extra rest day after EVERY workout
6. Increase your rest to 2-3 days in-between EVERY workout
7. Reduce your exercises to only the bare minimum core lifts
8. Reduce your volume (number of sets)
9. Identify your own personal minimum
10. Identify your own personal MEASURABLE goals
11. Add in new exercises or programs for 1 to 2 month trials
12. Compare your strength and measurements
13. If they improve and move you towards your goal keep the new exercises, if they do not, eliminate them and move on
14. Repeat steps 11-13 as needed

***NEVER BE AFRAID TO MOVE BACK TO YOUR MINIMUM AS YOU ALREADY KNOW THIS AMOUNT OF TRAINING IS ENOUGH TO MAINTAIN WHAT YOU HAVE!!
NEW AND EXPANDED EDITION

THE SHOCKING TRUTH THAT MAKES WEIGHT LOSS SIMPLE AGAIN

EAT STOP EAT

BRAD PILON
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A Special Note on This Edition

First of all, let me be clear that I was well aware of the immense gap between peoples’ attitude toward health and fitness and the theories found within this book back when it was first published in 2007.

I knew that people had generally accepted that strict dietary restraint and an almost relentless workout program were essential for weight loss. Not only this, but it was believed that a serious lifestyle modification had to occur that made you almost obsessed with health and nutrition.

I was all too aware that for some curious reason we had accepted the idea that losing weight had to be extremely difficult and the concept that long-term weight loss success meant a life of dedication and extreme discipline.

Back in 2007, even the slightest suggestion that we could actually cause a genuine reduction of body fat WITHOUT extremely regimented and inflexible dietary restrictions was often met not only with disbelief, but also hostility. Few were prepared to hear or accept a simpler solution.
The diet industry is huge, and worth billions of dollars in annual profits. This not only includes the obvious examples of over the counter diet pills, but also weight loss centers, weight loss coaches, weight loss books, and even on-line weight loss societies.

Combine this with the shocking boom of twenty-something year old Internet marketers making millions selling ‘diet advice’ on-line and it becomes obvious that the weight loss industry was ripe for a big, strong dose of common-sense thinking.

I knew that Eat Stop Eat was going to cause a shockwave in the diet industry, and that I was going to have to spend a great deal of my time defending the concepts within it.

But like I said, this was almost a given. It is the NORM for radical new concepts that receive a lot of attention to arouse a sharp division of opinion among expert ‘commentators’.

Yet the fight for Eat Stop Eat’s acceptance was not nearly as uphill as I had imagined. Sure, it had its detractors and nay-sayers, but for the most part even the harshest scientific critic quickly came to realize the simplicity and effectiveness of Eat Stop Eat and appreciated that it was supported by very sound and logical scientific evidence.

It seems that in a matter of just 3 short years, Eat Stop Eat has gone from being a controversial ‘fringe’ dietary ‘fad’ to becoming an accepted dietary approach to losing weight that is being supported by doctors, dietitians, and other mainstream health experts.
Biologist J.B.S. Haldane said it best when he pointed out that there are four stages of scientific acceptance:

1) This is worthless nonsense
2) This is an interesting but perverse point of view
3) This is true but quite unimportant
4) I always said so

*Eat Stop Eat* has hit the “I always said so” phase of acceptance. This is very exciting to me, and many others involved in the diet and weight loss industry.

People have begun to accept that losing weight can be accomplished using a multitude of different diets, as long as the diet created some sort of decrease in caloric intake. Not only this, but the concept that the best diet is the one you enjoy and can stay on the longest, has really caught on.

Despite these facts, there is still a growing amount of nutrition misinformation that is available in the mainstream weight loss industry. And, quite ironically, obesity rates are still increasing. In fact, the average percent body fat in North America has become startlingly high.

![Graph of U.S. Adults Body Fat]

(The average body fat for men is 25% and for women is closer to 40%)
**Common sense and sensibility merges with the weight loss industry.**

The simple truth is that research illustrates an increased supply of food is more than sufficient to explain this obesity epidemic.¹ I am almost positive that no one is happy with the North American average of 25% and 40% body fat for men and women, respectively.² As such, there is still a need to expand on the successful theories of *Eat Stop Eat* to help as many people as possible realize that weight loss does not have to be complicated.

Let’s start with what we already know about weight loss:

- Carrying extra body fat is really bad for us, both physically and emotionally.
- Weight loss is not a mystery and the fundamental principles have never changed. It’s our ability to apply these principles that dictates how successful we are at losing weight.
- Since you are reading this book, you have a personal interest in weight loss.

**A Caveat: Prevention is better than a cure.**

While the principles of *Eat Stop Eat* are often only thought of as a way to lose weight, it is important to remember that *Eat Stop Eat* is also an effective way to maintain weight loss, AND to prevent weight gain from happening in the first place.

Simply put, when adapted to fit your own personal lifestyle, the principles of *Eat Stop Eat* can apply to everyone.
Preface

Take a second before reading this book and think about all the diets you have heard about and read about in recent years. Each diet had its own little hook that made it stand out, and each diet had thousands of loyal followers that swore that their diet was the only one that worked.

Now consider the real-world evidence that is right before your eyes. Every day you see hundreds of people, all with different body shapes and all following different diets.

I will use professional bodybuilding as an example. Imagine two groups of bodybuilders ready to step on stage at the highest level of competition; their veins popping out everywhere, with tanned, oiled skin, and almost nonexistent body fat.

The first group consists of bodybuilders from the 1950’s and 1960’s. These bodybuilders were able to get into phenomenal shape using diets that were low in fat, high in carbohydrates with moderate amounts of protein. The second group consists of bodybuilders from the 1990’s and beyond. They got into phenomenal shape using very different diets that consist of moderate amounts of fat, low carbohydrates, and very high amounts of protein.
Both groups of bodybuilders were unbelievably lean. Both groups used various supplements and drugs. However, both groups followed very different nutrition plans. Yet, somehow they all managed to get their body fat down to unbelievably low levels.

Throughout the last five decades, the diets of bodybuilders have changed dramatically. Depending on the bodybuilder and the era, they may have eaten six meals a day, or they may have eaten more than a dozen. Some bodybuilders ate red meat while others did not. Some did hours of cardio, some did no cardio at all, yet they were all able to lose fat and get into ‘contest shape’.

The reason all these bodybuilders could get in shape on so many different styles of diets is simple: for short periods of time, every diet will work if it recommends some form of caloric restriction. And if you follow a calorie-restricted diet you will lose weight, guaranteed.

The problem is, you simply cannot follow a super-restrictive diet for a long period of time. Sure, a truly dedicated individual may be able to follow a very restrictive diet for 12 weeks and get into phenomenal shape. With the right amount of dedication, a person can even look like they just stepped off the cover of a fitness magazine. And a very small and unique group can do this for years on end.

For the rest of us, this way of eating is too restrictive, too intrusive on our lives, and far too limiting to be done effectively for any real length of time.

Now, what if I told you that these types of long restrictive diets are simply not necessary for weight loss? What if I told you that there is a way to eat and a way to live that can give you amazing health benefits, help you lose weight, and does not involve any prolonged periods of food restrictions, eating schedules, supplements, or meal plans?
In the following pages I am going to share with you a discovery that I made as a result of years of research and schooling, a career in the sports supplement industry, and an obsession with nutrition.

I am going to present you with the reasons why I think most diet plans are unnecessary, too restrictive, and ultimately too complicated to work long term. And most importantly, I am going to describe what I believe to be the single best way to eat and live that will help you lose weight and keep it off, without any of the complex plans, rules, and equations that is typical of most diets.

After all, I don’t consider this method of eating a diet. It’s a way of eating that restricts calories, but that can also ultimately grow into a way of life.

