12 HEALTH & FITNESS MISTAKES YOU DON'T KNOW YOU'RE MAKING

12 HEALTH & FITNESS MISTAKES YOU DON'T KNOW YOU'RE MAKING

Michael Matthews

This book is a general educational health-related information product and is intended for healthy adults, age 18 and over.

This book is solely for information and educational purposes and is not medical advice. Please consult a medical or health professional before you begin any exercise, nutrition, or supplementation program or if you have questions about your health.

There may be risks associated with participating in activities or using products mentioned in this book for people in poor health or with pre-existing physical or mental health conditions.

Because these risks exist, you will not use such products or participate in such activities if you are in poor health or have a pre-existing mental or physical health condition. If you choose to participate in these activities, you do so of your own free will and accord knowingly and voluntarily, assuming all risks associated with such activities.

Specific results mentioned in this book should be considered extraordinary and there are no “typical” results. As individuals differ, then results will differ.

Cover Designed by: Rocres Aying

Typesetting by Kiersten Lief

Edited by Dominique Chatterjee

Published by: Oculus Publishers, Inc.

www.oculuspublishers.com

Visit the author's website:

www.muscleforlife.com

ABOUT THE AUTHOR

Hi,

I'm Mike and I've been training for nearly a decade now.

I believe that every person can achieve the body of his or her dreams, and I work hard to give everyone that chance by providing workable, proven advice grounded in science, not a desire to sell phony magazines, workout products, or supplements.

Through my work, I've helped thousands of people achieve their health and fitness goals, and I share everything I know in my books.

So if you're looking to get in shape and look great, then I think I can help you. I hope you enjoy my books and I'd love to hear from you at my site, www.muscleforlife.com.

Sincerely,

Mike

CONTENTS

38 MORE DISTASTEROUS HEALTH & FITNESS MYTHS THAT KEEP PEOPLE FAT, WEAK, AND UNHEALTHY

Here's what most people will never know about burning fat, building muscle, and staying healthy.

BONUS REPORT

Muscle Meals: 15 Recipes for Building Muscle, Getting Lean, and Staying Healthy

If you hate dieting and wish you could eat tasty, nutritious food and still build muscle or lose weight, then you want to read this special report.

WOULD YOU DO ME A FAVOR?

You're awesome for downloading my book, and I have a small favor to ask...

REAL SUPPLEMENTS THAT REALLY WORK

ALSO BY MICHAEL MATTHEWS

More practical health and fitness advice to help you get into the best shape of your life.

BIBLIOGRAPHY

REFERENCES

1

YOU HAVE BEEN LIED TO, AND IT'S TIME TO LEARN THE TRUTH

THIS BOOK COVERS SOME OF THE THINGS I wish had known when I started training nearly a decade ago—back when I was full of wrong ideas.

I thought that my genetics weren't good enough, that it took hours and hours of grueling cardio to lose weight, that I was a hardgainer, that a really sick pump was the key to muscle growth, that I shouldn't eat at night if I didn't want to get fat, and many other fallacies that were foisted upon me by workout magazines and trainers (many of whom get their information from magazines).

Like many people, I would hit the gym regularly only to see minor improvements that came far too slowly. Achieving my ideal physique seemed impossible.

This frustrating rut can lead to quitting, or turning to unhealthy diets or steroids and other drugs that can seriously harm your health. Fortunately, I chose the path of better education, and it has since helped me transform the way I eat and train, and as a result, transform my entire physique. I then started writing books to help others do the same.

The fact is—and this is probably the biggest lesson I've learned over the last ten years—building a great body just isn't that complicated. It's like good sex—sure, it requires effort, but the principles are few and simple, and if you stick to them, you get the job done.

Here's what it boils down to: If you're willing to exercise for 30–45 minutes per day, 3–5 times per week, and follow a sensible eating plan, you can have a great body that you're proud of. And if you're not already a seasoned lifter, you can easily gain 10–15 pounds in your first 10–12 weeks

of training— a pretty dramatic change. If you're looking to lose weight, you can lose the same amount, or more, in the same period.

In this book I'm going to address a dozen myths and bogus claims in a scientific and straightforward manner. I'm not going to bother with a bunch of pictures or fluff material because you can get more than your fill of that in other fitness books and on various websites. I'm going to give you the straight facts and help you approach your training and nutrition in a smarter way. You don't necessarily have to read this book in order. Feel free to scan the Table of Contents and jump to whatever sparks your interest most.

By the end of this book, you're going to understand things about your body and the physiology of weight loss and muscle growth that most people will never know. And you're going to be able to put what you learn into practice to make achieving your ideal body easier, faster, and more enjoyable than ever before.

Before we begin with the myth busting, however, I want to talk about the lie factories that spawn many of these bunk fallacies and how you can avoid the many more that are sure to come. So let's get to it.

2

THE WAR AGAINST BS AND BROSCIENCE

A COUPLE DECADES AGO, THERE wasn't enough information on working out.

These days, with the internet and racks full of glossed-up magazines featuring chemically enhanced athletes, the workout information market is like a mountainous garbage dump. Somewhere in the muck are the basic, workable truths—the stuff you're actually looking for—but the useful info is greatly out-numbered by the worthless crap.

If you hit the internet and start participating in health and fitness forums, you're entering a land ruled by broscience and idiocy, where it's almost impossible to sort out what's true from what's not.

"What's broscience?" you ask. Broscience is the predominant brand of reasoning used by amateur bodybuilders and fitness enthusiasts where the anecdotal stories of people who really have no idea what's going on inside their bodies takes precedence over credible scientific research. Just because a guy is big thanks to steroids or a woman is thin thanks to starvation diets that have wrecked her metabolism doesn't mean these people have good advice for you.

A million bad pieces of advice fall under the heading of broscience. You should do high reps and low weight to tone your muscles—BZZZT. Eating too many carbs will make you fat—BZZZT. Deadlifts are bad for your back—BZZZT. Women shouldn't lift weights because they'll get bulky—BZZZT. Wrong, wrong, wrong, bro.

And what about the magazines? Here's a fun fact that you probably didn't know: *MuscleMag*, *IronMan*, *Flex*, *Muscular Development*, *Muscle & Fitness*, *Muscle Media*, and the rest of the mainstream bodybuilding

magazines are owned by supplement companies and are used simply as mouthpieces for their products. Yup. *MuscleMag* is controlled by MuscleTech; *IronMan* is controlled by MuscleLink; *Muscular Development* is Twinlab's shill piece; *Muscle & Fitness* and *Flex* are owned by Joe Weider, and are thus promotion catalogues for his companies, such as Weider, Metaform, and MuscleTribe; and *MuscleMedia* is the EAS cheerleader.

The primary goal of these magazines is to pimp supplements for the companies controlling them, and they work damn well. The magazines push products in various ways. They have pretty advertisements all over the place, they regularly run "advertorials" (advertisements disguised as informative articles), and they balance the sales pitches with some articles that actually provide workout and nutrition advice (which also, in many cases, end with product recommendations of some kind).

So, this is the first blow that magazines deal to you: They give you a lot of "advice" that is geared first and foremost to selling you products, not helping you achieve your goals.

The supplement companies know that if they can keep getting these magazines into people's hands, they will keep selling products. So, how do they ensure that you will keep buying? By coming up with a constant flow of new advice and ideas, of course.

And this is the second, probably more harmful, blow: They inundate you with all kinds of false ideas about what it takes to get into great shape. If they told the simple truth every month, they would have maybe twenty articles that they could re-print over and over. Instead, they get quite creative with all kinds of sophisticated (but useless) workout routines, tricks, and diets (that include certain supplements to really MAXIMIZE the effectiveness, of course).

The bottom line is that you can't trust these magazines. They're nothing more than shiny lobbyists for the supplement companies.

Alright, now that we have all that out of the way, let's have some fun.

MYTH #1:

I CAN’T BUILD MUSCLE/LOSE WEIGHT BECAUSE I HAVE BAD GENETICS

THIS ONE GETS TOSSED AROUND a lot. A Genetics are a favorite scapegoat for people who can’t build enough muscle or lose enough fat. But what are they, exactly, and how much do they actually influence your results?

The word *genetics* comes from a Greek word meaning “origin,” and it refers to the molecular structure and function of our genes. Genes are molecules in our DNA that provide instructions for the creation of special types of proteins that then tell each of our cells what to do, such as build muscle, make bone, carry nerve signals, and so forth.

While our bodies all contain the same types of genes, our programming is different. For instance, the cells that form my iris were programmed to be a certain shade of blue, whereas yours were programmed to be a different shade, or a different color altogether. This variability in programming applies to every physiological activity in our bodies.

So yes, your genes determine things like which muscle groups tend to be your strong points, your natural hormone levels, how much fat you tend to hold on your body, and where you tend to store it, but they don’t alter the basic physiological processes by which your body builds muscle or loses fat. So long as you don’t have a disease directly impairing these functions, you can get into amazing shape if you know what you’re doing. Period.

I’ve helped quite a few hardgainers to gain 30, 40, and even 50 pounds in 1–2 years of training and eating correctly (and with no drugs). I’ve helped scores of men and women who were convinced that they were genetically programmed to be fat get in the best shape of their lives by targeting and changing the many little things they were doing wrong.

If you're afraid that your body is genetically destined to be small, weak, or fat, you can lay those fears to rest. Your body contains the same genetic programs as mine that result in muscle growth and fat loss. In fact, your body might be able to do certain functions relating to these things better than mine. If I've made better progress than you with my physique, it's only because I have a better understanding of how to kick those programs into gear—that is, I know more about proper training, eating, and resting. That's it.

Now, genetics can make parts of the process easier or harder. Some people have naturally high testosterone and growth hormone levels, which means faster muscle growth and an overall leaner physique. Some people's bodies mobilize fat stores more effectively than others, making weight loss an easier endeavor. Genetics also play a role in the shape of your muscles. Not all guys can have that perfect square chest or ridiculous bicep peak, and not all women can have a gravity-defying, perfectly round butt.

But none of these things are limitations. Who cares if you gain muscle or lose fat more slowly than someone else? As long as you can see regular improvements and get to where you want to be, the added time is irrelevant. Regardless of the "quality" of your muscle-building and fat-burning genetic programming, you can build the body of your dreams in a matter of a few years and maintain it for the rest of your life.

And it's no big deal if you can't have the same aesthetics as your favorite fitness cover model. You can still look awesome and, more importantly, feel great, and that's what it's all about.

MYTH #2:

YOU HAVE TO WORK YOUR ABS MORE TO GET A SIX PACK

THESE DAYS, HAVING SIX-PACK ABS is basically synonymous with being sexy and in shape. For men, this means a washboard stomach. The goal is a little different for women: less defined but flat, lean, and toned.

Fitness magazines are constantly touting new ab workouts. Fancy new supplements are released every month that promise to kick your fat burning into high gear and help you get a lean, rippling stomach. There are quite a few “ab gurus” online selling eBooks on the secrets of getting a six-pack.

