

**LEARN HOW TO USE**

**CARDIO  
TO GET  
SHREDDED!**

**THE SECRET TO**

**GETTING &  
STAYING  
LEAN**

**Cardio**

**FOR LEANNESS**

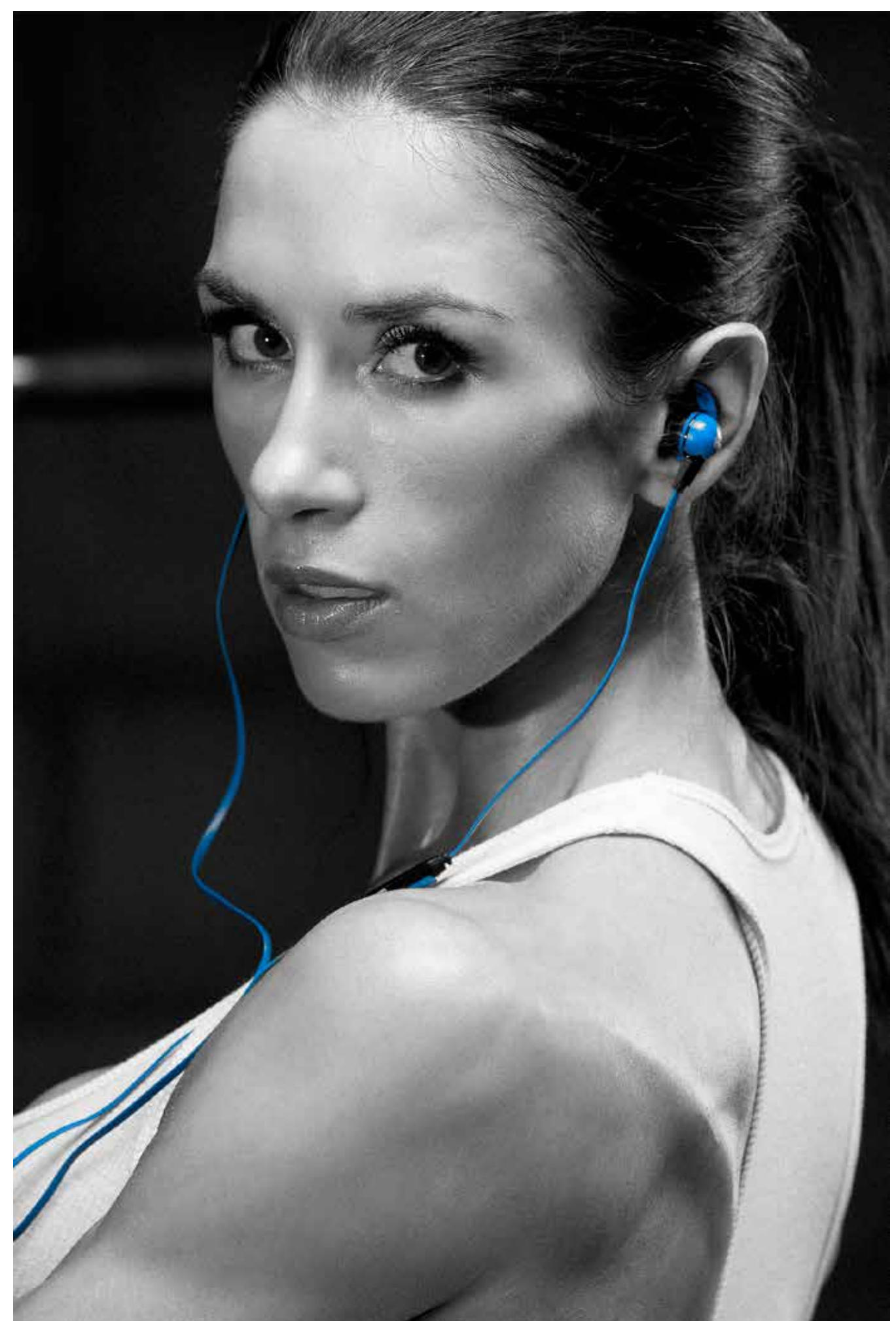
## ***I have tried to keep things as simple as possible.***

I have avoided almost all ‘physiology talk,’ and have intentionally avoided mentioning terms like the Krebs’s cycle, ketones, minute volume, high altitude training, etc. I want this ebook to be pretty straightforward and clear so that a wide fitness audience can effectively use cardio to get lean. The goal is to have a lean physique, not look like a washed-out skinny skeleton.

Remember that all theories remain theories only until you put them into practice in real life. Do not get paralyzed because there are so many catch-22’s in this field of ‘getting and staying lean,’ and far too many situations where you are ‘damned if you do, damned if you don’t.’

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*Do too much cardio and you won’t efficiently build muscle; do too little and it might be impossible to ever see your abs.*”



Even though I have kept this ebook simple, I still want everyone to understand why they should do something. It's never good to say "I don't know why I do this routine, but my trainer said I should, so I just do it". You should want to know why, as well.

Cardio training has many health benefits, but the main reason you do cardio when you want to be lean is for its fat burning effects on your body. It's a double-edged sword though; do too much and you won't efficiently build muscle, do too little and it might be impossible to ever see your abs.

All training needs to serve a purpose. Training to achieve a lean body is not the same as training to become an elite endurance trainer. When you are an athlete, your prime focus is increasing your performance. Getting lean is another kind of game. You purposely eat a little less than your body burns in order to shed body fat. If you add excess training on top of this, you might lose muscle as well as becoming severely over-trained and fatigued.

When you structure your cardio program, keep in mind why you are doing cardio. If it's for regular health and longevity, more than two to three times a week is not necessary. If your goal is to be shredded, you will most likely need more frequent cardio training.

## ***A lot of people overdo cardio. Who should consider demounting the treadmill?***

Those who want to build a lot of muscle, and the skinny, skinny-fat people. On the other end of the spectrum, those of you who do have a lot of fat to lose, or those of you who carry quite a bit of muscle, but also some unwanted fat, as well as those with a slow metabolism, or those who enjoy eating a lot of food, YOU need to step it up and make it a habit.

Many people use cardio to maintain a ripped physique. I am one of them! I prefer to stay shredded 365 days a year. To do that of course I need to train like I'm prepping for a contest, which for me means cardio almost every day. This volume is NOT for beginners, it's not needed for most people to reach their goals, and also, it's a full time job. Most people do not have time to go to the gym twice a day. Keep in mind that you can periodize your cardio training depending on your condition. When you've achieved the leanness you desire, you can gradually decrease the volume to see what the minimum amount is to maintain your condition.

It is always recommended to split weights and cardio for the best results. However, if you for some reason can not always do that: do cardio first, weights after.

With this ebook I hope to help you with creating an effective cardio regimen tailored to your needs and goals. Remember that if

you do too much too soon, your body will fight your efforts. It's wise to progress one step at a time, or you will find yourself overtrained, injured, completely worn out, or all of the above.

