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MISSION: METABOLISM

Discover How to Fix the 7 Deadly Workout Sins to Achieve Metabolic Breakthrough

By Levi Memmer, CSCS, USAW, SCCC

Alright baby, time to crank up that metabolism!

What is metabolism?

Metabolism is the sum of all chemical processes that take place in the human body to sustain life. Many people are born with slower metabolisms that make them prone to weight gain. Other people, known as lucky ____ (fill in the blank), are born with faster metabolisms and seem to have no problem being lean regardless of their activity levels or dietary habits- I hate them too!

Though metabolic rate is largely determined by genetics, there are various ways to increase metabolic rate (the speed of your metabolism) through exercise, nutrition, and supplementation. Here we will focus solely on the metabolic impact of a properly designed exercise routine.

Deadly Workout Sin#1- Performing daily body part workouts

One of the longest running inside jokes within the fitness industry is the fact that Monday is international chest day where most gym-goers will do endless sets and reps of bench presses and chest flies until their boobies burn so good and swell as if being nipped by a swarm of ginormous mosquitoes.



I think it's safe to say that most people do NOT want to look like thisÖ

We can thank the drug-abusing bodybuilding world for the concept of training one body part per day for best results. If you open the typical bodybuilding magazine, below is a great example of a training program you might come across (or some variation of this):

Monday- Chest Tuesday- Quads Wednesday- Back Thursday- Hamstrings Friday- Triceps Saturday- Biceps Sunday- Calves

Please keep in mind that when you take a cocktail of anabolic performance enhancing agents, just about anything you do will result in less fat and more muscle— not to mention a host of deadly side effects and the possibility of growing a tail (anything is possible).

The reality is that training your whole body more frequently will result in bigger strength and muscle gain, greater fat loss, and more metabolic boosts than training each muscle group once per week— and the science supports this.

In a recent study at the University of Alabama, researchers had two groups of men perform two different strength-training programs with the same total training volume (sets and reps) for each muscle group. However, one group split the work across three total body workouts while the other group trained each muscle group separately one time per week. They discovered that the total body workout group gained five additional pounds of lean muscle mass compared to their body-part training counterparts.

It's critical to understand that the more muscle you have the greater your resting metabolic rate (RMR). Your RMR is the total number of calories you burn every day regardless of activity and adding several pounds of lean muscle mass will result in an additional daily calorie burn of up to several hundred extra calories per day. This translates into an awesome fat-smashing snowball effect over the course of weeks, months, and years. Think of more muscle as the fat-burning gift that keeps on giving.

Another benefit of having more muscle is that your body's carbohydrate tank gets bigger. The human body has a limited ability to store glycogen (sugar) in your muscles and liver before it spills over into the blood stream and leads to unwanted fat gain. The total amount of glycogen your body can hold, or your sugar tank, depends on a host of factors including gender, body size, age, etc. However, by building more muscle through high-intensity training your body can subsequently store more sugar.

For example, let's just say that your sugar tank was originally 250 grams of carbs but is now 300 grams due to intensive training and muscle-gain. The extra 50 grams of leeway before your sugar tank over flows means two things:

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- 1.) You can consume more total carbohydrates before your sugar tank reaches capacity where you then begin to gain fat and smooth out unless that energy is expended. It's just like when you overfill the gas tank in your car—the fuel spills on the floor and all over your hands and shoes costing you money and making you a pyromaniac's wet dream. Though consuming excess sugar may not be as deadly, it's the source of the raging obesity epidemic plaguing our sedentary society and leads to host of scary health problems like heart disease, diabetes, high blood pressure, metabolic disorder, etc.
- 2.) The lower your sugar tank the more your body will revert to using both dietary and stored fat to make up for that energy deficit. Thus if you gained more muscle and simply consumed the same amount of total carbohydrates, you will automatically burn more fat for fuel throughout the day. Now if you consume less total carbs in conjunction with more muscle mass then you will be a lean, mean fat-melting machine.

Plus, it doesn't take a genius to realize that working your entire body each workout will torch more calories and thus accelerate metabolism and fat loss results. More muscles used equals more total work performed equals more total sugar, fat and calories expended-- all good stuff!