At first glance, the belief that ab training gives you great abs seems to make sense. That’s basically true with any other muscle in the body, so it must also hold true for the abs, right?

Well, not quite.

While direct ab training will grow the muscle over time, just as with any muscle, you’re not just going for bigger ab muscles—you’re going for *visibility*. That is, if you have a beautifully developed set of abs hiding under a layer of fat, you just look fat.

A study conducted by Southern Illinois University Edwardsville demonstrated this very clearly with 24 healthy adults[1]. A control group did nothing different, and the other did 140 repetitions of ab work 5 days per week for 6 weeks. After the training period, the ab training group saw no change in body weight, body fat percentage, abdominal circumference, or abdominal skinfold measurements. Although their abs were stronger, they looked exactly the same.

So the good news is you don’t have to train your abs for hours and hours every week to have a six pack. In fact, you don’t have to train them at all. What do you have to do?

If you’re a guy, the mystical secret to a sexy stomach is to get your body fat percentage under 12%. Yup, that’s it. When your body fat percentage approaches 10%, your abs become clearly visible whether you directly train them or not. If you’re a woman, getting your body fat percentage under 20% will get you a flat, lean, toned stomach. That’s all there is to it (although exact numbers vary by body type, of course).

While reducing body fat percentage requires nothing more than making sure your body burns more energy every day than it gets from food, there are a few little tricks that have been scientifically proven to speed up the loss of not just fat, but abdominal fat in particular.

The first is known as fasted training.

FASTED TRAINING HELPS REDUCE ABDOMINAL FAT

When you eat food, your body breaks it down into various substances, one of which is glucose, or blood sugar. Your body also releases the hormone insulin, which tells your liver, muscles, and fat tissue to take the glucose from the blood and store it.

Your liver and muscles store the glucose as a substance known as glycogen, and your fat cells store it as a substance known as triglycerides. The storage of glycogen expands the size of the muscle cells, and the storage of triglycerides expands the fat cells, which in turn expands your waistline.

When you’re in this fed state, fat burning does not occur[2]. Your body uses the glucose in the blood for all its energy needs and stores the excess. Depending on how much you eat, this state can last for several hours[3].

But, as the nutrients recently eaten are absorbed, insulin levels decline, and the body senses that its post-meal energy is running out. It then shifts toward burning fat stores to meet its energy needs. Day after day, it juggles these states, storing nutrients you eat and then burning its stores when the supplies run out.

When insulin is at a baseline level, your body is in a fasted state and therefore relies on its energy stores. For a moderate-sized meal, it takes 2–3 hours for your body to enter this state.

When exercise is performed in this state, fat loss is accelerated[4]. Weight training in a fasted state is particularly effective[5]. As an added bonus, research has shown that weightlifting in a fasted state results in an improved anabolic response to a post-workout meal[6].

A fasted state is also great for that six pack because it increases blood flow in the abdominal region, resulting in more stubborn fat mobilization[7]. And it gets even better: Fasted training first thing in the morning has an added benefit since fasting for longer than 6 hours increases your body's ability to burn fat[8].

There is one significant drawback: accelerated breakdown of muscle tissue. Fortunately, this is simple to prevent. Supplementing with BCAAs 10–15 minutes before training will suppress muscle breakdown during your workout[9].

MYTH #3:

LIFTING LIGHT WEIGHTS FOR MANY REPS GETS YOU TONED

COMMON “EXPERT” ADVICE FOR PEOPLE who are dieting to lose weight is to start doing high-rep, high-volume workouts with light weights. Explanations about how this is actually supposed to work usually degenerate into broscience about it “really bringing out striations,” giving you “really nice cuts,” and other such nonsense.

I have some different advice for you. Do the opposite.

When you’re dieting to lose weight, lift *heavy* weights—weights that allow for no more than 10 reps if you’re a woman, and no more than 6 reps if you’re a man.

Why? Several reasons.

The first relates to what you learned in the chapter on hardgainer claims—heavy weights build strength and muscle faster than light weights. What exactly do high-rep sets do to your muscles, then?

Well, research has shown that lifting lighter weights (40–60% of your 1RM) for many reps (15+) doesn’t do much in the way of improving your absolute strength or building bigger muscles, but instead improves your muscles’ aerobic capacity and time to exhaustion[10]. That is, it improves your muscles’ ability to perform prolonged or repeated contractions with that weight[11]. That’s why I don’t ever recommend training with light weights if you’re trying to build muscle; it just doesn’t work that way.

There’s another reason to lift heavy, though, and it relates directly to fat loss.

A study conducted by Greek sports scientists found that men who trained with heavy weights (80–85% of their one-rep max, or 1RM) increased their metabolic rates over the following three days, burning hundreds more calories than the men who trained with lighter weights (45–

65% of their 1RM)[12]. Another study showed that the increased energy expenditure after lifting heavy weights is mainly derived from burning fat (researchers couldn't pinpoint why)[13].

So, hit the weights and hit them hard if you want to jack up your metabolic rate and, in turn, speed up your fat loss. And if you want to score extra points, focus on compound lifts like squats and deadlifts because they burn the most post-workout calories[14].

MYTH #4:

WOMEN SHOULD TRAIN DIFFERENTLY THAN MEN

MOST WOMEN DESIRE THE SAME type of body. They want to be lean but not too skinny. They want to have some muscle definition, particularly in their arms, stomach, and legs. And they want to have a bubbly butt that fills their jeans. And, amen! I'm all for that.

To achieve this physique, the average woman needs to lose fat and add some muscle. Just losing the fat wouldn't be enough as most women lack the muscle that gives an athletic look (leaving them with the common skinny-fat body type).

What is the best way to achieve these goals? Conventional "wisdom" has women grinding away on the treadmill every day and working out with three-pound dumbbells. I've yet to see a woman achieve a fitness model physique by doing that.

Achieving a lean, athletic look takes nothing more than having a good amount of muscle and low body fat percentage. Reducing body fat percentage is mainly a function of diet, but what's the best way to build muscle? Lifting weights, of course. And you're probably not surprised that I recommend heavy weights.

I can already hear you disagreeing. Women shouldn't lift heavy weights because they don't want to get bulky, right? Wrong. It's incredibly difficult for a woman to ever reach the point of looking bulky, regardless of how hard or often she trains.

The hormone that most directly regulates muscle growth is testosterone, and an average woman's testosterone levels are a mere 5–10% of an average man's. In one study, post-exercise testosterone levels were *45 times* higher in men than women[15]. This isn't surprising when you consider that

resistance training doesn't even increase testosterone levels in women—only a growth hormone called estradiol (a type of estrogen) and cortisol[16].

If you're a woman, I PROMISE you that you will never wake up one day disgusted with your bulky physique if you lift heavy weights (heavy for YOU, but light for weightlifting guys) and stay lean. Getting to the point of having large, protruding muscles is a very gradual, grueling process that you would have to consciously work at every day, and it would take years.

BENEFITS OF BUILDING MUSCLES

If you're a woman and you're still not quite sold on weightlifting yet, these health benefits of building your muscles, as discussed in a study conducted by the University of Texas, will change your mind[17]:

- Your chances of developing diseases like diabetes, metabolic syndrome, and cancer are significantly reduced.
- Your bones become stronger.
- Your metabolism speeds up because muscle, even when idle, burns energy. This makes it easier to stay lean.
- Your life expectancy increases.
- Your immune system becomes stronger.

And what about your physique? Well, gaining muscle does wonders for that too. Strong, well-developed muscles are what give women the curves they love. Nothing improves your image more in and out of your clothes than lean, defined muscles.

If all that isn't enough, then you should also know that maintaining a strong, well-muscled body helps you age better. Research has shown that greater muscle mass percentage in older women is associated with better mobility, lower body weight, and lower body fat levels[18].

Now, what qualifies as heavy weight for a woman? Weight that is heavy enough to limit you to 8–10 repetitions. Lifting heavy weights (relative to your strength, of course) is just the fastest way to change your physique.

If you’re a woman and you want toned, sexy legs and a round, tight butt, then you can’t beat an intense workout of “boy exercises” such as barbell squats, Romanian deadlifts, and barbell lunges. If you want sleek, defined arms, the quickest way to get there is by going heavy on exercises like dumbbell curls, straight-bar curls, and EZ-bar curls.

Women, it’s time to put down the pink play weights and get sexy by lifting with the guys! (They’ll find it pretty hot, too.)

MYTH #5:

YOU DON'T HAVE TO LIFT WEIGHTS IF YOU JUST WANT TO BE HEALTHY AND FIT

GENERALLY SPEAKING, THERE ARE TWO TYPES of people in the gym: those on the cardio machines trying to get or stay thin or lean and those on the weights and machines trying to get bigger muscles.

There certainly are many benefits of cardio for weightlifters, but what about the benefits of weightlifting for people who just do cardio?

Those who stick to cardio often don't see the point in lifting weights because they want to have a lean, athletic look. At the extreme end, cardio junkies might even think lifting is only for meatheads who have neurotic breakdowns if they don't have a protein shake every 3 hours.

The type of physique most guys and gals want actually requires that they gain a fair amount of lean mass—and weightlifting is the only way to do this efficiently—but there are even greater benefits to consider.

Unless you do something to stop it, starting in your 20s, your body will lose a small amount of muscle and strength every year[19]. Research has shown that upwards of 40% of total muscle is lost between the ages of 20 and 60[20].

In medical lingo, this is known as *sarcopenia*, and studies have associated the gradual loss of strength and muscle with:

- Increased risk of diabetes and heart disease
- Increased risk of osteoporosis
- Shorter lifespan
- Decline of metabolic health[21]

- Frailty and disability in the elderly[22]

People often build muscle merely to look good, but it's incredibly healthy in the long term as well. Muscle mass not only combats sarcopenia, but it imparts many of the metabolic benefits once thought to be the sole realm of cardiovascular exercise. And in terms of aging, having a significant amount of muscle mass is one of the most important things you do can do maintain your health and ward off disease.

I strongly believe that *everyone*, men and women of all ages, should include some form of resistance training in their exercise routine. The frequency and intensity of the training should be dictated by personal goals, but even if your goal is just to stay healthy, resistance training must be part of your workout regimen.

And don't think that weightlifting is only for young people. Research has shown that middle-aged men (35–50 years old) on a weightlifting program can build strength and muscle as well as college-aged men[23]. Studies have even shown that the elderly (ages 60 to 80) can make significant gains in both muscle growth and strength in response to regular weightlifting[24].

MYTH #6:

WHEN DOING CARDIO, YOU WANT TO GET YOUR HEART RATE INTO THE “FAT BURNING ZONE”

LIKE MOST BAD ADVICE IN THE HEALTH and fitness industry, this myth is given a false air of scientific legitimacy.

Cardio machines often show pretty graphs indicating where your heart rate should be for “fat burning” versus “cardiovascular training.” You calculate this magical heart rate by subtracting your age from 200 and multiplying this number by 0.6. If you keep your heart rate at this number, as the story goes, you’ll be in the “fat burning zone.”