I must warn you in advance, many of these ideas are ‘different’ in that they do not agree with the current nutrition trends. I promised myself when starting this project that I would not merely accept the current rules of nutrition just because they happened to be the rules that are currently en vogue.

As the bodybuilders in the example prove, many different styles of nutrition can result in the development of astonishing physiques. There probably is no “right” way to eat. The best we can hope for is finding the way that works the best for you.

Nutrition, just like all science and medicine, is always evolving and changing. So even though the ideas in this book may be radical now, I believe that someday they just might be the new rules of nutrition!

I am positive that if you read this book with an open mind, you will find that everything I have written makes sense. It may be different than what everyone else is telling you, but it is proven and backed up by a large quantity of scientific research, and it can change your life.
How it All Started

I walked away from my career in the sports supplement industry in May of 2006. It wasn’t a bad split, and I did not want to give up on the industry altogether, I just wanted to start fresh.

To fully explain this decision, I have to take you back about twenty years.

I have always been obsessed with exercise, health, and nutrition. At 10 years old, I could already boast a very impressive collection of *Muscle & Fitness Magazine*, and a couple of years later I was also collecting issues of *Men’s Health*. I can remember reading about bodybuilders like Lee Haney, Arnold Schwarzenegger and Lou Ferrigno and all of the articles concerning their diet and exercise programs. It was these articles that piqued my interest in the science behind fat loss.

At 16 years old, I had a subscription to the *American Journal of Clinical Nutrition*. I would read any research paper that involved nutrition and fat loss. It would take me about a day to read each article because I had to stop and check almost every word in a medical dictionary.

At 17 years of age, I started working at a local supplement store. This was my first official step into the health and nutrition industry and I have never looked back.
When I started studying nutrition at university, I had only two goals – to learn everything I possibly could about nutrition and metabolism, and to graduate with honors. In the spring of 2000, I accomplished both of them. Almost immediately after graduating from university, I was fortunate enough to be hired as a research analyst at one of the world’s leading supplement companies.

Fast-forward to June of 2006. I had just spent the last six years of my life working in one of the most secretive industries in the world. During this time, I had been entrusted with protecting some of the most confidential information in the entire industry. I was the person responsible for the inner dealings of our Research & Development Department. Unfortunately, this was part of the problem.

Part of my job was to review bodybuilding and fitness magazines. Every month I would have to read through the top ten magazines on the market. I was constantly reading about the ‘latest and greatest’ diet methods. After years of reading magazine after magazine, I didn’t know what to believe anymore. Each month, it seemed like the newest diet methods contradicted the diet methods that were in last month’s magazines. I started to think that the weight loss industry was full of nothing but confusing and constantly recycled misinformation.

When it came to the science of losing weight, every so-called ‘nutrition guru’ and weight-loss personality had his or her own theories on what did and didn’t work. After years of reading and evaluating all of these nutrition and diet programs, I was actually starting to ignore my previous doubts and get consumed by the hype!

Despite all of my formal education in the nutrition field, even the most absurd diet theories eventually started to sound logical to me, even though I had never come across any research that could convince me that these theories were supported by strong scientific evidence.
In reality, the vast majority of what I had read in these magazines was just theories and speculation. Some of them were based on science while others were complete gibberish. Many were contradictory to one another, and others even defied the fundamental laws of thermodynamics and science.

Month after month, dozens of magazines would appear on my desk, and month after month, I would see new and old diet ideas being trumpeted as the newest, most effective way to 'blowtorch through stubborn body fat'.

At this point, I noticed a funny thing about the industry - if an idea is published enough times, and if enough people accept it, it becomes true, no matter how inaccurate it really was.

 Whoever said, “you can say the same lie a thousand times but it doesn’t get any more true,” has obviously never been involved in the nutrition industry!

The bottom line is that I got into the sports supplement industry for the same reason I eventually left. I wanted to understand the true rules of weight loss, and I wanted to figure out how we should really eat for health, energy, peak performance, and for weight loss.

I ended up leaving my career in the industry so that I could write this book.
**Introduction**

As part of the background research for this book, I made it my goal to uncover the true scientific facts behind weight loss and nutrition.

I’m not talking about the scientific ‘facts’ that are thrown around every day by food companies and marketing gurus. You know, the ‘eat this, not that’ facts or the ‘recent research has shown’ ‘facts’. I wanted to find the cold, hard truths. I was looking for the nutritional equivalent of death and taxes.

My first step in this quest was to read every nutrition and diet book I could get my hands on. I read and re-read the following books:

- *The Atkins revolution*, *Protein power*, *Body for Life*, *The Zone*, *The South Beach Diet*, *French Women Don’t Get Fat*, *The Warrior Diet*, *The Metabolic Diet*, *Volumetrics*, *The Obesity Myth*, *Health Food Junkies*, *An Apple a Day*, *What to Eat*, *the Omnivore’s Dilemma*, *Real Foods*, *The End of Overeating*, *Eat Right 4 Your Type*, *Good Calories Bad Calories*, *Food Politics*, as well as various ‘underground’ books on diet and nutrition like Dan Duchaine’s *Body Opus*.

I didn’t just read these books. I analyzed them. I compared marketing tactics, writing styles, and persuasion techniques. If the book quoted scientific references, I sought
out the reference and reviewed it in its entirety. My goal was to dissect our current nutrition beliefs and to find track their evolutions and origins.

On top of this, I also read and critically analyzed hundreds (not an exaggeration) of research papers, and re-read several of my nutrition textbooks.

I even went so far as to enroll in graduate school to study Human Biology and Nutritional Sciences, and let me tell you, it took an almost unhealthy desire to uncover the truth to drive me to re-enroll in school after a seven-year hiatus, with a pregnant wife and a busy consulting job! It was a long commute back and forth from school every day, but having the opportunity to study nutrition at the graduate level was worth the sacrifice.

So what did all of my research uncover? Firstly, I can say that most (but not all) people who talk about scientific research on-line or in magazines are not credible sources of scientific information, nor can they properly analyze the meaning of any scientific research.

What they do is called “data mining”, where they scan research papers looking for interesting sound bites or quotes. Basically, they try to summarize 2 to 3 years worth of scientific investigation in one short and snappy quote. It’s great reading, but it rarely gets to the truth of the topic. This is not meant as a self-serving ego-boosting statement, but rather as a testament to the importance of obtaining a proper education.

I also realized that even having an advanced education in one specific topic does not make you an expert in all things health related. Having a PhD in muscle physiology does not make you an expert in fat loss, and vice versa. Nor does being a Medical Doctor necessarily give you the scientific background you need in order to truly understand the complexities of nutrition, and more importantly to be able to see
through the deceptiveness of nutrition marketing (many U.S. medical schools fail to meet the minimum 25 required hours of nutrition education set by the National Academy of Sciences).³
Finally, I can tell you that based on my research studying nutrition, fasting, and weight loss in graduate school, I have realized that there are only two absolute truths when it comes to nutrition and weight loss.

1) **Prolonged caloric restriction is the only proven nutritional method of weight loss**

and

2) **Human beings can only be in one of the following states: Fed or fasted.**

That's it. In my opinion, these are the only two facts that are undeniable. Everything else is open for debate, which is the problem with nutrition today – it is made out to be so complicated and confusing that nobody knows what to believe.

Most scientific research findings seem to do nothing more than add to the already confused and muddled nutritional theories and diet recommendations that exist, and the cause is clear as day – research on nutrition and food is no longer conducted to improve our health and well being. It is conducted for marketing purposes and as a method to get us to buy one product over another, and it is all based on us being constant consumers.

