

The LeannessLifestyle

*Proven Strategies
to Sculpt Your
Body, Heal Your
Mind and Become
Better Today*

Chapters 14 & 15

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David and Tracy



by David Greenwalt

Resistance Training for Everyone

Workouts are not like spouses. Be not faithful. Instead, be ever mindful of progression as the only true benchmark of success but be promiscuous along the way and reap the physical rewards of doing so.

When you are losing weight by following the Lifestyle, you want to make sure the majority of the weight you lose is fat and not muscle. If you lose weight without resistance training, you are likely to lose 50 percent fat and 50 percent muscle! This means that if you lose 10 pounds and you are not resistance training you may lose five pounds of fat and five pounds of muscle. This is truly an undesirable scenario because each pound of skeletal muscle you have or add burns between 30 and 50 calories per day regardless of your activity throughout the day. You can easily avoid losing 50 percent of your weight as muscle by incorporating an intelligent, yet vigorous, resistance-training program into your transformation plan.

Another major reason that resistance training must become an important element in your transformation is the natural loss of lean body mass as you age. After the age of 20, unless resistance training is a regular part of your physical activity, you will lose 7 percent of your lean body mass per decade. Not only does this slow your resting metabolic rate, it creates a different (softer, more saggy) body even if your body weight stays the same your entire life.

Finally, if you choose to rely solely on walking and aerobic training as your only exercise activity, you will never create the body of your dreams. It is that simple. Without incorporating resistance training into your program, you will never achieve the toned, shapely body you desire. The sooner the better that you can overcome fears of resistance training, learn and understand the proper fundamentals and form. To avoid learning the terminology and fundamentals of resistance training is just like saying, “I want to be thin and saggy!”

I implore you not to skim over this chapter. Even if your nutritional Lifestyle is dead-on true, you will never achieve what you’re after unless you understand and eventually master the fundamentals of developing and practicing a sound resistance training program. Can I overstate this, or have I overstated this? Not even close. Resistance training is vital to achieving the body of your dreams. Give this chapter several reads and do not gloss over it - without question, your ultimate body is dependent upon it.

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Resistance Training Benefits

- Improvements in cardiovascular fitness.
- Reductions in blood pressure in those who have high blood pressure or borderline high blood pressure.
- HDL (good cholesterol) goes up and bad cholesterol and total cholesterol go down.
- Your body becomes more efficient at delivering carbohydrates to muscle and other tissues and insulin functions better. The risk of diabetes and subsequent cardiovascular disease is reduced.
- Reductions in obesity! Resistance training increases muscle and reduces fat.
- Improves functional strength (the type of strength you need to do stuff around the house) and reduces bone loss (osteoporosis) in women. It may even reverse osteoporosis.
- Only known activity that can truly reshape your body with or without weight loss.
- Ladies: Resistance training can remove that huge flap of skin hanging off the back of your arm.
- Burns calories during the exercise session and increased calories burned for up to 48 hours post-exercise.
- Only activity that can facilitate the addition of muscle while losing weight. Running, jogging, step aerobics, the Stairmaster or treadmill cannot prevent you from losing muscle while losing weight. Only resistance training can!

Attention! Women Afraid of Growing Muscle!

Myth: You should fear looking like the professional woman body builder with all that muscle sticking out all over the place.

Truth: NO! It cannot happen. It will not happen. Your fear should not be adding new muscle because it is the muscle that will give you the sleek, sexy look you so desperately want. You do want to add muscle! You want it. You want it. You want it! Yes you do. I am telling you. You want it. You have to have it. It is the determining factor in you achieving your goal and getting the body you want. Muscle burns fat. You need it. Muscle reshapes your body. Muscle narrows the hips. Muscle shapes the thighs. Muscle is not bulky. Muscle is slimming. Muscle is not grotesque. Muscle is sleek and feminine. You cannot naturally add too much muscle. It is not possible. If you are not using steroids, you cannot add too much muscle. You will not get too big. Your muscle

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development is not what is keeping you from getting into pants sizes two sizes smaller than your current size. Fat is to blame. Your legs will not grow larger than they currently are with muscle. They will get smaller through fat reduction. Muscle is good. Muscle is sleek. Muscle is sexy. Muscle is what you want.

I went off on a rant because I have been told by more women than I have hair left on my head that they are deathly afraid to add muscle because it's "gross." When I drag them by the hand to a magazine and ask them to look at a fitness competitor, they say they really think these women have great bodies. When I then turn the page and show them the "he/shes" with muscle bulging out all over the place, they then say, "There, you see that's gross!" I should reserve judgment here in case someone reading this wants to look like the professional woman body builder, but you know what, I can't. They are gross! I agree! What I am saying is you have NO fear whatsoever of ever looking like them. You simply do not have the male hormones in your body that it takes to get to that level. In addition, like the men, these "women" are blessed with tremendous genetic potential to start with. You cannot look like them so do not fear it.

Resistance Training 101–Fundamentals of Hypertrophy

Very simply put, hypertrophy refers to the growth of skeletal muscle. A point I want to make clear before I continue with the fundamentals of resistance training is the goal of Lifestyle resistance training. Resistance training can serve a number of purposes and the goals of the trainee must be taken into consideration before adapting a particular routine for them.

I will be straight-up honest with you right now. If you purchased my system hoping to be handed a one-size-fits-all approach to better sports performance or if you were hoping to rehabilitate your knee post-surgery, then you likely purchased the wrong book. It is not my intention to create a world-class bench presser or Olympic gold-medalist weight lifter, to improve the 40-yard sprint time of an NFL running back, or some lateral change coordination indices of a national soccer player, or to prevent an injury of the groin to an NHL hockey player. In keeping the focus of the Lifestyle on my intended reader (the transformationist), the sole intent of resistance training is to deliver better health and increased muscle mass. This increase of muscle mass will be appropriately referred to as hypertrophy.

It is important for you to know now that when other books and magazines talk of toning, they are really speaking of, at least to some small degree, muscular hypertrophy. Depending on the intended audience, many authors will use the words "toning" and "shaping" instead of hypertrophy because they don't want to scare the reader into believing they are going to grow too much muscle. Instead of simply using appropriate terminology as I will do here, they may even inaccurately state that their program will tone and shape the body without adding any muscle size. Just know that all toning and shaping involves some hypertrophy. For my female readers, this does not mean I am going to try and make a man out of you—far from it. But it also does not mean that I will succumb to the wordsmithing that might make you feel better

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but will provide inaccurate information about what it really takes to reshape those thighs, lift the buttocks and flatten the tummy. In just a few moments you will read how we control hypertrophy and maximize it for our goals of achieving a leaner, sleeker and sexier physique.

Strength Improves First—Then We Grow (Neural Adaptation)

If you've never performed resistance training or it has been a number of months or years since your last go-round with it, then get ready to first train your neuromuscular system. During the first six to eight weeks of resistance training, you're going to get substantially stronger, however, you won't observe any significant hypertrophy during this period. How is this so? During the first several weeks of resistance training, your nervous system is coordinating with your muscular system to become more efficient at firing (recruiting) more muscle fibers—fibers that are unaccustomed to being called upon. If your nervous system does not send the impulse to the muscle fiber, then the muscle fiber does not contract.

Muscles are recruited only as needed. Your nervous system coordinates this recruitment. If you need to lift an iron or a crescent wrench, there are a minimal number of muscle fibers needed to do so. Even so, your nervous system coordinates with the muscle fibers needed to fire only those fibers necessary to get the job done. It is important that your nervous system not call upon more muscle fibers than necessary because skeletal muscle operates under the “all or nothing” principle. That is, when a muscle fiber is called upon, it contracts 100 percent or not at all. Therefore, it is imperative that your nervous system calls upon only the proper number of muscle fibers so as not to create movement that is excessive and dangerous. Can you imagine how difficult it would be to accomplish anything if you went to pick up the iron or crescent wrench, but your nervous system sent a signal to the muscles equal to what might be necessary for you to pick up a refrigerator? That wrench or iron would go flying across the room!

Already it should be quite easy to see why the average couch potato does not acquire any appreciable muscle. The “use it or lose it” principle is in full force. If you do not use a particular muscle, the body is not going to devote any energy to remodeling, developing or even maintaining it. Either you use it or you lose it. The perfect visual example of this is the leg in the cast. Anyone who has ever seen what happens to a broken leg when it has been cast for six weeks has witnessed what happens when a muscle is not used—it atrophies (gets smaller).

The body consistently acts in a manner to most efficiently use the energy available. To grow muscle without proper stimulation would be quite wasteful. From an evolutionary perspective, the body's main purpose is to survive long enough to procreate. Adding lots of skeletal muscle is a very energy-dependent process. No more muscle than is necessary will be created at any time. To do so would endanger the human species—at least that is what our bodies have been programmed to believe for tens of thousands of years. Think about it—it has only been the past few hundred years that food has been plentiful. Before that time there were many times when food was scarce.

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Energy conservation, not waste, is the cornerstone of survival.

Through resistance training, you will boldly ask your nervous system to better coordinate with muscle fibers so you can stimulate untouched fibers waiting to grow. Once those fibers hypertrophy, they will shape your body for the better. Therefore, it is fair to say that initial gains in strength are largely the result of an increased ability to recruit more muscle fibers to participate in the overall force of a contraction. This adaptive response is termed *neural adaptation*.

After two to three months of consistent and progressive resistance training, you can expect to observe your first, real muscle growth. Your brain and nervous system will be coordinating nicely with your muscles and new muscle should be accumulating on your frame. With a proper resistance training program focused on progression, your muscles will respond by depositing more protein in the muscle bank than is being withdrawn (you're anabolic!). Scientists debate whether muscle fibers are growing in size (hypertrophy) or number (hyperplasia); to us it does not matter. One or both is occurring and this is the period when you will begin to observe improvements in muscle tone, size and shape.

Progressive Overload is Key to Strength, Toning and Shaping

Muscles specifically adapt to imposed demands (SAID) and only to those demands. Muscle does not grow haphazardly or because you will them to grow. Muscles do not grow because you put your time in the gym three days a week religiously. Anyone who has ever trained at a public gym can vouch for the fact that the herd does not change too much. That's why, in just a few months, you're going to stand out like a rose in a patch of thorny bushes—you will change for the better by striving for continual progress. The only path to increased muscularity, strength, toning and shaping is through consistency and progressive overload.

Myth: Muscle weighs more than fat.

Truth: Think about this statement a second. "Muscle weighs more than fat." Could this be any crazier? It is like the old joke "What weighs more, a pound of feathers or a pound of gold?" Some would answer "Gold of course!" Uh, well, they are equal. The more accurate statement is "a pound of muscle takes up one-third the space in the human body as a pound of fat." This is the reason that muscle is shapely and precisely the reason that many fitness competitors weigh more but also look more fantastic than the average guy or gal on the street.

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Legend of Milo

According to Greek mythology, the first person to apply the theory of progressive overload was Milo of Croton. In his teen years, Milo decided to become the strongest man in the world, and embarked upon this mission by lifting and carrying a calf every day. As the calf grew and became heavier, Milo became stronger. Finally, when the calf had developed into a full-grown bull, Milo, thanks to a long-term progression, was able to lift the bull, and, consequently, became the strongest man on earth.

Whether you are a beginner or well on your way to a national or world bodybuilding title, the training workload must be progressively, yet gradually, increased if your goal is an increase in muscle size, strength, tone or shape. There is no other path to shapely greatness other than through progressive overload. Earlier I mentioned how inefficient it is for a body to add and maintain new muscle tissue. To the body, it is literally counterintuitive to build a single muscle fiber a micron larger or stronger than is necessary to accomplish the imposed demands placed upon it. Thus, you must coax and demand that your body build more muscle through progressively changing, and eventually demanding, more from your training sessions.

Progression is the most important measure for determining improvement and muscle growth.

Workouts Should Be Goal Oriented— Not Seat Of Pants Generated!

There are a number of training variables that will be discussed in a moment. These variables will be adjusted to further progression, however, it's imperative you understand the importance of the one measure that matters more than any other: *safe progression is ultimately the only thing that matters*. Setting and achieving performance driven goals is paramount to you achieving the body of your dreams. Far too many people train “by the seat of their pants.” These same people complain about the lack of results from their resistance-training program.

Likely, there are many of you who have put some substantial time into resistance training but are frustrated by the lack of results. If you've been resistance training for five years, I'd ask you to consider whether you have five years of resistance training experience or more like one year multiplied times five. Let me explain.

Quality time in training produces the best results—not the quantity of time in training alone.

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If you are the person who is still benching, curling, pressing, pulling, squatting, lunging, and leg-pressing what you were last month, last year and two years ago, then I would argue that you don't have five years of resistance training experience even though you may have spent the past five years consistently working out. If this describes you, then you have been training by the seat of your pants. You have had no formal goals and month after month after month after month, you have continued to use the same weights for the same exercises for the same repetitions completed. This has not been a complete waste of time, as all physical activity that is safe is good. However, if you are unsatisfied with your current shape or level of overall muscularity, then read this section carefully. It contains everything for how you can progress out of your current condition, regardless of your level of experience.

By setting performance goals, you will be able to rely more on what you have accomplished rather than whether you are able to drag your butt out of the gym with energy to spare or nothing left to give. Regardless of the unique vision you have of your body, creating the ultimate body, is only accomplished when you create workouts that are systematically progressive. The path to your dream body is not paved with stones of soreness, tiredness, the burn during a set, how much you sweat or how winded you were during the workout. The path to a great body is only paved with one kind of stone: progression.

Most people are aware of what the barbell bench press looks like, so let me provide an example of the importance of progression with that exercise. If you can bench press 100 pounds for 10 complete repetitions today but cannot complete the 11th repetition, we would say that your 10-repetition max (10 RM) is 100 pounds. The bottom line for creating the ultimate body is simple. If you cannot press more than 100 pounds for 10 repetitions or cannot press 100 pounds for at least 11 complete repetitions six months from now, and your goal is a physique transformation, then you simply have not progressed. Most likely, you have added no new muscle during that period. It does not matter if you were tired on numerous occasions. It does not matter if you sweated a lot. It does not matter if on numerous occasions your chest was sore to the touch. While it is not 100 percent accurate to say, it is close enough for our purposes - if you are not stronger in the 6 to 12 repetition range for any given exercise, you have not progressed.

When progression does occur, it will occur because of a host of variables over which you have control. Proper and ongoing measurements of results are necessary. Saying to yourself, "I think my shoulders are a little more rounded" is fine. Can you back up your statement with progressive accomplishments measured by the load and repetitions completed on an exercise affecting the shoulder (e.g., shoulder press, lateral raises)? If you can, then there's a great chance your perception is indeed reality. Otherwise, there is a possibility that your ego is getting between you and the mirror. Progression only occurs with dedication, commitment, perseverance and hard work. Rarely can you be complacent and you must always expect more from yourself. If you make a mistake, make it fast and keep moving forward.

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What if:

- I supplement right
- I measure my lifts
- I have perseverance
- I make quick mistakes
- I eat right
- I have dedication
- I work hard
- I exercise
- I have commitment
- I am not complacent

and three months from now my barbell curl has not changed from 90 pounds for my 10 RM? It is safe to say I have not progressed and I have added no new muscle. While the time I spent in the gym or at home participating in resistance training was not a waste, it also did not further my goal to reshape or add new, quality muscle.

As I explain the variables affecting any workout system, keep the one truth, the resistance-training maxim of all maxims in mind at all times. No progress = no muscle growth = no addition of new muscle = no change in shape = no additional toning. Ask yourself these questions about any workout you create or that is created by a personal trainer for you:

Performance Goals Test

- Is this workout safely progressive from where I am now?
- Will I be stronger at the end of this cycle compared to where I am now?
- Is this program goals-driven?
- Will I judge each workout by what I accomplished and not by whether I am tired, sweaty or sore?

*When you fail to plan you have certainly
made a plan—a plan to fail.*

Periodization Provides the Lifestyle Resistance Training Foundation

Contrary to the notion that there is one best way, there is no one right way to train. There are, however, many wrong ways to train. There are many cookie-cutter home gym pieces, machines, and free-weight combinations these days that will never apply to everyone reading this. Therefore, I want to provide a solid foundation for increasing muscle mass and strength by explaining principles that have proven time and time again to be effective for increasing muscularity, reducing injury and improving all around interest in resistance training

The answer to the question of “Which training program is best?” is really summed up in a term that only some of you are familiar with: periodization. Periodization describes a systematic approach to variety manipulation. While it has some boundaries, guidelines and structure, it is not overly restrictive but forces you, through goal setting, to make regular and spaced changes to your routine.

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Many advanced male and female body builders and power lifters train intensely all the time. They seldom take a break, or, if they do take a break, it is too short to do much good. Each workout is full of 95 to 100 percent intensity and high volumes of work. While it's true that most of these lifters will be the strongest and biggest in any gym if they can stay healthy long enough, they are many times injured, over-trained and may suffer from burn-out. Also, many of these same lifters will experience lengthy plateaus in their muscular growth or strength before their genetic limit has been reached.

Plateaus are a marked time period when no progress appears to be occurring. Unless proper training methods like periodization are used, plateaus may last for years. When some resistance trainers hit a plateau, they often try to train even harder or longer. This further complicates their goal of increasing lean muscle or getting stronger by causing an injury or putting the body into an over trained state. Cycling periods of intense training with periods of less intense training can prevent plateaus or dramatically shorten their duration. Planning and cycling training periods is what Periodization is all about.

Periodization training, popularized in the United States by Steven Fleck and William Kraemer and backed by strong scientific support, provides a solid foundation for its use in resistance training. The foundation of periodization training is “a training plan that changes your workouts at regular intervals.” That's it!

Do not train “by the seat of your pants” by stumbling around the gym wandering aimlessly from station to station without any purpose. Use Periodization training and you will have a solid base upon which you can build cycles of training. Some cycles are tough, some cycles are moderately tough, and some are borderline active rest. The important point I wish to make is that the cycles are planned. Without a plan, you will lose focus and you will likely follow a one-dimensional model where you choose the same exercises, same repetitions, same sets, and same rest intervals without changing for months. For the truly dedicated, hard-core lifter, this is not only sub-optimal for growth, but also may cause overuse injuries to occur. For the socially active weight lifter (someone who doesn't live and die by resistance training), the one-dimensional model will cause burn-out, boredom and eventual failure due to a lack of results.

Variation—Force the Body to Keep Adapting

During an interview I conducted with famous power lifting coach Louie Simmons, he said, “Everything works but nothing works forever.” There is not a finite set of rules that will apply to all people across all muscle fiber types and all the varying degrees of intensity people are willing to shell out for a return of new muscle. Experts in this field call this “individual variability.”