There’s a kernel of truth here. You do burn both fat and carbohydrates when you exercise, and the proportion varies with the intensity of exercise. A very low-intensity activity like walking taps mainly into fat stores, whereas high-intensity sprints pull much more heavily from carbohydrate stores. At about 60% of maximum exertion, your body gets about half of its energy from carbohydrate stores and half from fat stores (which is why many “experts” claim that you should work in the range of 60–70% of maximum exertion).

Based on the above, you might think that I’m actually arguing in defense of this myth, but there’s more to consider.

The first issue is total calories burned while exercising. If you walk off 100 calories, 85 of which come from fat stores, that isn’t as effective as spending that time in a moderate run that burns off 400 calories with 200 coming from fat. And that, in turn, isn’t as effective as spending that time doing sprint intervals that burn off 800 calories with 300 coming from fat.

The second issue to consider is that studies such as those conducted by Laval University[25], Baylor College of Medicine[26], and the University of New South Wales have shown that shorter, high-intensity cardio sessions

result in greater fat loss over time than low-intensity sessions[27]. Research has also shown that high-intensity training is more muscle-sparing than low-intensity cardio[28].

Although the exact mechanisms of how high-intensity cardio trumps steady-state cardio aren't fully understood yet, scientists have isolated quite a few of the factors: increased resting metabolic rate for upwards of 24 hours after exercise; improved insulin sensitivity in the muscles; higher levels of fat oxidation in the muscles; significant spikes in growth hormone levels (which aid in fat loss) and catecholamine levels (chemicals your body produces to directly induce fat mobilization); and post-exercise appetite suppression[29].

You can apply high-intensity interval training (or *HIIT*) to any type of cardio that you would normally do. You can head outside and walk and sprint, or you can hop on the elliptical trainer or recumbent bike to get it done.

A standard HIIT protocol looks like this:

1. Start your workout with 2-3 minutes of low-intensity warm-up.
2. Go all-out, as fast as possible, for 30–60 seconds (if you're new to HIIT, 30-second intervals will be plenty, but you want to try to work toward being able to do 60-second intervals).
3. Slow it down to a low-intensity recovery period for the same period as your high-intensity interval. Again, if you're new to HIIT, you may need to extend this rest period to 1.5–2 times as long as your high-intensity interval. If you're still out of breath and your heart is racing, you're not ready to hit the high-intensity again.
4. Repeat this cycle of all-out and recovery intervals for 20–30 minutes.
5. Finish with a 2–3 minute cool-down at a low intensity.

Give it a try next time you're planning on losing weight. You'll be amazed at how much more effective your workouts are.

MYTH #7:

FASTING PUTS YOUR BODY INTO "STARVATION MODE"

WE'VE ALL HEARD THIS A MILLION TIMES, and it seems to make logical sense.

If we go too long without eating, wouldn't our body think it's being starved and drastically reduce its metabolic speed? In order to better deal with future starvation, wouldn't it increase the rate at which it stores fat once we actually do eat?

Regardless of how much it might seem theoretically plausible, it's not true.

FASTING DOESN'T NEGATIVELY AFFECT YOUR METABOLISM

A study conducted by the University of Rochester showed that metabolic rate didn't decline until *60 hours* of fasting—and the reduction was a mere 8%[30]! In fact, research has demonstrated that the metabolism actually *speeds up* after 36–48 hours of fasting[31], [32].

True starvation from the perspective of the body occurs after about 3 days (72 hours) of not eating, at which point the primary source of energy becomes the breakdown of proteins (and the biggest source of protein is muscle)[33].

Until then it relies on body fat and glycogen stores in the liver and muscles for its energy, nothing more than routine biological functioning. Once it has to begin breaking down proteins for energy, however, the body knows its survival imperiled, and that is when the real starvation mode begins.

This makes sense from an evolutionary perspective. If we haven't eaten in quite some time, what does our body want us to do? Go find food, of course. And how does it stimulate us to do that? By increasing production

of two chemicals called adrenaline and noradrenaline, which sharpen our minds and make us want to go move around. They also increase our basal metabolic rate, the minimal amount of calories you burn at absolute rest. (Exercise elevates these chemicals as well.)

And what happens when we lose muscle? We become physically weaker, our metabolism slows down, we become more likely to succumb to disease, and eventually we die (usually from a heart attack).

THE HEALTH BENEFITS OF FASTING

A growing body of evidence is demonstrating that fasting has various health benefits. Studies have shown that fasting increases insulin sensitivity, stress resistance, fat oxidation, and life span and reduces the risk of disease[34].

Yes, you read that right: Relatively long periods of fasting (16–24 hours) actually improve your health and help you burn more fat without any worries of the body obsessively storing every calorie you eat after the fast.

There are dietary strategies built around this research, and they are known as intermittent fasting routines. Such protocols entail splitting up your days into fasting and feeding periods, usually calling for 16–20 hours of fasting and 4–8-hour "feeding windows." You eat your entire day's worth of calories during these feeding periods, which requires large meals, especially if you're lifting weights.

You should also know that intermittent fasting while exercising regularly requires proper meal and workout timing if you're to make optimal gains. I won't go into all the details here, but if you're interested in following this style of dieting, I recommend you read my blog post on it, which you can find by visiting my website (www.muscleforlife.com) and searching for "intermittent fasting."

Personally, I don't like having to eat large (1,000+ calories) meals due to the uncomfortable fullness, as well as the ensuing lethargy caused by a hormone called *cholecystokinin* that is released when you eat protein and fat[35].

The key takeaway of this chapter is that you can eat infrequently if that's how you like to do it, or have to due to schedule hiccups. Only two meals need be set in stone: your pre- and post-workout meals. Your pre-

workout meal should contain about 30 grams of protein and carbohydrate, and your post-workout meal should contain about the same amount of protein and between 30–40% of your total daily carbs.

You can even work in a planned fast once or twice per week to reap some of its benefits. I will occasionally do this by simply skipping breakfast on a day that I’m not lifting (I lift early in the morning) and eating my first meal after about 12–14 hours of fasting.

MYTH #8:

IF YOU EAT A LOT OF CARBS, YOU WILL ALWAYS BE FAT

THE HYSTERICAL CRUSADE AGAINST the carbohydrate has reached a frantic pitch these days.

From the scientifically bankrupt theories of guys like Gary Taubes to the trendy low-carb diets like Paleo, Zone, Dukan, and so forth, the carbohydrate is now the victim of the same level of persecution that saturated fat endured for decades.

We've come to learn that saturated fats aren't the evil heart killers they were made out to be[36]. (This excludes the processed form, trans fat, which is known to increase risk of heart disease, among other health issues[37].)

If we're to believe the leaders of the Carbohydrate Inquisition, this molecule will force us to be fat, break our metabolism, lead us to develop diabetes and other diseases, and generally turn us into hungry, horrible people.

If you ditch the diabolic carbohydrate, "experts" claim you will melt fat away and keep it off (without having to count pesky calories), build an invincible immune system, live forever, and maybe even develop superpowers. And you'll be part of the cool crowd to boot.

But is this dietary culture war justified? In other words, does it have any basis in science?

CARBOHYDRATE INTAKE AND INSULIN LEVELS

Much of the carbohydrate controversy revolves around its relationship to the hormone *insulin*.

As the unfounded claims go, insulin makes you fat, and carbohydrates spike insulin; thus, "carbohydrates make you fat." Sounds so simple, right? Well, yeah, the story is simple because it's false.

While it's true that insulin's job is to pull glucose out of the blood and store excess as fat, the hormone is also responsible for driving amino acids into our muscles for protein synthesis and clearing dietary fats out of the blood (which are stored as body fat more efficiently than carbohydrate, I might add)[38]. On top of all that, insulin has a mild anti-catabolic effect, meaning it helps preserve your muscle[39].

And while it's also true that eating carbohydrates increases insulin levels in your blood, many common sources of protein (such as eggs, cheese, beef, and fish) are comparable in their ability to do the same[40].

Some people claim that because your body generally produces more insulin when you eat carbohydrates, this leads to more fat storage. They're wrong—research has shown that the amount of insulin your body produces in response to eating food (or *insulin response*) doesn't affect the amount of fat stored[41].

So, in short, insulin is your friend, not part of a conspiracy between your pancreas and fat cells to ruin your self-image.

That's one strike against the "carbs make you fat" camp. Now let's look at the connection between carbohydrate intake and fat loss.

CARBOHYDRATE INTAKE AND REAL-WORLD WEIGHT LOSS

Many low-carb gurus will claim that you can lose weight much more quickly if you consume very few carbs every day. Some people even believe they can *only* lose weight if they cut their carbs to nil.

The problem with these beliefs is they fly in the face of both basic physiology and scientific findings, and they mask the most common weight-loss roadblock: eating too much while moving too little.

A simple review of scientific literature shows that diet composition has no effect on long-term weight loss.

Let's first look at a study conducted by the University of Pennsylvania[42]. Researchers assigned 63 obese adults to either a low-carb, high-protein, high-fat diet (20 grams of carbohydrate per day, gradually increased until target weight was achieved), or a conventional diet of 60% of calories from carbohydrates, 25% from fat, and 15% from protein.

The result: The low-carb group lost more weight in the first 3 months, but the difference at 12 months was insignificant.

Reducing carbohydrate intake decreases the amount of glycogen we store in our liver and muscles[43]. The 3-month result isn't surprising, then, considering that total body water retention is decreased[44]. This causes a rapid drop in weight that has nothing to do with burning fat (anyone that has reduced carbohydrate intake as a means of cutting calories for weight loss has experienced this).

Harvard University published a study in 2009 on the effects of diet composition and weight loss. The researchers assigned 811 overweight adults to one of four diets, which were comprised of the following percentages of fat, protein, and carbs: 20%, 15%, and 65%; 40%, 15%, and 45%; and 40%, 25%, and 35%[45].

After 6 months of dieting, participants had lost and average of 6 kg (roughly 13.2 pounds). They began to regain weight after 12 months, and by 2 years, weight loss averaged out to 4 kg, with no meaningful differences between low-protein or high-protein, low-fat or high-fat, and low-carb or high-carb groups.

A study conducted by Arizona State University found that an 8-week high-carbohydrate, low-fat, low-protein diet was equally effective in terms of weight loss as a low-carbohydrate, low-fat, high-protein diet[46].

So, the conclusion we can derive is brutally simple and clear: As long as you keep yourself in a caloric deficit, you'll lose weight regardless of the dietary protocol you follow[47].

EXCEPTIONS TO THE RULE: WHEN LOW-CARB (OR HIGH-CARB) MIGHT BE BETTER

Despite this body of evidence, practical experience in coaching hundreds of people has taught me that some people just do better on high-carb or low-carb diets, whereas some do fine with either.

For instance, some people—like myself—do very well with high-carbohydrate diets. They can lose weight very easily, feel energized all day without any crashes, and are able to maintain considerable strength in the gym. Others don't do well with a high-carb approach. Weight loss is slower

than optimal, they are very hungry, which leads to overeating, and any progress comes with frustrating energy highs and lows.