Lastly, it appears that it's best to wait about 48 hours before performing your next total body workout. In multiple studies at the University of Texas Medical Branch in Galveston, researchers determined that muscle protein synthesis was elevated for up to 48 hours after a resistance training workout before it returned to normal. Performing another total body workout with less than 48 hours of recovery may not allow for adequate muscle repair thus impairing performance.

THE FIX: For busy people looking for the biggest bang for their fitness buck, best results will be achieved with 3 total body workouts per week with ideally 48 hours between workouts to maximize muscle growth and recovery.

Deadly Workout Sin#2- Performing marathon workouts lasting 60 minutes or longer

I'm not sure what it is about our society that thinks its cool to do things for an incredibly long period of time. There's no better example of this than the typical college student who brags to his or her friends about pulling an all-nighter to cram for a final exam. In reality, best results would have been achieved by spreading out all of that studying over the course of the entire semester in order to achieve true and lasting knowledge rather than simple and useless short-term memory. I'd be lying if I said I've never procrastinated before myself as I'm literally writing this article the day before its due date-- but don't tell my editor, wink.

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Fitness is no different. What do most people who want to lose weight do? They either sign up to run a marathon and/or join a gym to do endless hours of long, slow, boring cardio on a treadmill, elliptical, bike, or step machine.

On a side note, if I ever see you getting your cardio on while reading a magazine or checking your email I will slap you in the mouth and have you arrested for being a hopeless moron.

Why so harsh??

Well, a landmark aerobic training study from the International Journal of Sports Nutrition determined that 45 minutes of steady state aerobic training 5 days per week had zero effect over dieting alone when it came to weight loss—that's 45 hours of activity for nothing! However, the lack of results wasn't solely due to the length of the workouts, but also the low-intensity nature of these workouts.



45 hours of long, slow, boring cardio is proven to provide ZERO weight loss over dieting alone!!

In addition, long, drawn out workouts have diminishing returns and create a negative hormonal environment in our bodies. That's because during one-hour plus exercise bouts our body enters survival mode and releases a catabolic stress hormone called cortisol that both causes muscle loss and results in unwanted fat gain in trouble spot areas.

According to the National Strength and Conditioning Association (NSCA), anabolic, muscle-building hormones like testosterone are maximized in about a 30-minute high-

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intensity workout window. It is at about the 45-minute mark that anabolic hormones begin to fall as their catabolic counterparts, mainly cortisol, simultaneously begin to rise.

THE FIX: Shorter, more focused and intense workouts produce better results than one hour plus marathon sessions. If you have to workout for longer than 30-45 minutes to feel satisfied than you probably weren't working hard enough in the first place or you were committing some form of the other deadly workout sins.

Deadly Workout Sin#3- Using single-joint isolation exercises that address only one plane of movement

When we discussed *Deadly Workout Sin#1*, we mentioned the disgraceful practice of training each muscle group one time per week. Well, to make the matter even worse, lots of fitness enthusiasts will comprise these body part workouts with useless single-joint isolation exercises that often take place in only one plane of movement.



How often do you find yourself doing this movement during the day?? Yep, not too functional;)

Single-joint, isolation exercises involve the use of only one joint at a time. Classic examples are leg extensions and leg curls (only involve the knee joint) and biceps curls and triceps extensions (only involve the elbow joint). Though these single-joint, isolation exercises may result in a better pump or burn in a specific muscle that makes it feel more effective, it doesn't mean that they are providing the optimal muscle-building stimulus when compared to their multi-joint, compound counterparts. Multi-joint, compound exercises involve functional movement patterns that occur in the real world across multiple joints at the same time thus resulting in greater total muscle activation and heavier loading and subsequently greater calorie burning, fat loss, and muscle growth. For our purposes, there are six foundational movement patterns that comprise the ultimate total body metabolic workout:

Hip-Dominant: Any exercise that primarily targets your posterior chain (glutes, hamstrings, and spinal erectors) and involves the flexion, extension, rotation, adduction,

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and abduction of the hips. In addition, lower body exercises where your torso is bent forward more than 45-degrees are best classified as hip-dominant. The exception to this rule is for any exercise where the upper body is NOT actively involved like a hip extension. Classic hip-dominant exercises include deadlift, step-up, hip extension, and swings.