In fact, it was in an amazing article in Scientific American magazine written by renowned food expert Dr. Marion Nestle where I became aware that it was in the early 1980’s food companies had no choice but to attempt to change the way we eat. Faced
by stockholder demands for higher short-term returns on investments, food companies were forced to expand sales in a marketplace that already contained an excessive amount of calories.

Their only option was to seek new sales and marketing opportunities by encouraging formerly shunned eating practices such as frequent between-meal snacking, eating in bookstores, and promoting the money-saving value of larger serving sizes.4

To be clear, our entire style of eating in North America has been molded to support the interests of major food companies.

You may be wondering ‘How can a select few people change the way entire countries decide to eat?’ Well, in order to promote this new style of eating, enormous amounts of money had to be spent on research supporting the health benefits of this style of eating.

As far as I can tell, most research being conducted on food and nutrition these days is done simply for the purpose of food marketing. This is because the money that funds nutrition research is typically donated by a food company or supplement company.

This so-called ‘donation’ or grant comes with the hope and expectation that the research will produce a health claim or other marketing claim that the company can then advertise as a selling feature for their product. As it turns out, health claims on foods and supplements can be incredibly lucrative, and the politics behind nutrition are undeniable.

It was in a book titled “What to Eat” by author and researcher Marion Nestle (the same author who wrote the article in Scientific American), where I read the following quote – “The real reason for health claims is well established: health claims sell food products.”5 I couldn’t agree more.
The bottom line is that research creates health claims, and health claims sell products. Whether the product is some new ‘functional’ food or the latest diet program, if research says it works, it will sell more, guaranteed.

Very soon into my readings I began to realize that the research on weight loss had become so skewed with politics that it has turned into the world’s most ironic oxymoron. After all, the research was trying to uncover the completely backwards idea; ‘what should we eat to lose weight?!’

When I realized that almost all nutrition research was working under this completely backwards paradigm, I understood that I had only one choice. If I was to avoid all of the bias and vested influence in today’s nutrition research then I had to go back to the absolute beginning. I had to conduct a thorough review of exactly what happens to human beings in the complete absence of food.
The Fasted State

The definition of fasting is quite simple. I’ve read through countless dictionary entries and website descriptions of fasting, and have decided that the best definition of fasting is the following: “The act of willingly abstaining from some or all food, and in some cases drink, for a pre-determined period of time.” The key word in this definition is “willingly” as it is the difference between fasting and starving. Other than this one small difference, the net result is the same – the purposeful abstinence from caloric intake over a given period of time.

Now, a lot of people confuse ‘starvation’ with wasting - wasting is the end result of prolonged caloric restriction - where your fat reserves are almost completely used up and can no longer supply your body with enough energy to meet its needs. This is when you see abnormal physiology such as muscle wasting (loss) and a slowed metabolism. So ‘wasting’ is the end result of prolonged extreme calorie restriction – occurring after months or even years of a chronically low intake and possible nutrient deficiencies, but not something that happens in a 72-hour period without food.

So you are either fed or fasted, however ‘fasted’ can mean 12 hours or 12 weeks, so for the purpose of my research I decided to focus on short-term fasting, studying the metabolic effects of fasting between 12 and 72 hours. While researching, I observed some benefits to studying short-term fasting as a way to find the truth behind
nutrition and fat loss. The most important is that people with vested interests in selling consumable products have no interest in studying fasting.

Fasting automatically rules out the use of any sort of food, health supplement, or newly touted “functional foods”. Much to the dismay of food companies, you can’t put fasting into a pill and sell it, and as we have already discussed, the purpose of most nutrition research these days is the development of new products.

By default, because you do not consume anything while you are fasting, research on fasting contains very little bias from large food company funding. After all, why would a food company spend money proving there is a benefit to eating less of their products?

Another benefit of studying fasting is that there is an extremely large volume of research that has been conducted on fasting, and more research comes out almost every day.

Throughout history, various cultures have used fasting in many different types of rituals and celebrations, and still use fasting within those traditions to this day. Almost all major religions have a degree of fasting built into them. From political protests to healing rituals, and even for good-old weight loss, there are many historical accounts of various people fasting for different reasons. With the exception of fasting for religious purposes, the practice of fasting has all but disappeared in North America.

Our ancestors also fasted simply due to the poor availability of food. While modern-day humans in many developed countries are used to being able to eat a solid three meals per day, animals in the wild eat only when food is available, and most likely this is also how our hunter-gatherer ancestors ate.
And let’s not forget that the majority of the world’s population still lives without adequate food supply. The fact that we’re faced with a problem of too much food makes us the lucky ones. Of course, this creates an odd sort of irony in the fact that you are now reading a book about how to deal with the consequences of the extra food.
The Disappearance of the Fasted State

As I stated in the beginning of this book, from a nutritional point of view, a human being can only be fed or fasted. By saying this, I mean that we are either in the process of eating and storing the calories that come from our food, or burning these same calories as we burn stored energy. This energy is stored in the form of fat and glycogen (the storage form of sugars and carbohydrates in our bodies).

Our bodies are designed to eat food when food is available and use the calories we have stored as fat when food is scarce. These are our only two options. Consider them the Yin and Yang of nutrition and health.

FED - Eating and storing Calories
FASTED - Not eating and burning Calories.
Fasting is the simplest method our body has for maintaining its caloric balance. Store a little when we eat, burn a little when we don’t eat. Recent research suggests the problem is that we spend as much as 20 hours a day in the fed state.⁶ We are constantly eating and storing food and we never really give ourselves a chance to burn it off.

So the yin and yang of fed and fasted has been replaced by a constant fed state, where we helplessly try to figure out how to continue eating and somehow lose weight at the same time. This is a very scary scenario when you consider the fact that our bodies are designed to store fat whenever it is provided with an amount of calories beyond its needs. In order to restore the balance of fed and fasted states, we have no choice but to go through periods of under-eating to match our large periods of over-eating.

As a very crude example, imagine a hunter who has caught and eaten an animal, and foraged around and found some berries. Once the meat is gone and the berries have all been picked, the hunter has no choice but to move on in search of more food. Based on this ancestry, it seems logical to say that this is precisely how our bodies were designed to function.

So if our bodies were designed to feed and then fast, why doesn’t anyone fast anymore?

Most likely it is because the concept of fasting for weight loss and health has been villainized in western society as it goes directly against one of the most basic principles of business – supply and demand. To the food industry and various government agencies, the idea of people eating less is bad for business.
Consider that each day in the United States, the food industry produces enough food to supply every single person with almost 4000 calories. On top of that, 10 billion U.S. dollars per year goes into the advertising and promotion of this food. It would be a huge financial disaster for many food companies if all at once everyone in the United States decided not to eat for one day out of the week.

This is why the food and nutrition industry is willing to suggest many different theories on how to lose weight, as long as it means we continue buying and consuming foods. And not only that, they're trying to sell the idea of buying MORE foods and consuming it MORE often.

Think of all the diet suggestions you know. They all rely on the continued intake of food. *Eat six small meals a day. Eat high protein. Eat breakfast (the TV commercials say it’s the most important meal of the day). Eat cereal. Overeat, cycle your carbohydrates, cycle your proteins, Eat lots of high calcium foods. Eat whole wheat. Take diet pills.* Whatever the recommendation, it always revolves around making sure that the population is continuously consuming food and food supplements.

After all, this is how companies refer to us - we are consumers (not people). And if you look up the word ‘consumer’ in the thesaurus you will find that its synonym is ‘customer’. How many times have you heard a company representative say things like, “We value our customer”? Well, of course they do! We buy (and consume) their products! Without us, there would be no profits and no company.