If we had divine knowledge of the precise needs of our body for optimal growth, I believe the variability of the program would appear haphazard to the unknowing mortals looking upon the workout. After even a few months of success, should this divine knowledge be lost, I doubt very

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seriously that we would be able to reverse-engineer the plan to determine just what we were doing that created each progressive step. If variability is this complicated, is all hope lost? Not at all.

There is no one best formula that works across the board for everyone. It just might take divine knowledge to create the perfect workout for all people, however, there are scientifically based foundations that can be relied upon to create a body that is not only worth showing off but that is much more functional for everyday living. It only makes sense to apply the most appropriate, scientifically-proven formulas in a systematic manner for growing the type of muscle that accomplishes both goals: creating a pleasing look and improving everyday functionality. An intelligent, scientifically based system should dictate that you know what you are going to do in the gym *before* you get to the gym. This system should force you to gauge your good and bad workouts not by how you feel when you are through with each workout, but by what you accomplished while you were there.

If you have an open mind that progressive overload is the key to your muscular or shapely success, then you may be tempted to simply believe that all you'll have to do to add muscle is to keep piling on the weight (increase the load) with each workout. That's progressive, right? Sure, that is progressive, however, the body will not allow that type of progression infinitely. If only things were that simple.

With the SAID principle in place, you know that the body will adapt to the demands placed upon it. Variability in your resistance training becomes quite important after only a few months of regular workouts. You could look at the entire process as a big chemistry experiment. In chemistry, you put things into a formula. In this case, those things are repetitions, sets, exercise selection, exercise order, rest intervals, volume, intensity, rest, recuperation, nutrition, tempo, supplementation, sleep, stress, workload, etc. The resulting product created from these ingredients are the various characteristics you're interested in achieving: capability to perform daily tasks effortlessly, muscle growth (hypertrophy), various measures of strength, improved fitness, better shape, firmer legs, more muscular arms, etc. Sounds pretty simple so far, doesn't it? However, providing a steady training stress (same exercises, weights, sets, repetitions, tempo, etc.) does not do anything to change the output of the experiment. We humans become well adapted and that is that.

As a studious follower of the Lifestyle, you know you need progressive overload to get results. If, however, you provide a steadily increasing training stress, with the rate of increase chosen so that you can continually adapt and get stronger, it turns out that this does not work forever. You simply cannot keep adapting to this kind of training stress, no matter how carefully it is chosen. Thus, although the story of Milo is a nice idea, it could not really happen. It turns out that the driving force, the training stress, has to be more complicated than that.

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Why Variation Is So Important

Variation is important for many reasons:

- Your body is the master adapter. As soon as it adapts to a training stimulus it quits growing. Cycling everything forces your body to constantly continue adapting. It never knows what you are going to do next. This is good.
“Dave, I’ve been using the same training routine for three years and I’ve always had good luck with it. That is, until recently. I seem to have plateaued and can’t figure out why I’ve stopped getting bigger and stronger. Any ideas?” This statement is so common it is not even funny! Can you answer this person’s question? You should be able to now.
- Cycling your sets, repetitions and exercises prevents boredom.
- Varying your intensity by way of time between sets, repetition and set quantity can prevent over-training and provide a continued stimulus for growth. Over training is a very real hazard to muscle growth. Beating your muscles to a pulp day after day without cycling your intensity through rep, exercise, set and a time adjustment is setting yourself up for no muscle growth. For some of you reading this, however, I want to caution you about interpreting the benefit of cycling as some kind of cop-out so you can give the same half-hearted, no-accountability efforts you may have given thus far. A constant lack of effort with inadequate stress placed upon the muscle also equals *no growth* or muscle tone. This goes for men and women.

Now comes variation and the idea of periodization, in which the intensity, volume, and various other characteristics of the training stress vary with time in planned waves that ratchet up over the long term. This idea works, generally speaking, although it often needs to be tweaked to suit a given individual, his/her current condition, and goals. It may be that periodization is the simplest type of driving force that will produce continual adaptation.

There are many questions that you will have as you create your first or fiftieth workout. You know you must progress and you know that there are a number of ingredients to the formula. Below is a guide to help you follow a periodization model should you choose to create your own workouts now or in the future. I will first define basic terminology, explain many variables you have control over, and finally I will close with eight steps anyone can take to create a massively successful periodization program.

I want to tell you early on that I have developed online tools that can rapidly and easily help you create a periodized Lifestyle workout. With my Workout Generator, you spend less time planning and more time doing. Thousands of clients have experienced the benefits of using this tool. Both my wife Tracy and I use this tool to create our current resistance training cycles. It is a valuable asset for the beginner to advanced trainer. You can visit www.leannesslifestyle.com for more information on my unique and powerful Workout Generator.

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Repetitions

A repetition is one complete performance of an exercise, usually involving both a lifting and a lowering of the weight. One complete repetition of the bench press involves lowering the bar to your chest and then pressing the bar until your arms are fully extended.

The type of training I am teaching you in the Lifestyle will safely add new muscle in maximum quantities in the shortest amount of time. I am not teaching you to be a bench presser, power lifter or Olympic lifter. Because of this, I will focus on repetition guidelines that best support our goal of maximizing hypertrophy. While other authors will attempt to calm the ladies down by saying they must train substantially different from men so they don't get too bulky, I will simply restate the fact that it is impossible for a woman to get "too bulky" from Lifestyle resistance training without drugs. Women have a built-in thermostat that prevents them from adding too much muscle naturally. It is primarily due to low testosterone and high estrogen concentrations, the opposite of men.

Whether a novice, intermediate or advanced resistance trainer, it is accepted worldwide that for the greatest overall hypertrophy, the majority of your repetitions for each set should be in the 6 to 15 range. Beginners, especially, should focus nearly all of their training in this range.

Varying the number of repetitions per set over time will ensure that all available muscle fibers will be trained at some point. If one always sticks with the same repetition bracket (for example 10 to 12), much muscle tissue will be left untrained (i.e., unstimulated and still available for growth); this despite how hard someone works at performing those 10 to 12 repetitions. A sensible approach would be to include brief (two to four week) periods when sets are performed with three to five repetitions, six to eight repetitions, eight to ten repetitions, etc., accepting the fact that low-repetition training is not suitable only for power lifters. In fact, after a period of several months of vigorous training, other repetition ranges, such as one to five repetitions per set, become fair play for the novice too. Interestingly, those that appear to benefit most from incorporating some heavier loading with lower repetitions are those who have a foundation of resistance exercise experience but have never tried it!

Sets

A set refers to a group of repetitions performed in succession, after which a brief rest is taken.

Beginners should typically complete three to six sets for each body part until they complete 4 to 6 weeks of consistent training. Scientific and empirical evidence shows us that intermediate resistance trainers will benefit from three to six sets per exercise with a total of up to 12 sets per body part completed in a workout. Finally, advanced resistance trainers will benefit from cyclical periods of sets as high as 20 per body part in one workout. This is not to say that advanced trainers should incorporate several weeks or months of this high-volume training into their program, but there is no question that advanced trainers must cyclically ratchet up the volume to continue to progress.

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Through periodization, set number will be varied in a cyclical pattern. Some cycles (you'll read about mesocycles in a moment) will incorporate one set per exercise to momentary muscular failure. Some cycles will incorporate multiple sets without quite going to failure and still other cycles will specify three to four working sets and finish with 1 more set to momentary muscular failure. With periodization, you will incorporate planned variability of your set number so you progressively overload the muscles being worked.

Momentary Muscular Failure

Momentary muscular failure is that point during a set when you cannot complete a repetition without assistance. If your target is ten repetitions and you are straining hard on number 9 but you get it, then you have *not* reached momentary muscular failure (no matter how hard the repetition was). If you attempt the next repetition (repetition number 10) and you cannot complete it no matter how hard you try, you have reached momentary muscular failure. Many authorities believe we need to incorporate effort that produces momentary muscular failure at regular intervals in our training. Periodization accomplishes this goal.

Volume

Volume relates to the amount of work performed during a workout. For the Lifestyle, we measure volume based on the total number of repetitions completed during the workout. Here are some examples of low, moderate and high volumes:

<u>Volume</u>	<u>Repetitions per week</u>
High	400 +
Moderate	150 - 400
Low	75 - 149

As you can see, there is quite a variation between a high-volume week (more than 400 repetitions) and a low-volume week (as few as 75 repetitions). Periodization manages volume variability quite effectively.

Intensity

According to standard periodization principles, intensity relates to the load being used relative to your 1 rep max (RM) for that exercise. If you can bench press 200 pounds for 10 repetitions but you cannot complete the 11th repetition, then your 10 RM is 200 pounds. 200 pounds is your 100 percent effort to complete 10 repetitions.

When you look at the “Find Your Max” chart included in the Appendix, you can see that a 200-pound load lifted 10 times is equal to a maximum single lift of 265 pounds. You can also see that

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200 pounds for 10 repetitions is equivalent to 210 for 8, and 225 for 7, etc. This chart is illustrating relative strengths based on your 1 RM. Like volume, allow me to illustrate the differences between high, moderate and low intensities.

<u>Intensity</u>	<u>Load equal to this percent of your 1 RM</u>
High	95 - 100
Moderate	85 - 94
Low	60 - 84
Warm-up.....	40 - 59

Volume or Intensity, But Not Both

Generally speaking, you can either train with lots of volume or lots of intensity, but not both for any significant length of time. This means we should incorporate periods where we use high volume and low intensity, moderate volume and moderate intensity, low volume and moderate intensity, or low volume and high intensity. Only for brief two to three week cycles can we incorporate high volume and high intensity. Injury, over-training and burnout may result if we try to extend high volume/high intensity training periods beyond a few weeks.

Tempo

Perhaps the most overlooked aspect of effective program design is movement speed, or tempo. Training tempo is typically represented with a 4-digit system (e.g., 2-0-2-1) and has four phases:

- Eccentric: lowering portion (e.g., going down in the squat or bringing the bar to your chest in the bench press).
- Isometric: (pause).
- Concentric: lifting portion (e.g., pressing the bar from your chest in the bench press or flexing the elbow joint for the barbell curl).
- Contracted Pause: pause in the contracted position (e.g., when your elbow joint is fully extended during a triceps pushdown).

Each phase can be represented in terms of seconds taken to complete each portion of the repetition. For example, a 2-0-2-1 tempo indicates that a movement takes 2 seconds in the eccentric phase, 0 seconds in the isometric phase, 2 seconds in the concentric phase and 1 second in the contracted pause. For future reference, the “X” in a tempo scheme of 2-0-X-1 always means you should complete that part of the repetition as fast and powerfully as possible. Tempo should be varied periodically to shorten or extend the duration of a set, or simply to add variety.

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Superslow Training

A type of training that has recently drawn the attention of the media is something called “Superslow Training.” In a nutshell, SuperSlow is represented in tempo as 10-1-10-1. In an example of the bench press, this would mean you would take 10 full seconds in the eccentric (lowering) phase, 1 second in the isometric (pause) phase, 10 full seconds in the concentric (raising) phase and 1 second in the contracted pause phase. This is creepy slow to say the least. Proponents argue that Superslow Training is safer, reduces momentum and creates intense focus on the exercise.

While just about anyone could certainly use Superslow Training at some point in their resistance training life, research doesn’t support Superslow for maximum effectiveness at creating hypertrophy or strength in skeletal muscle. If you are exceptionally immobile, have severely painful joints or are recovering from surgery, Superslow can certainly be used if your choice is Superslow or nothing—no question about it. However, for the rest of you reading this, I must caution you against buying into the hype of Superslow Training.

Skeletal muscle requires a proper neurological stimulus for growth and we need to train our nervous system to recruit as many muscle fibers as possible so that controlled damage is inflicted upon a larger cross section of muscle fibers. As you’ll read in just a few moments, inflicting controlled damage upon muscle is necessary to cause that muscle to remodel and repair stronger and larger. It is an adaptive process. By moving the weight slowly during the eccentric and concentric phases of a repetition, you are ruining an opportunity to recruit large numbers of muscle fibers at one time.

According to the American College of Sports Medicine, “motor unit activity may be limited when intentionally contracting at slow velocity. In addition, the lighter loads required for slow velocities of training may not provide an optimal stimulus for strength enhancement in resistance-trained individuals, although some evidence does exist to support its use as a component part of the program in the beginning phases of training in highly untrained individuals.”

When it comes to tempo, like most areas of your resistance training, variety is king. Maximum muscular performance is likely evoked from tempos with 1 to 2 seconds in the eccentric and 1 to 2 seconds in the concentric phases. Proper form is paramount for beginners and very important most of the time for intermediate and advanced lifters as well. Do not jeopardize good form by using incorrect tempo or an overly heavy load.

Time Under Tension

Time under tension refers to the length of time the muscle is strained (under tension) for each repetition or set. I commonly will rotate tempos of 2-0-1-1 for 12 weeks with a 4-0-X-1 for the next 12 weeks (the “X” means to move the weight as fast as you can). All things being equal, I feel stronger initially with the 2-0-1-1 tempos compared to the 4-0-X-1 tempos because I have decreased the “time under tension” for each set. Obviously, it takes less time to follow a tempo of 2-0-1-1 than it does a tempo of 4-0-X-1. Thus, the time under tension is less.

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Time under tension is a variable we have control over and one we should change to keep stimulating growth and increased performance. Finally, the total time under tension per set should be limited to a maximum of 60 to 70 seconds. Sets lasting longer than this may be more suitable to the development of muscular endurance rather than muscular strength and hypertrophy.

Rest Intervals

Rest intervals refer to the time taken between consecutive sets during a workout. Rest intervals do not only refer to the rest taken between sets of the same exercise as many programs call for a series of different exercises to be performed one after another in succession with a proper rest interval between each exercise (i.e., circuit training).

It is not important that you have a full understanding of bioenergetics: the conversion of carbohydrate, protein and fat molecules into usable forms of energy by the body. However, there are a few terms that will give you a better understanding of why you rest a specific length of time depending on the load and repetitions you are completing for a set.

Adenosine triphosphate (ATP) is the energy currency that fuels all metabolic activity in the body, including muscle contractions. ATP is a very limited resource and must be continuously replenished. ATP in human skeletal muscle is replenished through three basic energy systems:

- Phosphagen
- Glycolytic
- Oxidative

The Phosphagen System

The phosphagen (anaerobic) system provides ATP primarily for short-term, high-intensity activities (e.g., resistance training and sprinting) and *is active at the start of all exercise, regardless of intensity*. ATP and creatine phosphate are the two primary phosphagens, but both are stored in muscle in small amounts. Therefore, the phosphagen system cannot supply energy for continuous, long-duration activities.

The phosphagen system is the primary energy source for activities lasting from 1 to 14 seconds. To fully restore lost phosphagens within muscle (e.g., ATP and creatine phosphate), the rest interval ranges from 1:12 to 1:20. Thus, if your set takes 10 seconds from start to finish, you may need to rest anywhere from 120 seconds (10 x 12) to 200 seconds (10 x 20) to fully restore lost phosphagens. Sets with heavy loads and few repetitions (high intensity) are most likely to use the phosphagen system as a primary energy source.

Sets that are truly high intensity and thus short in duration are not to be confused with a set where you “sandbag” your way through it. If you can complete 12 repetitions with 100 pounds for the squat but you do 3 repetitions and stop, this does not exhaust the phosphagen energy system as much as if you chose a load that allows you to complete 3 repetitions but

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not 4. The latter set would be short but very intense. The latter set would heavily tax the phosphagen energy system.

You may notice that within the phosphagen system I did not mention anything about carbohydrate, protein or fat utilization to create ATP. The glycolytic (anaerobic) system, however, relies on either stored carbohydrate (glycogen) or blood glucose to produce ATP. The glycolytic system supplements the phosphagen system for high-intensity muscular activity. Most sets of a resistance training workouts rely on a combination of the phosphagen and glycolytic energy systems to fuel muscular contractions.

The Glycolytic System

The glycolytic system becomes a more dominant energy source for activities lasting from 15 to 60 seconds. Replenishment of glycogen and available glucose for muscular contractions requires a rest interval ranging from 1:3 to 1:5. Thus, if your set takes 30 seconds from start to finish, you may need to rest anywhere from 90 seconds (30 x 3) to 150 seconds (30 x 5) to prepare the muscle for another set of similar duration. Sets with moderate loads and repetitions between 8 and 15 are most likely to use the glycolytic energy system as a dominant energy source.

Again, as with the phosphagen energy system, it is more accurate to say that the glycolytic energy system is called upon more strongly when you are choosing loads that create a momentary muscular failure with a repetition range lasting from 15 to 60 seconds. This is typically represented by 8 to 15 repetitions. However, if you choose a load that would allow you to complete 30 repetitions with a maximal effort and you “sandbag” once again and stop at 8 repetitions with that load, then you are not creating a work effort requiring you to match the set with the proper rest interval. You may be using more of the oxidative energy system when you consistently “hold back” and are not true to choosing the load most closely matches your program is design.

The Oxidative (Aerobic) System

The oxidative (aerobic) system is the primary source of ATP at rest and during low-intensity activities. It uses primarily carbohydrates and fats to create ATP. For the purposes of resistance training, the oxidative system is not typically a primary energy source. Of the three energy systems discussed, it is the only one that depends on oxygen to create ATP. The phosphagen and glycolytic systems are both anaerobic systems (do not require oxygen to create ATP).

The oxidative system is the primary source of ATP in activities lasting greater than 2 or 3 minutes. Standard cardio sessions depend most on the oxidative energy system, however, as you will learn in the *Lifestyle Aerobic Prescription* chapter, high-intensity interval training will use all three energy systems at different phases of the cardiovascular workout.

Rest Interval Variation

The length of time taken between consecutive sets of a particular exercise should be systematically varied like any other variable over which you have control. The greater the intensity (i.e., the closer the load compared to your 1 RM for that exercise), the greater the rest interval for optimal recovery between sets. If you can bench press 200 pounds for 1 repetition but cannot press 200 pounds for 2 repetitions, then 200 pounds is your 1 RM. If you are performing consecutive sets of bench press with 180 pounds for 3 repetitions (90 percent of your 1 RM), your muscles will likely require 3 to 6 minutes of rest between sets. When you think about this, it makes sense. A heavy load where only a few repetitions are possible will primarily use the phosphagen energy system. The phosphagen energy system has the highest active-to-rest ratio (i.e., 1:12 to 1:20). However, if the load is 140 pounds (70 percent of your 1 RM) for 12 repetitions, the rest between sets could be as short as 30 to 45 seconds. This should also make sense now. Because the load is lighter and the repetitions possible are greater, there is more reliance upon the glycolytic energy system than solely the phosphagen energy system. The active-to-rest ratio for the glycolytic energy system is 1:3 to 1:5, much shorter than the phosphagen energy system.