The programs are based on heart-rate training. You will need a heart-rate monitor watch, for instance POLAR watches. You do not need the most advanced watch with ALL features. Buy any model that records and shows you:

- Heart Rate During Session, Preferably Both In Bpm and % of Max
- Average Heart Rate
- Duration
- Peak Heart Rate
- Calorie Expenditure

The watch usually comes equipped with a chest strap. I know there are some other models without it, but I have not tried them.

### **Maximum Heart Rate Zone**

The formula most commonly used to find out your predicted **maximum heart rate (MHR)** goes like this:

#### **MEN**

**220 - Your Age = Predicted MHR**

#### **WOMEN**

**226 - Your Age = Predicted MHR**

Note that this is only an estimation! To find out your individual maximum heart rate you need to do a MHR test. These can be done at qualified clinics, or under the guidance and supervision of a professional trainer/

therapist/medical doctor.

You can use any cardio equipment you prefer, but the best ones are the ones where you are NOT seated. Your intensity should be measured in heart rate, not in 'levels' or 'RPMs.'

For advanced trainers who have been training with HR monitors for a long time and know what different levels of intensity feels like, go ahead and use perceived effort instead of heart rate monitoring.

## **How to Measure Progress**

### ***You're Improving Your Cardio Fitness When***

1. The workload feels lighter.
2. Your heart rate is lower than usual at your normal training intensity.
3. Your heart rate first thing in the morning has decreased.
4. You can go harder/faster without noticing a rapid increase in heart rate.
5. Your heart rate drops down fast when you slow down the tempo/stop training.

### ***You Know You Are Overtraining When***

1. Your usual resistance level/speed feels harder, even if your heart rate is lower.
2. The workload feels heavier and your legs get a burning sensation at an unusually low intensity level.



3. Your heart rate is higher in the morning.
4. When doing the orthostatic test for overtraining, your heart rate standing up is more than 10 beats per minute faster, when compared to your heart rate lying down.

### ***How Do You Perform The Orthostatic Heart Rate Test?***

Lie down in bed and take your pulse for 30 seconds. Stand up, wait 15 seconds, then repeat taking your pulse for 30 seconds. This gives you the two values. If, for example, your first pulse is 60 and your standing pulse is more than 70, you might be overtrained, or have an infection. This

would not be a good day to do intense interval training. If your first pulse is 60 and you're standing up pulse is less than 70, you're good to go! I do this test every morning, and I recommend you do too!

### ***RECOMMENDATION: Always cool down for 5 minutes after each workout.***

This cool down is not included in the workout programs; however, the more intense the workout, the more important the cool down phase. The goal of the cool down is to lower your heart rate to about 50-60% of MHR. Once it's there, you can end the workout.

## Level 1

*This is for those who are completely new to cardio. Just like with weight training, it is very wise to start slow and build up over the course of several weeks. You can do these workouts any time of the day.*

### **WEEK 1**

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3 x 30 min @ 60% MHR steady-state.

Train every other day; for example, Monday, Wednesday, Friday. Use weight bearing cardio machines such as the treadmill, elliptical trainer, or walking (fast).

### **WEEK 2**

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3 x 30 min @ 70% MHR steady-state.

Train every other day; for example, Monday, Wednesday, Friday. Use weight bearing cardio machines such as the treadmill, elliptical trainer, or stepmill.

### **WEEK 3**

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3 x 30 min @ 75% MHR steady-state.

Train every other day; for example Monday, Wednesday, Friday, Sunday. Use weight bearing cardio machines such as the treadmill, elliptical trainer or stepmill.

### **WEEK 4**

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Workouts 1 & 2: For instance, Monday and Wednesday

30 min intervals: 1 min @ 60% MHR, 1 min @ 75% MHR, 1 min @ 80% MHR. Repeat x 10, for a total of 30 minutes per session.

Workouts 3 & 4: For instance, Friday and Sunday

30 min @ 80% MHR steady-state, per session.

You can stay on this program for as long as you feel that it's enough to keep you at the condition you want.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results.

## Level 2

*It's time to step it up and increase the frequency and intensity.*

### **WEEK 1**

2 x 40 min @ 75 % MHR steady-state.

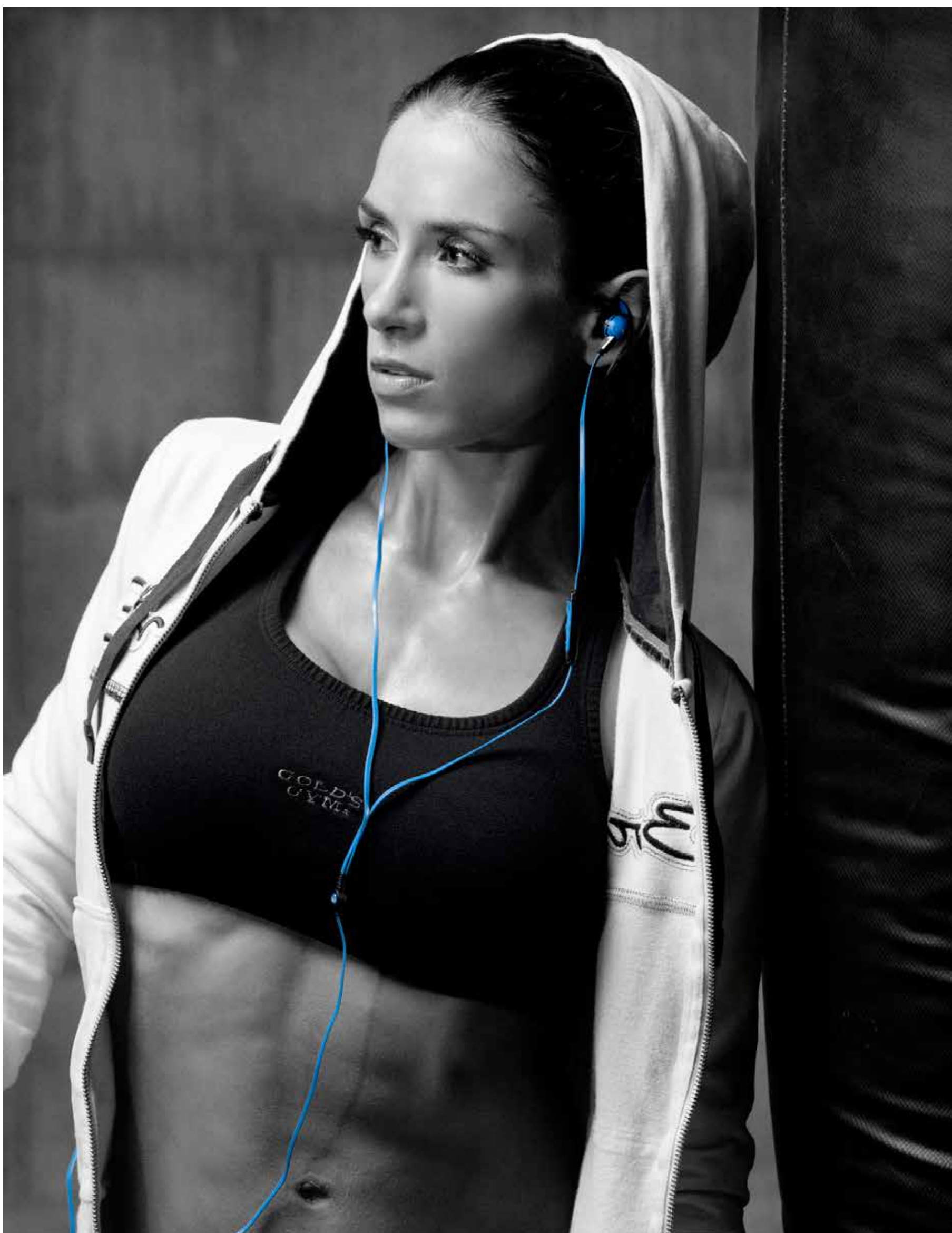
2 x 30 min @ 80% MHR steady-state.