In a day and age where so many people are trying-and failing- to lose weight, it seems improbable that the answer is simply dieting. In fact, in his very controversial book “The Obesity Myth,” author Paul Campos states he does not believe that dieting is an effective method of weight loss. Indeed, Mr. Campos goes so far as to say the idea that “People could lose weight if they really wanted to” is, in fact, a lie.
Although I’m not willing to go quite as far as Mr. Campos, I am willing to say that every single one of today’s popular diets is doomed to fail in the long term. In my opinion, no matter how strong your willpower, it will eventually be overridden by the power of marketing, advertising and the lure of great tasting food. After all, no one really wants to diet, we just want to look better with less fat on our bodies (Dieting just happens to be a rather uncomfortable means to this end).

All of this raises the question – ‘have we been led to overlook the simplest form of reducing calories and losing weight - short periods of fasting - in an effort to keep us consuming?’ The answer seems to be a resounding ‘Yes!’
Forget Everything You Have Ever Read About Fasting

The amount of anti-fasting misinformation that can be found on the Internet is astounding. This is despite the fact that our bodies were designed to fast, and that almost every major religion and culture has some sort of fasting built into its rituals to this day, and that most scientific studies that require blood collection also require their subjects to be fasted.

Information on fasting and dieting is prevalent in cyberspace and in popular diet books. However, this information should be read with extreme caution. Ridiculous statements such as “Fasting will KILL your metabolism,” “fasting deprives your body of nutrients and does nothing to help you modify your dietary habits,” “The weight loss from fasting comes entirely from muscle,” or “The weight loss from fasting comes entirely from water” and finally “If you do not eat every 5 hours your liver releases sugar, which causes an insulin surge making you gain fat even without food” are typical of the fasting misinformation that is available.

This is an example of ‘authoritative parroting’ where people simply repeat what they have had heard from authorities on the topic, without actually stopping to check and see if what they have heard is correct. So the same misinformation is passed on, regurgitated, repeated, and made true; solely on the basis of the source, rather than whether or not it is actually correct.
Other incorrect but often repeated statements include the notion that you will become hypoglycemic (have low blood sugar) if you do not eat every two to three hours and that fasting will prevent your muscles from growing. Typically, these statements are followed by more of the same old nutrition mantra “eat multiple small meals a day,” eat “high protein foods every two to three hours,” “avoid milk and dairy products,” and all the other popular ideas about dieting.

The amazing thing is almost all of the scientific research I reviewed provided evidence in direct opposition to the misinformation found in diet books and on the Internet. I found very convincing evidence that supports the use of short term (as brief as 24 hours) fasting as an effective weight loss tool.

This included research on the effect that fasting has on your memory and cognitive abilities, your metabolism and muscle, the effect that fasting has on exercise and exercise performance, and research that very conclusively exposes the myth of hypoglycemia while fasting.

What made this even more interesting is that this type of fasting not only helps you lose weight, but also vastly improves many markers of health and comes with a very impressive track record. After all, outside (and inside) of North America, millions of people have been using intermittent fasting for centuries.

As cutting edge as it may seem, taking brief breaks from eating is hardly anything new. It’s just something that a lot of people have been trying very hard to keep you from realizing!

In fact, many people stumble onto fasting when they very first attempt to lose weight, and they usually see some success. They only give up on fasting after being convinced that it is bad and wrong by anti-fasting propaganda.
From a marketing standpoint fasting is boring. It does not have a sexy marketing angle and it certainly does not do anything to improve the bottom-lines of food companies. In this day and age, a diet has to have a hook or a catch. It needs something to make it different and special, and this typically involves some special way of eating, but never a special way of NOT eating.

Here is the common sense reason why fasting may work better for you than any other diet you have ever tried:

Think of all the diet rules you have seen lately. It might be something that says you need to eat your carbs separately from your fats, or that you need to eat zero carbohydrates all together. Maybe it’s that you need to eat all fat or that you need to cycle your carbohydrates or your protein. Perhaps it’s the idea that you must only eat raw foods or organic foods, or it’s a diet planned around a hormone like ghrelin, adiponectin, leptin, estrogen or testosterone...etc and etc and etc.

Now consider this:

If these rules were ACTUALLY true, then Lap Band surgery would not work.

But it does, and it works very well.\textsuperscript{10,11}

During lap band surgery, a small silicon band is placed around the top portion of a person’s stomach, effectively making your stomach ‘smaller’. It’s a very drastic step that involves a surgical operation, but nonetheless it is extremely effective at helping people lose weight simply because it makes people eat less. Not just less carbs, or less fat, but less everything. No periodic refeeds. No cycling. No crazy food combining. They simply eat less.
The bottom line is that a diet really does NOT need a catch to be effective. In fact, I would argue that the less complicated a diet is, the better its chances of helping you obtain long lasting weight loss.

The specific type of fasting I am about to describe is not just a tool for weight loss, but rather could be considered a fairly simple (yet effective) lifestyle adjustment that can help you lose weight and improve your health WITHOUT having to resort to special ‘rules of eating’, taking pills or powders or electing for invasive surgery.
Fasting and your Metabolism

In my review of fasting, I found some very interesting information, most of which contradicts much of today’s accepted ‘rules of nutrition’. Most startling is the fact that being in a fasted state for short periods of time will not decrease your metabolism.

If you have followed any of today’s popular diets, you may know that they are all based on this idea. The story they are telling goes like this: If you lower your calories too much, even for a short period of time, then you will stop losing fat because your body has entered ‘starvation mode’ and your metabolic rate will slow to a standstill. In fact, this statement could very well be the basis for today’s weight loss industry. However, it turns out that it is factually incorrect.

Our metabolism, or more correctly our metabolic rate, is based on the energetic costs of keeping the cells in our bodies alive. For example, let’s say we put you in a fancy lab and measured the amount of calories you burned in one day sitting on a couch doing nothing. Let’s assume that number was 2,000 calories. This would be called your basal metabolic rate; 2,000 calories would be the amount of calories you need to eat to match the amount you burn simply being you.

Now, let’s say you moved around that day, perhaps 30 minutes of walking. You might burn an extra 100 calories bringing your daily total number of calories burned up to
2,100. Your basal metabolic rate is always 2,000, and then any extra energy you expend moving your body (such as when we exercise) is added to that number.

So in this example, you are going to burn 2,000 calories per day no matter what you do. So why are we being told that our metabolism will slow down if we do not eat for an extended period of time?

The answer lies with an interesting metabolic process of eating called “The thermic effect of food”, and some clever interpretation of this rather simple process.

The act of eating can increase your metabolic rate by a very small amount, and this is what is referred to as ‘the thermic effect of food’. This increase in metabolic rate is a result of the extra energy your body uses to digest and process the food.

It takes energy to break down, digest, absorb and store the food once you eat it. This ‘energy cost’ has been measured in laboratory settings and is part of the basis for popular diets that promote the metabolic cost of one nutrient over another.

For example, it takes more calories to digest protein than to digest carbohydrates or fats, so some diets recommend substituting some protein for carbohydrates and fat assuming this will burn more calories. Although this is scientifically true, the amount of extra calories this dietary change will cause you to burn is very small and will hardly make a difference to your overall calories burned in any given day.

As an example, the idea of eating an extra 25 grams of protein so you can burn more calories can appear somewhat ridiculous. If you eat an additional 25 grams of protein, you would be adding 100 calories to your diet just so you can burn 10 more calories! The more logical approach would be to just not eat those 100 calories.
Almost all of the calories you burn in a day result from your basal or resting metabolic rate (the calories it takes just to be alive). Beyond that the only significant way to increase the amount of calories you burn in a day is to exercise and move around.