By now you should know that when I say “3 RM,” I’m talking about a set where you have chosen the load (total weight lifted) that allows you to complete only 3 repetitions but that is too heavy for you to successfully complete a 4th repetition. If I say 12 RM, the load would be such that you can successfully complete 12 repetitions but not 13. If you complete 12 repetitions but could have completed 13 then this is not your 12 RM. Until you achieve a repetition that takes you to momentary muscular failure, you cannot accurately say what your repetition max is for that particular exercise and load.

It may seem odd that fewer repetitions performed with a heavier load would require a longer rest interval than a lighter load performed for more repetitions. In fact, your perceived exertion may be much higher after a set of squats where you complete 12 repetitions but could not complete the 13th (i.e., 12 RM) compared to a set of 3 repetitions where you could not complete the 4th (i.e., 3 RM). However, performing a 3 RM is much closer to your 1 RM than is a set where the load is adjusted down for a 12 RM. Because the energy systems used are different for a 3 RM set vs. a 12 RM set, you must pay attention to the energy replenishment guidelines (rest intervals) I’ve provided here to maximize your performance with each set in a workout.

Finally, and no less important, is the contribution of the nervous system with exercise of increasing intensity, and the extended time frame for recovery of this particular system. A 3 RM set in the squat will demand more of the nervous system than a 12 RM set in the squat. More muscle fibers are being called upon in a 3 RM set than a 12 RM set. The more your nervous system is taxed, the longer the rest needed to restore the impulses it sends to and feedback it receives from skeletal muscle. Also, a 10 RM set of barbell back squats will require more rest after the set than a 10 RM set of barbell curls. The squat is a complex movement, involving multiple joints, and is very demanding on your nervous system. The barbell curl is a single-joint exercise, relatively simple and creates much less whole-body stress.

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Partners

During my early years of resistance training, I always trained with a partner. I was 17 years old when I started, in school, (even had a couple of friends) and I always worked out with at least one other person, and many times a group. My gains during the first few years of training with a partner were by far the greatest gains I have made, although I have progressed since then. Some of these initial gains would have occurred regardless because I had not yet reached my lifetime potential for new muscle growth. Accepted. However, there is little doubt that on many occasions, a training partner can give you things you cannot give yourself.

- **Accountability:** you are less likely to miss a workout.
- **Friendly competition:** you may develop a competitive edge, which can drive you to work for that extra repetition simply to beat your friend.
- **Verbal support:** positive comments during a set can make the difference between forward progress and staying the same. Cheering comments like “Come on big daddy! Get yo money! Show ’em who’s boss today! Let’s go big man!” “You go girl!” and many more can really motivate if you can keep from laughing.
- **Safety:** a partner can provide the spot necessary to keep you from wondering what to do when you are nearing failure. If you complete 7 repetitions with 100 pounds on the bench press and your workout calls for 8 repetitions but you are not sure if you can do it, a spotter can provide the encouragement and reassurance necessary to drive you to the 8th rep. If you do not have a partner and this same situation presents itself, you may simply rack the weight and not try it. I actually recommend this if you do not have a safety bar or pin as a back up. Obviously, you should not “go for it” and risk dying. In my youth I actually “went for it” on more than one occasion and I’d end up rolling the bar down my abdomen (usually with something like 275 pounds) and when it got to my waist, I’d stand up, pick the weight up off of me and throw it to the floor in disgust. So what do you do? With a partner, you always have someone who can help you if you are stuck on your final attempt and, as I will discuss very soon, if you want to do forced repetitions, negatives or strip sets, a partner is required.

Damage Muscle During a Workout Repair and Grow Muscle when You Rest

Contrary to popular belief, you do not build up muscle during a workout. You tear down muscle. If you believe this is not true, then you have to explain why it is that we get weaker as our workout progresses. If you were growing new muscle tissue as you worked out, you would get stronger as the workout progressed, not weaker. Since we know this is not the case, you must accept the proven physiological response of the body to progressive-resistance training.

Because we grow when we are *not* working out, we must typically allow adequate time for a particular trained muscle to recover and grow. This period is at least 48 hours and may last as long as 96 hours (4 days). This leads to the next discussion topic.

Muscle Group Priority and Exercise Order

Multi-Joint Exercise: Multiple-joint exercise is resistance training exercise where movement takes place at more than one joint and, therefore, involves more than one muscle group. Two examples are the squat (hip joint and knee joint) and the bench press (shoulder joint and elbow joint).

Single-joint Exercise: Single-joint exercise is resistance training exercise where movement takes place at only one joint and, therefore, predominantly involves one muscle group. Two examples are the barbell curl (elbow joint only) and the leg extension (knee joint only).

In most workouts, the major muscle groups are trained before minor muscle groups. The major muscle groups include the chest, back, shoulders, thighs and hamstrings. Smaller groups include the trapezius, triceps, biceps, forearms, calves and abdominal.

Major muscle groups are trained most effectively with multi-joint exercises, also known as “core” exercises. Typically, multi-joint exercises require more coordination, skill and concentration than single-joint (assistance) exercises. Resistance trainers who become fatigued are prone to using poor technique and, consequently, are at higher risk for injury. The multi-joint exercises also require significant energy expenditure. Therefore, it makes sense to place the multi-joint exercises near the front of your workout when you are most likely to be fresh, alert and without pre-fatigue.

Push-Pull Pairing

There are many ways to vary from this standard resistance training protocol and still create an effective workout. For instance, I personally like the “push and pull” pairing method. When using a push and pull exercise order, I will often pair up a multi-joint push exercise with a single-joint pull

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exercise, or vice versa. For example, I may complete a set of 10 repetitions on the bench press (a multi-joint push exercise) followed by a rest interval less than 30 seconds. Then, after the rest interval I will complete a 10-repetition set of standing barbell curl (a single-joint pull exercise) followed by a 60-90 second rest interval. I will then repeat this cycle the predetermined, preplanned number of times before moving on to the next pair. Pairing can speed your workout and reduce boredom.

Below is an example of pairing for a complete upper body workout.

Chest-Back
Triceps-Biceps
Shoulder-Trapezius

Notice that I still placed the larger muscle groups at the front of this workout before the smaller muscle groups.

Below is an example of pairing for a complete lower body workout plus abdominal muscles.

Thigh-Hamstring
Calf-Abdominal Muscles

Push-pull training is ideal for beginners or anyone wanting a change in their hypertrophy-focused routine.

Frequency

Frequency refers to the number of training sessions completed in one week. For the purposes of Lifestyle resistance training, frequency will always refer to the number of training sessions for a particular body part in one week. For example, if you train your chest on Monday and Thursday we would say your frequency for chest is two.

The ideal frequency based on scientific and empirical data lies somewhere between 1 and 3 sessions per week. However, if intensity is moderate and volume isn't too high, you may be able to train a particular body part (thighs for example) 5 to 6 days per week. Beginners may be able to handle a full body workout 3 times per week. In this case, we would say the full body has a frequency of 3. Other beginners and many intermediate and advanced resistance trainers can handle a maximum frequency of 2 for major muscle groups while still keeping a frequency of 3 for minor muscle groups. Still, many intermediate and advanced resistance trainers can handle no more than a frequency of 1 for all muscle groups. In this case, each body part would be worked once per 7 days. This is very common for successful, advanced resistance trainers and would likely be too little for beginners.

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While it may sound counterintuitive when I say that advanced trainers can handle less frequency and not more frequency compared to beginners, the rationale is really quite simple. Whole body stress is increased the stronger and more advanced you become. Advanced trainers handle heavier loads than beginners. The heavier load places more stress on the muscles, joints, tendons, ligaments and nervous system compared to the loads of a beginner. More time in repair and recuperation is demanded from this increased stress. An advanced trainer's neuromuscular system is well coordinated and firing many muscle fibers at once. Not only does this create a larger cross-section of muscle fibers to be recruited and stressed, but the nervous system as a whole is also stressed and will need adequate recovery before the next workout. Finally, the mental capacity of the advanced trainer to push through positive pain and squeeze out one more rep is enhanced relative to the beginner. The first time a beginner experiences the "burn" of lactic acid and lack of oxygen to a working muscle (ischemia), they are likely to wonder what they are doing in the gym in the first place. An advanced trainer pushes through that positive pain to get the required reps as long as his form does not deteriorate.

Through periodization, we can adjust the frequency so that in some mesocycles (4-week periods), some body parts are being trained with a frequency of 3 times per week while other body parts are being trained once or twice. Many beginners will want to train the entire body 3 times per week. Still other beginners will want to train the upper body on one day, the lower body on the next day, and perform a total frequency of 2 for all body parts. When the upper and lower body are split into two different days this is known as a two-way split. A 7-day cycle might look like this.

MondayUpper
 TuesdayLower
 WednesdayOff
 ThursdayUpper
 FridayLower
 SaturdayOff
 SundayOff

A host of variables will determine what frequency is best for you. Individual differences in ability to recover, nutrition, supplementation, sleep, genetics, mental drive and types of exercises can all play into what frequency is best. Here are some general guidelines, compliments of research and empirical data:

Beginners

Each body part 2-3 times per 7 days

Intermediate

Each body part 1-2 times per 7 days

Each body part every 5 days works well for many

Advanced

Major muscle groups 1 time per 5-10 days

Minor muscle groups 2 times per 5-7 days

Each body part every 5 days works well for many

Body Part Groupings

Listed below are some sample 2-way splits (total body trained over 2 different workouts). Notice that each workout structure allows for at least one complete day off every 7.

MondayChest, Back, Shoulder, Triceps and Aerobic training
 TuesdayLegs, Biceps
 WednesdayAerobic training
 ThursdayChest, Back, Shoulder, Triceps and Aerobic training
 FridayLegs, Biceps
 SaturdayAerobic training
 SundayOff

MondayChest, Shoulder, Triceps and Aerobic training
 TuesdayLegs, Back, Biceps
 WednesdayAerobic training
 ThursdayChest, Shoulder, Triceps and Aerobic training
 FridayLegs, Back, Biceps
 SaturdayAerobic training
 SundayOff

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Listed below is a sample 3-way split (total body trained over 3 different workouts) for training the complete body once every 5 days. Notice that each workout structure allows for at least one complete day off every 7.

MondayChest, Shoulder, Triceps and Aerobic training
 TuesdayBack, Biceps and Aerobic training
 WednesdayLegs
 ThursdayOff
 FridayChest, Shoulder, Triceps and Aerobic training
 SaturdayBack, Biceps and Aerobic training
 SundayLegs
 MondayOff
 TuesdayChest, Shoulder, Triceps and Aerobic training
 WednesdayBack, Biceps and Aerobic training
 ThursdayLegs
 FridayOff
 SaturdayChest, Shoulder, Triceps and Aerobic training
 SundayBack, Biceps and Aerobic training

Listed below are some sample 3-way splits (total body is trained over the course of 3 different workouts) for training the complete body once every 6-7 days.

Sample 1: This very common routine hits each body part every 6 days instead of every 7. It is very effective but you have to think about your training days more often and pay attention because you are not training the same body part on the same days each week.

MondayChest, Shoulder, Triceps
 TuesdayAerobic training and abs
 WednesdayLegs
 ThursdayDay Off
 FridayBack, Biceps
 SaturdayAerobic training and abs
 SundayChest, Shoulder, Triceps
 MondayAerobic training and abs
 TuesdayLegs
 WednesdayDay Off
 ThursdayBack, Biceps
 FridayAerobic training and abs
 SaturdayChest, Shoulder, Triceps
 SundayAerobic training and abs

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Sample 2: With this pattern, each body part is trained on the same day each week.

MondayBack, Traps, Triceps
 TuesdayAerobic training and abs
 WednesdayLegs
 ThursdayOff
 FridayChest, Shoulder, Biceps
 SaturdayAerobic training and abs
 SundayOff

Sample 3: I do not like this but it can work. The reason I personally do not like it is that I feel loose and flat by Saturday without some resistance training later in the week. In addition, I do not like the 3 days in a row of resistance training. Although this is an example of an effective way to train, your first workout of the week will always be your best and your third resistance-training workout of the week will likely be your worst.

MondayChest, Shoulder, Triceps
 TuesdayLegs
 WednesdayBack, Biceps
 ThursdayOff
 FridayAerobic training and abs
 SaturdayAerobic training and abs
 SundayOff

Sample 4: This is also a highly effective plan and allows you to train each body part on the same day each week.

MondayChest, Back
 TuesdayAerobic training and abs
 WednesdayLegs
 ThursdayOff
 FridayShoulders, Biceps, Triceps
 SaturdayAerobic training and abs
 SundayOff

Well, Yeah But, Can I Try This?

As you continue to read this chapter and the next on the *Lifestyle Aerobic Prescription*, it is important that you understand just how varied things can be. I have said it before but I am purposely going to repeat myself: there is no one best workout. I have presented the basic, fundamental principles of resistance training. It is important you pay attention to the fundamentals, but if you come across a workout that interests you, and you can answer the following questions affirmatively, then you are absolutely entitled and even encouraged to use that workout to further your progression.

Performance Goals Test

- Is this workout safely progressive from where I am now?
- Will I be stronger at the end of this cycle compared to where I am now?
- Is this program goals-driven?
- Will I judge each workout by what I accomplished and not by whether I am tired, sweaty or sore?

If we were a group of professional hockey players like other trainers coach, maybe the answer would be “no” a lot more. But we are not. We are body sculptors. We are transformationists. You have to enjoy what you do and remain interested. There are as many varied workouts as your imagination and ingenuity will allow. Follow the Lifestyle resistance training fundamentals and apply the performance goals test to any workout you are considering. As long as it passes the test, you just found a workout worth implementing for 4 to 12 weeks.

Do Not Train the Same Body Part Two Days in a Row (Usually)

Not training the same body part two days in a row gets a little tricky and, while the headline above sounds simple, you need to know that we rarely work a muscle group in total isolation from other supporting muscles. This example illustrates my point. When you have gone through your chest work (typically consisting of a lot of pressing movements), your shoulders and triceps were being used extensively to support the chest movements. To apply the rule of not working the same body part two days in a row, we must also look at the primary supporting muscles worked for each major muscle group. Here they are:

Major Muscle Group	Primary Supporting Muscles
Chest	Shoulders and triceps
Back	Biceps and Shoulders
Thigh (if squatting)	Shoulders, chest, back

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This list illustrates that if you're going to train the chest on a given day, it doesn't make much sense to expect optimal performance from your shoulders or triceps the next day. Shoulders and triceps are too much an integral/accessory part of your chest workout. They will be taxed seriously during your chest workout. If you train the back on a given day, you should be aware that training the back on the next day is counterproductive. Training your biceps the next day will likely result in less than optimal performance from them since they are an accessory muscle group for most back work. All of your back movements, with few exceptions are "pulling" movements, which requires extensive use (flexion) of your biceps.

The thigh example above may lead you to believe that I am nuts. If you are using a machine of some sort to do squats, then some of this will not apply. For the most part, however, squatting is squatting. Maintaining proper form and hand width, while supporting a bar on your upper back, requires a tremendous number of supporting muscle groups. Sometimes you barely recognize you are using them but you *are*.

- Your shoulders are strained to hold the bar in the proper position on your back.
- Your back is strained to support the weight as you lower your hips into the squat position.
- Your chest is strained when you drive out of the down position.

Let there be no mistake: your legs, hips, and buttocks are being worked like nobody's business but the accessory muscles are also working, too.

Too many times I have been subjected to the whining of some very hard-working and gifted lifters who train the squat on one day and then complain about how their chest workout sucked the next day. I have already said that your shoulders and triceps are needed to support most chest movements, and now I am saying the squat tremendously strains your chest and shoulders, too. It should now be painfully obvious that resistance training anything after a squat day is likely counter productive. The squat works everything, if not directly, then indirectly, and the next workout will suffer in some way if you try to force it. Do not force it!

An Exception

Notice I said "usually" in the main heading of this section. While the general rule is to never train the same body part two days in a row, and some rules were made to be broken, I must reinforce that this should occur only cyclically. Many women suffer from excessive lower body fat and are deathly afraid of creating larger thighs and plumper buttocks. I must vehemently state again that a woman's legs and buttocks are not large due to muscle, however. The goals of most women are to lose body fat while toning and shaping (hypertrophy) the thighs and buttocks. It would be acceptable for women to occasionally train lower body 5 to 6 days per week with low to moderate intensity loads and moderate to high volume. This may mean that a woman could train lunges, extensions and leg curls five days in a row if the load isn't too heavy and the volume isn't too high. What would this accomplish?

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First, it would create a caloric expenditure when she might otherwise take the day off. This serves to further the number one goal: losing body fat. Second, it could replace or add to the aerobic activity. Instead of performing yet another boring 40-minute cardio session, she could perform 4 to 6 sets of lunges and 4 to 6 sets of leg extensions and leg curls. This would help satisfy goal number two, which is to tone and shape the thighs and buttocks with minimal hypertrophy. By keeping repetitions in the 10 to 20 range, one can be assured the intensity is not too high.

Duration

Duration refers to the length of time you spend exercising. Duration does not include warm-up, cool down, stretching or jaw-jacking. For the purposes of Lifestyle resistance training, there is no reason you should spend more than 60 minutes in any one resistance training session. In fact, research indicates that workouts lasting much longer than an hour will result in a drop in testosterone. After testosterone drops, it may take an hour or longer for levels to recover back to normal. If your session lasts longer than an hour, then your volume is too high or I have to agree with training guru Charles Poliquin who says, “You’re just making friends.”

Proper Form

Anyone who has been involved with resistance training has a horror story to tell about someone seen training like a complete fool. There are people who constantly sacrifice form so they can claim to be moving some “serious iron.” In reality, however, they are just making a fool of themselves and sometimes even publicly.

Experienced lifters may be able to relate to the next anecdote. Picture in your mind the guy who sits on the 45 degree leg press and after he unlocks the safety pins, he grits his teeth, tenses up, spits occasionally, belts out some Ethiopian war cry and quickly lowers the platform 3 inches and returns it to its starting position. Everyone around the leg press can hardly keep from laughing, but the entertainment value alone is worth the price of admission, so you offer some inspirational comments when the fool is done like “Way to work!” or “Nice effort!”

Then there’s the guy who needs no less than one spotter for every wheel (a wheel in resistance training language is a 45-pound Olympic plate) he has loaded on each side of the squat bar, leg press or bench press. If he has two wheels on each side of the bar, then he has two spotters, three wheels equals three spotters, until he reaches nine or ten wheels on each side and there is barely any room for the nine or ten spotters he requires to complete his set. Hey, at least he is getting the attention he did not get as a child or is not getting at home. I can do without this kind of attention and so can you. It is laughable and I have gotten many good laughs watching others use awful form.

Some intelligent people in this game would have you believe that form must *always* be perfect—that there is no room for sloppiness in resistance training! I disagree. Your warm-up sets should be nearly perfect. The weight should lower in a controlled fashion and your mind should

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focus totally on the muscle you are working—nice and strict. Complete the majority of your working sets using *excellent* form. Honestly, they really should not look much different from your warm-up sets. There should be no jerking, swinging, bouncing or other erotic movements while doing the set. Completed exercises should exhibit a full range of motion so the muscle worked moves from full extension to full contraction and back to full extension during each repetition.