### **WEEK 2**

2 x 45 min @ 75% MHR steady-state.

2 x 35 min progressions: 10 min @ 70% MHR,  
10 min @ 75% MHR,

10 min @ 80% MHR, 5 min @ 75% MHR.



### **WEEK 3**

3 x 40 min intervals: 2 min @ 75% MHR, 2 min @ 80% MHR, repeat x 10.

2 x 60 min @ 75% MHR steady-state.

### **WEEK 4**

5 x 40 min intervals: 2 min @ 75% MHR, 5 min @ 80% MHR, 1 min @ 85% MHR.

Repeat x 5.

You can stay on this program for as long as you feel that it's enough to keep you at the condition you want.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results.

## Level 3

*Now we progress to higher intensity workouts.*

### **WEEK 1**

1 x 30 min @ 80% MHR steady-state.

1 x 30 min intervals: 1 min @ 70% MHR, 2 min @ 85% MHR. Repeat x 10.

1 x 40 min progressions: 5 min @ 75% MHR, 5 min @ 85% MHR, 5 min @ 80% MHR,

5 min @ 70% MHR. Repeat x 2.

1x 40 min @ 70% MHR steady-state.

### **WEEK 2**

1 x 40 min @ 80% MHR steady-state

1 x 40 min intervals: 1 min @ 70% MHR, 4 min @ 85% MHR. Repeat x 8.

1 x 40 min progressions:

6 min @ 70% MHR, 5 min @ 85% MHR, 3 min @ 80% MHR, 1 min @ 90% MHR. Repeat x 2.

10 min @ 70% MHR

1 x 20 min progressions:

10 min @ 75% MHR, 5 min @ 85% MHR, 2 min @ 90% MHR, 3 min @ 60% MHR.

### **WEEK 3**

2 x 40 min @ 80% MHR steady-state.

2 x 30 min progressions:

10 min @ 75% MHR, 5 min @ 85% MHR, 2 min @ 90% MHR, 3 min @ 60% MHR, 5 min @ 85% MHR, 5 min @ 70% MHR.

1 x 40 min progressions:

5 min @ 70% MHR, 5 min @ 80% MHR, 4 min @ 85% MHR, 1 min @ 90% MHR. Repeat x 2.  
10 min @ 75 min steady state.

### **WEEK 4**

1 x 60 min @ 70% MHR steady-state.

1 x 60 min @ 75 MHR steady-state.

1 x 40 min @ 80% MHR steady-state.

1 x 30 min progressions: 10 min @ 80% MHR, 10 min @ 85% MHR, 2 min @ 90% MHR. 8 min @ 70% MHR.

You can stay on this program for as long as you feel it's enough to keep you at the condition you want.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results.



## Contest Prep

*When you are trying to get extremely lean, one cardio workout per day is most likely not going to be enough, unless you have a high metabolism. The more cardio you do, the higher the risk of losing muscle is. You can not lean out muscles that are not there either. You need to have a solid foundation of muscle for this program.*

*Before starting this program you need to be quite cardio fit, as well as have your diet under complete control. You can not burn off a crappy diet with excess cardio!*

### **WEEKS 1 & 2**

5 x 45 min @ 70% MHR steady-state AM.

5 x 20 min @ 60% MHR steady-state PM.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results. If you combine the second session with weight training, do the cardio first.

### **WEEKS 3 & 4**

5 x 45 min @ 75% MHR steady-state AM.

5 x 30 min @ 65% MHR steady-state PM.

If you combine the second session with weight training, do the cardio first.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results.

### **WEEKS 4 & 5**

5 x 50 min progressions:

30 min @ 75% MHR, 20 min @ 70% MHR AM.

5 x 30 min @ 65% MHR steady-state PM.

If you combine the second session with weight training, do the cardio first.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results.

**WEEKS 6 & 7**

5 x 60 min @ 65% MHR steady-state AM.  
4 x 30 min intervals: 2 min @ 60% MHR, 1 min @ 80% MHR. Repeat x 10. PM. If you combine the second session with weight training, do the cardio first.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results.

**WEEKS 8 & 9**

6 x 60 min @ 70% MHR steady-state AM.  
2 x 30 min intervals: 2 min @ 60% MHR, 1 min @ 80% MHR. Repeat x 10. PM.  
2 x 30 min @ 70% MHR steady-state PM.  
1 x 40 min @ 65% MHR steady-state PM.  
If you combine the second session with weight training, do the cardio first.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results.

**WEEKS 10 & 11**

6 x 60 min @ 70% MHR steady-state AM.  
6 x 40 min @ 65% MHR steady-state PM.  
If you combine the second session with weight training, do the cardio first.

**WEEK 12**

6 x 60 min @ 75% MHR steady-state AM.  
6 x 40 min @ 70% MHR steady-state PM.  
If you combine the second session with weight training, do the cardio first.

**TIME TO EVALUATE:** Are you shedding enough body fat? Have you lost about one-two pounds of fat per week? Always pay attention to your body's feedback. There is no reason to do more cardio than needed for results.

What about the week of the show? You should be ready around two weeks out. I recommend no cardio the last week to make sure your body drops excess water and your muscles fill up. Cardio tends to make your legs hold a little water.

## Stubborn-fat-that-won't-come-off Program

*Still have body fat to lose, and it's stubborn as hell? Time to execute the workouts from Hell, you've been warned. These can really tear down your muscle mass if not done properly. You must pay attention to your body's feedback.*

*This workout program is absolutely going to make you tired and exhausted. It's definitely not for everyone. It's excessive cardio training from a health perspective. This should only be done if you are determined to get ultra lean.*

### **WEEK 1**

6 x 75 min @ 70% MHR steady-state AM.  
6 x 30 min @ 70% MHR steady-state PM.