The research on metabolic rate and calorie intake is remarkably conclusive. I was easily able to find the following research studies that measured metabolic rate in people that were either fasting, or on very low calorie diets:

In a study conducted at the University of Nottingham (Nottingham, England), researchers found that when they made 29 men and women fast for 3 days, their metabolic rate did not change.12 This is 72 hours without food. So much for needing to eat every three hours!

In another study performed at the Pennington Biomedical Research Center, men and women who fasted every other day for a period of 22 days experienced no decrease in their resting metabolic rate.13

In addition, a study published in 1999 found that people who were on very low calorie diets and on a resistance exercise program (i.e. lifting weights) did not see a decrease in resting metabolic rate, and these people were only eating 800 Calories a day for 12 weeks!35

In another interesting study published in the aptly-named journal ‘Obesity Research’, women who ate half the amount of food that they normally eat for three days saw no change in their metabolism, either.14

In still more studies, performed on men and women between the ages of 25 and 65, there was no change in the metabolic rate of people who skipped breakfast, or people who ate two meals a day compared to seven meals per day.15,16
In a study published in 2007, ten lean men fasted for 72 hours straight. At the end of their fast their energy expenditure was measured and found to be unchanged from the measurements that were taken at the beginning of the study\textsuperscript{17} - Yet another example showing that fasting does not decrease or slow one’s metabolism.

The bottom line is that food has very little to do with your metabolism. In fact, your metabolism is much more closely tied to your bodyweight than anything else. And, specifically of your body weight, your metabolism is almost exclusively tied to your Lean Body Mass. This means all the parts of your body that are not body fat.

The more lean mass you have, the higher your metabolism, and vice versa. It doesn’t matter if you are dieting, dieting and exercising or even following a VERY low calorie diet. As the graph below illustrates, it is your lean body mass that determines your metabolism.
The only other thing that can affect your metabolism (in both the short term and longer term) is exercise and movement. Even in the complete absence of food for three days, your metabolism remains unchanged.

I find it troubling that every physiologist, medical doctor, and PhD that I have talked to seems to understand this, but many of the personal trainers, nutrition personalities and supplement sales people are completely unaware of this scientific fact.

This is truly a testament to the amazing power and persuasive nature of the marketing that can be found on the Internet and in fitness and nutrition magazines. It is also an illustration of the scientific illiteracy of many of the fitness personalities and marketers you may deal with in your life.

This got me thinking that, if short-term changes in food intake has no effect on metabolic rate, what other myths have I been led to believe as scientific facts?

I took it upon myself to examine the science behind many of today’s popular diets. I found no difference between any of them in their effectiveness over the long term.

People choosing higher protein, lower carbohydrate diets (similar to Atkins or The Zone) tended to see slightly better weight loss, at least in the short term. However, when these studies extended to more than six months and up to a year, the differences tended to even out.18

I found only one thing to be consistent with all of these diets. This common finding is the success of any diet can be measured by how closely people can follow the rules of the diet and how long they can maintain caloric restriction.
In other words, a diet’s success can be measured by how well they can enforce my first nutrition ‘truth’ – ‘prolonged caloric restriction is the only proven nutritional method of weight loss’.

If the diet plan allows you to stay on the diet for a long period of time, then you have a very good chance of achieving sustained weight loss success.

From what we have seen, there is a large amount of science that supports the use of short term fasting as an excellent way to create a dietary restriction, and it seems to be an effective and simple way to lose body fat (which is ideally the goal of ANY weight loss program). On top of that we have also determined that short term fasting does not have a negative effect on your metabolism.

So far, so good. Fasting does not cause any negative or damaging effects on our metabolisms, but that still leaves us with another big unanswered question: What type of effect does short periods of fasting have on our muscles?
Fasting and Exercise

Your muscle cells have the ability to store sugar in a modified form called glycogen. The interesting thing about this process is that your muscles lack the ability to pass this stored sugar back into the blood stream. In other words, once a muscle has stored up some glycogen, it can only be burned by that muscle and cannot be sent off for use by other parts of your body.

For example you’re the glycogen stored in your right leg muscles can only be used by your right leg muscles. It cannot be donated to your liver, brain or any other part of your body. This basic rule goes for all of your muscles. This is in contrast to how your liver works. Your liver stores glycogen specifically for the purpose of feeding your organs, brain, and other muscles as needed.

During a period of fasting, the systems of your body are relying on fat and the sugar that is stored in your liver for energy. Your muscles still have their own sugar that they need for exercising. The sugar in your muscles is used up quickly during high intensity exercises like weight training and sprinting, but even a few consecutive days of fasting in the absence of exercise has little effect on muscle glycogen content. By doing so, your muscle glycogen is truly reserved for the energy needs of exercise.

Generally, research has found that any effect that brief periods of fasting has on exercise performance is small. Research completed in 1987 found that a three and a-
half day fast caused minimal impairments in physical performance measures such as isometric strength, anaerobic capacity or aerobic endurance.\textsuperscript{20}

In plain English, they found that a three-day fast had no negative effects on how strongly your muscles can contract, your ability to do short-term high intensity exercises, or your ability to exercise at moderate intensity for a long duration.

More research published in 2007 found that performing 90 minutes of aerobic activity after an 18-hour fast was not associated with any decrease in performance or metabolic activity.\textsuperscript{21} What makes this study even more interesting is not only was fasting being compared to the performance of people who had recently eaten, but it was also being compared against the performance of people who were supplementing with carbohydrates during their workouts!

This means fasting does not negatively affect anaerobic short-burst exercise such as lifting weights, nor does it have a negative effect on typical ‘cardio’ training.

Another study published in the \textit{Journal of Applied Physiology} in 1988 found no change in measures of physical performance when soldiers were exercised until exhaustion either right after a meal or after fasting for three and a-half days.\textsuperscript{22}

From this research we can see that you should be able to work out while fasted and not see any change in your performance.

The only situation where I think there may be a negative effect from fasting is during prolonged endurance sports, like marathons or Ironman-style triathlons, where you are exercising continuously for several hours at a time.\textsuperscript{23,24} These types of ultra-long competitions typically require the athletes to eat during the actual event in order to maintain performance over such prolonged time periods.
In most research trials examining the effects of fasting on prolonged endurance activities it was found that fasting negatively affected both overall endurance and perceived exertion.\textsuperscript{25} Keep in mind, however, that many of these studies were performed at the END of a 24-hour fast.\textsuperscript{26} So it is not advisable to partake in a 3.5 hour bike right at the end of a 24-hour fast, but I’m hoping you already knew that.

It should be noted that the “negative effect” that occurs from fasting before a long endurance activity only affects an athlete’s time until exhaustion (performance duration). So the amount of time an athlete can exercise while fasted before becoming exhausted is less than the amount of time it takes for a fed athlete to become exhausted.

Even though fasting may decrease the amount of time it takes for an athlete to become exhausted, fasting actually has other positive effects, one of them being fat burning.

Athletes performing long endurance activities while fasted actually burn more body fat than athletes who are fed (because the fed athletes are burning through food energy before they get to the stored energy in their body fat). So depending on your goals, fasting before endurance exercise may actually be beneficial (so much for the idea that you absolutely need to eat a small meal before working out – this completely depends on your exercise goals).

Outside of these performance-based issues, I see no reason why you cannot exercise while you are fasting. The obvious ‘anecdotal’ issue would be concerns about exercise during fasting being able to cause low blood sugar levels. However this has been addressed in research conducted on experienced long distance runners.

In a study published in 1986, nine men who were experienced long distance runners were asked to run at 70-75% of their V02 Max for 90 minutes (this is a pace and
distance that most recreational, gym-going people could never achieve). They completed this run twice. Once while in the fed state, and a second time a couple of weeks later when they were at the end of a 23-hour fast.