This personal response can go the other way, too. When people don't react well to low-carb, high-fat diets, they can feel lethargic and mentally clouded, lose a ton of strength, and have trouble getting lean. Others thrive on fats, having plenty of energy and a general sense of well-being. What gives?

While feeling like crap certainly increases the chance you'll overeat and give less than 100% in your workouts, there's more at work here.

Research has shown that some people's bodies deal better with large amounts of dietary fat than others[48], responding with positive metabolic changes like an increase in resting energy expenditure and fat oxidation to maintain energy balance[49]. It can also result in better appetite control[50]. However, other people's bodies respond negatively to high amounts of dietary fat and are more likely to store it as stubborn body fat. Such research sheds light on why different individuals respond so well or poorly to lowcarb, high-fat diets.

The above also relates to research on how insulin sensitivity and response can affect diet results. Studies have shown that weight-loss efforts aren't improved or impaired by insulin sensitivity or resistance per se[51]. But when we move away from a balance of nutrients and use high-carb, low-fat or low-carb, high-fat diets in conjunction with different levels of insulin sensitivity and response, things change.

For instance, a study conducted by the Tufts-New England Medical Center found that a low-glycemic load diet helped overweight adults with high insulin secretion lose more weight, but did not help overweight adults with low insulin secretion[52].

A study conducted by the University of Colorado demonstrated that obese women who were insulin sensitive lost significantly more weight on a high-carb, low-fat diet than a low-carb, high-fat diet (average weight loss of 13.5% vs. 6.8% of body weight, respectively). Women who were insulin resistant lost significantly more weight on a low-carb, high-fat diet than a high-carb, low-fat diet (average weight loss of 13.4% vs. 8.5% of body weight, respectively)[53].

What we can take away from these studies (and my anecdotal observations) is that if you have good insulin sensitivity and low secretion (good insulin response), you'll probably lose weight more easily on a high-carb, low-fat diet. On the other hand, if you have poor insulin sensitivity and high secretion (poor insulin response), odds are you'll do better with a low-carb, high-fat diet.

WHICH APPROACH DO I USE, THEN? HIGH-CARB OR LOWCARB?

Unfortunately it's not easy to tell if your body type responds better to a high-fat or low-fat diet, but it is fairly easy to take an educated guess regarding your body's insulin dynamics.

After eating a high-carb meal, signs of good insulin sensitivity and response are pumped muscles that feel "full," mental alertness, stable energy levels (no crash), and satiety. Signs of poor insulin sensitivity and response are bloat, gassiness, mental fogginess/inability to focus, sleepiness, and hunger soon after eating.

Based on the above symptoms, you can decide which approach to try. But remember that these are only general guidelines—in the end, actual weight loss is what matters most.

You should be able to lose 1–2 lbs. per week with the right caloric intake. If you're not seeing progress despite being *absolutely* certain that you're in a proper caloric deficit, you may benefit from altering the composition of your diet.

MYTH #9:

EAT MANY SMALL MEALS PER DAY TO STOKE THE METABOLISM AND CONTROL HUNGER

THIS MYTH WAS DIETARY DOGMA for the longest time and is still promoted by fitness “experts” and related magazines.

The idea that small, frequent meals will speed up your metabolism and help you control hunger kind of makes sense at first. When you eat, your metabolic rate increases as it breaks down the food. So, if you eat every few hours, your metabolism will remain in a constantly elevated state, right? And nibbling on food throughout the day should help reduce hunger, *right*?

Bodies are not so simple. Like many of the myths that seem to make sense on paper, this one just doesn’t pan out in clinical research.

MEAL FREQUENCY AND YOUR METABOLISM

Each type of essential nutrient (protein, carbohydrate, and fat) requires varying amounts of energy to break down and process. This is the thermic effect of food consumption and is the metabolic boost that comes after eating.

The magnitude and duration of that boost depends on how much you eat. A small meal causes a small metabolic spike that doesn’t last very long, whereas a large meal produces a larger spike that lasts longer.

So the question, then, is if a higher frequency of smaller meals per day increases total energy expenditure over a 24-hour period than fewer, larger meals. The French National Institute of Health and Medical Research had the same question and performed an extensive review of literature to provide an answer.

Researchers looked at scores of studies comparing the thermic effect of food in a wide variety of eating patterns, ranging from 1 to 17 meals per day[54]. In terms of 24-hour energy expenditure, they found no difference between nibbling and gorging. Small meals caused small, short metabolic boosts, and large meals caused larger, longer boosts, but by the end of each day, they balanced out in terms of total calories burned.

A study conducted by the University of Ontario split participants into two dietary groups: 3 meals per day vs. 3 meals plus 3 snacks per day, with both in a caloric restriction for weight loss[55]. After 8 weeks, researchers found no significant difference in average weight loss, fat loss, and muscle loss among 16 individuals.

While increasing meal frequency can make dieting more enjoyable for some, it doesn't help burn more energy.

MEAL FREQUENCY AND APPETITE

A study conducted by the University of Missouri with 27 overweight/obese men found that after 12 weeks of dieting to lose weight, increasing protein intake improved appetite control, but meal frequency (3 vs. 6 meals per day) had no effect[56].

The University of Kansas investigated the effects of meal frequency and protein intake on perceived appetite, satiety, and hormonal responses in overweight/obese men[57]. In line with many other studies, the researchers found that higher protein intake led to greater feelings of fullness and that 6 meals actually resulted in lower daily fullness than 3 meals.

On the other hand, you can find studies wherein participants were less satiated on 3 meals per day and found that increasing meal frequency increased feelings of fullness, thereby making it easier to stick to their diets.

The bottom line is that there are many variables, including psychological ones, and clinical evidence shows that it's incorrect to conclusively state that either more or fewer meals per day for hunger control will be best for everyone.

HOW MANY MEALS SHOULD I EAT?

How often you should eat boils down to personal preference. As the cliché goes, the best dietary protocol is the one you'll stick to, and reducing psychological stress makes a big difference in increasing diet compliance and thus overall effectiveness.

I often recommend eating more, smaller meals per day. In my experience coaching hundreds of people, many prefer the feeling of eating every few hours as opposed to fewer, larger ones separated by 5—6 hours. I personally don't like eating 800–1,000 calories to then feel stuffed for several hours. I much prefer a 400-calorie meal that leaves me satisfied for a few hours, followed by another smaller meal with different ingredients and flavors, and so forth.

That said, if someone can't or doesn't want to eat frequently, then we work out a meal plan consisting of fewer, larger meals that fit their preferences or lifestyle. Our hunger patterns are established by our meal patterns, so it's usually easiest to work around your schedule, not against it[58].

MYTH #10:

YOU CAN'T DRINK ALCOHOL IF YOU WANT TO LOOK GOOD

ALCOHOL AND ITS RELATION TO HEALTH and fitness is a tricky subject.

In small amounts—a drink or two a day—it has potential health benefits like improved insulin sensitivity[59], healthier cardiac function[60], and increase in blood lipids (fatty substances in your blood, which when lowered, reduce your risk of heart disease)[61].

In larger amounts, alcohol leads to barely conscious drives home, fist-fights over who's the best NFL rusher of all time, and charges of public indecency. And to nobody's surprise, chronic alcohol abuse basically just breaks your ass[62].

But this chapter isn't about the various effects of mild or severe drinking.

Instead, it will answer a question on all dieters' and body builders' minds: How much alcohol can we drink before it will negatively affect our efforts to lose weight and build muscle?

ALCOHOL AND FAT LOSS

Similar to the carbohydrate inquisition that's in vogue these days, alcohol is the target of many criticisms. According to some people, if you drink, you're going to get fat—end of story. And, depending on whom you talk to, you might just lose all your muscle as a bonus.

Well, if we take a quick look at epidemiological research, we can see that moderate alcohol consumption is actually associated with lower body weight, not higher[63].

A study published in 1985 in the American Journal of Clinical Nutrition looked at the diets of 1,944 adults ages 18 to 74[64]. Researchers found that an increase in calories from ethanol (alcohol) alone didn't result in the weight gain that would normally occur if those calories were from protein, carbs, or fat. In fact, thanks to regular alcohol intake, drinkers took in an average of 16% more calories each day than non-drinkers and had the same levels of physical activity, but weren't any fatter than their alcohol-free counterparts.

Another study following obese women on a weight-loss diet instructed one group to intake 10% of daily calories from white wine and another from grape juice[65]. After 3 months, the white wine drinkers lost about 2 pounds more than the grape juice group.

The exact mechanisms at work aren't totally clear, but a likely factor is that drinking can reduce your appetite for food[66]. According to another study, it may also be related to alcohol's effects on insulin sensitivity[67].

While it may seem like I'm encouraging you to drink to get shredded, that's not the goal. Alcohol consumption can hinder your weight loss efforts, but in an indirect way.

While alcohol itself basically can't be stored as body fat[68], it blocks fat oxidation, which in turn accelerates the rate at which the body stores dietary fat as body fat[69].

In short, it's not the calories from alcohol that can make you fat, but all the crap that you eat with it, which is hard to resist when you're hammered. So, if you want to be able to drink while dieting and still lose weight, don't consume alcohol more than one day per week, and use the following tips to protect yourself from excess fat storage:

- Restrict your dietary fat intake that day, and don't eat any fatty foods while you're drinking.
- Get the vast majority of your calories from protein and carbs that day (with most coming from protein).
- Stay away from carb-laden drinks like beer and fruity cocktails. Dry wines are a good choice as well as spirits (when not mixed with sugary soda or juices).

By following these guidelines, you can enjoy a few drinks every week without having to feel guilty and without ruining your weight-loss regimen.

ALCOHOL AND TESTOSTERONE LEVELS

Men do have to face the music when it comes to one result of alcohol: It suppresses testosterone production[70]. The magnitude of this effect varies.

A study conducted by the TNO Nutrition and Food Research Institute had 10 men drink 30–40 grams of alcohol per day (2 to 3 beers, 2 to 3 ounces of liquor, or 10 to 15 ounces of wine). After 3 weeks, their testosterone levels had dropped by about 7% (pretty insignificant)[71]. Another study had 9 men drink 60–70 grams after working out, and it had no effect on testosterone levels during the following 5 hours[72].

What happens when we increase the post-workout dose, though?

The University of Helsinki conducted a similar study, administering 1.5 g ethanol per kg of body weight (the equivalent of six beers or six 1.5-oz. shots) to 8 healthy men ages 20 to 26. Their testosterone levels dropped by 23% on average between the 10th and 16th hour after they started drinking[73]. Furthermore, cortisol levels were elevated by 36% on average, and growth hormone secretion was heavily suppressed.

Another study conducted by the same university agreed: Binge drinking after engaging in exercise is bad for testosterone production, thus proving that 10 beers is a poor post-workout meal (awww, shucks)[74].

All things considered, if you have a few drinks here and there, you probably have nothing to worry about in terms of testosterone production. But doing post-workout shots? Not a good idea.