### **WEEK 2**

6 x 75 min @ 75% MHR steady-state AM.  
6 x 30 min @ 75% MHR steady-state PM.

### **WEEK 3**

6 x 75 min intervals: 2 min @ 70% MHR, 2 min @ 75% MHR. Repeat x 10. 35 min @ 70% MHR steady-state AM.  
6 x 40 min @ 60% MHR steady-state PM.

### **WEEK 4**

6 x 80 min @ 70% MHR steady-state AM.  
6 x 30 min intervals: 2 min @ 70% MHR, 1 min @ 85% MHR, 2 min @ 60% MHR. Repeat x 6. PM.

### **WEEK 5**

4 x 90 min @ 70% MHR steady-state AM.  
2 x 90 min @ 75% MHR steady-state AM.  
6 x 45 min @ 70% MHR steady-state PM.

### **WEEK 6**

6 x 90 min @ 70% MHR steady-state AM.  
6 x 30 min @ 70% MHR steady-state PM.

### **WEEK 7**

6 x 120 min: 60 min @ 75% MHR, 30 min @ 70% MHR, 30 min @ 60% MHR AM.  
6 x 30 min @ 65% MHR steady-state PM.

If you are not shredded by now, I don't know what more you can do cardio wise. Re-evaluate your diet/eating habits. You can repeat this program for as long as needed. For instance, if you have 100 LBS to lose, you might need to stick to this 'program from hell' for months.

Don't despair, there will come a time when you can slowly decrease the time, or decrease the intensity in each session and STILL stay at your preferred condition.

For more effective cardio workouts, check out my ebooks 'cardio fd style volume 1' and 'cardio fd style volume 2'.

## **The Cardio Catch-22**

“I want to be ripped, but add more muscle.” This is what everyone wants and there are two ways to get it: train more and eat better. Do too much cardio for your body type and you end up with less fat, but less muscle mass too. Do too little cardio out of fear of burning muscle mass, and you won’t ever see your muscles because they are covered with fat.

## **What is over-training?**

Over-training is doing more and more training but with diminishing results, or decreased performance. When you do cardio to lean out you are not doing it to perform per se, you are doing it to burn fat. To burn stubborn fat you might need to periodically overdo it. Is it the best for the body? Of course not. Your body does not like excessive training. But, it’s the reality.

Weight training does increase your metabolism a lot more than cardio training, but very, very few get away with doing no cardio training at all. The exceptions to the rule are those with a high metabolism and most men in general. It usually goes hand-in-hand; those who have an easy time building muscle, will struggle more with getting or staying lean. On the other end of the spectrum, those who struggle to add quality muscle mass, usually get lean by just adhering to a good diet. In between, there are those who are a little bit of both. What you should know is that

cardio training affects weight training because it steals energy you could use on weight training. Cardio training might also decrease your strength, especially when you do a lot of it. It’s important to schedule your workouts wisely, so that you can build muscle and burn fat simultaneously and efficiently.

## **So, how do you know if you are overdoing cardio?**

- You are fatigued.
- Your strength decreases.
- Your muscles look flatter.
- You are holding water.
- You’re experiencing intense hunger all day.
- You lose focus.
- You lose interest in training.
- You lose interest in sex.
- You’re depressed.

On the other hand, all of the above signs are a part of getting leaner when you’re melting off the layers of body fat. People usually find they have more energy when they first lose fat, but as you become very lean and try to shed those last few pounds, your body will fight your efforts to succeed. It will not be a walk in the park getting ultra lean, you will be tired, exhausted, and drained, and you will look shittier at times too in the process of getting ripped, but this should not be until you’re pretty lean. If you do feel very exhausted and you still have many pounds to lose, you need to suck it up and keep going :-).

***fighterdiet***



### ***Cardio Before or After Lifting?***

Science has changed the verdict. For all of us fitness people who want to be lean yet build muscle, it has always been the rule to do cardio after weights if doing both in one session. Now the word out is the opposite. Why? After your weight workouts, your body wants to rebuild muscle and this is done by a certain signaling pathway (mTor). When you do cardio after weights, you're shutting down this mechanism which is the first step for protein synthesis (muscle building). Not smart! There is another signaling pathway which turns off mTOR, and it is called AMPK. AMPK doesn't care for building muscle. It makes your body more efficient at burning fat, but it can also break down muscle! Yikes.

So, now we know cardio after weights is not recommended. What about before weights? Yes, that sounds better. You will then finish your complete workout (cardio and weights) with an intact mTOR signaling pathway since weight training triggers it. After the workout, you should also down some essential amino acids (EAAs) or whey protein since this too increases mTOR. There is one little problem here. What if you do legs and get fatigued from cardio? Yes, you'll lose some of your stamina, however it shouldn't be that much. By trial and error you'll find out!

The best strategy is still to split your workouts. You do cardio as far away as possible from your weight training. If your legs need more size, do not do cardio before or after your leg weight training sessions.

### ***Does this "new" science verdict means your cardio after weights protocol is ineffective?***

No. Lots of very muscular or lean individuals do this and as we can see, it works. I hope this doesn't confuse you too much. In short, this is the recommendation for concurrent weight training and cardio training:

If your goal is MORE muscle, preferably do cardio at least 6 hours prior to weight training or on another day. If you need to do both activities in one session, start with cardio.

If your goal is endurance or muscle reduction, start with weight training, finish with cardio.

If your goal is more strength but you do not want to add muscle size, do cardio either first or last. This one is a bit tricky, and I'm not positive I'm right here, but maximum strength can be gained by myofibrillar hypertrophy which means you'll get stronger, but most likely not bigger - and that's why you should be able to 'kill any protein synthesis which can lead to muscle weight gain' by doing cardio after weights... For more information on this subject, you can find more on the internet by searching "sarcoplasmic hypertrophy".