Surprisingly, when the blood glucose levels of the runner’s first run and second run were compared, they found no difference between blood glucose levels during the two 90-minute runs. Not only this, but the fasting run also resulted in higher rates of fat burning.

It also took almost 30 minutes of exercise in the fed-state before the runner’s insulin levels finally fell to the same levels that they had BEFORE they even started their run when they were in the fasted-state. In other words, after 23 hours of fasting, the runners insulin levels had dropped down to the same levels you would have after 30 minutes of intense running. From a health point of view, that’s a pretty amazing head start!
Here is another interesting benefit of exercise while fasting. There are metabolic pathways that actually help maintain your blood glucose and glycogen levels while you are fasting, and exercise has a positive effect on these pathways.

During high-intensity exercise your muscles produce a bi-product called ‘lactate’ (sometimes referred to as lactic acid). Lactate has been wrongfully accused of causing the pain in your muscles when you workout, and something called Delayed Onset Muscle Soreness - the pain you feel days after your workout. While lactate doesn’t cause pain, it does help maintain your blood glucose and glycogen levels while you fast.

When lactate levels build up in your muscles as the result of exercise it can leave the muscle and travel to the liver where through a process called gluconeogenesis (making new glucose) it is associated with recovery of glycogen stores. So exercise can help maintain blood glucose levels and glycogen stores while a person is fasting.28

In fact, it’s not only lactate that helps to maintain your blood glucose and glycogen levels while you fast. The very act of burning fat also releases something called ‘glycerol’ from your body fat stores. The free fatty acids in your fat stores are ‘attached’ to something called glycerol while it is stored in your body fat. When the fatty acids are released, so is the glycerol.

(Three fatty acids attached to a glycerol ‘back bone’)
Glycerol is a valuable precursor for gluconeogenesis in the liver. So the very act of burning fat can also help maintain blood glucose and liver glycogen stores. And, since low intensity exercise tends to increase the rate of fat release and the amount of fat being burned as a fuel, you could say that both high-intensity and low-intensity exercise actually help to make you fasts ‘easier’ by helping to regulate your blood sugar levels, and supply building blocks to help maintain your glycogen levels.

I believe the perceived need to eat before a workout or a strenuous activity is more of a psychological need than it is a physical need. Fasting has little to no effect on most forms of exercise, and exercising while fasting may actually make your fast feel easier by helping to maintain blood glucose levels and glycogen stores.

Fasting is not advised preceding long-length endurance events, or during the training of elite athletes if the training involves multiple workouts each day, and where performance is the number one priority over body composition. But for everyone else the combination of fasting and exercise may be a potent way to lose body fat and maintain muscle mass.
**Fasting and your Brain**

I think this myth may not be the fault of the nutrition industry as much as it is a carryover from our childhood. The idea that we must eat to fuel our brains may in fact be true for children, as research seems to suggest that children do better in basic school tests after they have had breakfast as opposed to when they skip breakfast. As children are still growing and developing, but is it true for adults too?

As it turns out, the research doesn’t really support the idea that you get ‘dumb’ or ‘slow’ when you haven’t eaten for a couple of hours.

In a test where twenty-one university aged people were asked to perform a series of intellectual tests after having either a normal meal, skipping one meal, skipping two meals or going 24 hours without food, researchers found no difference in performance on measures of reaction time, recall, or focused attention time. This led the authors of the study to conclude that short-term food deprivation did not significantly impair cognitive function.

These results have been confirmed in additional studies where healthy young adults ate as little as 300 calories over a two day period and experienced no decrease in tests of cognitive performance (including vigilance, reaction time, learning, memory, and reasoning), activity, sleep, and mood.
The interesting part was that in earlier research the exact same group of scientists found that when people were dieting for prolonged periods of time, they found the exact opposite results. They discovered that prolonged dieting did cause a slight decrease in cognitive function.\textsuperscript{32}

So while long-term self-deprivation may result in a lower ability to concentrate, it seems that short-term fasting doesn't have this effect. This leads researchers to suggest that the effect of long-term dieting on cognition may be more psychological than it is physiological.

Basically, when you are dieting for a prolonged period of time you perform worse because you tend to be grumpy and miserable or because you are unsatisfied with your body.\textsuperscript{33} Whatever the reason, the research illustrates that short-term fasting, especially the method described in this book, doesn't produce this effect.

Not only has research shown that short-term fasting doesn't impair cognitive function, but it also suggests that long-term calorie restriction may improve memory in older populations.

When researchers put a group of 50 women with an average age 60.5 on a calorie reduced diet for three months they found that the women had significantly improved scores on verbal memory tests.\textsuperscript{34} So not only does fasting not impair your memory function, it may even improve your memory in the long run. And, as we discuss in later chapters, new research on fasting is currently uncovering a brain-protecting mechanism that is turned on by fasting (see the chapter on Cellular Cleansing).

Yet another myth about fasting has proven false.
Fasting and your Muscle Mass

The other great myth about dieting and fasting is that you will lose your muscle mass while you diet. Based on the available research, this is completely false.

Preserving muscle mass seems to be a very important thing in the diet industry right now and for good reason. Muscle makes up a large proportion of your lean body weight, and for this reason muscle is a large contributor to the amount of calories you burn in a day.

While the idea that muscle burns massive amount of calories is a bit of stretch (every pound of muscle on your body only burns about 5 calories per day, not 50 like commonly stated), the fact that you can build or lose muscle makes the metabolic contribution of muscle very important. Not only that, you cannot deny the effect that muscle has on your body image. Being lean AND having muscle definition typically makes people feel good about themselves.

Luckily, not only does reducing your caloric intake not cause your metabolism to slow down, it also does not result in a loss of your hard-earned muscle.

There is one imperative rule that goes along with this statement: You have to be involved in some sort of resistance exercise, such as lifting weights. Now, to be clear, you do not have to weight training at the exact same time you are fasting, but
both resistance training must be occurring at some point for your muscle mass to be preserved in the face of a caloric deficit.

While long term caloric restriction on its own can cause you to lose muscle mass (such is the case with hospital patients who are on a low-calorie diet and confined to bed rest), the combination of caloric restriction with resistance exercises has been proven to be very effective at preserving your muscle mass.

Research published in 1999 found that when men and women followed a 12 week diet consisting of only 800 calories and around 80 grams of protein per day, they were able to maintain their muscle mass as long as they were exercising with weights three times per week.35

In another study published in 1999, obese men restricted their caloric intake by eating 1,000 calories less per day than they normally ate for 16 weeks. They took part in a weight-training program three days a week and were able to maintain all of their muscle mass while losing over 20 pounds of body fat!36

In yet another study, 38 obese women undertaking a reduced-calorie diet for 16 weeks were also able to maintain their muscle mass by training with weights three times per week.37

As long as you are using your muscles, they will not waste away during short periods of dieting. From my experience in the sports supplement industry, I can tell you that drug-free bodybuilders and fitness athletes constantly undergo 16- to 20-week periods of very-low-calorie diets while maintaining all of their muscle mass as they prepare for bodybuilding contests.

The muscle preserving effects of exercise are even evident in older populations. When 29 men and women between the ages of 60 and 75 dieted for 4 months, the group that
was exercising experienced no significant decrease in lean mass, while the group that was not exercising had more than a 4% decrease in lean body mass.\textsuperscript{38}

Even more good news comes from the fact that your weight workouts don’t have to be painfully long to be effective. When forty-four overweight women performed a 30-minute weight training workout three days per week for twenty weeks while following a low-calorie diet, they were able to lose almost 5% body fat while maintaining all of their lean body mass.\textsuperscript{39}

Finally, research has clearly shown that fasting for as long as 72 hours (regardless of whether or not you are exercising) does not cause an increased breakdown in your muscle, nor does it slow down muscle protein synthesis.\textsuperscript{40,116}

Another diet myth busted!