Perfect-form training is highly recommended at all times for the beginner with less than six months of training experience, however, I do not advocate always using this type of form. When we cheat in a “controlled manner,” we can increase the intensity and the variability at the same time.

There is absolutely no reason why, in a cyclical pattern, resistance trainers cannot occasionally jerk or sling the weight a little more forcefully so an extra repetition can be completed. You should always be aware of the potential for injury and you have to be smart enough to know when form has been sacrificed too much. If you do not, then you are bound for injury, which will likely cause a setback of months or even years. “Cheating” as we call it, should be reserved for occasional use and only after you have first acquired the ability to perform the lift correctly. This will take several weeks to months. Some expert power lifters never feel they master the techniques of their sport, so be patient and do not get sloppy too fast or too often.

Free Weights vs. Machines

This argument is as old as the first Nautilus machine. Which is better? Free weights (including barbells normally about 5 feet in length, cylindrical weights added to the bar, and dumbbells normally about 16 inches in length) or machines (anything working via a cam or pulley and tied to a load via a cable or strap or chain). The answer is simpler than most tend to believe. Look around you. Who looks muscular? What do they use?

There are no top bodybuilders (natural or drugged to the gills) who use machines only, however, some top bodybuilders use free weights only. Many athletes who drifted from free weights to the \$4000 vertical bench press machine are going back to free weights. For building maximum muscle, free weights do offer advantages over machines. A lifter using free weights must control the weight being lifted, and in doing so will recruit more muscle fibers, not only in the muscle being trained but also in accessory muscles. Free-weight movements also mimic real-life activities more so than machines.

Machines, on the other hand, offer quick weight changes (by moving a pin usually) and offer the advantage of muscle isolation to the individual who is working through an injury or is being rehabilitated. Because machines typically only force the lifter to concentrate on moving the weight in a straight line (in contrast to free weights, which force you to control left-to-right and back-and-forward motion), you take less chance many times of re-injuring the tender area.

Basic exercises and equipment offer maximum muscle-building capacity and you do not need machines that cost \$4000 to build a great body. If you have access to both free weights and

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machines, you have the ideal situation to move quickly through your workout while providing maximum stimulation for muscle growth. Most muscular men and women use a combination of both free weights and machines. I recommend both.

Finding the Right Starting Weight

Many beginners simply do not have a clue when it comes to determining starting weight amounts. In addition, those who find out how much their 1 RM will be, still self-select weights during training that are ineffective for producing muscular growth. A study published in *Medicine Science in Sports and Exercise* S214, 1998, concluded that many people training with weights do not choose lifting poundage for training that is high enough to produce muscular growth. In fact, the authors stated that men choose to lift between 50 to 58 percent of their 1 RM on average and women choose to lift 42 to 52 percent of their 1 RM. The authors concluded by saying that “self selection of lifting load is not an effective strength training methodology.” What does this mean? It means that without some guidance, many of you are likely to choose loads that are not sufficient to cause hypertrophy to muscle fibers.

Generally, how much weight is considered necessary to minimally damage muscle for repair? About 60 percent of your 1 RM. Furthermore, the range for optimal muscular stimulation is between 60 and 90 percent of your 1 RM on any given exercise.

Tips to Help You Determine A Good Working Weight

1. Pay no attention to weights being used by experienced lifters. Do not compare yourself to anyone but yourself.
2. Warm up with 5 to 10 repetitions using 50 percent of an estimated 10 RM. In other words, choose a weight you believe is about one half what you could do for a maximum of 10 repetitions. If you believe you can bench press 100 pounds a maximum of 10 times, then choose 50 pounds as your first warm up and press it 10 times and re-evaluate.
3. After a minute or two of rest and some specific stretching, use about 70 percent of what you believe is your 10 RM and complete 10 repetitions.
4. Repeat step 3 and use what you now believe is 90 percent of your 10 RM.
5. After 2 minutes or so of rest, again repeat step 3, but this time, go to what you now believe is 100 to 105 percent of your 10 RM and complete it 10 times if possible.
6. If you complete step 5 and the weight still felt too light to be considered 100 percent effort, then start the procedure again after at least 1 or 2 days of rest. On your next day of determining your 10 RM max, start with a heavier weight but work through all five steps again.

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Lifestyle “Find Your Max” Chart

Once you know, for any given exercise, a repetition maximum between 6 and 10, you can use the *Lifestyle “Find Your Max” Charts* (included in the Appendix) to determine your approximate 1 RM. It is simple to use. Look at it now. The first “max” listed on the *Intermediate to Advanced* chart is 155 pounds. Reading across the chart, you see that if you can lift 115 pounds for 10 controlled repetitions, your max is approximately 155 pounds. Simple, right? Another benefit beyond this chart’s simplicity is that you do not have to kill yourself with a 1 RM lift to see how strong you are. Beginners are likely to injure themselves and advanced lifters also run a similar, albeit reduced, risk of injury. With the chart, you can quickly and easily determine your approximate 1 RM. You can also see how you are progressing as you get stronger without having to load the bar up for a maximal lift.

Included in the Appendix is another “*Find Your Max*” Chart for beginner to intermediate lifters. This chart goes down to a max of 25 pounds so you can determine your max at lighter weights. I can already hear you saying, “Well, yeah, but it says if my max is 25 pounds I should be able to do 4 repetitions at 25 pounds. How is that possible if my 1 RM is 25 pounds?” I hear ya. I hear ya. At the lower weights, it’s not possible to provide you one-half pound increments, because you are probably *not* going to find dumbbells or barbell weights in increments less than 5 pounds (See *Microloading* in this chapter). If you can barbell curl 25 pounds for one repetition as a max, will you really be able to barbell curl 25 pounds for 4 repetitions? No. What, then, is the point here? The point is to provide a *guide* so you do not have to max out on every exercise with a single repetition to determine your 1 RM. Obviously, if you can barbell curl 25 pounds for 1 repetition, you would need to use less than 25 pounds to do 4 repetitions. Maybe it is 22.5 pounds.

Warm Up

In all honesty, I do not always warm up, but that doesn’t mean I shouldn’t. I am certain that some of the injuries I have experienced could have been prevented if I had only taken my own advice and warmed up a little. One of the nice things about getting older is that your body reminds you more often that you should warm up or your first few sets are going to be painful.

Warming up will increase your pulse, overall body temperature, blood and oxygen flow and it mentally prepares you for the damage you are about to inflict upon your muscles. Do not forget that you are going to properly damage your muscles in order for them to rebuild themselves stronger than they were before your workout.

The Top Five Types of General Pre-Resistance Training Warm-ups

With the following warm ups you should not be breathing so hard that you can’t carry on a conversation at the same time. You should also be on the verge of breaking a good sweat after 5 to 10 minutes.

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1. Riding the stationary bike. Warning! Do not do what I see so many people doing when they claim they are warming up while riding the bike. First, they are reading a magazine and second, if you count their revolutions per minute it would be less than 10. This is not warming up! There is a technical word for this and I am not sure if you will understand it, but I will try to explain it just the same: “Slug.” I know that Webster has its definition, but I have mine.

slug (slug) n. 1. A person who displays little passion for life and is dull in both activity and mental acuity. 2. Someone who wants to tell all their friends they “work out” but who really is just wasting oxygen and using equipment in a workout facility that Lifestyle followers are waiting for impatiently.

2. Rowing
3. Jogging in place
4. Skipping rope
5. Treadmill

Specific Warm-Ups

Perform one or two light, but progressively heavier, sets before resistance-training with heavy loads. If you’re going to work chest and the bench press is your first movement, then you should warm up with a weight that is equal to no more than 40 percent of your max on your first set and you should do 10 to 15 repetitions in a very controlled manner. Then increase the weight to maybe 50 percent of your 1 RM for 10 repetitions. I know people who bench press well over 500 pounds who always-repeat always-warm up with 135 pounds for 10-15 repetitions, then they move the weight to 225 pounds and then onward and upward from there. This is the norm and is reasonable.

Stretch As You Go

There is not a fitness manual anywhere without a chapter or section extolling the benefits of stretching. For the person who is resistance training solely to improve their looks (for vanity’s sake) and increase muscle mass, however, there is great controversy whether stretching is a benefit or a detriment or neither. Researchers do not agree on whether stretching before resistance training improves performance during resistance training. Some research has shown that stretching before a maximum lift can hinder the ability of the lifter to complete a maximum repetition. Some moderate stretching, however, as indicated in the following paragraphs are recommended for Lifestyle followers.

Stretching prepares the muscle for the damage your workout is about to inflict, and it can help you mentally focus on the muscle group you are about to work. Where I disagree with other fitness authors is *when* you should stretch. Most “experts” will tell you to stretch right after your general warm-up (like after riding the stationary bike for 5 minutes). You know what though? I have found that when I stretch right after warming up and I take the prescribed 5 minutes to stretch, I am cold again. This really stinks, too. After I’ve spent 5 to 10 precious minutes trying to get my heart rate

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up, my body temperature up and a nice warm feeling throughout my body, I have to stop and stretch only to get cold again? What a waste. I think there is a better way.

Instead of stretching right after your general warm-up, what has worked best for me is getting right to my specific warm-ups after my general warm-up. For instance, if I am training chest on a given day I will ride the stationary bike for 5 minutes and then I get right to the bench press for a nice, controlled specific warm-up. In between sets, I stretch. I will repeat this process for my first couple of sets of specific warm-ups. That way I do not cool down, my muscles are getting warmer and I am stretching a warm muscle with a warm body. If I do it the “experts’ way,” I start my first specific warm-up (bench press in this case) feeling just as cold as I did when I walked into the gym. Where is the benefit of this?

When you do stretch, you will want to use what is known as “passive static” stretching and not ballistic stretching. With the passive static form of stretching, you will not bounce or jerk your muscle into submission. You will slowly stretch the muscle to maximum tension without experiencing pain and you will hold it for 15 to 30 seconds. Perform 3 to 5 repetitions of each stretch.

First Working Set

After one or two specific warm ups, you are ready to complete your first working set. If you are using machines then you will be dealing with numbers or letters painted, hand-written or stamped onto plates, which are essentially meaningless except for giving you a reference. The principles for finding your starting weight still apply, however. If you find that your 10 RM is letter “J” on the machine chest press, then start your specific warm-up set at letter “G” the next time you’re working chest (assuming G is four pin holes above J). Regardless of what the plate says, once you find your 10 RM you will start your first specific warm-up at four pinholes above your 10 RM (that’s above as in vertically, not above as in amount of weight). There are so many variables on what the machine plates are going to say that you may have to use your head and the knowledge within this book to make the smartest decision. Many gyms and clubs have personal trainers on staff to help you as well. Do not be afraid to ask for help or to enlist their services.

Keep A Training Log!

Often I’ve witnessed the limp and lame efforts of many health club visitors who claim to be working out with weights. Instead, these people are only doing what they know is in vogue and they spend much of the time socializing. This is better than watching TV, but it is not Lifestyle resistance training. Why? Because mostly, they have not the faintest idea about their progression over a given period of time. They cannot show whether they are improving with each workout.

Instead of stumbling around the gym wondering what weight you used last time and how many times you completed it, write down your weight and repetitions in a good training log. If you start a resistance-training program and do not log your efforts, you will waste years simply going through

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the motions. I strongly recommend you keep a training log, but not just so you can say you are keeping a training log. Keep a training log so you can:

- Know what you've done in the past.
- Truly see progress from session to session.
- Know the difference between a successful and unsuccessful training program after you're finished.
- Map out small, but oh so significant, changes for future workouts.
- Understand why you are not progressing and when you have hit a plateau or begun to over-train.

Use your log wisely and do not simply jot some numbers down. I know dozens of people who have logged all their workouts since the dawn of time, and they have not progressed any better than someone not keeping a log but who is doing everything right otherwise.

Microloading—A Personal Best Every Week!

I was first introduced to microloading by Charles Poliquin, strength trainer extraordinaire. Following the Japanese Kaizen principles, Poliquin stresses the continuous advancement of training and even goes so far as to say that unless you plan on improving every workout by increasing your repetitions or increasing the weight for a particular lift, don't bother going to the gym. Poliquin believes that once progress has halted for a particular exercise, it is time to change the exercise.

“Platemates” are small, magnetic weights that attach to barbells, dumbbells, plates and weight stacks. Most experienced weight trainers have never given a second thought to how much of an increase in weight is required to advance at the typical gym. In most gyms, the smallest Olympic plate is 2-1/2 pounds, which means you must advance by 5 pounds (a 2-1/2 on each side of the bar). Most gym dumbbells also increase in 5-pound increments. Until someone like Charles or I hit you upside the head with the notion that it doesn't have to be this way, you accept the 5-pound jumps as law, and your progression is possibly hindered.

When you consider a few examples and think about what microloading can do for your training, the idea of smaller-than-normal increases becomes more appealing.

Inexperienced Lifters and Microloading

Neophytes cannot handle the same poundage as their experienced gym buddies. Microloading can be an important idea to consider for the new lifter. When you are curling 20-pound dumbbells for 10 RM, your calculated 1 RM is 26.66 pounds. Can you possibly lift more than 26.66 pounds if you can curl 20 pounds for 10? Sure, but it doesn't change the fact that if you are forced to jump to 25 pound dumbbells you have made a 25 percent jump in weight! Ouch! Your repetitions will drop significantly (likely to the 6 to 8 repetition range) and this is not always advantageous

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depending on the repetition structure you are striving for. Would it not make more sense to first increase your dumbbell weights from 20 to 21-1/4 pounds? Followed by an increase to 22-1/2 pounds? And then add weight to 23-3/4 pounds before jumping to 25 pounds? I believe it does. By making these small, yet significant, increases in weight, you can nudge the muscle into growth rather than attempting to jerk it into submission with a 25 percent increase in weight.

Experienced Lifters and Microloading

Experienced lifters have adapted so well to making 5-pound jumps that they don't know any other way. Shifting existing paradigms from 5-pound jumps to less than 2-pound jumps is difficult, but it makes tremendous sense. If you are an experienced lifter and can bench press 250 pounds for 10 RM, your calculated 1 RM is 333 pounds. Assuming you're as frustrated as those experienced lifters who haven't significantly increased their bench press in the past year or more, your next increase above 250 pounds is 255, right? No more. Again, for the inexperienced lifter your first increase should be to 251-1/4 pounds. I'd almost be willing to bet a case of protein bars that you will still get 10 repetitions at 251-1/4 pounds although it's an increase of 1-1/4 pounds above your previous personal best. If you do, you have not only called upon more muscle fibers through the increase in load, but you have also set a personal record (PR)!

Setting a PR has far-reaching value. Your current workout will benefit from the positive mental attitude you'll get from setting the PR. You'll also have more confidence for your next workout. Add to this the knowledge that you're able to increase your lift, even if only by 1-1/4 pounds. It is still a PR and it is still progress.

Do not underestimate the value of these small progressions. If you increase 1-1/4 pounds per week, you have increased 5 pounds in 4 weeks and almost 10 pounds in 12 weeks. Many experienced lifters do not progress on their 10 RM bench press by 10 pounds in two years!

Platemates are available in hex, donut and brick shapes. Visit the web site (www.leannesslifestyle.com) for examples of how these products are affixed to various barbells, dumbbells and weight stacks.

Advanced Resistance Training Methods

Forced Repetitions

Forced repetitions are repetitions that can only be accomplished with the assistance of a training partner. You have fatigued, reached momentary muscular failure and are still continuing to move the weight as originally planned, but with help. The proper way to do forced repetitions is to allow yourself to reach failure on your own and then your spotter will apply just enough force on the bar to keep the weight moving fluidly without stalling. There's nothing worse than watching a foolish spotter yank the bar from the unsuspecting lifter as soon as he stalls, or not apply enough pressure

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to the bar and the lifter is subjected to a 30-second repetition! Ouch! Forced repetitions should be used sparingly. I recommend forced repetitions for no more than one or two repetitions, and no more than one exercise per body part per training session. Excessive forced repetitions not only burn out your training partner, but also can easily place you in an over-trained state. Do not use forced repetitions on anything other than your last set of an exercise movement, when muscles and tendons are completely warm.

Drop Sets

Drop sets are sets that allow you to complete as many repetitions as you can in a particular movement. Then when you reach momentary muscular failure, you “drop the weight,” reduce the load being used, and continue with more repetitions. Again, like forced repetitions, drop sets are an effective means to an end if used judiciously; however, they too should not be used more than one set of one exercise per body part. Repetitions will vary. As with forced repetitions, only use drop sets on your last set of an exercise.

Negatives

Negatives relate to the eccentric (lowering) portion of a repetition. During the bench press, the negative portion is when you are lowering the weight to your chest. Negatives are commonly accomplished by adding 10 to 15 percent more weight than you could handle for an all-out single repetition max (if my max is 300 pounds then I would likely try a negative with 325 to 350 pounds). Negatives also require a spotter or two and can be very hard on them because you will be controlling the negative portion of the lift by lowering the weight very slowly (during the bench press negative you would take 5 to 7 seconds to lower the weight to your chest), but when the weight gets to your chest, you are almost completely spent and there’s nothing left to complete the concentric portion of the movement. Therefore you will need a spotter or two to complete the raising of the weight, even though you may be pushing the weight as hard as you can to help return the weight to the starting position.

Because negatives cause more damage to muscle than concentric movements and are likely the easiest way to overtrain, I do not recommend negatives more than one set per exercise per mesocycle (4-week period).

Pre- and Post-Workout Nutrition for Resistance Training

By following the Lifestyle nutrition strategies, you will not concern yourself about consuming a pre-workout meal. Since you will be eating 4 to 6 times per day, your pre-workout meal will likely be the last meal you had before your workout. The term “pre-workout meal” is usually thought of as the single meal consumed just before your workout. This is really a misnomer. Your resistance training or aerobic training performance will be dictated not only by the last meal you consumed,

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but also by the dozens of meals you consumed before your workout on the day of your workout and previous days. If you've been eating poorly, skipping meals, restricting calories too severely and you have hopes of making up for it all with a pre-workout meal, then you can flush those hopes right down the drain. The pre-workout meal will not make up for a dozen poorly balanced, nutritionally void meals consumed over the two days before this day's workout.

One question I frequently get about the pre-workout meal deserves mentioning. If you wake at 4:00 A.M. and train at 4:40 A.M., should you eat before training? In other words, if you're an early bird and train at or before the crack of dawn, should you train on an empty stomach, or should you consume a full five-course breakfast, an energy bar, or a protein or meal replacement shake?