For those athletes who need to maintain a certain weight for competition, training with very low reps (1-5) usually leads

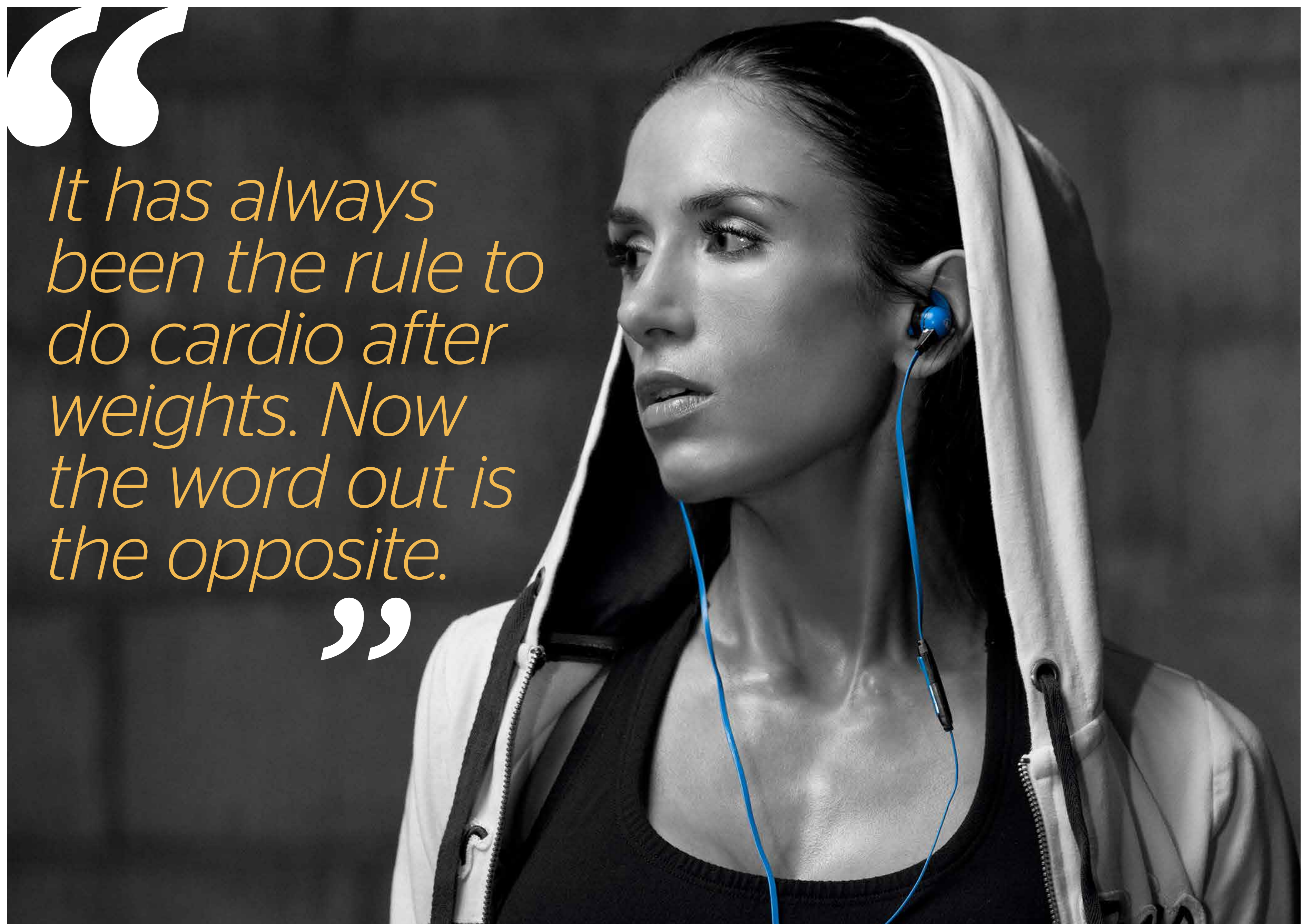
to increased strength with little muscle weight gain. For size, higher reps (6-20) and higher volume is usually the trick!

There are pros and cons with training fasted. If you do choose to do it, you need to know why you are doing it, and be sure that you are applying the right kind of cardio workout for your goals.

### *How to decrease when you've reached your goal*

When you've reached the level of leanness you want, it's time to say 'good job!'

to your body and reward it. By that, I don't mean going to a big all-you-can-eat buffet. Instead, you get to cut down on the volume, intensity, or both. Do it gradually, for instance, cut 5 minutes from each session in week 1, cut down 10 minutes from each session in week 2, reduce one session per week from week 3 etc. Pay attention to what your body 'says,' don't get surprised if you actually look leaner when you let your body rest a bit more.



*It has always been the rule to do cardio after weights. Now the word out is the opposite.*

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## FAQs

*“What about using BCAAs pre workout? Can I use BCAAs and do fasted cardio and avoid muscle breakdown?”*

Here I want you to understand what BCAAs (branched-chain amino acids) do: they halt muscle breakdown by increasing the release of insulin. Insulin is a muscle-building and fat-building hormone. When your insulin goes up, muscle breakdown goes down. BCAAs are very special too because they can be used directly in your muscles as fuel and hence protect the muscles own BCAAs. Muscles consist to a large extent of these amino acids. So far so good, right?

Let's say you want to do fasted cardio, but you want to protect your muscles. You take BCAAs pre-workout, and you protect the muscle mass. But, by doing that you're actually losing some of the effect of doing fasted cardio. The reason to do fasted is because your insulin and blood sugar are low, so you burn more fat. BCAAs rise blood sugar a bit, so suddenly you're not primed for burning fat as efficiently.

However, don't be scared here! This is really 'too much detail' for most people. The reason you're holding on to 5 lbs of fat is NOT due to taking BCAAs prior to your cardio workouts! It's more likely to be what's going to give you those 5% extra results when you're already shredded.

*What about doing more intense work, and using BCAAs prior to the cardio workouts in the AM? That is, fasted as in not having eaten, but taking BCAAs pre-workout?*

Yes, it works. I use this myself all the time, however I cannot say it is going to protect your muscles 100%. The best way to protect your muscles and increase your metabolism is of course to start the day with a meal, then train.

I am playing the devil's advocate a bit here though. I always do my cardio either fasted if I do it at a steady state or under 75% MHR, or after taking BCAAs when doing intense cardio AM or PM. However, I also don't have an issue with losing muscle mass, my body is more stubborn with fat loss.

One way you can get a bit of the best of both worlds: start your workout completely fasted, then add BCAAs around 20-30 minutes into the workout. Training itself lowers any increase in insulin, so it might not affect your fat burning zone anyway.

If you have a big fear of losing any muscle at all, you should not even consider doing cardio at all first thing AM, BCAAs or no BCAAs!

*“What is the fat burning zone?”*

Your body burns mostly fat, and not carbs around 55-70% MHR. This is not high intensity at all. The lower the intensity,



the fewer calories you are burning in that session. It doesn't matter if you're burning almost only fat.

Until you are up to 70% MHR, (or 75% if you're very well cardio trained) you can rely on almost body fat only to fuel the workout, but more intense exercise will generate some lactic acid which means your body cannot supply your muscles with enough oxygen. Training without enough oxygen means you go into the anaerobic threshold. Your muscles will run out of enough oxygen to provide the muscles with energy, and lactic acid is produced. The lactic acid can be converted into glucose-like fuel, but that means you might be burning muscle (again) to create energy to keep up the training intensity if you have not had a meal in the hours pre-workout.

Intense cardio training requires carbs, just like weight training does. Sure, you can train without them, but it results in less efficient training, and also a lot more stress on your body.