Fasting and low calorie diets DO NOT cause you to lose muscle mass if you are resistance training. In fact, as we will discuss in the Fasting and Inflammation chapter, fasting may actually decrease some metabolic factors that are actually preventing you from building muscle. And, as we will discuss the Cellular Cleansing chapter, fasting may perform critical maintenance and ‘clean up’ work in your muscle that properly prepares it for extra growth. So in the long-term, fasting and weight loss may actually improve your ability to build muscle mass!

So much for the so-called starvation mode or needing to eat protein every couple of hours - the key to maintaining your muscle mass long-term is resistance exercise; your diet has almost nothing to do with it!

And since your diet has very little to do with your muscle mass, short periods of fasting definitely will not cause your muscles any harm (especially if you continue to work out regularly) and may even help you build muscle in the long term.
A note on Fasting and Increasing Muscle Size

While the research is very clear that fasting for 24 hours will not cause you to lose muscle, it does not address the issue of whether or not fasting can impede muscle growth.

The process of muscle growth is still a vague collection of physiological phenomena that is not completely understood. What we do know is that muscles respond to certain types of mechanical stress by being damaged, repairing themselves and, under the right circumstances, increasing in size and capacity to generate force.

There seem to be two basic nutritional requirements to ensure muscle growth occurs:

1) Caloric Adequacy
2) Protein Adequacy

You’ll notice that the first point is caloric adequacy and not caloric surplus. While the common belief that you need to ‘eat big to get big’, recent research has shown that any extra calories above your estimated daily needs does not contribute to muscle gain. In fact, almost every single extra calorie can be accounted for in fat mass gains. So while there is an obvious caloric need for muscle building it does not seem to be any higher than your daily calorie needs (building muscle does take energy, but it also happens very slowly).

This is where Eat Stop Eat may actually be BETTER than traditional dieting for muscle gains. With Eat Stop Eat you are only in a calorie deficit for one or two 24-hour periods per week. The rest of the time you can eat to maintenance if you choose to. This is in
direct contrast to traditional dieting where you may spend months in a constant calorie deficit.

While the speed of muscle growth is very slow, the unique ability to have periods of calorie restriction and calorie adequacy do supply a sound theory as to why intermittent fasting may be a superior choice for people looking to build muscle while losing body fat. Especially since there is a small but interesting amount of evidence to suggest that fasting can actually prime the metabolic machinery to be more sensitive to the anabolic effects that protein intake\textsuperscript{43,44} and exercise\textsuperscript{45} have on muscle growth.

While protein intake is also a hotly debated topic, I have found through my review of the existing research that intakes above the current recommended daily intakes does seem to aid in muscle growth and that any protein containing meals consumed within 24–48 hours following a resistance exercise session will contribute to muscle growth.\textsuperscript{46}

Also, new research suggests that skeletal muscle protein synthesis responds better to intermittent pulses of protein rather than a continuous supply\textsuperscript{44}. It is speculative, but intriguing, to suggest that a 24-hour break once in a while may even be able to aid in the muscle building process.

To summarize, periods of caloric adequacy, combined with an adequate protein intake and the proper stimulus, seem to be enough to allow for muscle growth. And intermittent fasting may actually allow for better muscle growth than long-term continuous caloric restriction.
A Final Thought on Fasting and Muscle Mass

While long term caloric restriction on its own can cause you to lose muscle mass, the combination of caloric restriction with resistance exercises has been proven to be very effective at preserving your muscle mass.

As long as you are consistently using your muscles in a progressive and challenging manner, they will not waste away during short periods of dieting. Further, muscle mass can be preserved during longer periods of calorie restriction, so long as resistance training is part of the overall weight loss approach. Finally, intermittent fasting may provide a novel and unique method of increasing muscle size while at the same time reducing body fat.

The above pictures are of me in 2006 while working in the supplement industry, (29 years old, 170 pounds); in 2009 after 3 years of following Eat Stop Eat (32 years old, 176 pounds); and lastly in 2012 after 6 years of following Eat Stop Eat (35 years old, 173 pounds). Hopefully you’ll agree that I have not suffered massive muscle loss and may have even built some more muscle after 6 years of following Eat Stop Eat.
Fasting and Hunger

The true feeling of real hunger is difficult to explain and I’m not sure many of us have ever really experienced it. We have felt the withdrawal of not being able to eat when we wanted to, and the disappointment of not being able to eat what we wanted to, but true hunger is reserved for those who have gone weeks without eating and are not sure when or where their next meal will come from.

Consider that most people get noticeably hungry or irritated if they have gone more than two to three hours without eating. But during this time, metabolically speaking, they are still in the fed state. This means their bodies are still processing the food they ate at their last meal. There is still unused energy from their last meal in their system, yet they are already feeling hungry enough to eat again. How can this be?

Most likely, what we call hunger is really a learned reaction to a combination of metabolic, social and environmental cues to eat. Remember how I mentioned that the food industry spends 10 billion U.S. dollars per year advertising food? Well, it turns out that this advertising is very effective.

According to Brian Wansink, author of "Mindless Eating" and dozens of scientific publications on ‘why people eat’, we make as many as 200 food related decisions every day and are subjected to countless food advertisements. In my opinion, this is why almost all diets fail. It is virtually impossible for us to always be consciously in
control of what we eat and how much we eat. There are just too many environmental factors (like advertising and fast food availability) that are working against us!

The role of taste and smell in motivating a person to eat (and in the foods they select to eat) is fairly obvious. Perhaps less obvious is the role of habit, social influence and cephalic reflexes.

For the most part, I believe that hunger as you and I understand it is a conditioned response created through the mix of tastes, smells, habits, and social influence. In other words our desire to eat is determined by a combination of our body’s response to the amount of food we have eaten, and our mind’s response to all of the environmental factors around us (such as TV commercials and snack food packaging colors, fonts and graphics.)

While it is easy to suggest that ‘hunger’ and ‘cravings’ are purely learned phenomena, developed from infancy until we are adults, others argue that hunger is actually more of a biochemical phenomenon.

It has been argued that our constant desire to eat may even be related to a form of addiction. In the best selling diet book, “The South Beach Diet”, author Dr. Arthur Agatston refers to our love of sugar as our ‘Sugar Addiction’. He may have been on to something with that statement.

According to a recent article in Scientific American Mind, by psychiatrist Oliver Grimm, recent research suggests that drug addiction and binge eating are very similar in ‘neurobiological terms’. Put more simply, the brain reacts to food (not just sugar) the same way it would react to a hardcore narcotic like cocaine.

In another article from Scientific American, Nora D. Volkow, Director of the National Institute of Drug Abuse stated that food and illicit drugs both excite areas of the brain
that are involved with reward and pleasure. Therefore, food can create a conditioned response that is evoked by the mere sight of food, or even by being in an environment in which these foods are consumed.\textsuperscript{50}

While explaining food cravings and hunger in this purely biologically manner is intriguing – especially the connection between the psychoactive compounds in food and hunger, these concepts seem to be based more on speculation that substantial research findings.\textsuperscript{51}

In reality, the total body of research seems to suggest that there are both biological and learned influences on appetite, and that these two influences are highly intertwined and probably cannot be separated.

Evidence from a wide variety of sources supports the idea that eating motivation is not regulated according to a simple cycle of ‘depletion and repletion’, but rather a series of motivational effects of the presence of food, its taste, smell, palatability, and a whole host of other external cues.

Within the last decade, it has been recognized that an increasing proportion of human food consumption is driven by pleasure, known as ‘hedonic hunger’.\textsuperscript{52} And this hedonic hunger creates many of our learned eating habits.