Push: Any exercise that primarily targets your chest, anterior and medial shoulders, and triceps and involves a pushing pattern in either the horizontal or vertical plane. Horizontal pushing exercises involve pushing a load away from your torso as if your torso was upright while performing them. Classic examples include push-up and chest press variations. Vertical pushing exercises involve pushing a load in an upward or downward direction relative to an upright torso. Classic examples include dip, vertical push-up or overhead press variations.

Knee-Dominant: Any exercise that primarily targets your quadriceps and involves the flexion and extension of your knees. In addition, lower body exercises that actively involve your upper body and where your torso is vertical or bent forward less than 45-degrees are best classified as knee-dominant. Classic knee-dominant exercises include squat and lunge variations.

Pull/Scapulothoracic: Any exercise that primarily targets your lats, posterior shoulders, upper and mid back, scapulothoracic joint, biceps and forearms and involves a pulling pattern in either the horizontal or vertical plane. Horizontal pulling exercises involve pulling a load towards your torso as if your torso was upright while performing them. Classic examples include rowing and Y, T, W, L, I raise variations. Vertical pulling exercises involve pulling a load in an upward or downward direction relative to an upright torso. Classic examples include pull-up, pull-down, high pull, and bicep curl variations.

Pillar- Integrated Shoulders, Hips, and Core: Any exercise that primarily targets your shoulders, hips, and core. The primary objective is to train spinal stabilization in all 3 planes of movement including anti-flexion, anti-extension, anti-lateral flexion, and anti-rotation. Classic examples include front, side, and back pillar or plank variations. Pillar movements also include functional, ground-based rotational exercises like chopping variations.

Total Body: Any exercise that integrates any combination of the aforementioned movement patterns or simultaneously calls upon your upper and lower body. The total body nature of these exercises also results in maximum heart rate elevation and the optimal fat-burning, muscle-building stimulus. Classic examples include squat to presses, swings, and explosive olympic lifting variations like cleans, snatches, jerks, etc. In addition, traditional cardiovascular locomotive and plyometric exercises like running, leaping, hopping, skipping, bounding, jumping, shuffling, etc. also fit under this category.

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In a study at Ball State University, researchers determined that additional isolation exercises for the arms had no additional benefit in terms of arm strength and hypertophy (muscle growth). One group did four compound upper body exercises (like presses and rows) in each workout while the other group did the same four exercises plus some extra biceps curls and triceps extensions. Since they both achieved the same results it appears that single-joint, isolation exercises have minimal if any benefit.

So now that we know the importance of training movement patterns (not body parts) with multi-joint, compound exercises, let's not forget about the importance of incorporating exercises that occur across multiple planes of movement.

Too often people perform exercises in only one plane of movement, typically the sagittal plane that encompasses movement up and down and front to back and divides the body into left and right halves. The classic exercises that fit the bill here are bench presses and squats.

However, movement in life and athletics occurs in three planes of motion: sagittal, frontal, and transverse. Frontal plane movements occur side-to-side and divide the body into front and back halves. Transverse plane movements occur in a rotational manner and divide the body into upper and lower halves.

Let's use the lunge as an example. A forward lunge takes place in the sagittal plane, where a lateral lunge takes place in the frontal plane, where a rotational lunge takes place in the transverse plane. Performing lunge variations in all three planes of movements best ensures optimal strength, functional carryover, muscle gain, and proper muscular balance. This in turn improves posture and injury reduction.

I should add that performing exercises in free space is ideal (also termed free weights). Machines limit movement to a fixed path and do not properly engage your body's key stabilizers, particularly your hip, spinal, and scapular stabilizers, which will put you at a much greater risk of injury outside of the gym.

THE FIX: Employ functional multi-joint, compound movement patterns that address all three planes of movement for maximum muscle growth, fat loss, and metabolic spikes.

Deadly Workout Sin #4- Using low-intensity work periods lasting 2 minutes or longer to burn fat

This one is mainly for all of the ladies out there- and I'm not about to sing a Michael Bolton or Marvin Gaye song here unless of course, the price is right.