Many people train first thing in the morning on an empty stomach and do very well. Others will consume a small protein or meal replacement shake, and still others will consume a light breakfast from whole-food sources. I have heard from every camp and all claim they do fine. The answer is simple, but a word of caution is warranted. If you feel energetic and most comfortable training on an empty stomach, then do so. If you can consume a shake or light breakfast before training without gastrointestinal discomfort and this makes you feel better and more alive while training, then do it!

There is potential concern for those who consume carbohydrates, protein or protein/carbohydrate combinations 30 to 60 minutes before a vigorous resistance training session. A resistance-training workout can lower blood glucose (blood sugar). Both proteins and carbohydrates can raise blood sugar. We know the body's response to increased blood sugar is the release of insulin in non-diabetics to lower blood sugar. The concern about having a carbohydrate, protein, or protein/carbohydrate meal within an hour of working out is that insulin will be released to lower blood sugar and the working muscle will ALSO lower blood sugar for a possible hypoglycemic event (blood sugar that's too low).

For resistance training workouts lasting less than one hour first thing in the morning, I'd still recommend you do what makes you the most comfortable, however, watch for symptoms such as fatigue, anxiety, headaches, difficulty concentrating, sweaty palms, shakiness, excessive hunger, drowsiness, abdominal pain, and depression. Those experiencing any of these symptoms may be experiencing reactive hypoglycemia and should seek a quick source of carbohydrates and/or medical attention.

What is absolutely *not* a concern is whether eating will disrupt the "fat-burning benefit" of training on an empty stomach. It is far more important to consider the caloric burn value of the workout itself rather than the fat-burning value during the workout. There is a wonderful balancing act occurring within your body at all times. Essentially, the trend is this. If you train on an empty stomach, there is a good chance you will burn more fat *during* the workout. Typically, this means you will rely more on carbohydrates as a fuel source in the hours afterwards. If you train with a mix of carbohydrate and protein eaten before the workout, then you may burn less fat during the workout, however, you may also burn more fat after the workout. Yes, it is true. More glycogen and glucose burned during the workout usually creates a shift to fat burning after the workout. It is not universally true, but the trends are there and worth noting.

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More important than deciding whether your workout should be completed with or without a pre-workout meal for the purposes of burning fat during the workout, is how your pre-workout meal affects your overall performance and energy *during* the workout. If you are a fireball on an empty stomach at 5 A.M. and eating anything upsets your stomach during the workout, then by all means, train on an empty stomach! If, however, you'd rather take a nap, your energy is low, and you can hear the rumbling of your empty stomach over what's playing in your headphones, then the caloric burn of your workout will be less than if you had a settled stomach and energy for your workout. Plan to eat or drink something containing a blend of carbohydrates and protein and your early morning workouts may come alive. If they do, then you have truly accomplished something worth noting.

Post-Workout Meal Paramount for Success!

You already know that you grow when you are not lifting. Therefore, when you're working out with weights and you're actually working toward increases in strength (either repetitions or load lifted) with each workout, you are getting stronger. Muscle is being damaged and remodeled stronger with each workout. An effective nutritional strategy to promote recovery from exercise is vital for all athletes. Remodeling muscle tissue to enhance its power-generating capacity and growth is a vital part of the adaptation to training. How do we best accomplish this goal? What post-workout dietary strategies are necessary and why is it important to facilitate maximum tissue remodeling with fluid, electrolyte (sodium, potassium), amino acid and glycogen replenishment?

First, Replace Fluid Lost in Sweat

Exercise increases body temperature. The body's response to this increase in temperature is sweating. As water accumulates on the outside of the skin, we become more efficient at cooling as the outside air runs across the wet surface of the skin. Our first focus both during and after a workout then is to replace lost sweat.

What is sweat and what are we replacing? Sweat is primarily composed of water, sodium, chloride and potassium. How much fluid do we lose when we sweat? The range is broad but a well-published and acceptable guideline is to replace 8 ounces of water for every 20 minutes of exercise. Exercising in extreme heat and humidity, however, can multiply this requirement by a factor of 6. It is now accepted that we must not only replace what we lose in sweat, but we should consume 50 percent more fluids than we lose in sweat to effectively re-hydrate the body. If we lose 8 ounces of fluid during a 20-minute workout, we should consume 12 ounces of fluid as a replacement. As I discussed earlier with respect to water and hydration, even a small decrease in hydration status can cause a significant decrease in performance.

As I have indicated above, sweat is not only water but it is composed of electrolytes. Research does provide credible validity to the notion that it is not enough to simply replace water for sweat loss. That is not an even trade. You must replace lost electrolytes as well. Therefore, it is

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important to recognize the need for sodium and potassium (a good guideline is 10 percent of daily values for each electrolyte: 240 mg for sodium and 350 mg for potassium for each hour of work) in a well-formulated post-workout meal.

Next, Replace Lost Glycogen with Mixed Carbohydrates

Carbohydrate is the primary energy source used during prolonged high intensity exercise, but the body's carbohydrate stores (glycogen) are rather small. While the average 154-pound man has 135,000 calories stored as fat, the same man only stores 1500 to 2400 calories in the form of glycogen. Glycogen stores can be depleted with high intensity training and it is our goal to replenish lost glycogen between workouts. If we do not, we are sure to experience a decrease in exercise performance at subsequent workouts.

Many factors should be considered when deciding how many grams of carbohydrates are necessary to replenish lost glycogen and the variability among athletes. Essentially, the amount and timing of carbohydrate replenishment are the two critical factors for ensuring proper glycogen replacement. Current research indicates there is a “window of opportunity” to ensure glycogen is replaced fully and rapidly.

The “window” is approximately 30 minutes to 2 hours post workout. Therefore, it is very important that we consume a meal or beverage that contains mostly simple carbohydrates quickly after a workout if we are to reestablish optimal glycogen levels for our next workout. Failure to take advantage of this window of opportunity may result in glycogen being replaced at a much slower and inefficient rate for continuous, high intensity training.

At least 35 to 100 grams of simple or a combination of simple (glucose, dextrose, sucrose) and complex carbohydrates (maltodextrin, starches) should be consumed during the window of opportunity. I do not recommend fructose-only based drinks because of their lower glycemic index (a measure of the sugar's speed at raising blood glucose). I must also stress that not all glycogen is replaced in the 2-hour window. Therefore, you should not skimp on carbohydrates during your remaining meals on a workout day. With the exception of your post-workout meal, however, I do not recommend you vary from the Lifestyle food selection guides I have previously addressed. Consuming simple carbohydrates is great as a post workout meal but consistently consuming simple carbohydrates outside of your window of opportunity may be detrimental for fat loss. The “window” is the one time you can consume simple sugars and not feel one bit guilty about it.

Glycogen is replaced primarily in the first few hours after intense exercise if we provide our body with carbohydrate, however, full glycogen replenishment may not occur for 24 hours or slightly longer. Failure to incorporate carbohydrates in enough quantity and at the right time post workout may significantly hinder your next workout.

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Finally, Make Sure Your Post-Workout Meal Contains Protein

Yes, carbohydrates are primarily responsible for replacing lost glycogen after an intense workout, but protein (which provides amino acids) can assist with glycogen replenishment and is also crucial for delivering amino acids to muscles during the remodeling process. The addition of protein to carbohydrate post-workout meals can increase the rate of glycogen synthesis above that which is observed after consuming carbohydrate alone. Researchers believe this is a result of increased insulin secretion.

I have said repeatedly throughout my Lifestyle that we tear down muscle when we work out and we rebuild it stronger when we rest. This is an adaptive process and while researchers continue to remain baffled about how the body does this exactly, we do know that synthesis of new proteins is a response to resistance training. Why is it important to include protein (amino acids) with your post-workout meal? Not only does the addition of protein assist with muscle glycogen replenishment, but also protein in your post-workout meal provides amino acids at a time when muscles are literally starving for these building blocks to remodel your muscle. Yes, glycogen replenishment is a primary goal after a workout, but synthesis of new proteins should be seen as being of equal or even greater importance.

Insulin Is Anabolic

The consumption of carbohydrates causes a non-diabetic person to release insulin from the pancreas. Stay with me now, I will not go too deep here. Insulin is an anabolic hormone, meaning that it activates cellular processes that facilitate new protein synthesis and the transport of amino acids into cells. Cool! Insulin's ability to facilitate increased protein synthesis depends upon the presence of high levels of amino acids in blood at the same time insulin is present in high concentrations. After a workout, we are trying to elicit an insulin response (by consuming simple carbohydrates) and thereby increase our overall anabolic state. When our blood has high concentrations of amino acids necessary to make new proteins and insulin is also present, our chances of increasing our anabolic activity is significantly increased!

In conclusion, I want to stress that I have simplified this highly complex area to a level that is pragmatic and effective. After each workout, drink at least eight ounces of fluid within the first hour and eight more ounces for every 20 minutes of exercise. Consume 35 to 100 grams of carbohydrate, 17 to 50 grams of protein, and sodium and potassium at approximately no greater than 10 percent of our daily requirement (240 mg of sodium and 350mg for potassium for each hour worked). This regimen will replace lost fluids, maximize glycogen replenishment and facilitate optimal protein synthesis. Damaged muscle tissue will be repaired, rebuilding it stronger and larger than before.

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Delayed Onset Muscle Soreness (DOMS)

Delayed onset muscle soreness (DOMS) is induced primarily by unaccustomed exercise volume, intensity or both, and from overstretching a particular muscle group. What actually causes DOMS is not known definitively. DOMS normally occurs 24 to 72 hours after the exercise session.

We do know that DOMS is exercise-induced muscle damage followed by an inflammation-induced increase in fluid in the muscle. If your legs feel “thicker” after a hard squat workout, it is not your imagination—they probably are thicker from the temporary fluid retention in the damaged muscle. Many avid resistance trainers almost live for the swelling that occurs during the hours DOMS is active in a particular muscle group. I would be lying if I did not include myself in this mix. For us, moderate DOMS is almost like feeling the workout pump all over again.

Eccentric muscle actions induce the most DOMS. DOMS is associated with a reduction in muscle strength. DOMS is not an indicator of forward progress, however, I’ve never met a person with substantial muscle mass who still doesn’t get sore after most workouts and who hasn’t experienced DOMS after most workouts in their resistance training career. This may seem contradictory, however it is not. Never forget the rule: The only measure of true forward movement is progression through improved performance and strength over time. Nowhere in that definition did I say that DOMS must be present a certain percentage of the time. DOMS is not a goal of a workout, however, I know many resistance trainers who grow addicted to that pain and swelling.

I am Still Sore. Should I Train?

If a muscle group is still sore, that does not mean you *cannot* work it; rather it is a signal that the inflammation and damage caused by the last workout is not fully repaired. If you are sore (uncomfortable), then do not work that body part again until that level of soreness is manageable. This perception will vary between individuals. You don’t have to wait until a muscle is totally pain-free before you train it again, however, it’s pretty common for a sore muscle *not* to function as well as it does when it’s fully recovered.

If there’s any doubt whether you have DOMS or an undesirable injury, always side with caution and do not train. If the pain persists longer than about 72 hours after the workout or is not measurably better by 72 hours, seek medical attention and determine the root of the pain.

To Squat or Not to Squat—There is No Question

Because you are a transformationist and not an Olympic lifter, the squat is likely the hardest resistance training exercise you will ever encounter. It requires balance, coordination and creates a level of whole-body stress most are unaccustomed to. Now that I have terrified some of you, I must now tell you why—unless injured and completely unable—you *must learn to squat!*

The squat is so monumentally beneficial to you as a resistance trainer that not squatting is like refusing to invest in America Online (AOL) in 1995. The dividends that squatting provides are

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unmatched by any other leg or upper body exercise. I'm sure it's been said more than a million times by avid resistance trainers that if they had to choose only one exercise, they'd choose the squat for its whole-body training benefits. Can millions of squatters be wrong? No, this is one time the masses are right.

If you are a man, you need to squat to avoid looking like a cartoon character. Most muscular cartoon characters have an enormous upper body and the legs of Popeye's true love Olive Oil. Since most men have small legs because they distribute their fat around the waistline, it's imperative you grow those legs so you can look good not only in a short-sleeve polo shirt, but also in a pair of shorts.

Ladies, can you imagine a backside that is flat or just kind of sags there? Can you relate to the hips that are just too wide for comfort? Are your thighs currently bigger than those of that special guy in your life? If any of these statements are true, then you can put away your toys (foo-foo exercises) and use squats to correct all of these disconcerting areas. It is true. This is one case where one size fits all and it truly helps correct every problem I mentioned and more.

My coaching clients now quote me constantly as saying that the definition of a good leg workout is any leg workout that incorporates properly performed squats. Today I still believe this to be true. As an aside, it may be interesting for you to know that while massive variety is necessary for upper body training, the same doesn't hold true for lower body. Why this is so we do not really know, but the lower body will continue to respond to similar workouts more so than the upper body. You know what this means? You can squat nearly every leg workout! Aren't you excited? I know I am, because once you learn to squat you won't have to wonder if your leg workouts are accomplishing all of those lower body goals you have. You can trust that if you are performing the squat properly you are absolutely creating the lower body of your dreams.

By now I hope I have earned your trust, but if not, once you use all the Lifestyle strategies for nutrition and exercise, I am sure you will see progress. I say this because if you are not squatting, then you must trust me to teach you how to get started. There is no excuse, other than injury or immobility, for not squatting. Your legs, hips and buttocks are not large because they are thickly muscled. You may believe they are, but they are not. If your legs, hips and buttocks are large, it is because the little muscle you have is covered with a thick layer of adipose (fat). As discussed in this chapter, squatting with loads while incorporating periodization principles for variation will not make your legs bigger if you are losing weight. In fact, the result will be the opposite if you squat consistently.

You may also believe that your leg training must involve lots of additional isolation butt, inner thigh and outer thigh work to really hit all the problem areas. This thinking is erroneous and will cause you hours of wasted time in the gym if you do not jettison it immediately. I am not saying that if you choose to do additional abduction, adduction and hip extension work that you are wrong for doing so. All I am saying is if you choose to do three to four exercises in place of the squat, you are wasting your time by comparison. If, however, you absolutely cannot squat, then other exercises will be necessary to help you shape your legs, hips and buttocks.

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With squatting, your legs will become more shapely, sexy, firm and toned. Your hips will narrow, your buttocks will lift and become firmer, and you will enjoy the caloric burn benefits. Squatting is a core exercise that burns more calories per minute than any other resistance training exercise you will perform.

See “*Strength Training Anatomy*” by Delavier for an accurate depiction of what a proper squat looks like and how it is performed as a start. I highly recommend, however, that you employ the services of a certified personal trainer who regularly squats as a part of his or her own training program to teach you how. You do not have to marry this trainer and get into a \$1,000 package, but it is well worth it to pay for a few sessions to at least learn the form of the squat.

Can We Change Muscle Shape?

The shape of your muscle is predetermined. The length and shape of the muscle belly (what you commonly think of as your skeletal muscles) vs. the length and attachment of the tendons will determine the shape. So why do all the different exercises for muscle groups? Many muscles have more than one attachment. Muscles usually play more than one functional role as well. A few examples are:

- Hamstrings: extend hip, extend trunk/pelvis, flex knee, rotate tibia, rotate the hip.
- Gluteals: posterior rotation of the pelvis, extend the hip, externally rotate the thigh, assist in knee extension in its connection to the iliotibial band.

In the biceps, you have a long and short head. Changing the arm position changes the emphasis on muscle bellies. If you take into account that the bicep group flexes the elbow, flexes the shoulder, supinates the forearm (turns the palm upward), and much more, it is clear that the position of the arm makes a big difference in what part of the bicep gets worked. Position will affect what part of the muscle gets used as well as the total number of motor units firing.

When you think of the arm (continuing this example), you have more than just the biceps in front. You have the coracobrachialis, brachioradialis, and brachialis (see “*Strength Training Anatomy*” for details). Take any one of these and work them correctly, and the appearance of the arm will change though the shape of the muscle is the same. The brachialis will add some width as well as height to the front of the arm. You can apply the same concepts to the back, calves, chest, thighs, and so on. There are so many different attachments of muscles that the exercise position can affect emphasis.

By adding overall muscle mass to your frame, your shape will take on a new form that will always be more appealing than what you had before. Do not get caught up in isolation, single-joint shaping movements (concentration curls, cable crossovers, etc.). You can do them but do not rely solely on them thinking you are really going to create a new shape by doing so. The multi-joint basic movements will ultimately be your best time served in the gym.

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Maxims to Help Guarantee Your Resistance Training Success

- Train between 60 and 100 percent of your target RM via a periodized plan.
- Keep your repetition ranges within the guidelines I have set forth in this chapter.
- Only three to six working sets are needed for each exercise.
- No more than two to four exercises per muscle group are necessary in any training session.
- Add some variety to your routine every one to four weeks (it really can vary this much) to confuse and stimulate new muscle growth.
- Strive to progress the load (weight x repetitions) with each workout cycle.
- Training longer than one hour is not advantageous and may be counterproductive.
- Consistently trying to move the weight slowly during the concentric (lifting) phase of the movement is counterproductive for growth. Superslow training should be reserved for the injured and elderly.
- Train larger muscle groups before smaller muscle groups when training them on the same day (chest or back before shoulders, triceps or biceps).
- Basic multi-joint exercises (bench press, squat, dead lift) are best for overall mass (which is what you want - including women) when compared to single-joint isolation movements (pec deck, leg extension and Good Mornings).
- If you are going to resistance train and perform aerobics consecutively, then resistance train FIRST! If you do aerobic activity first and immediately go into your resistance-training workout, the resistance training workout will suffer.
- Beginning trainers may be able to train five to six hours per week (1 hour per day x 5 or 6 days per week) due to lighter loads moved and less overall damage inflicted upon muscle. Beginners may be able to train each body part 2 to 3 times per week.
- Advanced resistance trainers make fantastic progress training a total of no more than 4 or 5 hours per week. Advanced trainers should train each body part no more than twice per week and many recover best training each body part once every 5 to 7 days. All lifters only advance when they train with progression as the foremost measure of success.
- On a given day, if you must make a choice whether to work out with weights or do aerobic activity, choose weights! By stimulating new muscle growth, you create an annuity of reserve energy expenditure even when you are not working out.

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Remember, every pound of muscle you add burns 30 to 50 calories per day when you are doing nothing! When you do aerobics, you only burn calories while you're training and for a very brief time after you are through training aerobic activity (see the *Aerobic Lifestyle Prescription* chapter, which follows).

Exercise List and Selection

Before I offer you a list of dozens of exercises most commonly executed to build the best physiques in the world, I must revisit our old enemy: Mr. EITHER/OR.