ALCOHOL AND MUSCLE RECOVERY AND PERFORMANCE

In rat and in vitro studies, alcohol impairs protein synthesis[75], [76]. Some people directly apply that type of research to living, breathing humans and say it prevents you from building muscle and accelerates muscle loss.

Well, it doesn’t work like that. Rats and humans have major metabolic differences, and in vitro findings don’t always pan out in vivo.

In live humans, muscle-wasting effects of alcohol have only been seen in chronic alcoholics[77]. If you have 7+ drinks per day, you’re going to have

trouble building muscle. And walking. And remembering your name.

It's also commonly claimed that alcohol consumption impairs strength and interferes with the body's ability to repair muscle damage. According to studies conducted by the University of Massachusetts and Aarhus University, however, alcohol has no effect on strength or indicators of exercise-induced muscle[78], [79].

To the contrary, a study conducted by Massey University showed that 1 g of ethanol per kg of body weight after exercise magnified post-workout muscle damage[80]. It should be noted that the workout regimen used was a bit ridiculous (300 eccentric contractions on a machine for training the legs), so we can't be sure its findings apply to more traditional, lower-volume weightlifting workouts.

TO DRINK OR NOT TO DRINK?

Alcohol advocates like to talk it up as some kind of superfood, but the bottom line is it's not necessary in any way for good health and it won't give you any performance benefits.

If you're like me and don't drink, I don't see any reason to start. If you drink regularly, you have a lot more to worry about than it interfering with muscle gains.

But if you drink infrequently and moderately enough to not notice any after-effects (no hangovers or lingering issues), then you probably don't have reason to give it up altogether.

MYTH #11:

DON’T EAT AT NIGHT IF YOU WANT TO LOSE WEIGHT

THIS IS SILLY ADVICE, but it’s followed by many. Losing weight requires that you consume less energy (calories) than you expend, and meal timing has little bearing on this.

If you overeat during the day instead of late at night, there’s no difference in the effect of those extra calories. Weight loss is such a precise activity that if you eat too much in just one meal but stick to your meal plan for the rest of the day, you can fail to lose fat that day.

A literature review conducted by the French National Institute of Health and Medical Research highlights several key findings relating to meal frequency:

- Past studies that associated a “grazing” style of eating (many small meals per day) with greater weight loss were flawed in various ways, and the conclusions drawn from them even more so.
- Newer, more rigorous research has shown that there are no metabolic advantages to eating fewer or greater meals per day.
- Meal patterns do not directly accelerate or impair weight loss, but can predispose people to overeat and thus fail to lose weight[81].

You may be shocked to learn that studies have shown that eating larger meals later in evening can actually result in *more* fat loss and less muscle loss[82]. (I’ve yet to experience this personally, but it soothed any fears I had in the past about eating late dinners.)

I like to eat a couple smaller meals at night (in addition to larger breakfasts and lunches), but if your schedule or lifestyle is better suited to larger meals at night, don’t worry—it won’t get in the way of hitting your

goals. Instead of trying to tough it out for hours and hours with no food at night, plan your meals so you can eat on a schedule that you like while maintaining a caloric deficit, and you will lose weight.

MYTH #12:

I’M OVERWEIGHT BECAUSE I HAVE A SLOW METABOLISM

I DON’T KNOW HOW MANY TIMES I’ve heard an overweight person chalk up his or her physical condition to a slow metabolism. It’s the easiest excuse. If a diet or exercise routine failed, it’s not that he or she did it wrong, it’s just that dang slow metabolism.

The fact is almost everyone that leans on this popular old crutch is wrong. I say almost everyone because some people actually do have an under-performing thyroid (hypothyroidism); this causes the basal metabolic rate to drop, which in turn makes it easier to overeat and gain weight[83]. Other symptoms of a low-functioning thyroid are depression, sleepiness and fatigue, loss of sex drive, constipation, and hair loss. If you suspect that you might have a thyroid problem, you should see a doctor to get your hormone levels checked.

That said, most of us have perfectly functioning thyroids, and our metabolisms are more than adequate for weight loss. So let’s get to the bottom of this myth, starting with the basics of metabolism and how it relates to weight loss.

WHAT IS ACTUALLY MEANT BY METABOLIC SPEED?

Your body burns a certain number of calories regardless of any physical activity, and this is called your basal metabolic rate (BMR). Your total daily energy expenditure (TDEE) for a day is your BMR plus the energy expended during any physical activities.

When your metabolism is said to “speed up” or “slow down,” what is actually meant is that your basal metabolic rate goes up or goes down. That is, your body burns more or less calories while at rest, making it harder or easier to overeat and gain weight.

Of course, some people do have naturally faster metabolisms than others. Their bodies happen to burn more energy while at rest, and thus it's easier for them to stay lean and harder for them to gain weight. However, the difference between the fastest and slowest of metabolisms isn't as profound as many people think.

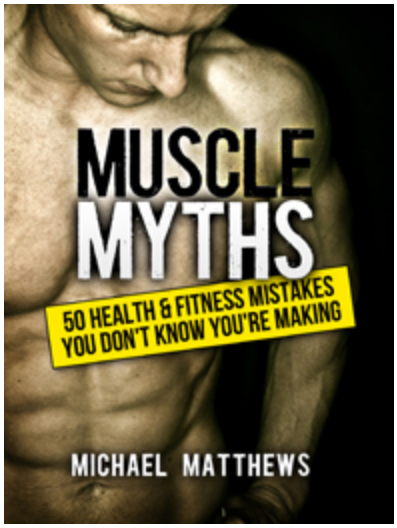
A literature review conducted by the University of Vermont found that about 68% of people's metabolisms are within 5–8% of the population average, and 96% are within 10–16% of the population average[84].

To illustrate this more concretely, if we assume 2,000 calories as an average BMR, 68% of people would fall in the BMR range of about 1,800–2,200 calories per day and 96% in the range of about 1,700–2,300 calories per day. The difference between the absolute slowest and fastest metabolisms would be about 600 calories per day. While that sounds fairly significant, we're comparing two extremes here. The vast majority of people are, for all intents and purposes, metabolically comparable.

"How can so-and-so eat nothing but pizza and ice cream and never gain weight, then?" you might be thinking. I can guarantee you that the person you have in mind doesn't eat nearly as many calories as you might think, or burns more calories than you're accounting for. Remember: Even if you eat nothing but junk, as long as you don't overeat in terms of calories, you won't become overweight (your general health would be another issue, though!).

Your metabolism might make it a tiny bit harder for you to reach a caloric deficit than someone else, but nobody has a metabolism so fast that they can never exercise yet eat thousands of calories day in and day out without gaining weight.

38 MORE DISTASTROUS HEALTH & FITNESS MYTHS THAT KEEP PEOPLE FAT, WEAK, AND UNHEALTHY



If you've ever felt lost in the sea of contradictory training and diet advice out there and you just want to know once and for all what works and what doesn't, then you need to read *Muscle Myths*.

Thanks to the overwhelming amount of fitness pseudo-science and lies being pushed on us every day by bogus magazines and self-styled "gurus," it's becoming harder and harder to get in shape.

Muscle Myths was written to debunk the most commonplace and harmful gimmicks, fads, myths, and misinformation in the health and fitness industry.

Here are just some of the things you'll learn in this book:

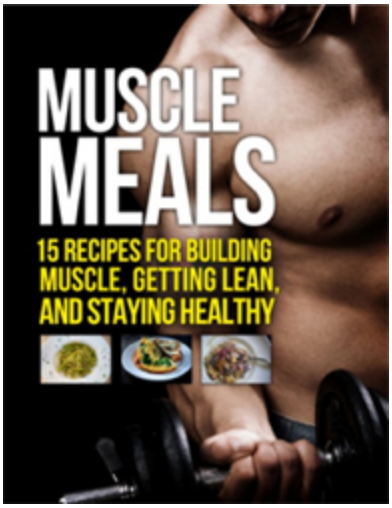
- **Why you don't have to completely cut out carbs or fat, or eat weird combinations of food to lose weight.**
- The truth about supplements and why 99% of them are a complete waste of money (and the few that are actually scientifically proven to work).
- **The truth about the effects of fasting and the "starvation mode" myth. Yup, it's a myth, and you may even want to incorporate**

some fasting into your meal schedule.

- Why eating a substantial amount of carbohydrates every day won't make you fat as some "experts" claim, but why going low-carb can be beneficial for some.
- **The scientific secrets of getting a six-pack. Forget 6-minute gimmicks, doing endless crunches, and hours of grueling cardio--it's actually pretty easy when you know what you're doing.**
- Training and diet methods that will completely shatter any perceived "genetic barriers" that you think are holding you back from building muscle or losing weight.
- **What you need to know about alcohol and its effects on your fat loss and muscle growth. (Hint: It's not nearly as bad as some people claim, and you don't have to totally abstain if you know what you're doing!).**
- And much more.

This book will save you the money, time, and frustration of falling into the traps of misleading diet plans and products, and teach you how to finally start seeing real results with your diet and exercise.

BONUS REPORT



FINALLY! ESCAPE THE HORRORS OF "DIETING" AND BUILD MUSCLE OR LOSE FAT BY EATING TASTY, NUTRITIOUS FOOD!

If you want to know how to build muscle and burn fat by eating healthy, delicious meals that are easy to cook and easy on your wallet, then you want to read this special report.

Do you lack confidence in the kitchen and think that you just can't cook great food?

Are you not sure of how to prepare food that is not only delicious and healthy but also effective in helping you build muscle and lose fat?

Are you afraid that cooking nutritious, restaurant-quality meals is too time-consuming and expensive?

Do you think that eating healthy means having to force down the same boring, bland food every day?

If you answered "yes" to any of those questions, don't worry—you're not alone. And this book is going to help. Inside you'll find 15 fast, healthy,

and tasty meals that will help you build muscle or lose weight, regardless of your current skills.

Download this report now and learn how to escape the dreadful experience of “dieting” and how to cook nutritious, delicious meals that make burning fat or building muscle easy and enjoyable!

Visit http://bit.ly/m-meals to get this report now!

WOULD YOU DO ME A FAVOR?

Thank you for downloading my book. I hope you enjoyed reading it and have found it helpful.

I have a small favor to ask. Would you mind taking a minute to write a blurb on Amazon about this book? I check all my reviews and love to get feedback (that's the real pay for my work—knowing that I'm helping people).

Click here to leave me a review on Amazon.com

Click here to leave me a review on Amazon.co.uk

Also, if you have any friends or family that might enjoy this book, spread the love and sent it to them!

Now, I don't just want to sell you books—I want to see you use what you've learned to build the body of your dreams.

As you work toward your goals, however, you'll probably have questions or run into some difficulties. I'd like to be able to help you with these, so let's connect up! I don't charge for the help, of course, and I answer questions from readers every day.

Here's how we can connect:

Like me on Facebook: www.facebook.com/muscleforlifefitness

Follow me on Twitter: www.twitter.com/muscleforlife

Follow me on Instagram: http://instagram.com/muscleforlifefitness

Add me on G+: www.gplus.to/muscleforlife

Subscribe to my Youtube channel: www.youtube.com/muscleforlifefitness

And last but not least, my website is http://www.muscleforlife.com.