Women have the relentless tendency to perform endless hours of cardio and if they do use weights they tend use loads that are so light that they might as well not even bother—so small that they can barely be seen by the naked eye.



The smaller the weights, the smaller the results!!

Heck, most guys out there have a hard enough time gaining muscle. Now factor in that women have 15-20 times less testosterone than men do and the answer is clear. In other words, women never have to worry about gaining too much muscle-- it would require freakish genetics and loads of drugs to even come close. Using heavier loads will just result in greater calorie burning, a faster metabolic rate, and a tighter, more toned and athletic physique.

One of the biggest myths in fitness is the concept of the fat-burning zone. It all started in 1993 when researchers at the University of Texas determined that lower to moderate intensity activity burnt the greatest amount of fat for fuel. In addition, peak fat oxidation (burning) appeared to occur at 65% of aerobic capacity. This is basically the exercise equivalent of conversational cardio or a power walk or slow jog.

However, we've already established that aerobic training has zero effect on weight loss over dieting alone, so we know that a power walk or slow jog will just not cut it.

Furthermore, though lower intensity exercise burns proportionately more fat than high-intensity exercise, high-intensity exercise burns more total calories per minute and thus still results in a similar amount of total fat burnt during exercise as its lower to moderate intensity counterpart.

The fact of the matter is that high-intensity exercise is scientifically proven to burn nine times more body fat than ordinary exercise per unit of effort. Plus, it's not about how much fat your burn during your workout that's important. The harder you exercise the

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more sugar you burn for fuel and this allows you to burn more fat during rest periods and in the hours and days between your workouts for maximum total body fat burning.

For the best real world example of which style of training is best for lean muscle gain and fat loss, just look at the body of sprinter versus the body of an endurance athlete. Sprinters are not only more muscular but actually have a significantly lower body fat percentage than endurance athletes. Though I've seen lots of overweight distance runners and walkers in my day, I have never seen an overweight sprinter. That has to count for something and again the science supports this anecdotal evidence.

Which body is best for health and performance?





In the Gibala Study, researchers collected a bunch of college students who were in good health but not participating in any athletics. One group rode a bike at a sustainable pace for 90-120 minutes. The other group performed 20-30 seconds of cycling at maximum effort followed by four minutes of full recovery and they repeated this sequence up to four to six times for a total of 18-27 minutes. Each group exercised three times per week for two total weeks. In the end, they discovered that both groups achieved identical improvements in endurance even though the high-intensity group had only exercised for six to nine minutes while it took the low-intensity group five hours to achieve those same results! I know, crazy, right?

What's even crazier is the fact that the high-intensity group had greater weight loss than their low-intensity counterparts. According to the head researcher Martin Gibala the high rate of energy expenditure remains higher longer into recovery from high-intensity interval training.

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There's just something special about high-intensity anaerobic (without oxygen) work periods of 30-60 seconds. First of all, they are glycolytic in nature meaning that they burn muscle glycogen, or the sugar stores in your muscles, at optimal rates. The more sugar you burn during your workouts the more body fat you will burn in the hours and days between your workouts.

Second of all, it is generally accepted among fitness experts that maximum hypertrophy, or muscle growth, occurs when performing exercises with heavy loading and a time-under-tension lasting 30-40 seconds. At a rep speed of two to three seconds per rep that comes down to the classic bodybuilding rep range of eight to 15 reps per set. More muscle gain means greater metabolism, which means more rapid and lasting weight loss.

Lastly, high-intensity anaerobic work periods of 30-60 seconds also create the optimal hormonal environment for fat loss by releasing hormones knows as catecholamines (mainly adrenaline). This surge of adrenaline mobilizes body fat, particular in the stubborn areas like the abs and lower back for men and the hips and thighs for women.

Interestingly enough, resorting to shorter and even higher-intensity work periods of 20 seconds or less actually causes a greater catecholamine release that leads to even greater fat mobilization during the workout. On the other hand, not as much glycogen will be depleted with these shorter work periods thus resulting in less fat being burnt at all other times of day. However, employing shorter, more intense work periods with incomplete rest periods will deplete your phosphagen stores (ATP-CP) and force your body to start using more sugar for fuel (this is beyond the scope of this article).