What would you do if you injured a deltoid (shoulder) or pectoralis (chest) muscle? You have heard and told yourself for 3, 5, 8, 10 or 15 years that you must bench press to have a big, strong chest. Now, you have an inflamed shoulder joint that will not allow you to train the barbell bench press without excruciating pain. What do you do? Many will simply take time off completely. Many beginners with less than a year's experience may become so disheartened that they quit lifting all together, never to return. Hey, if I cannot bench press, then I cannot have a big chest. If I cannot have a big, strong chest, then why lift? After all, the bench press is what everyone is measured by when they first start lifting. EITHER I can bench press, OR I cannot lift.

For the lifter who injured her shoulder and cannot bench press, the EITHER/OR mindset can prevent her from moving forward or even continuing. Why can't our bench press person choose other lifts to support the pectoral muscles? What about the incline barbell bench? God knows that if there is an area lacking on most bodybuilders, it is the upper chest (an area taking up about one third of the total chest area). What about dumbbell flyes, incline dumbbell flyes, pec deck, cable cross over, seated chest press, incline seated chest press, decline bench press, decline dumbbell press and others? Aren't these all alternative chest exercises? Sure they are. But no one asks you how much you can pec deck, do they?

I lived through a shoulder injury that lasted for two years. I could not flat barbell bench at all without pain. Luckily for me, my EITHER/OR mind was saying EITHER you figure out a way to keep training chest, OR you suffer severe psychological trauma for losing the only area of your body that grows easily—and for me it was my chest. I used to say that it was the only body part I was *given* and even then, the term “given” must be taken loosely. I still worked damn hard to build the chest I have. The point is, you must break out of the EITHER/OR syndrome if it is keeping you from moving forward.

What follows is a list of exercises most commonly selected by beginners to advanced resistance trainers.

The (M) or (S)

The (M) or (S) after each exercise indicates whether the exercise is multi-joint or single-joint. If you have a choice or are in doubt, choose a multi-joint (M) exercise over a single-joint (S) exercise for a given body part.

The “•••••” Mark

I have added a “•••••” after some exercises to help you find the most effective exercises for a given body part. In the resistance training workout examples on the pages that follow, you may find that you don’t have access to the equipment to properly complete a given exercise, or you may find, on a given day, that others are hogging all the equipment you need to perform the exercise intended. If my workout suggestion calls for “barbell bench press” but you don’t have the equipment to perform that exercise, you can find another chest exercise that is multi-joint (M) and that has the “•••••” associated with it. In doing so, you can feel confident that you have chosen an exercise that is likely as effective. If you have a choice or are in doubt, incorporate more exercises that have the “•••••” associated with them rather than not. If I have not added the “•••••” to an exercise name, then I have no reason to believe it is any better or worse than any other exercise that doesn’t have the “•••••” mark. In other words, those exercises that have the “•••••” will provide the best bang for your buck. If there is no “•••••” mark, feel free to use those exercises to break boredom, add variety and overall balance to your program.

For a detailed description of the exercises listed and specific muscles worked for each, please refer to the “*Strength Training Anatomy*” book by Delavier.

Abdominal Exercises

Abs Crunch Machine - (S)

Any Abs Wheel with Handles - (S)

Crunches Alternating Bicycle - (S)

Crunches Alternating to Each Knee - (S)

Crunches Feet on Floor/Hands Reaching Front - (S)

Crunches w/Foot Flat On Floor - (S)

Crunches w/Foot Up and Crossed - (S)

Crunches w/Foot Up on Bench - (S)

Crunches w/Legs Extended in Leg Lift - (S)

Dumbbell Side Bends - (S)

Hanging Leg Lifts - (S)

Lying Leg Lifts - (S)

Back Exercises

- Barbell Bent Over Rows - (M) ●●●●
- Barbell Deadlifts - (M) ●●●●
- Barbell Stiff Leg Deadlifts - (M)
- Dumbbell Bent Over Rows 2 Hands - (M) ●●●●
- Dumbbell Deadlifts - (M)
- Dumbbell One Arm Rows - (M) ●●●●
- Dumbbell Stiff Leg Deadlifts - (M)
- Kelso Bar Deadlift - (M) ●●●●
- Kelso Bar Stiff Leg Deadlifts - (M)
- Lying Barbell Pullovers - (M)
- Lying Dumbbell Pullovers - (M)
- Palms Facing Each Other Pull Downs
Front - (M) ●●●●
- Partial Deadlifts - (M)
- Pronated Close Grip Chin Ups Front - (M) ●●●●
- Pronated Close Grip Chin Ups Rear - (M) ●●●●
- Pronated Wide Grip Chin Ups Front - (M) ●●●●
- Pronated Wide Grip Chin Ups Rear - (M) ●●●●
- Pronated Wide Grip Pull Downs Front - (M) ●●●●
- Pronated Wide Grip Pull Downs Rear - (M) ●●●●
- Seated Cable Rows - (M) ●●●●
- Seated Machine Pullovers - (M)
- Supinated Close Grip Chin Ups Front - (M) ●●●●
- Supinated Close Grip Pull Downs Front - (M) ●●●●
- T-Bar Rows - (M) ●●●●
- Good Mornings - (S)
- Hyperextensions - (S)
- Stiff Arm Pull Downs - (S)

Bicep Exercises

- Barbell Preacher Curl - (S) ●●●●
- Barbell Standing Curl - (S) ●●●●
- Barbell Wrist Curls - (S)
- Cable High Pulley Curls - (S)
- Cable One Arm Curl - (S)
- Cable Preacher Curls - (S)
- Cable Two Arm Curl - (S)
- Dumbbell Concentration Curls - (S)
- Dumbbell Hammer Curls - (S) ●●●●
- Dumbbell Preacher Curl - (S)
- Dumbbell Reverse Curls - (S)
- Dumbbell Seated Curl - (S) ●●●●
- Dumbbell Standing Curl - (S) ●●●●
- E-Z Curl Preacher Curl - (S) ●●●●
- E-Z Curl Standing Curl - (S) ●●●●
- Lying Supinated Cable Curls to Forehead - (S)
- Spider Curls - (S)

Calf Exercises

- Donkey Calf Raises - (S)
- Leg Press Calf Pushes - (S)
- One Arm Dumbbell Calf Raises - (S)
- Seated Calf Raises - (S)
- Standing Calf Raises - (S)

Chest Exercises

Barbell Bench Press - (M) ●●●●
 Barbell Close-grip Bench Press - (M)
 Barbell Decline Bench Press - (M) ●●●●
 Barbell Incline Bench Press - (M) ●●●●
 Dips - (M)
 Dumbbell Bench Press - (M) ●●●●
 Dumbbell Decline Bench Press - (M) ●●●●
 Dumbbell Decline Flyes - (M) ●●●●
 Dumbbell Flyes - (M) ●●●●

Dumbbell Incline Bench Press - (M) ●●●●
 Dumbbell Incline Flyes - (M) ●●●●
 Dumbbell Lying Pull Overs - (M)
 Vertical Chest Press - (M)
 Vertical Incline Chest Press - (M)
 Barbell Pull Overs - (S)
 Cable Crossovers - (S)
 Dumbbell Pull Overs - (S)
 Pec Deck - (S)

Forearm Exercises

Barbell Reverse Curls - (S)
 Barbell Wrist Curls - (S)

Dumbbell Wrist Curls - (S)
 Reverse EZ Curl Preachers - (S)

Hamstring Exercises

Stiff Leg Dead Lifts - (M)
 Lying Leg Curls - (S)

Seated Leg Curls - (S)
 Standing Leg Curls - (S)

Shoulder Exercises

Barbell Seated Back Press - (M) ●●●●
 Barbell Seated Front Press - (M) ●●●●
 Barbell Standing Back Press - (M) ●●●●
 Barbell Standing Front Press - (M) ●●●●
 Barbell Upright Rows - (M)
 Dumbbell Seated Back Press - (M) ●●●●
 Dumbbell Seated Front Press - (M) ●●●●
 Dumbbell Standing Back Press - (M) ●●●●

Dumbbell Standing Front Press - (M) ●●●●
 Log Clean & Press - (M)
 Standing Log Press - (M)
 Standing Push Press - (M)
 Dumbbell Front Raises - (S)
 Dumbbell Rear Lateral Raises - (S)
 Dumbbell Side Lateral Raises - (S)

Thigh Exercises

Barbell Free Standing Back Squat - (M) ●●●●
 Barbell Free Standing Front Squat - (M) ●●●●
 Barbell on Shoulder Lunges - (M)
 Dumbbell Squats - (M)
 Dumbbells in Hands Lunges - (M)
 Hack Squat - (M)
 Leg Press - (M) ●●●●
 Partial Squats - (M)
 Sissy Squats - (M)
 Smith Machine Back Squat - (M) ●●●●

Smith Machine Front Squat - (M) ●●●●
 Squat Press - (M)
 Zercher Squats - (M)
 Cable Abductions - Outer Thigh - (S)
 Cable Adductions - Inner Thigh - (S)
 Cable Back Kicks - (S)
 Hip Abduction - (S)
 Hip Adduction - (S)
 Leg Extensions - (S)
 Machine Hip Extensions - (S)

Trapezius Exercises

Barbell Shrugs - (S)
 Dumbbell Shrugs - (S)
 Kelso Bar Shrugs - (S)

Machine Shrugs - (S)
 V-Bar Shrugs - (S)

Tricep Exercises

Close Grip Bench Press - (M) ●●●●
 Barbell Lying Triceps Extension - (S)
 Barbell Seated Triceps Extension - (S)
 Dumbbell Bent over Kick Backs - (S)
 Dumbbell Lying Triceps Extension 1 Hand - (S)
 Dumbbell Seated Triceps Extension 1 Hand - (S)
 Dumbbell Seated Triceps Extension 2 Hands - (S)

E-Z Curl Lying Triceps Extension - (S)
 E-Z Curl Seated Triceps Extension - (S)
 Over Head Rope Kickouts by Pulley - (S)
 Pronated Triceps Push Down Rope - (S)
 Pronated Triceps Push Down Straight Bar - (S)
 Pronated Triceps Push Down V-Bar - (S)
 Supinated Triceps Push Down Straight Bar - (S)

Eight Steps to Creating a Massively Effective Periodization Program

1. An effective periodized workout will focus primarily on multi-joint exercises for the large muscle groups, giving them priority over single-joint exercises.

You must ask: “When available, have I chosen at least one multi-joint exercise for each major muscle group?”

Yes? Continue developing your program.

No? Choose at least one multi-joint exercise for all large muscle groups.

2. An effective periodized workout will balance exercise number across muscle groups when overall fitness and muscularity is the goal. If you choose to perform two exercises per muscle group, you should generally choose two exercises for every muscle group, not just the large muscle groups.

There are exceptions to this rule. An important note before listing the exceptions is one of priority and time management. During a workout, it is important you place the most emphasis on multi-joint exercises for the large muscle groups. Smaller muscle groups and accessory muscles will be recruited when you do. As busy Lifestylers, I realize you will want to maximize your 30- to 60-minute workout. If your particular workout calls for two exercises for each body part, you’ll quickly find that your workout could easily run over on time. Therefore, for practical, real-world purposes, I will let you in on the common exceptions to the rule of exercise number balance.

Exceptions may include the abdominal muscles, trapezius, shoulders, forearms, hamstrings and calves. Abdominal muscles are trained often with higher repetitions in many varied schemes and may not fit the traditional “set” structure as other muscles do. Shoulders are frequently overtrained and are used as an accessory for many large muscle group movements. Lateral and rear shoulder work is imperative, however, as well as rotator cuff balance (see www.leannesslifestyle.com for a document title “*The Shoulder; Basic Structure and Why it Hurts*” by Rick Kring, PT). Shoulder work can often many times be lessened compared to other large muscle groups overall if specific attention is given to the middle and rear deltoid. For time’s sake, forearm work is many times omitted if bicep work is sufficient. Hamstrings fatigue rapidly and can respond with fewer sets than other large muscle groups. Calf work is important for stability and whole-body balance, however, unless your goal is to create diamond-shaped competition calves, many find they do quite well with fewer overall exercises. Keep in mind: These are only guidelines, not absolutes. Your mileage may vary.

You must ask, “Am I completing the same number of exercises for chest, back, thigh, bicep and triceps?”

Yes? Continue developing your program

No? Balance the exercise number for the chest, back, thigh, bicep and triceps.

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3. With periodization for the transformationist, it is easiest to think of a mesocycle as a 4-week period of training. It is also easy to think of a macrocycle as a 12-week period. When creating your Lifestyle resistance training program by implementing periodization principles, your first 4-week mesocycle of each 12-week macrocycle should include repetitions for each exercise ranging between 9 and 15. Further, your total volume should be moderate-high to high (see definition of “Volume” in this chapter). Remember, a fundamental principle of periodization and appropriate resistance training is that one can train either intensely or with high volume, but not both for any extended period of time. A rep range of 9 to 15 ensures the intensity is relatively low; therefore, it is important the volume is relatively high.

You must ask: “In the first mesocycle of my program, are most of my repetitions performed in the 9- to 15-repetition range? Next, is my total volume, as defined in this chapter, moderate-high to high?”

Yes? Continue developing your program.

No? Select loads that will cause near-momentary muscular failure for any exercise on the last set in the repetition range of 9 to 15. If volume is too high, reduce exercise number per muscle group or total sets per exercise. If volume is too low, increase total exercise number per muscle group or total sets per exercise.

4. During the second mesocycle, a shift toward increased intensity (repetition ranges between 6 to 8) coupled with less volume is warranted to further progression and add variability to your plan.

You must ask: “During my second Mesocycle (weeks 5 to 8) am I choosing loads that cause me to work very hard, many times at or near momentary muscular failure, in the 6- to 8-repetition range? Is my total volume moderate during this phase?”

Yes? Continue developing your program.

No? Choose loads that will cause you to struggle greatly to complete 6 to 8 repetitions for each exercise. If volume is too low, either add more exercises for each body part or add more sets for each exercise. If volume is too high, either reduce the number of exercises for each body part or reduce the number of sets for each exercise.

5. During the third and final mesocycle (weeks 9 to 12), a further shift toward increased intensity (repetition ranges between 5 to 7) coupled with less volume is warranted to further progression and add variability to your plan. During the final mesocycle, one of the weeks may include a period of higher intensity (5 to 7 reps for each exercise) coupled with high volume.

You must ask: “During my third and final Mesocycle (weeks 9 to 12), am I choosing loads that cause me to work very hard, many times at or near momentary muscular failure in the 5- to 7-repetition range? Is my volume slightly less overall than in weeks 5 to 8? Have I included one week where my volume is high?”

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Yes? Continue developing your program.

No? Choose loads that will cause you to struggle greatly to complete 5 to 7 repetitions for each exercise. If volume is too low, either add more exercises for each body part or add more sets for each exercise. If volume is too high, either reduce the number of exercises for each body part or reduce the number of sets for each exercise.

6. Periodization and fundamental resistance training principles dictate that between 3 and 6 sets be completed for each exercise.

You must ask: “For the exercises selected, am I completing a minimum of 3 sets and no more than 6 sets?”

Yes? Continue developing your program.

No? Adjust the set number accordingly for each exercise.

7. Through periodization, we allow the repetition prescribed (within 1) to dictate the load used. If a particular exercise calls for 11 repetitions, one should choose a load that, on the final set, will be a struggle but will allow a full repetition to be completed for at least 10 of the 11 prescribed. If a load is chosen that is too heavy, thus not allowing the 10th or 11th repetition to be completed, the load should be reduced on the next workout to allow for the successful completion of all the repetitions prescribed. Continuing with the 11-repetition example, if the last repetition of the last set for that exercise is completed with little perceived effort, the load should be adjusted higher on the next workout to ensure proper stimulation of the targeted muscle fibers. Many adjustments may be necessary to the load during the first several weeks for inexperienced trainers. This is quite common until one gets a feel of what they are capable.

You must ask: “Am I allowing the prescribed repetitions to dictate the load I am choosing? Am I successfully completing the repetitions prescribed within one and am I approaching or reaching *momentary muscular failure on the last repetition of the last set for each exercise?*”

Yes? Continue developing your program.

No? Adjust the load to successfully complete the prescribed number of repetitions without choosing too light a load.

8. Through periodization, it is well established that changing the tempo periodically can facilitate less or more demand upon the working muscles. Many individuals never change their tempo, but instead commonly follow a 1-0-X-0 sequence. Never changing tempo is sub-optimal. Therefore, it is intelligent in designing your program to include a tempo change with each macrocycle at a minimum (every 12 weeks).

You must ask: “Is my tempo for this 12-week macrocycle different from the last macrocycle?”

Yes? Enjoy your workout!

No? It is time to change your tempo!

When you apply the principles presented in this chapter to your resistance training program, you are well on your way to creating the lean, muscular body of your dreams. It is important you recognize the tremendous variables you can control to keep forward progress in motion. This chapter was written primarily for the beginner to intermediate resistance trainer and I respectfully acknowledge the plethora of advanced training options that have also proven successful to thousands of resistance trainers worldwide.

Summary

Your investment of time in learning to develop and execute a proper Lifestyle resistance training workout is monumentally worth it. Resistance training can deliver what no other exercise can: a better shape, improved strength and an annuity of calories burned each day.

Hypertrophy is the goal we all must have to reshape our bodies. Some authors will use terms such as toning and shaping and avoid words such as hypertrophy and muscle growth. But neither toning nor shaping will occur without some hypertrophy of skeletal muscle.

Periodization provides the fundamental principles upon which a Lifestyle resistance workout is based. The concept of periodization is simply centered around the idea of planned variation within a cycle of training. With periodization, you no longer exercise by the seat of your parents. Through periodization you can accomplish the most important goal of resistance training: progression. Progression is truly the single greatest indicator of your eventual success at building muscle and reshaping your body.

When you invest a little of your time to understanding the terminology of resistance training, you will be able to create your own workouts or understand whether any workout is likely to deliver you the results you are looking for.

Take Action and Feel Great!

1. Visit www.leannesslifestyle.com for free examples of Lifestyle resistance training workouts for beginners to advanced athletes.
2. If you are new to resistance training, I strongly recommend you make an appointment with a certified personal trainer who regularly engages in vigorous resistance training. Take a package of at least six sessions to learn the fundamentals of form with hands-on help. This, too, is money very well spent for the beginner!
3. After visiting the website, print out a workout you would like to use and take it with you. Ask the personal trainer to show you how to perform the exercises. Once you know proper form, you can use the Workout Generator to build an unlimited number of workouts on your own. Always remember the rules in this chapter and follow the eight-steps for creating a quality periodization workout.
4. Do not fall into the trap of avoiding the most difficult and most effective, multi-joint exercises (squats, lunges, bench press, incline bench press, deadlifts, bent over rows etc.). The load you use can be quite light until form is good, however, the sooner you “Eat That Frog” the better. “*Eat That Frog*” is a book by Brian Tracy that deals with attacking the single, most important task of the day head on and I highly recommend it to everyone. Do not avoid learning the complex multi-joint exercises. To do so will only prolong your lack of progress and reshaping necessary to achieve your goals.