Thanks again, I hope to hear from you, and I wish you the best!

Mike

P.S. Turn to the next page to check out other books of mine that you might like!

NO PROPRIETARY BLENDS. NO UNDERDOSING KEY INGREDIENTS. NO PSEUDOSCIENCE. REAL WORKOUT SUPPLEMENTS THAT REALLY WORK!

The supplement industry could be best described by Obi-Wan Kenobi's famous words: **a wretched hive of scum and villainy.**

Here's the bottom-line truth of this multi-billion-dollar industry:

While certain supplements can help, they do <u>NOT</u> build great physiques (proper training and nutrition does), and most are a complete waste of money.

Too many products are "proprietary blends" of low-quality ingredients, junk fillers, and unnecessary additives. Key ingredients are horribly underdosed. There's a distinct lack of credible scientific evidence to back up the outrageous claims made on labels and in ads. The list of what's wrong with this industry goes on and on.

And that's why I decided to get into the supplement game.

What gives? Am I just a hypocritical sell-out? Should you grab your pitchfork and run me off the Internet? Well, hear me out for a minute and then decide.

The last thing we need is yet another marketing machine churning out yet another line of hyped up, flashy products claiming to be more effective than steroids.

I think things should be done differently, and I believe in being the change I want to see. That's why I started LEGION.

You see, I created LEGION to not only bring unique products to the supplement world, but to start a movement. Here's what sets LEGION apart from the rabble:

- **100% transparent product formulas.** The only reason to use proprietary blends is fraud and deception. You deserve to know exactly what you're buying.
- **100% science-based ingredients and dosages.** Every ingredient we use is backed by published scientific literature and is included at true clinically effective dosages.
- **100% naturally sweetened with stevia.** Research suggests that regular consumption of artificial sweeteners can be harmful to our health, which is why we use stevia, a natural sweetener with proven health benefits.

This might not sound like much, but just wait until you try the products.

LEGION supplements are not only a better value and better for your health ... **they deliver REAL RESULTS you can actually feel.**

PULSE

Pre-Workout

PULSE provides you with clinically effective dosages of caffeine, theanine, citrulline malate, ornithine, and betaine. It's so good that you'll never want to use another pre-workout again.

WHEY+

Protein

WHEY+ is 100% whey protein isolate (which means no upset stomachs), naturally sweetened, and hormone-free, and has added leucine to further stimulate protein synthesis.

CREATINE+

Muscle Builder

CREATINE+ provides you with clinically effective dosages of micronized creatine monohydrate and fenugreek extract, which helps you build more muscle and strength and helps optimize your hormones.

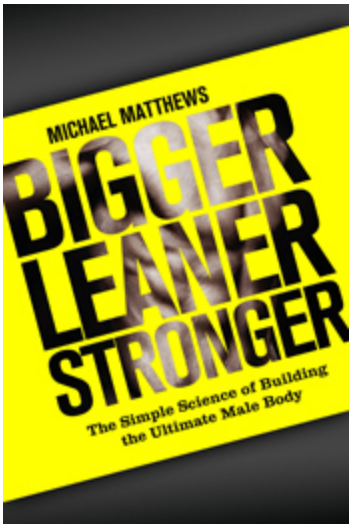
RECHARGE

Muscle Recovery

RECHARGE provides you with clinically effective dosages of L-glutamine and L-carnitine L-tartrate, which have been proven to improve muscle recovery, reduce fatigue, and fight off overtraining.

ORDER NOW AT WWW.LEGIONSUPPLEMENTS.COM
AND SAVE 10%

ALSO BY MICHAEL MATTHEWS

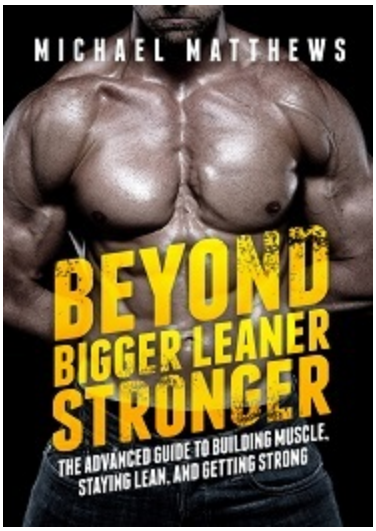


Bigger Leaner Stronger: The Simple Science of Building the Ultimate Male Body

If you want to be muscular, lean, and strong as quickly as possible, without steroids, good genetics, or wasting ridiculous amounts of time in the gym, and money on supplements...then you want to read this book.

Click here to view this book on Amazon.com

Click here to view this book on Amazon.co.uk

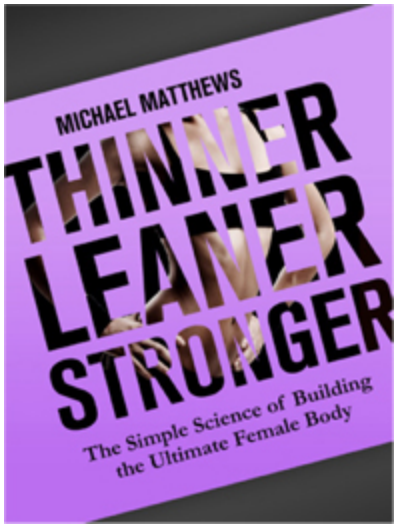


Beyond Bigger Leaner Stronger: The Advanced Guide to Building Muscle, Staying Lean, and Getting Strong

If you're and intermediate or advanced weightlifter and want to know how to achieve your full genetical potential for size and strength *and* maintain a ripped, beach-ready physique year round...then you want to read this book.

Click here to view this book on Amazon.com

Click here to view this book on Amazon.co.uk



Thinner Leaner Stronger: The Simple Science of Building the Ultimate Female Body

If you want to be toned, lean, and strong as quickly as possible without crash dieting, “good genetics,” or wasting ridiculous amounts of time in the gym and money on supplements...*regardless of your age*... then you want to read this book.

Click here to view this book on Amazon.com

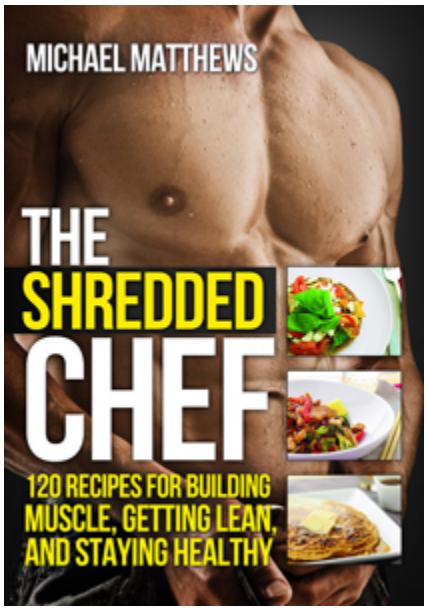
Click here to view this book on Amazon.co.uk

Cardio Sucks! The Simple Science of Burning Fat Fast and Getting in Shape

If you’re short on time and sick of the same old boring cardio routine and want to kick your fat loss into high gear by working out less and...heaven forbid...actually have some fun...then you want to read this new book.

Click here to view this book on Amazon.com

Click here to view this book on Amazon.co.uk

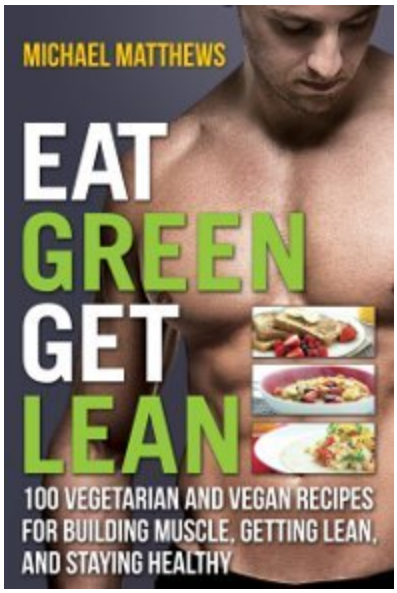


The Shredded Chef: 120 Recipes for Building Muscle, Getting Lean, and Staying Healthy

If you want to know how to forever escape the dreadful experience of "dieting" and learn how to cook nutritious, delicious meals that make building muscle and burning fat easy and enjoyable, then you need to read this book.

Click here to view this book on Amazon.com

Click here to view this book on Amazon.co.uk

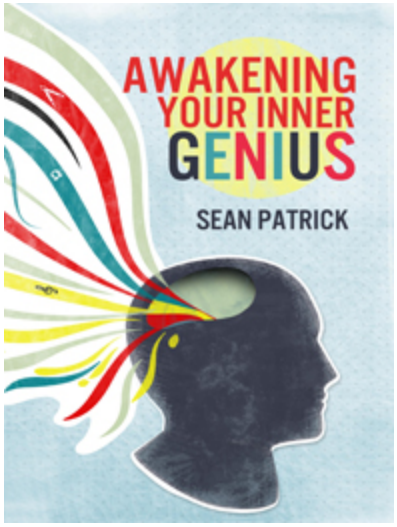


Eat Green Get Lean: 100 Vegetarian and Vegan Recipes for Building Muscle, Getting Lean, and Staying Healthy

If you want to know how to build muscle and burn fat by eating delicious vegetarian and vegan meals that are easy to cook and easy on your wallet, then you want to read this book.

Click here to view this book on Amazon.com

Click here to view this book on Amazon.co.uk



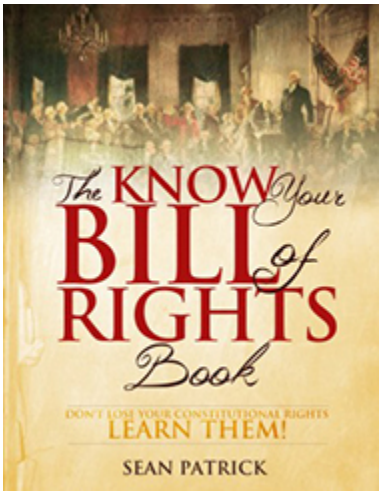
Awakening Your Inner Genius

If you'd like to know what some of history's greatest thinkers and achievers can teach you about awakening your inner genius, and how to find, follow, and fulfill your journey to greatness, then you want to read this book today.

(I'm using a pen name for this book, as well as for a few other projects not related to health and fitness, but I thought you might enjoy it so I'm including it here.)

Click here to view this book on Amazon.com

Click here to view this book on Amazon.co.uk



The Know Your Bill of Rights Book

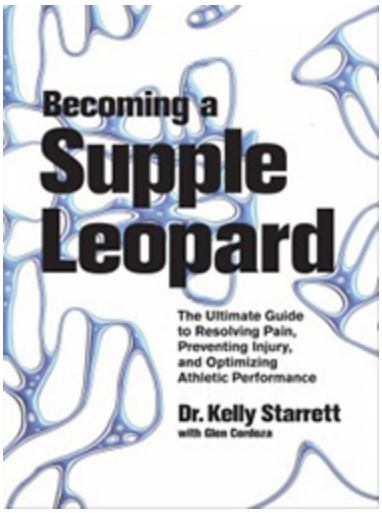
Are you comfortable letting crooked politicians decide what your rights are? I'm not, which is why I wrote this book. It helps you easily reach a deep understanding of the Bill of Rights by walking you through the historical context needed to fully grasp and spirit and importance of key amendments.