In general, I believe it's a fair trade off. Plus, I'm a firm believer that the best interval training protocol is the one you haven't done in a while, if ever. In other words, I recommend incorporating a wide variety of work periods ranging between 30-60 seconds or less for maximum fat blasting and metabolic disturbance and to keep your body guessing.

The bottom line is that intensity is the only thing that truly makes your body change. If you take one thing away from this article, I hope it is this!

THE FIX: To burn fat and skyrocket metabolism 24-7-365, employ high-intensity work periods lasting 30-60 seconds or less to deplete muscle glycogen stores during your workouts in order to burn more fat fuel when resting and at all other times of the day.

Deadly Workout Sin#5- Performing straight sets of a single exercise

It takes about three to five minutes following intensive exertion for your body to completely recover and get ready for another bout of maximum effort without any significant decreases in performance. In traditional weight training, if you're performing three sets of 10 reps, that means that it would take a minimum of 10-15 minutes to

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complete your first exercise in your workout putting you on track for one of those one hour plus marathon sessions that we already know is not optimal.

However, there is a very simple way that we can maintain peak intensity while allowing for full recovery: perform alternating sets of non-competitive exercises. My preferred method of alternating sets for metabolic acceleration is circuit training.

Typically it takes a trainee about 30 seconds to complete 10 reps of a given exercise at a controlled tempo of three seconds per rep. Previously we outlined that there are six basic movement patterns that make up any sound training plan with each movement pattern emphasizing a different region(s) of the body. So let's build ourselves a killer six-exercise metabolic circuit where we allow for about 15 seconds of rest and transition between exercises and a 60-second rest and transition at the end of the circuit to regroup, grab a swig of water, and say a quick prayer to the fitness Gods begging for mercy:

- 1- Hip-Dominant Exercise @ 30 seconds on, 15 seconds off
- 2- Pushing Exercise @ 30 seconds on, 15 seconds off
- 3- Knee-Dominant Exercise @ 30 seconds on, 15 seconds off
- 4- Pulling Exercise @ 30 seconds on, 15 seconds off
- 5- Pillar Exercise @ 30 seconds on, 15 seconds off
- 6- Total Body Exercise @ 30 seconds on, 15 seconds off

Let's examine the beauty of what we just did here:

- In approximately five minutes, the circuit format allowed us to perform all six exercises that comprise a whole body workout where in the straight sets format it took us the same amount of time to complete one set of a single exercise
- By alternating between non-competitive exercises in a circuit format, we are able to achieve maximum intensity while allowing for a full 5-minute recovery by the next time we repeat that same exercise
- In only 20 minutes, we can complete four rounds of this whole body circuit and be done for the day while we'd just be starting our second set of the second exercise in straight set format

Clearly the circuit training format is by far the most time-efficient approach and it also has many other of the key variables for proper metabolic training in place such as high-intensity work periods, quick and focused 20-minute workouts, short rest periods, total body workout, etc.

I believe circuit training is the foundation of any solid metabolic workout. Let's take a look at two breakthrough scientific studies that support what I've seen in the real world:

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Burn over 500 calories in 20 minutes: In a recent study by the University of Southern Maine, researchers discovered a more accurate method of estimating calorie burn from weight training than had been used previously. They discovered that a weight training circuit burned 71% more calories than previously thought. In fact, an eight minute circuit burned somewhere between 159 and 233 calories which breaks down to about 20-28 calories per minute!

Elevate metabolism for up to 38+ hours post-workout: In a study by the European Journal of Applied Physiology, researchers determined that a 31-minute circuit training protocol of three compound, multi-joint movements significantly elevated metabolism for 38 hours post-workout-- at which point they decided to stop tracking. This metabolic after-burn was due to a couple of factors. The first is due to increased tissue turnover due to the need to build and repair muscle microtrauma after high-intensity training. The second is due to increased Excess Post-Exercise Oxygen Consumption (EPOC) due to the oxygen debt created by high-intensity anaerobic exercise.

From a personal standpoint, when I was a young and stupid I used to workout for two to three hours at a time using the straight set format. It was always incredibly mentally draining to know that half of my day would be eaten up every time I worked out. However, I had all of the time in the world to workout then so I took advantage of that. Strangely enough, I had a lot of extra body fat for someone who was working out for several hours a day— that's weird, right?