Good to know: aerobic = 'with oxygen,'  
anaerobic = 'without oxygen'.

### ***“What is the anaerobic threshold?”***

It's the physiological point during exercise where your muscles start using up more oxygen than your body can transport. Muscle work produces more lactic acid than the body can process, this is the 'burn' you feel when you train.

In short, when you feel lactic acid in your muscles, or you get out of breath, you're out of the fat-burning zone. This does not in any way mean you should only workout in the 55-70% MHR. The higher intensity promotes a lot of excellent fat-burning and metabolic boosting effects, which you do not get from steady-state low intensity cardio. Intense interval cardio training results in greater post-workout calorie expenditure than low intensity cardio.

### ***“How important is hydration?”***

When you workout, your blood supplies your muscles with nutrients and fluids. If you're dehydrated, your blood becomes clotted and less fluid. This not only slows down the removal of waste products, but it also slows down the transport of the fatty acids that you are using to fuel your workout. Being dehydrated also elevates your heart rate, so it might look like you're training harder than you are. If you workout for longer than an hour, it gets even more important to replenish the body with the water it loses in sweat and heat production. How much you need to drink is different from person to person, and it depends on conditions such as heat, work load, clothing, duration etc. A good way to check how much you need to drink is weighing yourself before you work out and then directly after. For every pound you lose, you should drink about 500 millimeters (mL) of water to restore your water balance.

***“What on earth is lactate threshold training?”***

I talk a lot about lactate training and that I do these for some of my interval cardio workouts. The lactic acid threshold is a point during exhaustive, all-out intense exercise where lactic acid builds up in your blood faster than the body can remove it. You get it because your body has an oxygen deficit. You're training faster/harder than you have oxygen for, and after a few minutes your body gives you payback: you feel lactic acid building up, and it reaches a threshold where there is just too much lactic acid accumulating, and you need to slow down because

it's just plain impossible to keep up the intensity. This wonderfully painful point is known as the lactic acid threshold and you find it between 50-80% of your VO2 max. The better your cardio fitness, the higher your threshold will be. Elite endurance trainers have theirs up around 85-90% of their VO2 max, but unfit people find it a lot lower. Regular training at, or around, the lactic acid threshold improves your capacity to handle lactic acid, and you will be able to maintain a good tempo without running into the threshold. To cut to the chase here, doing training which gives you lactic acid on an empty stomach means muscle breakdown as well as fat breakdown.

***“How many sessions per week can I do lactate threshold training?”***

Lactate training is very intense, and your central nervous system (CNS) gets taxed by this kind of training just like it does with weight training. Would you squat your max weight five days a week? I hope not. Same thing goes for intense cardio training; you should only do it 1-3 times a week and make sure you do it when you're fresh and well rested. Remember that training at 90% of your MHR is strenuous and not safe unless you're very fit and have no medical issues with your heart or lungs.

***“What are the benefits of lactate threshold training?”***

Lactate training increases oxygen debt, which increases 'after-burn effects.' This means you burn a lot of calories after the workout is completed.

***“Why can I not just go all out in intensity and keep my heart rate around 85% for an hour or so in the morning on an empty stomach?”***

Do you want your body to adapt to that stress, and become affluent and efficient at supplying oxygen to your muscles? Or, do you want to build big, strong muscles? 85% of your MHR means you are pushing your body to do what you ask of it to do: get fuel from your muscles so it can provide you with energy for the work. You must train with specificity. Do you see a golfer

practice volleyball? Or a skier train ballet? Exactly. Your body uses different energy systems depending on your intensity level. When you want to get lean you cannot just train cardio for all you're worth because it will rob you of your energy, leaving no energy for weight training.

## ***What's VO2 max?***

VO2 max is the maximum capacity of your body to transport and use oxygen during training. If you are fit you will have higher VO2 max values, and therefore can exercise more intensely than someone who is not as well conditioned. To increase your VO2 max you need to work out for at least 20 minutes about 3-5 times a week at 65-85% MHR.

## ***“What does ‘steady-state’ and ‘intervals’ mean?”***

Steady-state cardio is the opposite of interval training. With steady-state, you perform the workout at the same intensity, speed, and tempo, throughout the entire session. Intervals are periods of intense work, for instance, a 60 meter sprint, followed by a period of less intense work, for instance a jog or walking. An interval could be 20 seconds short, or 3 minutes long. Interval basically means ‘duration of time,’ so your intervals can be anything from several minutes long, to just a few seconds short. The shorter the interval, the harder you should work, the longer the interval, the less intense you work. Compare a short sprint with a 10 mile jog:

short time vs. long time, explosive and fast vs. steady and less intense etc.

## ***“What is HIIT or HIT?”***

HIT stands for High Intensity Training, which is a training style developed by Mike Mentzer, who was a bodybuilder back in the day. High Intensity Training is not the same as HIIT, which stands for High Intensity Interval Training. The latter one is what you use when doing intense cardio intervals. There is a protocol by the name HIIT that many people swear by. I don't use it because I don't follow the program to a T. Intervals can be done in many different ways, approaches, and sequences. HIIT is ONE way to do it, but not the only way.

## ***“Why is it good to do cardio?”***

Cardio is obviously great for preventing disease, but from a leanness point of view, cardio helps you burn off body fat and increases your metabolic rate. Cardio training also means you can eat a bit more, as you are expending more energy. You also increase the glycogen storage capacity in the muscles when you deplete them with regular cardio training. If you like feeling old and out of breath from walking up a few stairs, please, do not start doing cardio!

## ***“Why is too much cardio bad?”***

First of all, too much cardio is defined as doing more cardio than is needed to obtain your desired results. To get really lean, you will most likely need to push the limits

in many ways, and cardio is one of those ways. The more cardio you do, the less time you allow for recuperation. It's when you recuperate that your muscles grow, and your body rejuvenates itself. Excess cardio will tax your body, leading to lower power output during training. The more cardio you do, the more your fast-twitch muscle fibers (the strong ones that also have the biggest potential to grow bigger) turn into slow-twitch muscle fibers, which are good for endurance, but are less strong and smaller in size. This is the reason why it's not recommended for powerlifters to do a lot of aerobic exercise; it will reduce their maximum strength.

When your goal is to build muscle, you cannot let cardio eat up your energy, nor do so much cardio due to fear of adding body fat that your muscles have no chance to grow.

Too much cardio leads to decreased testosterone, which helps you build muscle, and also increases cortisol, which does burn fat, but also burns muscle. You also put your tendons, joints and ligaments through a lot of wear and tear with cardio, which can lead to injuries.