Click here to view this book on Amazon.com

Click here to view this book on Amazon.co.uk

BIBLIOGRAPHY

If you want to further your health and fitness education, I recommend you check out the following books. I found each extremely helpful and think you will too.

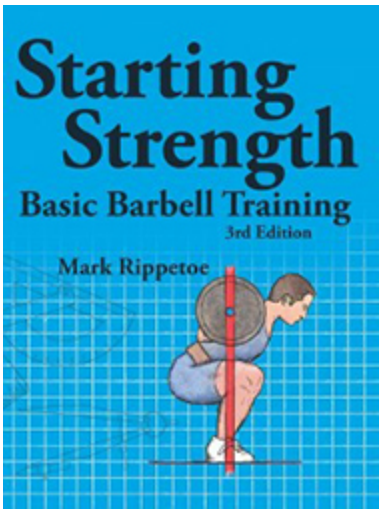


Becoming a Supple Leopard

This book teaches you common movement errors that cause injury and rob you of speed, power, endurance, and strength, and gives you hundreds of techniques you can use to correct them, and thus optimize your athletic performance.

Click Here to View This Book on Amazon.com

Click Here to View This Book on Amazon.co.uk

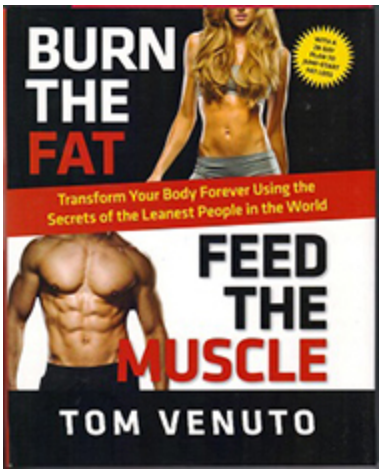


Starting Strength

This is the book that finally fixed my squat, deadlift, and bench press, which enabled me to greatly accelerate my strength and muscle growth over the years. It should be on every serious lifter's shelf.

Click Here to View This Book on Amazon.com

Click Here to View This Book on Amazon.co.uk



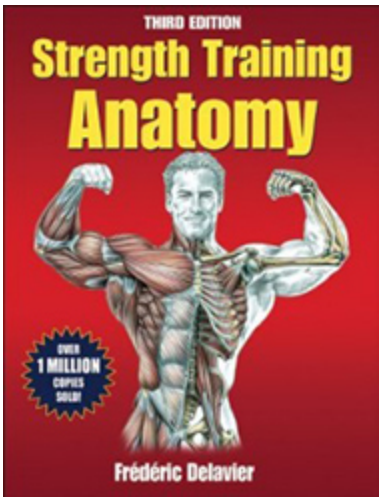
Burn the Fat Feed the Muscle

Burn the Fat Feed the Muscle was one the first mainstream fitness books to cut through the BS and teach the real science of building muscle and getting

lean, and it quickly became a bestseller (and still is today).

Click Here to View This Book on Amazon.com

Click Here to View This Book on Amazon.co.uk

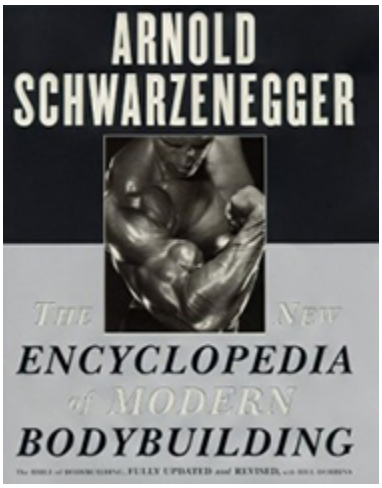


Strength Training Anatomy

Strength Training Anatomy is a great resource for diving into anatomy and the biomechanics of exercise, and it’s also a great encyclopedia of exercises.

Click Here to View This Book on Amazon.com

Click Here to View This Book on Amazon.co.uk



The New Encyclopedia of Modern Bodybuilding

This is a book we should all just own on principle. Arnold truly was a bodybuilding phenomenon.

In all seriousness, this book has several plusses: Arnold's story is truly inspiring and his take on the history and profession of bodybuilding is good reading; it has a ton of exercises for training various body parts; and it's huge and glossy—it's just a nice product.

Click Here to View This Book on Amazon.com

Click Here to View This Book on Amazon.co.uk

REFERENCE

1. Vispute, Sachin S., et al. “The effect of abdominal exercise on abdominal fat.” The Journal of Strength & Conditioning Research 25.9 (2011): 2559-2564.
2. Newsholme, E. A., and G. Dimitriadis. “Integration of biochemical and physiologic effects of insulin on glucose metabolism.” Experimental and Clinical Endocrinology & Diabetes 109. Suppl 2 (2001): S122-S134.
3. Surina, D. M., et al. “Meal composition affects postprandial fatty acid oxidation.” American Journal of Physiology-Regulatory, Integrative and Comparative Physiology 264.6 (1993): R1065-R1070.
4. Derave, Wim, et al. “Effects of Post-absorptive and Postprandial Exercise on Glucoregulation in Metabolic Syndrome&ast.” Obesity 15.3 (2007): 704-711.
5. Kraemer, William J., et al. “Acute hormonal responses to a single bout of heavy resistance exercise in trained power lifters and untrained men.” Canadian journal of applied physiology 24.6 (1999): 524-537.
6. Deldicque, Louise, et al. “Increased p70s6k phosphorylation during intake of a protein– carbohydrate drink following resistance exercise in the fasted state.” European journal of applied physiology 108.4 (2010): 791-800.
7. Gjedsted, Jakob, et al. “Effects of a 3-day fast on regional lipid and glucose metabolism in human skeletal muscle and adipose tissue.” Acta Physiologica 191.3 (2007): 205-216.
8. Achten, Juul, and Asker E. Jeukendrup. “Optimizing fat oxidation through exercise and diet.” Nutrition 20.7-8 (2004): 716-727.
9. Howatson, Glyn, et al. “Exercise-induced muscle damage is reduced in resistance-trained males by branched chain amino acids: a

randomized, double-blind, placebo controlled study." J Int Soc Sports Nutr 9.1 (2012): 20.

10. Campos, Gerson E., et al. "Muscular adaptations in response to three different resistance-training regimens: specificity of repetition maximum training zones." European journal of applied physiology 88.1-2 (2002): 50-60.
11. Kraemer, William J., et al. "American College of Sports Medicine position stand. Progression models in resistance training for healthy adults." Medicine and science in sports and exercise 34.2 (2002): 364.
12. Fatouros, Ioannis G., et al. "Intensity of resistance exercise determines adipokine and resting energy expenditure responses in overweight elderly individuals." Diabetes care 32.12 (2009): 2161-2167.
13. Wu, Bo-Han, and Jung-Charng Lin. "Effects of exercise intensity on excess post-exercise oxygen consumption and substrate use after resistance exercise." Age (yr) 20 (2006): 1-8.
14. Farinatti, Paulo TV, and Antonio G. Castinheiras Neto. "The effect of between-set rest intervals on the oxygen uptake during and after resistance exercise sessions performed with large-and small-muscle mass." The Journal of Strength & Conditioning Research 25.11 (2011): 3181-3190.
15. West, Daniel WD, et al. "Sex-based comparisons of myofibrillar protein synthesis after resistance exercise in the fed state." Journal of Applied Physiology 112.11 (2012): 1805-1813.
16. Consitt, Leslie A., Jennifer L. Copeland, and Mark S. Tremblay. "Endogenous anabolic hormone responses to endurance versus resistance exercise and training in women." Sports Medicine 32.1 (2002): 1-22.
17. Wolfe, Robert R. "The underappreciated role of muscle in health and disease." The American journal of clinical nutrition 84.3 (2006): 475-482.
18. Chen, B-B., et al. "Thigh muscle volume predicted by anthropometric measurements and correlated with physical function in the older adults." The journal of nutrition, health & aging 15.6 (2011): 433-438.

19. Muscaritoli, M., et al. “Consensus definition of sarcopenia, cachexia and pre-cachexia: joint document elaborated by Special Interest Groups (SIG)“cachexia-anorexia in chronic wasting diseases” and “nutrition in geriatrics”.” Clinical Nutrition 29.2 (2010): 154-159.

20. Vandervoort, Anthony A. “Aging of the human neuromuscular system.” Muscle & nerve 25.1 (2002): 17-25.

21. Phillips, Stuart M. “Resistance exercise: good for more than just Grandma and Grandpa’s muscles.” Applied Physiology, Nutrition, and Metabolism 32.6 (2007): 1198-1205.

22. Fried, Linda P., and Jack M. Guralnik. “Disability in older adults: evidence regarding significance, etiology, and risk.” Journal of the American Geriatrics Society 45.1 (1997): 92.

23. Kerksick, Chad M., et al. “Early-phase adaptations to a split-body, linear periodization resistance training program in college-aged and middle-aged men.” The Journal of Strength & Conditioning Research 23.3 (2009): 962-971.

24. McCartney, Neil, et al. “Long-term resistance training in the elderly: effects on dynamic strength, exercise capacity, muscle, and bone.” The Journals of Gerontology Series A: Biological Sciences and Medical Sciences 50.2 (1995): B97-B104.

25. Tremblay, Angelo, Jean-Aimé Simoneau, and Claude Bouchard. “Impact of exercise intensity on body fatness and skeletal muscle metabolism.” Metabolism 43.7 (1994): 814-818.

26. Treuth, MARGARITA S., GARY R. Hunter, and M. A. R. T. H. A. Williams. “Effects of exercise intensity on 24-h energy expenditure and substrate oxidation.” Medicine and science in sports and exercise 28.9 (1996): 1138.

27. Trapp, E. G., et al. “The effects of high-intensity intermittent exercise training on fat loss and fasting insulin levels of young women.” International journal of obesity 32.4 (2008): 684-691.

28. Mougios, V., et al. “Does the intensity of an exercise programme modulate body composition changes?.” International journal of sports medicine 27.3 (2006): 178181.

29. Boutcher, Stephen H. “High-intensity intermittent exercise and fat loss.” Journal of Obesity 2011 (2010).

30. Nair, K. S., et al. “Leucine, glucose, and energy metabolism after 3 days of fasting in healthy human subjects.” The American journal of clinical nutrition 46.4 (1987): 557-562.

31. Zauner, Christian, et al. “Resting energy expenditure in short-term starvation is increased as a result of an increase in serum norepinephrine.” The American journal of clinical nutrition 71.6 (2000): 1511-1515.