Now that I'm not as young and a little less stupid (I think) and I am a business owner the only workouts I currently have time for are metabolic workouts that have me in and out in 30 minutes and on with my busy, hectic days. Today I maintain a low body fat percentage year round and it's all due to these circuits and a sound diet that emphasizes protein, produce, and water every couple of hours.

The choice is yours-- get better results in less than half the time or take hours of your precious time to get nowhere and fast. Well, I guess it's not much a choice after all.

THE FIX: If your goal is maximum results in minimal time, employ alternating sets of non-competitive exercises each and every time you workout. Metabolic circuit training is by far the best way to get into the best shape of your life in 30 minutes or less so you can get on with your very busy day.

Deadly Workout Sin#6- Using long rest periods of 2 minutes or more between exercises

How many times have you seen this happen in the gym:

A big, burly, meathead of a man lays down to grunt out a couple reps of heavy benches presses where the bar bounces off of his chest like a basketball while his ass leaps off of the bench with his lower back resembling the *Arc de Triomphe*.

Then he racks the weight and goes and grabs a swig of water or chugs a vat of protein.

A couple minutes pass and now he's watching some highlights on Sports Center with a few of his meathead buddies.

A couple more minutes pass and now he's molesting some good-looking cardio queen with his eyes.

Finally, five to seven minutes after he completed his last rep on the bench press, he's ready start his next set.

More likely than not, this guy will take several hours to complete his workout at this pace. Clearly, this is not the most efficient way to exercise.

Now, if your goal is maximum strength and power, then three to five minute complete recovery periods have their place.

But chances are, if you're like most of the general population, you could care less about how much you can bench or squat and are more focused on having the lean, muscular build of a Men's or Women's Health model.



Sitting and chatting make for great post-workout activities but have no place during a productive workout!!

In other words, most people can afford to lose some fat and gain some muscle and the key to doing so is to maximize training density. Density describes the amount of work completed per unit of time. Density also happens to be the biggest primer for fat loss because the more work you can complete in the same amount of time or less the leaner and more muscular you will be.

How do we accomplish this? We do so by reducing our rest periods between exercises. According to the NSCA, shorter rest periods lasting 30-60 seconds or less resulted in

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the greatest growth hormone response. Growth hormone is one of the most powerful fat-burning and muscle-building hormones in your body.

Look no further than the world famous Tabata Study for the fat-burning, metabolic-boosting benefits of high-intensity work periods combined with short rest periods. In this groundbreaking cycling study, researchers discovered that only four minutes of a 20-10 interval protocol (20 seconds of maximum effort followed by 10 seconds of rest) provided greater fat loss and conditioning than 60 minutes of steady state cardio.

Now one of the problems with this study is that in the real world most people aren't able to perform multiple bouts of max effort for the same exercise with short rest periods (in fact, most of the elite cyclists in the study couldn't complete all four minutes of the 20-10 protocol because it was too intense).

However, by employing a circuit-training format where you perform alternating sets of non-competitive exercises, we can maintain the high-intensity work periods in conjunction with the short rest periods as in the Tabata study.

Furthermore, I have personally found this 2:1 negative work to rest ratio (in this case of Tabatas, 20 seconds on, 10 seconds off) to be unreal for rapidly improving fat loss and fitness for my campers and for my own personal workouts.

THE FIX: Employ short rest periods of 30-60 seconds or less between exercises in order to maximize training density and the growth hormone response from exercise for maximum fat loss and metabolic acceleration.

Deadly Workout Sin#7- Performing the same fitness routine for six weeks or more

This one is pretty straight forward- if you perform the same workout routine day in and day out, week in and week out, your body will stop changing and you will hit a dreaded plateau.

The classic example of this can be seen in any run of the mill gym or health club. On day one, after your sign a contract where you pay money to use somebody else's equipment, you'll meet with a personal trainer who probably is wearing some cute little jacket that says personal trainer on it (I'm convinced the reason for this is because some personal trainers may actually forget what they do for a living-- too much protein on the brain). Then he or she will teach you how to use all of the machines (don't get me started on machines) and will then recommend doing a circuit of three sets of 10 reps for each body part every time you workout.