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Aerobic Lifestyle Prescription

“Endurance training produces similar gains in aerobic capacity in healthy people throughout the age range of 20 to 70 years, and this adaptation is independent of age, sex, and initial fitness level.”

Aerobic training is any training that primarily uses oxygen as a fuel source. Most of you reading this have your own thoughts of what aerobic activity normally involves. Aerobic activities typically associated with improving aerobic performance and fat loss include:

- Walking briskly
- Jogging
- Swimming
- Rowing
- Stepping
- Cycling
- High- and low-impact step aerobics
- Spinning
- Body pump

For some of you, aerobic training is the step class you signed up for last fall. For others it is a ride on a stationary bike, a run through your neighborhood, the treadmill, Stair Master or rowing machine that serves your needs. Nearly all of you have a perception of what benefits you are receiving by doing aerobics, but many of you are likely wrong about how aerobic activity can benefit your goal of fat loss or improve health.

The Real Benefits of Aerobic Training

There are benefits for everyone who engages in regular aerobic-powered exercise. To receive the benefits listed below, the minimal sessions needed are two to three per week at a minimum of 20 minutes each. Training more will not necessarily improve any of the benefits over training the recommended two to three days per week, however, increased duration or frequency may benefit those who seek superfitness and ultimate leanness. I'll cover those specifics in more detail later. Here are some true physical benefits of aerobic activity, which are well anchored in science:

- Cellular structures called mitochondria (the primary source of adenosine triphosphate- ATP) grow in number and size in muscles used for aerobic activity.
- Within muscles used to generate the aerobic movement, there is an increased ability to mobilize and use fat for energy. This is likely a result of an improved and increased blood flow within the muscles. This additional efficiency and use of fats for fuel is thought to spare carbohydrates, a real benefit for resistance trainers or endurance athletes needing the explosive power at the end or any part of the workout or race.

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- Type I muscle fibers (generally thought of as the endurance muscle fibers, which don't hypertrophy enough to get someone recognized as a resistance trainer) will grow in size. This can allow the endurance athlete to perform better.
- The heart grows in size and weight.
- Heart rate during rest and submaximal exercise decreases with regular aerobic activity. It is common for a resting heart rate to drop 10 to 20 beats per minute with regular aerobic activity.
- The ability of the heart to pump more blood with each stroke is improved. Because the heart can pump more blood with each stroke, it can also deliver more oxygen per stroke (carried in the blood) to muscles and other tissues.
- The ability of active muscles to “extract” oxygen from the blood is improved, thus allowing for an increased ability of the muscle to fuel movement and exertion.
- A reduction in both systolic (top number) and diastolic (bottom number) blood pressures is noticed among regular users of proper aerobic strategies.
- Having an efficient aerobic system might allow for faster recovery between resistance training workouts because of increased blood flow within muscles and the ability for waste to be cleared faster and more efficiently. This improved recovery ability may allow more work to be performed during training, which may lead to greater strength improvements during resistance training.
- Improving your aerobic capacity may improve the ability for hormones and nutrients to get to the muscles during both exercise and recovery.

The Fat Burning Zone and Morning Aerobics

There are two erroneous beliefs held by many who engage in a quest for a great physique transformation. They are interconnected and are:

1. You must exercise in some “fat burning zone” to see significant fat loss.
2. You must perform aerobic activity first thing in the morning on an empty stomach.

The “fat burning zone” is some mysterious place where you allegedly have all your fat loss worries taken away. Many of you have seen a chart on the treadmill or your aerobics teacher talked about this fat burning zone as though it were the end-all be-all to your physique transformation. Actually, the fat burning zone is more like an urban legend that just will not die, rather than a truly functional parameter to which you should give more than a moment's thought to. At the worst it is

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a lie, at best it is only misleading. Performing your aerobic training first thing in the morning on an empty stomach is also suggested for the same reason: because you burn more fat during the exercise session when you train on an empty stomach.

Today, as you sit in your chair reading this book, you are in the fat burning zone. It is true! At rest and during low-intensity, long-duration events, the greatest contribution to overall metabolism comes from fat. Why aren't you thin and superfit? Why isn't cellulite disappearing from your body like nobody's business? It is because the total calories burned at rest and during the low-intensity activities you typically engage in are not enough to offset your consumption of calories. Even though fat wins as the major contributor of "sitting still" and low-intensity activities, there aren't enough calories being burned during these times to offset the calories being consumed.

It is true that aerobic training on an empty stomach, first thing in the morning, can burn 300 to 600 percent more fat *during* the activity over training with ample carbohydrates before training. This sounds good on advertising hyperbole but what substrate is used for fuel during exercise nets little contribution to overall *weight loss*. Your goal is not to ensure that fat is burned as a primary fuel source during exercise. Your goal is weight loss while preserving or adding lean body mass. This is achieved by creating a reasonable relative caloric deficit. The more consistently you engage in vigorous exercise activity, the more calories you will burn during and after that activity. This has a far greater reach than whether you burned more fat than carbohydrates during the workout.

Exercising at a higher level of intensity offers many benefits over low-intensity training. The harder the exercise, the greater the total number of calories expended per minute. Although the contribution of fat to fuel activity goes down as the intensity of the activity goes up, your total caloric expenditure increases. Vigorous aerobic activity increases your aerobic capacity and conditions your heart. Aerobic exercise conducted with purpose and effort pushes you, making you fitter and more conditioned—and a more conditioned person is a more efficient fat burner during her non-exercising hours.

Ignore the fat burning zone and concern yourself with caloric expenditure—it is what really matters.

After all I have said thus far on the subject, I must state that I agree it is best to train first thing in the morning if these conditions exist:

1. You have plenty of vigor and energy to perform the activity.
2. You are a morning person or have a tendency to skip workouts if put off until later in the day.
3. Performing morning workouts invigorates you for the rest of the day.

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I further believe it is wise to train on an empty stomach if you feel ill by consuming food or drink before morning exercise.

Since the total caloric contribution during and after the workout is what matters, you must take into consideration your schedule, the type of person you are (i.e., morning, afternoon or evening), how not training in the morning affects your exercise compliance and consistency, and whether you have the energy to create a significant caloric burn during the workout. If you would rather have bamboo chutes be jammed under your fingernails than train at 5 A.M. and at that time your energy level is the equivalent of a sedated Jabba the Hut, then you are probably not doing yourself much good by training at that hour. You might do better once you have had your cup of coffee and some food at a minimum.

At the end of the day, at the end of the week and when all the chips have been cashed in, the bottom line is calories. We can't rule out all the personal differences and qualities attributed to training at various times of the day when our energy is highest and we are running at peak. For weight-loss/fat-loss purposes, there is no metabolic advantage to striving for a fat burning zone or first-thing aerobics on an empty stomach.

Myths and Realities of Aerobic Training

Myth: Aerobics are the key to fat loss.

Reality: Aerobics help burn additional calories.

Myth: Doing low intensity aerobics is better for fat loss than high intensity aerobics.

Reality: Low intensity aerobics burns fewer calories.

Myth: Aerobics burn hundreds of calories after you are through with the exercise.

Reality: Traditional aerobic work will burn an insignificant number of calories after you stop.

Myth: The pros do 45 to 60 minutes of aerobics twice per day 5 to 7 days per week. That must be their secret to fat loss and staying lean.

Reality: The pros use a good nutrition regimen, resistance training and many times illegal drugs to get or stay lean and many pros don't know any more about exercise physiology than you. Oh yes, it's true. Some do 45 to 60 minutes of aerobic activity, twice per day, 5 to 7 days per week only in the final 4 to 8 weeks of show preparation.

Myth: I will likely burn 600 calories per hour doing aerobic activity. I know because the monitor on the treadmill I use tells me so.

Reality: Women will burn 240 to 480 calories per hour and men will burn 420 to 600 calories per hour. The average person reading the latest Danielle Steele novel while walking on the treadmill is likely to burn 150 to 200 calories per hour of aerobic activity.

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Myth: Research says that if I do aerobics first thing in the morning, I will burn 300 to 600 percent more fat than if I do my aerobics after eating or later in the day. That means I will lose 300 percent more fat by doing aerobics in the morning before eating.

Reality: Research does indicate there is a fat mobilization benefit to completing aerobics in the morning on an empty stomach, however, it is not the extra fat being burned that matters. What matters are the total calories burned vs. the calories consumed per day. In the end, it is all about calorie balance and creating a reasonable relative caloric deficit without invoking a primordial, hormonal roadblock to fat loss.

What Is Effective Aerobic Activity?

For the purposes of a body transformation, aerobic exercise involves continuous, uninterrupted movement causing a heart rate between 60 and 90 percent of your predicted maximum for at least 20 minutes.

Determining Your Target Heart Rate

Two formulas are frequently used to determine the predicted maximum heart rate and target heart rate for training:

- Karvonen method
- Percentage of Maximal Heart Rate method

Karvonen Method

Formula:

Age-predicted maximum heart rate (APMHR) = 220 - age

Heart rate reserve (HRR) = APMHR - resting heart rate (RHR)

Target heart rate (THR) = (HRR x exercise intensity) + RHR

Example:

A 35-year-old woman with a RHR of 65 beats per minute (BPM) wants to perform aerobic activity at 70 percent of her APMHR.

APMHR = 220 - 35 = 185 BPM

RHR = 65 BPM

HRR = 185 - 65 = 120 BPM

Target Heart Rate = (120 x 0.70 = 84) + 65 = 149 BPM

In this example, the 35-year-old woman would target a heart rate of 149 beats per minute. This can easily be figured by doing a 10-second pulse check. To determine a 10-second pulse check, simply divide the THR by 6 ($149/6 = 25$). In a 10-second pulse check, this woman should strive for 25 beats.

Percentage of Maximal Heart Rate Method

Formula:

Age-predicted maximum heart rate (APMHR) = $220 - \text{age}$

Target heart rate (THR) = (APMHR \times exercise intensity)

Example:

The same 35-year-old woman wants to perform aerobic activity at 70 percent of her APMHR.

$$\text{APMHR} = 220 - 35 = 185 \text{ BPM}$$

$$\text{THR} = 185 \times 0.70 = 129 \text{ BPM}$$

In this example, the 35-year-old woman would target a heart rate of 129 beats per minute. Again, to determine whether she is on target during training, she can do a 10-second pulse check. Using this formula, she would strive for a target 10-second heart rate of 22 beats.

Since most of you don't have access to laboratory equipment that can measure your functional capacity and true aerobic power, you'll have to use the above formulas as a guide only. Those who have considerable experience may lean toward the Karvonen method. Beginners may want to veer toward the Predicted Maximal Heart Rate method. Others may want to choose a number somewhere in the middle. As long as your physician clears you for take off, either formula can be used with similar results for traditional aerobic training.

A typical aerobic workout used by tens of thousands of fitness enthusiasts across the country is 30 to 45 minutes in duration at 70 percent of predicted maximum. This 70 percent of predicted maximum level is also commonly called "conversational exercise." Conversational exercise can be effective for improving aerobic capacity and it is "conversational" because it is not so strenuous that it limits your ability to talk during it.

The Prescription

Research indicates that men and women differ little in their aerobic training needs. However, in my practical experience in dealing with hundreds of clients hands-on, there indeed is a greater need of aerobic training for women over men. It probably has something to do with the fact that evolution has given women the role of carrying a fetus until full term and she needs about nine months' worth of stored fat to ensure she doesn't die during pregnancy. This is not to say that men are cleared from performing aerobic activity, however, most men do not have issues with stubborn fat on the lower extremities and most women do. Women need to do sufficient aerobic activity to mobilize fat

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stores, especially lower-extremity fat stores. What is sufficient will vary among women, but in most cases, it will be more aerobic activity than necessary for most men. The typical man's fat stores are distributed primarily around the waistline. While this type of fat distribution is more dangerous and increases his risk of cardiovascular disease and stroke, it is also more easily mobilized and reduced. Let's not forget, too, that a man does not have the same genetic coding to keep a nine-month supply of stored fat on hand at all times.

This is a good time to look once again at the *Energy Balance* chapter. In that chapter I list specific formulas for determining the total exercise time you'll need to perform to accomplish a specific weight loss each week. I want to emphasize a few points, however, to ensure you have a clear understanding of the aerobic requirements before you.

- Any activity where oxygen is sufficient to fuel the movement is aerobic. So yes, walking, leisurely biking, canoeing and hiking all burn calories and are all aerobic activities. Your focus should be on performing more aerobic activity at the intensity outlined in this chapter (heart-rate focused) and the *Energy Balance* chapter with respect to the Ratings of Perceived Exertion Scale.
- Your total duration each week is determined first by following the formula in the *Energy Balance* chapter. How many total minutes you should engage in vigorous exercise is individual, however, guidelines for a start are provided in that chapter. The duration of each session should be somewhat balanced and spread out throughout the week.
- The frequency of sessions will be determined on an individual basis but must follow the rules as set forth in the *Energy Balance* chapter and the *Resistance Training for Everyone* chapters. Resistance training is performed before aerobic training if they are performed successively. This is not to be confused with performing aerobic activity in the early morning, then later in the day (at least 2 to 4 hours later), performing resistance training. This is common among successful Lifestylers and acceptable.

It is quite common for women engaged in Lifestyle weight loss to perform 30 to 45 minutes of aerobic training at a frequency of 4 to 6 sessions per week. It is true as well that many fitness competitors who achieve single-digit body fats will perform 90 to 120 minutes of aerobic activity 6 or 7 days a week in the last 4 to 8 weeks before a show. They do not otherwise perform aerobic training at this frequency and duration, however. The good news is that once maintenance is achieved, it is quite common to reduce aerobic training to one-half your weight-loss frequency and duration, or even less.

Men also benefit in the fat loss department from engaging in aerobic training. It is quite common for men to aerobically train at a frequency of 3 to 5 sessions per week, with each session lasting 20 to 30 minutes. Again, once in maintenance, many men can reduce aerobic training to almost nothing or 1 to 2 sessions per week.

- With regard to total vigorous exercise minutes, your aerobic training must not completely eclipse your resistance training minutes. Many women and some men perform 90 to 100 percent of their vigorous exercise as aerobic activity and are sorely disappointed at what they look like when the weight is gone. I recommend you spend a maximum of 70 percent of your vigorous exercise in aerobic training. This means a minimum of 30 percent of your total, vigorous exercise time should be engaged in resistance training. If your total, vigorous exercise time for a week is 300 minutes then at least 90 (300×0.30) of those minutes should be engaged in resistance training with the remaining 210 (300×0.70) in vigorous aerobic activity. The closer you can split your training equally between resistance training and aerobic training, the better.

Aerobic Training and Muscle Loss

There is a very good reason that you feel like giving the typical, competitive marathon athlete a sandwich: Many are waif-like and have little muscle mass. There's also a very good reason the fastest man in a world-class 100-meter sprint will have substantial muscle mass, especially in his legs. As I discussed in the *Resistance Training for Everyone* chapter, the body specifically adapts to imposed demands (SAID). I also mentioned that muscle is very energy dependent and the body will not deposit one gram of protein to new muscle if it is not coaxed heavily into doing so. The marathon runner does not need substantial muscle mass. Her body has specifically adapted to the imposed demands by becoming an aerobic machine. It's more efficient for the body to be light and for type I muscle fibers (endurance fibers) to be engaged and enhanced through specific, adaptive processes that are unimportant for this discussion. The sprinter, not unlike you as a transformationist, requires strong, explosive muscles to power the start and propel the runner a short distance as fast as possible. Stay with me. I will show you where all of this is leading next.

If you want to look like a marathon runner, you ought to eat, train and perform like a marathon runner. This would involve hours and hours each week engaged in aerobic training with little emphasis on resistance training. Conversely, if you want to look like a fitness competitor or Calvin Klein underwear model or simply want to drop some body fat while becoming buff, then you cannot train like a marathon athlete. You must follow my recommendations for total vigorous exercise time as outlined in the *Energy Balance* Chapter and also pay strict attention to the percentage of your exercise as aerobic training. In essence, the closer you can split your resistance training time and aerobic training time the better.

I will no longer apply an arbitrary cap to how much total time is allowed with respect to aerobic training to minimize or prevent muscle loss. In years past I used to say that if you were performing aerobic training longer than 90 or so minutes per week, you were likely to lose substantial muscle mass. In working with hundreds of clients hands-on, taking into consideration the plethora of aerobic training methods those clients engaged in, the multitude of starting body fats, wide variety of experiences in resistance training, and individual differences in

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ability to add and preserve muscle through genetics, nutrition, supplementation, lifestyle and stress management, I now simply say this:

The body will become what you most engage in. If you spend your vigorous exercise minutes almost solely engaged in aerobic training, then you will become more like those who train that way (marathon runner). If you spend your vigorous exercise minutes almost solely engaged in resistance training, then you will become more like those who train that way (bodybuilder). If you achieve near balance between aerobic training and resistance training as they contribute to total, vigorous exercise time, then you are most likely to become more like those who train that way (fitness competitor, Calvin Klein underwear model, and natural, entry level bodybuilder).

Regardless of whom you choose to become, as dictated by the contribution of your aerobic and resistance training, you can shorten the total aerobic training time by incorporating a method of training known as “interval training.”

Interval Training for the Advanced Transformationist

So far, I have discussed the standard aerobic workout. Another form of training involves aerobic training that is not constant or continuous. Instead, the training intensity is varied throughout the session and the session is normally shorter than traditional aerobic workouts. This type of training is commonly referred to as interval training.

The low intensity aerobic workout (that supposedly burns more fat than high intensity aerobics) is not important for fat loss; rather, it is the total caloric expenditure. However, while the caloric expenditure *during* the workout is what matters most, there is a potential caloric-burn benefit beyond the training session for those willing to engage in interval training.

The contribution of excess caloric burn above your resting metabolic rate after a workout is referred to in scientific jargon as excess post-exercise oxygen consumption (EPOC). The EPOC of traditional aerobic activity (conversational aerobics) is quite low. There is little residual caloric burn post-workout after a typical cardio session. However, while resistance training typically yields between 5 and 9 calories per minute (including rest periods between sets) *during* the workout, you may burn well over 100 additional calories in the 24-hour period *following* an intense resistance training session. Thus, you not only benefit from the calories burned during a resistance training workout, but from the additional calories expended through repair and remodeling of damaged muscle tissue in the 24-hour period following as well.

Interval training also provides a residual benefit after the workout is complete (similar to resistance training) and may therefore significantly affect weight loss over traditional aerobic activity. Research has shown that when two groups of individuals were trained with either traditional aerobic activity or interval training, the group who trained using interval training

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lost 9 times the fat but only spent 27 percent of the time doing the exercise (60 minutes per week vs. 3.75 hours per week). Talk about time management!