### ***“What are the pros and cons for doing cardio directly after weights?”***

The best way to build muscle is not to do any cardio at all. However, this ebook is not about building muscle, BUT getting or staying lean, so that's not really a choice. The fewer the sessions of cardio per week, the more they can be separated from

weight training. This is the optimal way to arrange your workout schedule. For example: Monday: leg training, Tuesday: chest, Wednesday: cardio, Thursday: back, Friday: cardio etc.

When you do cardio more than a few sessions per week, you should schedule it away from weight training too. For instance, cardio AM, legs PM.

Does your schedule not allow going back to the gym for either weights or cardio? Do you need to do all in one long session? If yes, you should always put cardio first then work out with weights. You do this since cardio training followed by weight training can impair muscle growth.

### **THE PROS TO SEPARATING CARDIO AND WEIGHT TRAINING:**

You get two 'after-burn effects' instead of one, also known as EPOC (Excess Post Exercise Oxygen Consumption)

Shorter sessions mean less cortisol release, which may less muscle breakdown. I'm writing 'may' because studies have shown those whose training causes large spikes in cortisol also spikes other "good" muscle hormones, like testosterone and growth hormone.

You get to replenish your muscles with food sooner post workout.

The theory is that your muscles have emptied their glycogen stores after a weight training workout, so you go more into direct fat burning when doing cardio post weights. The problem is that not ALL



of your glycogen stores are empty; for example, if you work upper body, your leg muscles still have plenty of carbs to burn. So, doing your cardio after weight training will help empty those unused muscles' glycogen stores.

Do not fall into believing that you are burning fat just because you have done weight training first.

### **THE PROS TO DO ALL IN ONE SESSION:**

You don't need to think about two 'pre- and post-' nutrition strategies.

You avoid having to go to the gym twice.

You free up more time.

If you train in the morning, you might have a better chance of sleeping well at night without having your training interrupt your circadian rhythm.

### ***“Does cardio break down muscle?”***

No, cardio per se does not break down muscle, but if you don't provide your body with the right food pre- and post- cardio, or you overdo it by training too much, or eating too little, then yes, cardio can break down muscle mass as well as body fat.

The catch-22 is you cannot really eat

to fuel your cardio workouts when you're trying to get really lean. There will be a trade off. That's why you incorporate different kinds of cardio workouts, so you can do some at lower intensities that are not as hard on your muscle mass or recovery, as well as some intense ones.

Not everyone can afford to do a lot of cardio without getting scrawny. We all have different body types: some build muscle with ease but struggle with fat loss, others need to fight hard for every ounce of muscle gain, but get ripped by eating 100 calories fewer per day, or walking a bit on the treadmill. Do not compare your training to someone else; you might not be able to follow the same protocol because you have different body types.

### *“What supplements should I take before and after training?”*

It depends on if you're doing completely fasted training, or you do it after a meal. Here are my recommendations.

#### **PRE-FASTED TRAINING, IF DOING MODERATE INTENSITY OR LOWER:**

**Stimulants:** caffeine, yohimbe, L-tyrosine, N-Acetyl Cysteine (NAC). Immediately post-fasted training: BCAAs, EAAs, NAC, vitamin C.

#### **PRE-FASTED TRAINING; IF DOING HIGHER INTENSITY CARDIO:**

**Stimulants:** caffeine, L-tyrosine.  
**30 min pre:** BCAAs, NAC, beta-alanine, rhodiola/ashwagandha/Relora.

**Immediately post training:** BCAAs, NAC, glutamine, vitamin C, phosphatidylserine, Relora.

#### **PRE-CARDIO, TO MINIMIZE MUSCLE BREAKDOWN:**

**Stimulants:** none.

**30 min pre:** BCAAs, carbs, EAAs or whey protein isolate, glutamine.

**Immediately post training:** BCAAs, carbs, whey protein isolate, NAC, glutamine, vitamin C

#### **PRE-WORKOUT DURING THE DAY/NIGHT PRE:**

Eat a meal/have a shake maximum 2 hours pre-workout.

**Immediately pre:** BCAAs or EAAs.

**Immediately post:** BCAAs, EAAs, carbs, whey protein isolate.

**Tip:** To protect muscle from cardio muscle breakdown, do not ever do cardio fasted at high intensity!

### *“What time of day is best?”*

It depends on your goals and how much body fat you have to lose, as well as how much training you need to do to get the results you desire. In the morning, your body is naturally primed for breaking down fat since the stress hormones that also make you alert and energized are peaking in the morning. But also peaking in the morning is the muscle catabolic hormone, cortisol. Cortisol breaks down fat too though. Doing cardio in the morning

also means you get it out of the way and you prime your body for burning energy efficiently. It does a body good to move around!

Exercising later means you can get a few meals in before working out, which protects your muscles. You also get more energy for intense training. When you split weight training from cardio, the general recommendation is to let weight training take place in the afternoon.

According to studies, people are strongest in the afternoon hours.

It is also wise to take into account your weight workouts, particularly leg training, and how to time them with cardio. Now, let's say you are training twice a day, you should schedule your workouts so that you do cardio in the morning and legs in the afternoon, unless you are trying to downsize them and can take tough impact on your wheels both morning and night.

It's wise to remember that if you have a tough time building legs, all training that counteracts hypertrophy is a threat. Cardio is thus a threat. Would you train biceps five times a week if you wanted to grow them bigger? No.

***“Do you believe in energy boosters like powders, drinks or pills?”***

Believe? Well, I know they exist! Caffeine is a stimulant proven to improve training and performance, but using it in excess will make you desensitized to its effects, and you will need to take larger doses to feel an effect. This stresses your adrenals hard and is not wise. The recommended dosage of caffeine to improve performance is 3-6 mg per kilogram of body weight or 1.5-3 mg per pound of body weight per serving.

I highly recommend you try to use the smaller dosages, as well as only using it pre-workout; not as a general pick-me-up during the day.

“How should cardio be scheduled around muscle groups that you are struggling to build?” Since most cardio means using your legs rather than upper body, it's best not to train cardio the same day, or before your workout. You should not do cardio directly after either, nor the day post leg training. This way you ensure you let the muscles recover. If you struggle with upper body size, then bike and treadmill might be best cardio choices, to avoid arm movement from elliptical trainer, jump rope, or rowing machine.

“If my goal is to stay lean and build muscle, what will happen if I mainly do cardio in the 85-90 % of max HR? I feel it really helps burning calories, but I'm not sure if it inhibits muscle growth.” Training that intensely several times a week will inhibit your muscle growth rate because

it's too taxing and too intense. Building muscle is not about going all out for long periods of time on the treadmill. That's the opposite training to building muscle training. If you train like an endurance trainer, and focus on getting maximum cardio performance during training, then you cannot simultaneously expect to gain a lot of muscle. The two training styles are very different, and produce different results. Think about the classic example of comparing the distance runner's body to the sprinter's body.

### ***“What are the most efficient ways to burn fat and build lean muscle?”***

I wish I could say something like a special program, but it's the whole trinity of fitness training: diet, weight training, and cardio. All three done consistently over a long period of time.