Now keep in mind that if you are sedentary and haven't exercised in years (if ever), absolutely anything you do in the gym will elicit a positive response.

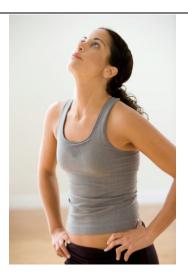
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If you exercise with heavier loads, your body will respond by gaining more muscle to accommodate the new training demands.

If you employ shorter rest periods between sets while maintaining the same total work output, your body will respond by improving conditioning and melting unwanted body fat.

If you perform a new exercise altogether that challenges your body in a very unique way, your nervous system will quickly figure out how to master this movement resulting in increased performance.

The human body is a smart and efficient machine and will quickly adapt to any training plan that you throw its way. Within the first two to three weeks of any new training program you will notice the biggest improvements in your performance and physique. However, the human body is constantly striving for homeostasis and efficiency and after performing the same program for about four weeks there are diminishing returns.



Have you been looking to the fitness Gods for answers to your frustrating training plateaus??

That's why it's critical to change-up your fitness routine every month. By simply tweaking a couple of variables in your training plan, like your exercise selection, exercise order, work periods and rest periods, etc., you provide a new stimulus that will force your body to change and prevent dreaded physique and performance plateaus.

Now, don't get me wrong here-- we always perform the same movement patterns in every training program because they are foundational. However, there are lots of different exercises that fall under the same movement pattern category that we can cycle between. New exercises require more mental and physical energy to perform thus

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burning more calories and causing a greater metabolic disturbance and this is exactly the type of stimulus your body needs to break out of any fitness rut.

The best example for this is the push-up since there are literally hundreds of push-up variations. We pretty much do some sort of push-up variation every workout, but by constantly switching up the type of push-up we're using there is always a new stimulus that keeps the body changing. Plus, the better you get at one type of push-up, the better you get at all of the others and visa versa.

In addition, let's not forget about the mental component here. The brain needs variety and performing the same routine for extended periods of time will not only decrease performance but will also lower your motivation to workout. So you'll start skipping training sessions here and there and then all of a sudden you'll find yourself back at square one—sitting on your butt, twiddling your thumbs while watching an infomercial about this incredible new waist belt that will give you the flat tummy of your dreams all for only four easy payments of \$19.95 so it can sit under your bed and collect dust before your dog uses it a new chew toy.

I have personally programmed for thousands of people online and I have worked with hundreds of campers in the trenches for many years. What I've discovered is that if I simply swap in new exercises and move to a different interval training protocol every three to four weeks I can constantly keep their bodies changing and performance continues to improve. Not to mention the fact that their motivation to workout remains sky high with every new challenge I throw their way.

Also, my camps operate on a three weeks on, one week off schedule-- I've found this to be the sweet spot for the typical busy person looking for general fitness in their 20's through 50's. We work very hard for three weeks trying to keep pushing the envelope each subsequent week by using a gradual progressive overload. Then we employ an active recovery week to allow for mental and physical regeneration, prevent overtraining, and reduce the risk of injury. Then we start a new program altogether and we wash and repeat like clockwork. The results have been simply amazing.

THE FIX: Change-up up your fitness up your fitness routine each and every month to prevent dreaded weight loss and performance plateaus. Employ new exercises and different work and rest periods (or interval protocols) to constantly provide a new stimulus that your body must learn how to adapt to.

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How Metabolic is Your Workout?

Please reference the chart below to assess the current metabolic status of your fitness routine. If your main goal is to improve your body composition (burn body fat and build lean muscle) and revamp metabolism then you absolutely must structure your workouts to fall under the metabolic breakthrough column.