In other words, it is the way that we eat each day that ‘teaches’ our body when to expect food, and even what kinds of foods to expect.

The exact term for this phenomenon is ‘food entrainment’. In animal studies we refer to the reaction to food expectation as ‘food anticipatory activity’. And this isn’t just a ‘psychological’ thing (it’s not just ‘all in your head’).
Food anticipatory activity includes increased locomotor activity, body temperature, corticosterone secretions, gastrointestinal motility, insulin secretion, and activity of digestive enzymes.\textsuperscript{53,54,55,56} So we truly can ‘teach’ our bodies when and where to be hungry.

And, because much of hunger is a learned phenomena developed from infancy to adulthood, the desire to eat specific foods in particular contexts (celebration) or in relation to particular feelings (stress foods) or situations (beer while watching football) can be regarded as a feature of normal appetite, rather than being an indication of some sort of eating pathology like an addiction or dependence. It is simply ‘how we learned to eat’.

In fact, it is mostly social factors that teach us which of these learned ‘hungrilys’ is right or wrong.

The desire to eat eggs at breakfast time and the desire to eat chocolate when relaxing and watching television in the evening may both be examples of specific learned appetites. However, only one of these learned appetites would be viewed as an addiction or craving.

In this sense, eating things you don’t want to eat, or that don’t move you towards your goal is nothing more than bad habit that has been learned and ingrained through years and years of practice.

From my own personal experience with fasting, I can tell you that you do get used to the feeling of not eating, and not worrying when you will be eating your next meal. It becomes easier to manage as your body gets used to the feeling of having a truly empty stomach.
I am not certain if this is because you switch from fed to fasted at a quicker rate, or if it is just getting used to having an empty stomach, or if you are ‘unlearning’ your typical eating habits.

Another possibility is that by learning the truth about fasting you get rid of the guilt you used to get when you thought you were doing something unhealthy by not eating every couple of hours. Whatever the case may be it does get easier. Even when you do feel hungry while fasting, the hunger sensations usually don’t last more than a few minutes.

Friends of mine who have adopted periods of fasting into their lives have reported a sense of freedom during the day, mostly because they do not have to spend time worrying about what and when to eat or the emotional stress of choosing appropriate foods. There is a definite feeling of being ‘free’ from many of our previously held ‘hunger cues’, and this allows us to develop a much clearer understanding of what it takes to identify and control the reasons why we eat.

Often times, periods of fasting have been associated with being more alert, ambitious, competitive, and creative. Not only that, but you are no longer having to continuously plan your day around the timing of your next meal, and you may be ‘resetting’ your body’s expectation of when and how much you are going to eat.

Essentially, taking short breaks from eating allows you the opportunity to retrain your food anticipatory activity to allow you to eat less even on the days when you are not fasting.

Lastly, people are also often concerned that fasting will ‘make them hungry’. Luckily, this concern can be addressed by research that studied the calorie intake of people after a 36-hour fast.
This research found that a 36-hour fast does not cause you to rebound and eat significantly more calories once the fast has been broken. Fasting for 36 hours tends to lead to a slightly larger breakfast the next day, possibly causing a 400 calorie increase for the day.57

This may sound extreme, but keep in mind the 36-hour fast caused an average of 2800 calories worth of deficit, so even with 400 extra calories at breakfast the next day, there was still a total deficit of 2400 calories. If you like the ‘glass half full perspective – a 36-hour fast created a 2,400 calorie deficit AND allowed for an extra big breakfast the next day!

The bottom line is that fasting allows people to unlearn some eating habits, or at the very least become aware of some of the key cues that cause them to overeat, and short-periods of fasting do not induce a powerful or uncontrolled need to compensate on the subsequent day by vastly overeating.
Fasting and Blood Sugar Levels

I’m guessing that at some point in your life you have heard someone say they are ‘hypoglycemic’ or that they have ‘low blood sugar’. Typically, this is used as part of the reason why this person needs to eat every couple hours to keep their ‘blood sugar stable’.

The basic story is that if they don’t eat every three or four hours then they become hypoglycemic and become irritable, moody, light-headed and shaky.

I find this an interesting phenomenon considering as little as 5-10% of the population actually have a malfunction in their ability to regulate their blood sugar levels. Also, there is no actual clinical consensus regarding the cut-off values for blood glucose levels that truly define hypoglycemia for all people and purposes.

It’s important to note that I am not suggesting that hypoglycemia does not exist. I am merely suggesting that the average person without an underlying medical condition does not have to worry about getting ‘low blood sugar’ while they are fasting.

From reviewing the research it is evident that unless you have drug-treated diabetes, hypoglycemia just isn’t that prevalent in healthy people. This is because your body is amazingly effective at regulating the amount of sugar that is flowing around in your blood.58
Throughout the typical 24-hour cycles of eating, digestion, and fasting, the amount of glucose in your blood is generally maintained within a range of 70-140 mg/dL (3.9-7.8 mmol/L) as long as you are healthy.

To give you an idea of how truly remarkable this feat is, consider the following: the average human being has about 5 liters of blood. Looking at the numbers above and doing some quick conversions we realize that during any given day, the amount of sugar in your blood ranges from between 5 grams and 7 grams. This is roughly the amount of sugar in one to one-and-a-half teaspoons!

Research conducted upon healthy adults shows that mental efficiency declines slightly (but measurably) as blood glucose falls below about 65 mg/dL (3.6 mmol/L), or into the range of about one-half of a teaspoon.

It is important to note that the precise level of glucose considered low enough to be defined as hypoglycemia is dependent on the age of the person, the health of the person, the measurement method, and the presence or absence of negative symptoms.

According to the research I reviewed on the effects of short-term fasting on blood sugar, a 24-hour fast should not place you into a hypoglycemic state, and I have not seen any research that has shown a subject going below 3.6 mmol/L blood sugar during a short-term fast.

So if there isn’t any clinical evidence of short-term fasting causing hypoglycemia, what’s with all these people who say they get moody and light headed if they don’t eat every three hours?

In a paper titled “Effect of fasting on young adults who have symptoms of hypoglycemia in the absence of frequent meals” researchers aimed to answer this exact question.
Specifically, the researchers were interested in the glucose metabolism of subjects who had a history of what they considered to be hypoglycemic episodes (becoming irritable or feeling ‘shaky’ in the absence of food).

Eight people who reported a history of hypoglycemic episodes were compared to eight people who have never experienced any form of hypoglycemia. Both groups completed a 24-hour fast while their blood sugar levels were monitored.\textsuperscript{60}

During the study none of the subjects in either group had any periods of documented hypoglycemia. In fact, after closer investigation it was apparent that when the group that had a history of ‘hypoglycemia’ reported periods of ‘feeling hypoglycemic’ their blood sugar levels were at normal levels.

Both groups had a decrease in insulin and an increase in body fat being used as a fuel during the 24-hour fast.

The researchers concluded that there is no doubt that some people may find eating less to be more stressful than others, but as long as no other metabolic disease is present, the ability to maintain blood glucose in the normal range does not seem to be affected during a 24-hour fast.

They then speculated that the symptoms of hypoglycemia could in fact be related to anxiety and stress over not eating, as opposed to being caused by low blood sugar.

This anxiety could be over fear of becoming hypoglycemic, fear that they are doing something unhealthy by not eating, or even a drug-like withdrawal response to not being able to eat when they wanted to.
For whatever reason these feelings occur, the research seems very clear that while some people find eating less a little more stressful than others, short-term fasting will not cause you to become hypoglycemic*.

* Keep in mind that *Eat Stop Eat* is written for people without any underlying medical conditions. If you have diabetes or any other condition, please consult with your doctor.
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