### ***“For those who don't have much time for cardio, which would be more beneficial, for example: 4 x 20 min sessions/week or 2 x 40 min?”***

I would say it's better to do the four sessions, but to make them intense because 20 minutes per time is really nothing. Two sessions of cardio will almost de-train you cardio-wise because there will be many days you don't train, so you will not really maintain a great cardio system.

### ***“Which machinery is best?”***

For the maximum calorie burn, you want to use equipment where you are holding your own weight, and not sitting down on your butt. The reason for it is quite simple: the more muscle groups you are recruiting, the higher the calorie expenditure. If you do your workout fasted, you also need to do something that won't produce a lot of lactic acid at a low intensity. Bikes for instance, tend to make the quads burn at a low heart rate which means you won't be able to maintain a good tempo without getting into anaerobic training! If you do, you're kinda out of the fat burning zone.

### ***“Should I avoid treadmills after leg day?”***

You should not do interval training, or run all you can, no. Not if your goal is to grow muscle! You can walk, and do incline training on the treadmill, but for maximum muscle growth and strength increase, you should give your legs a day off after.

### ***“How often per week?”***

This is one of the most common questions about cardio for fat loss or leanness maintenance. You must always start with what you are doing now, and what you have been doing for a few weeks. Do you see results from whatever amount/frequency you are doing? If yes, and you're OK with the pace of the fat loss, do not change anything until you see diminished results. When you see diminishing results you add



either frequency, duration, or intensity. Do not add all those things at once though, or you might just get your body angry, and it will persist with not leaning out.

Do not add too much too soon either, implement each change for one-three weeks, before you add more.

## *“Is the solution always to add more cardio?”*

No, not at all. Sometimes you are training so much that your body gets overwhelmed and stressed. By reducing frequency, intensity, or duration for a few days, or maybe even taking more than one day off, you might find your body starts making progress again. By reducing stress, your body gets a break, and most of the time it results in a leaner body. This is only true when you have you done your homework right, and have been shedding body fat previously.

NOTE: It is very important for the monitoring of your progress and subsequent changes to your cardio program, that you are able to distinguish between water retention and fat. Water retention means your usual cuts and lines, such as your abs, are temporarily smooth, and the skin does not feel as thin as usual. Water retention is usually only noticeable when you are already very lean, and often only to yourself. Water retention is often due to unpredictable events such as the weather, stress, or your menstrual cycle hormones. Sometimes it can be caused by stress

hormones, such as cortisol, or overtraining in which case, you could consider reducing your cardio in length, frequency or intensity for a few days. However, true water retention will disappear within 4-6 days maximum regardless of what you do. Fat on the other hand does not simply come and go. Fat usually has a different, more grainy feel to it also.

The above technique can also be used occasionally to bust through a fat-loss plateau, in cases where increasing cardio does not seem to help, and you feel as though you are fighting against your body. However, you must jump straight back into cardio after a few days, or more fat will accumulate. The fat will not disappear by resting. There are many calculators, estimators, and contraptions designed to measure body fat, however most of these are largely inaccurate.

The only two I trust are the DEXA scan and the bodpod measure. These are the only way to know exactly what your body fat really is, and from there you can use your mirror, and other measures such as calipers and clothing to ensure you stay just as lean, or get leaner. It is also interesting if you have these tests taken on a 'bloated' day, as unlike calipers, they are impartial to water retention. That way, you have proof it is not fat!

### *“HIT or steady?”*

The more workout sessions you do each week, the more you need to mix it up, or you are going to hit the wall. If you are doing only two very intense sessions, then of course there is no need to make them less intense. However, let's say the opposite scenario is taking place, for example, you're doing 12 sessions a week. To go all out on each one of them will lead to fatigue, lack of motivation and stagnation.

“I'm fit, but my goal is to get leaner than my current 17% bodyfat. Is it possible that I could be hampering my results by doing too much high intensity cardio in a week? For example, my HR will average in the 150's (75-80% of my max) with peaks in the 180s, for 45-90 minute workouts multiple times per week.” Could be, yes. If you are doing so much, and such intense cardio, you get too tired to train hard with weights. This means you are not able to stimulate your muscles as intensely, and thus you lose muscle mass, which in turn leads to a higher body fat percentage.

### *“Morning walk vs. Morning run?”*

First of all, it depends on your fitness level. If you feel walking is strenuous enough, then you should get more fit before you attempt to run. But for the most part, really fit people who are already pretty lean, walking is not intense enough. Walking usually means lower heart rate, which equals lower calorie burn. You might need to walk for 90 minutes to burn as many calories as 30 minutes of intense running.

### *“Eat or not eat before, and the reason why?”*

Depends on your goals, your body type, what kind of intensity you are going to workout at, how long it has been since your last meal before your workout etc. When you work out on a fasted stomach you have no carbs floating around in your bloodstream. This is a golden opportunity to burn a higher percentage of fat than carbs, but fasted training is also very catabolic (breaking down muscle). If you go too hard, you won't be able to supply your muscles with enough oxygen to burn the fat. Your muscles will create lactate, which goes to the liver and gets converted to carb-like fuel your muscles can use to sustain the intensity. What does all of this mean? It means your muscles are giving protein away; aka muscle wasting.

However, if you are training at a moderate intensity without getting lactate in your muscles, and without getting out

of breath, you can benefit from fasted training since you can train at a moderate intensity, and still get a good calorie burn. The key is knowing how to train depending on when you train!

If you enjoy doing all the cardio, and it's not damaging your muscle gains, you can reward yourself by eating more calories on a daily basis, or refeed more often.

The key in this process is to pay attention to your body. Catch it before it gets lazy! I call this time 'cruising time,' and you can usually get away with doing less cardio, or even stop it altogether for a while. Sooner or later your body might find out you're taking it easy and fat gain might occur. And when it does, if it does, just reintroduce a tougher cardio regimen. It's actually a lot better to do periodize like this: increasing, then decreasing, instead of going all out all the time. It creates natural periods of easier and harder workouts.

One thing I want to warn you about is the mental struggle it can be to cut down on cardio.

You might feel like you're not doing all that you can, or that it's better to do all the volume you're used to. Please remind yourself that increasing intensity is one way to make progress, but lowering the intensity is a way to progress as well. You're not lazy because you don't continue doing 12 cardio sessions per week just because you have been doing it for the last few months. Everything must serve a purpose, even cardio. Do not just 'do time.' If your body delivers what you asked for, give it a break. Or loosen the reins at least!

Ok, this was not a quickie, and it feels like I have only scratched the surface! Cardio is an excellent tool to use, but you have to know how to use it right to reap its rewards. Many make the mistake of eating a lot and thinking cardio will burn it off. Well, no... as always, the trinity of leanness: diet, weight training, and cardio.

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