Three Interval Training Cautions

First, those who were inactive before reading this book should not use interval training. Because it will take your heart rate to near maximum repeatedly, it is not advised that anyone with any pre-existing cardiovascular disorders attempt this program without first consulting with their physician. Again, everyone should seek a complete checkup by his or her physician before beginning the Lifestyle.

Second, interval training is far more intense than the type of aerobics you may be used to. Because of this additional stress on the body, there is a chance cortisol (a stress hormone responsible for tearing down muscle if secreted in excess) may elevate if rest between sessions is insufficient.

Third, interval training is likely to cause a strength or net muscle loss if done more often than two to three times per week, likely due to a change in stress on muscle fiber types and the body's overall stress response.

The Interval Solution to Boring Aerobics

Interval training commonly lasts from 5 to 20 minutes and involves periods of high intensity alternated with periods of low intensity. The Lifestyle Interval Solution will involve a total of 20 minutes of work. Here is where the traditional aerobic workout and interval training differ:

- Traditional: Continuous low to moderate intensity for 20 to 60 minutes.
- Interval: Alternating low to very high intensity for no more than 20 minutes.

- Traditional: What you burn is what you get.
- Interval: What you burn is usually higher than traditional plus you get increased metabolism in the hour or so following the interval training.

- Traditional: You can carry on a conversation during the full session and even read a magazine sometimes without focusing on your exercise.
- Interval: You will have no desire to speak when you are training near maximum effort.

The 8-week program that follows describes how you can incorporate the Lifestyle Interval Solution into your training regimen with safety and effectiveness. Because the effort you are going to put forth during the high intensity portion will be quick, there is no accurate way (commercially) to measure your heart rate. Therefore, the high intensity portion of the interval training should be some increased effort that is subjectively measured (Ratings of Perceived Exertion from the *Energy Balance* chapter at a 19 or 20), which takes you to a level that matches the percentage of effort I have listed in the program.

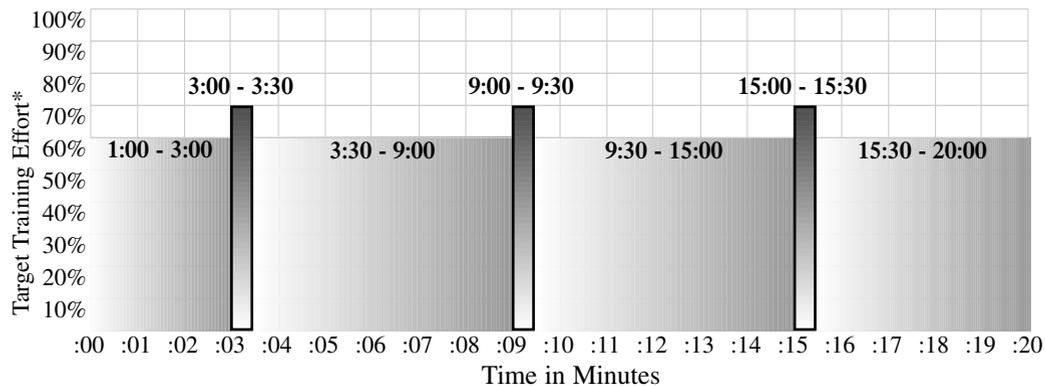
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The low intensity periods of the Leanness Lifestyle Interval Solution are slightly lower than what you are typically used to for traditional aerobics (60 percent of maximum heart rate vs. 70 percent).

Always Begin the Interval Training Workout with 3 Minutes of Steady Work At 60 Percent of Maximum Heart Rate

HI - High Intensity LI - Low Intensity

Week 1: Three high intensity levels at 70% maximum heart rate (MHR) for 0:30 with 5:30 of low intensity levels between



*** REMEMBER!**

Your Maximum Heart Rate Is 220 minus your age!
Percentages shown on charts (Target Training Effort %) are a percentage of your maximum effort.

An 8-Week Interval Training Program Defined

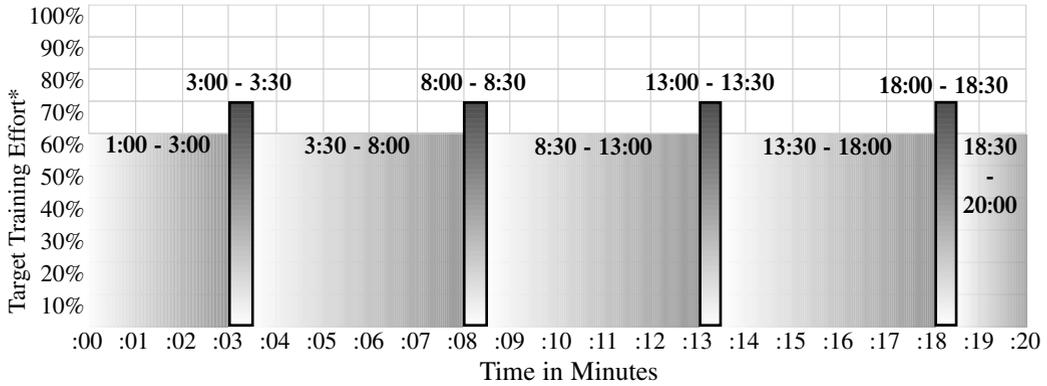
I will describe the chart for week one in detail. All charts that follow are simply a variation in length of interval and intensity level.

Week One

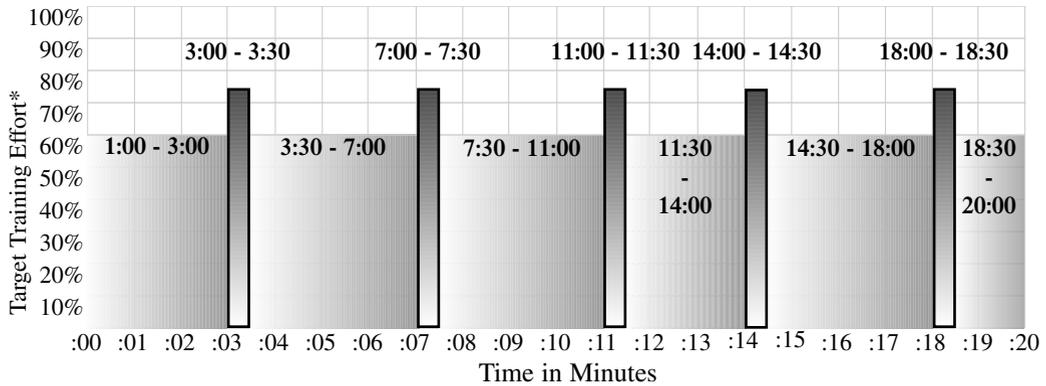
During Week One, you start in minutes 1 through 3 with an intensity level at a measurable 60 percent of your maximum heart rate (MHR). This is low intensity. At precisely the 3-minute mark, you increase your effort by 10 percent for 30 seconds until you reach the 3 minute and 30 second mark. At that time, you will drop back to an effort that equaled 60 percent of your maximum heart rate at the start of the session. Will your heart rate drop all the way back down to 60 percent of your MHR? Probably not. Nevertheless, your effort during the low periods should correspond to the guidelines provided. You must become subjectively good at determining what level of exertion is necessary to reach the target efforts and heart rate percentages or you use equipment that helps you measure these guidelines through RPMs or other new, digital means. Investing in a heart rate monitor at some point might also be a wise idea.

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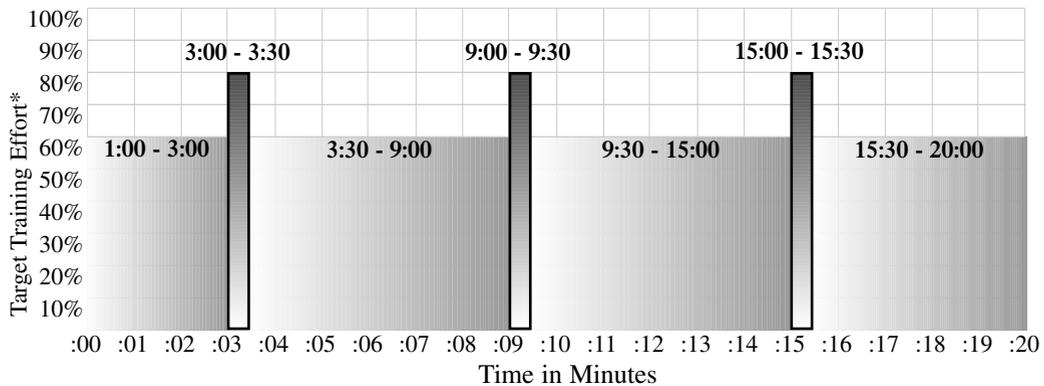
Week 2: Four high intensity levels at 70% MHR for 0:30 with 4:30 of low intensity levels between



Week 3: Five high intensity levels at 75% MHR for 0:30 with 3:30 of low intensity levels between

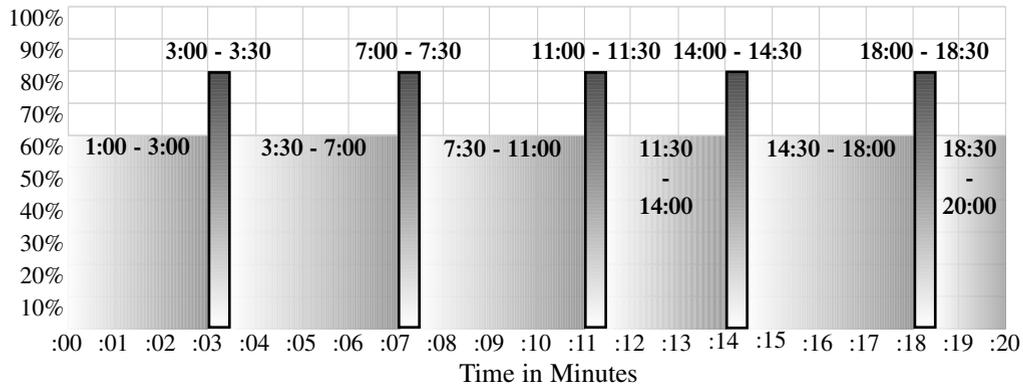


Week 4: Three high intensity levels at 80% MHR for 0:30 with 5:30 of low intensity levels between

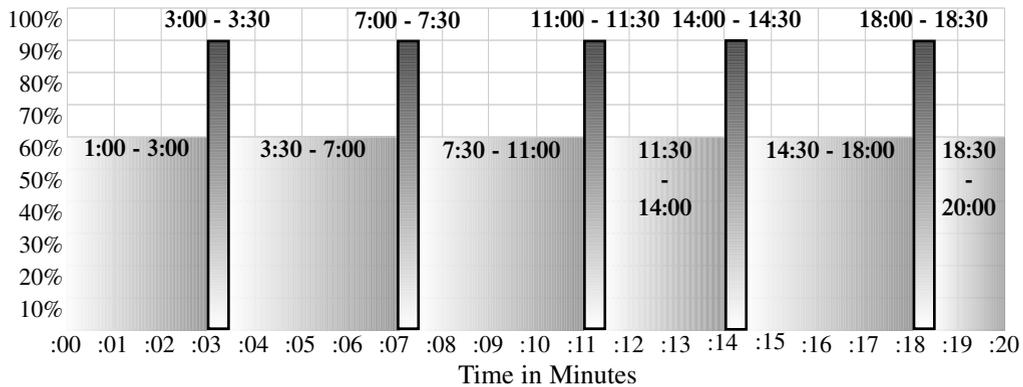


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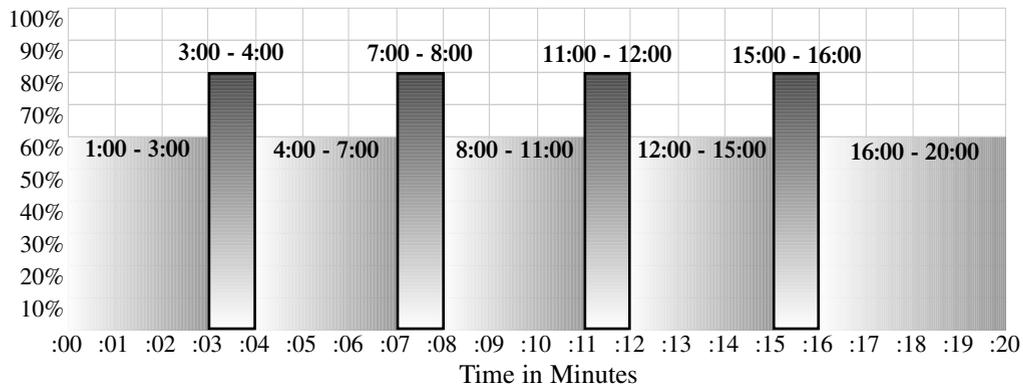
Week 5: Five high intensity levels at 80% MHR for 0:30 with 3:30 of low intensity levels between



Week 6: Five high intensity levels at 90% MHR for 0:30 with 3:30 of low intensity levels between

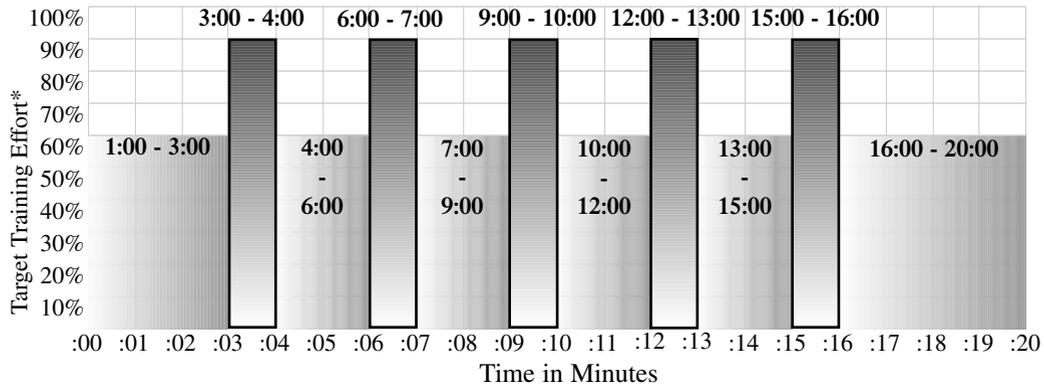


Week 7: Four high intensity levels at 80% MHR for 0:60 with 3:00 of low intensity levels between



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Week 8: Five high intensity levels at 90% MHR for 0:60
with 2:00 of low intensity levels between



Week Eight

By week 8 (with consistent two or three times per week aerobic activity plus resistance training), you will have developed a substantial increase in performance adaptation. Notice that not only are your high intensity periods longer, but they are more frequent than week one. Also, notice that the high intensity periods (which are 1 minute long now) require a 90 percent effort. What is 90 percent? Since trying to measure your heart rate during this 1 minute of borderline agony will be next to impossible, you have to gauge your effort based on your max. At a 90 percent effort, you are only training 10 percent less than an-all out effort. Therefore, 90 percent is not an all-out effort but it is not much less than all out. In other words, these one-minute high intensity sessions will be a real bear, but you must trust that each interval session is far more effective than traditional aerobics. By comparison, this type of aerobic activity *will allow you to cut your training time in half or even by two-thirds*.

To conclude this chapter, I want to state that considerable arguments exist over whether it is best to train aerobics on the same day as resistance training or on alternate days. Some argue that it is best to resistance train first (I totally agree) and then—on the same day—do aerobics immediately after. The idea with this exercise model is you will be able to take an entire day off with no exercise stress on the body during off days. Others state that training aerobically on resistance training off days is better because it allows you to focus on each training day more intensely. For some, the additional 20 minutes of aerobic exercise added onto a 45- to 60-minute resistance-training workout is beyond the time allotment they have available. Still, for others who are training intensely with weights for 30 minutes, the additional 20 minutes of aerobic activity on the same day might fit nicely into the schedule.

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My recommendation at this point, until further research clearly tells me which way is best, is to always do aerobics training after resistance training if they are completed successively on the same day. With regard to aerobic training on the same day as resistance training or not, no clear strategy has been proven better than another. In many cases, especially for women, some aerobic activity will have to be completed on the same day as resistance training or there won't be enough days in the week to get it all in.

Summary

Aerobic activity is any activity that primarily uses oxygen as an energy source. There are a number of real benefits of performing aerobic activity for both men and women.

Contrary to popular belief, whether you train in the “fat burning zone” or on an empty stomach first thing in the morning bears little impact on your success or failure with the Lifestyle. Whether you burn more fat than carbohydrates during a workout is truly unimportant. What is important, however, is how many calories you burn during the workout and any residual burn in the hours afterwards.

While I recommend you train within a proper target heart zone, it is not so you are burning more fat during the workout. It is used as a gauge to determine if you are working hard enough during your aerobic workout, nothing more.

During weight loss, most women will require more aerobic and total activity than men. Through hormonal balance and a host of other complex yet integrated factors, women are genetically programmed to store about nine months' worth of fat to carry a fetus to full term. Her body isn't about to give up what it sees as “essential” too easily. Please do not confuse this essential fat to carry a fetus with your current total adipose if you are obese. One does not have to be obese to carry a fetus. Therefore, your strides to become very fit are well within your control and are not up to some genetic, evolutionary trait over which you have no control. The greatest output for total exercise time, however, will likely come when the body senses you are encroaching upon the “safe zone” for survival. Survival, for a woman, includes carrying a fetus to full term. The “protect the fetus” rules do not apply to men. Therefore, they will likely do far better with less total activity at all stages. This may not be fair but it doesn't negate the reality of what is true.

It is important that you do not focus so much of your time on aerobic activity that it totally eclipses your resistance training minutes. Cardio kings and queens never get the total body look they seek once the fat is gone, if they neglected resistance training along the way. Try and work toward an equal split between aerobic and resistance activity.

While the total number of aerobic minutes will vary for each individual one sure-fire way to reduce total aerobic time is through a training technique called interval training. With interval training, you ratchet up the intensity of your aerobic session in periodic bursts, eventually nearing an all-out effort. Each session is no longer than about 20 minutes, however, the total caloric value of the workout and post-exercise burn can really blow traditional aerobic activity away.

This is a Preview. To get the entire Leanness Lifestyle Book go to www.leannesslifestyle.com

Take Action and Feel Great!

1. Take a look at the *Energy Balance* chapter and make sure you know how many total minutes of vigorous exercise you need to complete each week.
2. Be sure and review the Ratings of Perceived Exertion as defined in the *Energy Balance* chapter. If using this scale to determine the proper intensity of your aerobic activity, you should train between a 13 and 17 quite consistently unless you are training with interval aerobic activity. In that case, follow the guidelines for perceived effort as outlined in this chapter.
3. Begin an aerobic program today or within a few days at the latest.
4. Make sure your aerobic program is within your target zone or as prescribed by your physician.