	Metabolic Rut	Metabolic Breakthrough
Training Split	Daily body part workouts	3 total body workouts per week with ideally 48-hours between workouts
Length of Workout	60 minutes or more	30-45 minutes or less
Exercise Selection	Single-joint, isolation exercises that address only 1 plane of movement	Functional multi-joint, compound movement patterns that address all 3 planes of movement
Exercise Intensity	Low-intensity work periods of 2 minutes or longer to burn fat	High-intensity work periods of 30- 60 seconds or less to burn sugar
Rest Periods	Long rest periods of 2 minutes or longer	Short rest periods of 30-60 seconds or less
Exercise Order	Straights sets of a single exercise	Circuit Training: Alternating sets of non- competitive exercises
Periodization	Perform the same fitness routine for 6 weeks or more	Progress to a new fitness routine every 3-4 weeks

Putting It All Together

Now that we've outlined the seven keys to metabolic breakthrough, let's put it all together in a readily usable metabolic training program so you can start cranking it today!

A **Metabolic Workout** features a total body workout that employs high-intensity work periods with short rest periods in an alternating set or circuit format that combines the muscle-building benefits of resistance training with the fat-burning benefits of interval training. The result is a killer metabolic-style workout that will supercharge metabolism for up to 48 hours post-workout, tone and tighten your whole body, blast stubborn fat, and get you into the best shape of your life with only three 30-minute express workouts per week.

If you recall from the Gibala study, it was determined that 30-second maximum effort work periods followed by four minutes of rest for 20 straight minutes resulted in identical fitness improvements and greater weight loss than 90-120 minutes of aerobic training. By building a circuit of non-competitive exercises we can allow for this same full recovery, and thus peak intensity, by the next time we return to the original exercise.

Furthermore, we demonstrated that 30-second max effort work periods provide both a big-time metabolic boosting muscle-building stimulus plus deplete your body's sugar stores at optimal rates forcing it to burn more fat during recovery period and in the hours and days between workouts.

In addition, I outlined the Tabata study which found that a 2:1 negative work to rest ratio found in a 20-seconds on, 10-seconds four-minute high-intensity interval training protocol resulted in greater fat loss and conditioning than 60-minutes of steady state cardio. Short rest periods increase training density and produce a growth hormone response that boosts whole body fat-burning and lean muscle gain.

However, I have found that for most de-conditioned beginners, 20-second work periods do not allow for a sufficient amount of time to adequately perform enough muscular contractions for optimal results and that 30-second work periods are a much better time frame to best accommodate people of all fitness levels. Using this 2:1 negative work to rest ratio for 30-second work periods means that we would employ a 30-15 interval protocol with 15 seconds of rest between exercises.

Ladies and gentlemen, without further adieu, below is what I've discovered to be the ultimate metabolic experienceÖ

"Making your body a better place to live."

30-15 Six-Exercise Metabolic Circuit- 20 Minutes: Alternate between 30 seconds of work and 15 seconds of rest for each exercise in the following 6-exercise circuit followed by a 60-second rest and transition between circuits. Perform up to 4 total rounds for a 20-minute total body workout.

Station#	Exercise Variation	
1	Hip-Dominant Variation	
2	Push Variation	
3	Knee-Dominant Variation	
4	Pull Variation	
5	Pillar Variation	
6	Total Body Variation	



The author practicing what he preaches.

About Levi Memmer:

Levi currently owns and operates Intensity Training Systems in Crowley, TX. At I.T.S. Levi trains and inspires adults of all fitness levels to achieve their health and fitness goals. He also trains high school and middle school athletes in all areas of physical preparation for their given sport. Levi has helped hundreds of adults lose fat, move better and improve overall health using the same concepts outlined in this book.

Before opening I.T.S., Levi was a strength and conditioning coach for all sports at Lewisville High School in Lewisville, TX. He was responsible for the physical preparation for all high school sports as well as overseeing the implementation of the physical preparation programs at Lewisville's four middle schools.

Prior to Lewisville, Levi was a strength and conditioning coach at Texas Christian University in Fort Worth, TX. At TCU, Levi designed an implemented physical preparation programs for cornerbacks and safeties on the football team, women's basketball, women's golf, women's swimming and diving, men's swimming and diving and men's tennis.

Before coming to Fort Worth, Levi assisted with the implementation of physical preparation programs for football, women's tennis, men's golf, women's golf, men's swimming/diving and women's swimming/diving while at the University of Wyoming.

Levi's first strength and conditioning experience came at Michigan State University where he assisted with the implementation of physical preparation programs for football, men's basketball, women's basketball and men's ice hockey.