32. Mansell, P. I., I. W. Fellows, and I. A. Macdonald. “Enhanced thermogenic response to epinephrine after 48-h starvation in humans.” American Journal of Physiology-Regulatory, Integrative and Comparative Physiology 258.1 (1990): R87-R93.

33. Owen, Oliver E., et al. “Protein, fat, and carbohydrate requirements during starvation: anaplerosis and cataplerosis.” The American journal of clinical nutrition 68.1 (1998): 12-34.

34. Varady, Krista A., and Marc K. Hellerstein. “Alternate-day fasting and chronic disease prevention: a review of human and animal trials.” The American journal of clinical nutrition 86.1 (2007): 7-13.

35. Wells, Anita S., et al. “Influences of fat and carbohydrate on postprandial sleepiness, mood, and hormones.” Physiology & behavior 61.5 (1997): 679-686.

36. Anderson, Jennifer Shultz. SEX DIFFERENCES IN THE RELATIONSHIP OF POLYUNSATURATED FATTY ACIDS AND NONINVASIVE IMAGING MEASURES OF SUBCLINICAL CARDIOVASCULAR DISEASE. Diss. Wake Forest University, 2011.

37. Mente, Andrew, et al. “A systematic review of the evidence supporting a causal link between dietary factors and coronary heart disease.” Archives of internal medicine 169.7 (2009): 659-669.

38. Horton, Tracy J., et al. “Fat and carbohydrate overfeeding in humans: different effects on energy storage.” The American journal of clinical nutrition 62.1 (1995): 19-29.

39. Tessari, Paolo, et al. “Effects of acute systemic hyperinsulinemia on forearm muscle proteolysis in healthy man.” Journal of Clinical Investigation 88.1 (1991): 27.

40. Holt, S. H., J. C. Miller, and Peter Petocz. “An insulin index of foods: the insulin demand generated by 1000-kJ portions of common foods.” The American journal of clinical nutrition 66.5 (1997): 1264-1276.

41. McDevitt, Regina M., et al. “De novo lipogenesis during controlled overfeeding with sucrose or glucose in lean and obese women.” The American journal of clinical nutrition 74.6 (2001): 737-746.

42. Foster, Gary D., et al. “A randomized trial of a low-carbohydrate diet for obesity.” New England Journal of Medicine 348.21 (2003): 2082-2090.

43. Kreitzman, Stephen N., Ann Y. Coxon, and Kalman F. Szaz. “Glycogen storage: illusions of easy weight loss, excessive weight regain, and distortions in estimates of body composition.” The American Journal of Clinical Nutrition 56.1 (1992): 292S-293S.

44. Olsson, Karl-Erik, and Bengt Saltin. “Variation in total body water with muscle glycogen changes in man.” Acta Physiologica Scandinavica 80.1 (1970): 11-18.

45. Sacks, Frank M., et al. “Comparison of weight-loss diets with different compositions of fat, protein, and carbohydrates.” New England Journal of Medicine 360.9 (2009): 859-873.

46. Kleiner, Rima E., et al. “Effects of an 8-week high-protein or high-carbohydrate diet in adults with hyperinsulinemia.” Medscape General Medicine 8.4 (2006): 39.

47. Dansinger, Michael L., et al. “Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction.” JAMA: the journal of the American Medical Association 293.1 (2005): 43-53.

48. Blundell, John E., J. Cooling, and Neil A. King. “Differences in postprandial responses to fat and carbohydrate loads in habitual high and low fat consumers (phenotypes).” British Journal of Nutrition 88.02 (2002): 125-132.

49. Cooling, J., and J. E. Blundell. “Lean male high-and low-fat phenotypes--different routes for achieving energy balance.” International journal of obesity and related metabolic disorders: journal of the International Association for the Study of Obesity 24.12 (2000): 1561.

50. Blundell, John E., and John Cooling. “High-fat and low-fat (behavioural) phenotypes: biology or environment?.” PROCEEDINGS-NUTRITION SOCIETY OF LONDON. Vol. 58. No. 4. CABI Publishing; 1999, 1999.

51. De Luis, D. A., et al. “Differences in glycaemic status do not predict weight loss in response to hypocaloric diets in obese patients.” Clinical nutrition 25.1 (2006): 117-122.

52. Pittas, Anastassios G., et al. “A low-glycemic load diet facilitates greater weight loss in overweight adults with high insulin secretion but not in overweight adults with low insulin secretion in the CALERIE Trial.” Diabetes Care 28.12 (2005): 2939-2941.

53. Cornier, Marc-Andre, et al. “Insulin sensitivity determines the effectiveness of dietary macronutrient composition on weight loss in obese women.” Obesity research 13.4 (2005): 703-709.

54. Bellisle, France, Regina McDevitt, and Andrew M. Prentice. “Meal frequency and energy balance.” British Journal of Nutrition 77.S1 (1997): S57-S70.

55. Cameron, Jameason D., Marie-Josée Cyr, and Éric Doucet. “Increased meal frequency does not promote greater weight loss in subjects who were prescribed an 8-week equi-energetic energy-restricted diet.” British Journal of Nutrition 103.8 (2010): 1098.

56. Leidy, Heather J., et al. “The effects of consuming frequent, higher protein meals on appetite and satiety during weight loss in overweight/obese men.” Obesity 19.4 (2011): 818-824.

57. Leidy, Heather J., et al. “The influence of higher protein intake and greater eating frequency on appetite control in overweight and obese men.” Obesity 18.9 (2010): 1725-1732.

58. LeSauter, Joseph, et al. “Stomach ghrelin-secreting cells as food-entrainable circadian clocks.” Proceedings of the National Academy of Sciences 106.32 (2009): 1358213587.

59. Arima, Hisatomi, et al. “Alcohol reduces insulin–hypertension relationship in a general population The Hisayama study.” Journal of clinical epidemiology 55.9 (2002): 863869.

60. Das, Samarjit, Dev D. Santani, and Naranjan S. Dhalla. “Experimental evidence for the cardioprotective effects of red wine.” Experimental & Clinical Cardiology 12.1 (2007): 5.

61. Davies, Michael J., et al. “Effects of moderate alcohol intake on fasting insulin and glucose concentrations and insulin sensitivity in postmenopausal women.” JAMA: the journal of the American Medical Association 287.19 (2002): 2559-2562.

62. Marks, Vincent, and J. W. Wright. “Endocrinological and metabolic effects of alcohol.” Proceedings of the Royal Society of Medicine 70.5 (1977): 337.

63. Yeomans, Martin R. “Alcohol, appetite and energy balance: is alcohol intake a risk factor for obesity?.” Physiology & behavior 100.1 (2010): 82-89.

64. Gruchow, H. W., et al. “Alcohol consumption, nutrient intake and relative body weight among US adults.” The American journal of clinical nutrition 42.2 (1985): 289-295.

65. Flechtner-Mors, M., et al. “Effects of moderate consumption of white wine on weight loss in overweight and obese subjects.” International journal of obesity 28.11 (2004): 1420-1426.

66. Kokavec, Anna. “Is decreased appetite for food a physiological consequence of alcohol consumption?.” Appetite 51.2 (2008): 233-243.

67. McCarty, M. F. “Does regular ethanol consumption promote insulin sensitivity and leanness by stimulating AMP-activated protein kinase?.” Medical hypotheses 57.3 (2001): 405-407.

68. Siler, Scott Q., Richard A. Neese, and Marc K. Hellerstein. “De novo lipogenesis, lipid kinetics, and whole-body lipid balances in humans after acute alcohol consumption.” The American journal of clinical nutrition 70.5 (1999): 928-936.

69. Shelmet, John J., et al. “Ethanol causes acute inhibition of carbohydrate, fat, and protein oxidation and insulin resistance.” Journal of Clinical

Investigation 81.4 (1988): 1137.

70. Emanuele, Mary Ann, and Nicholas Emanuele. “Alcohol and the male reproductive system.” Alcohol Research and Health 25.4 (2001): 282-287.

71. Sierksma, Aafje, et al. “Effect of Moderate Alcohol Consumption on Plasma Dehydroepiandrosterone Sulfate, Testosterone, and Estradiol Levels in Middle-Aged Men and Postmenopausal Women: A Diet-Controlled Intervention Study.” Alcoholism: Clinical and Experimental Research 28.5 (2004): 780-785.

72. Koziris, L. Perry, et al. “Effect of acute postexercise ethanol intoxication on the neuroendocrine response to resistance exercise.” Journal of Applied Physiology 88.1 (2000): 165-172.

73. Välimäki, Matti, et al. “The pulsatile secretion of gonadotropins and growth hormone, and the biological activity of luteinizing hormone in men acutely intoxicated with ethanol.” Alcoholism: Clinical and Experimental Research 14.6 (1990): 928-931.

74. Heikkonen, Erkki, et al. “The combined effect of alcohol and physical exercise on serum testosterone, luteinizing hormone, and cortisol in males.” Alcoholism: clinical and experimental research 20.4 (1996): 711-716.

75. Preedy, Victor R., James W. Keating, and Timothy J. Peters. “The acute effects of ethanol and acetaldehyde on rates of protein synthesis in type I and type II fibre-rich skeletal muscles of the rat.” Alcohol and Alcoholism 27.3 (1992): 241-251.

76. Hong-Brown, Ly Q., Robert A. Frost, and Charles H. Lang. “Alcohol impairs protein synthesis and degradation in cultured skeletal muscle cells.” Alcoholism: Clinical and Experimental Research 25.9 (2001): 1373-1382.

77. Preedy, Victor R., et al. “Alcoholic myopathy: biochemical mechanisms.” Drug and alcohol dependence 63.3 (2001): 199.

78. Clarkson, Priscilla M., and Frieda Reichsman. “The effect of ethanol on exercise-induced muscle damage.” Journal of Studies on Alcohol and Drugs 51.1 (1990): 19.

79. Poulsen, Mette Buch, et al. “Motor performance during and following acute alcohol intoxication in healthy non-alcoholic subjects.” European journal of applied physiology 101.4 (2007): 513-523.

80. Barnes, Matthew J., Toby Mündel, and Stephen R. Stannard. “Post-exercise alcohol ingestion exacerbates eccentric-exercise induced losses in performance.” European journal of applied physiology 108.5 (2010): 1009-1014.

81. Bellisle, France, Regina McDevitt, and Andrew M. Prentice. “Meal frequency and energy balance.” British Journal of Nutrition 77.S1 (1997): S57-S70.

82. Keim, Nancy L., et al. “Weight loss is greater with consumption of large morning meals and fat-free mass is preserved with large evening meals in women on a controlled weight reduction regimen.” The Journal of nutrition 127.1 (1997): 75-82.

83. Tata, J. R., L. Ernster, and O. Lindberg. “Control of basal metabolic rate by thyroid hormones and cellular function.” (1962): 1058-1060.

84. Donahoo, William T., James A. Levine, and Edward L. Melanson. “Variability in energy expenditure and its components.” Current Opinion in Clinical Nutrition & Metabolic Care 7.6 (2004): 599.