



AEROBICS

AEROBICS FOR A RIPPED BODY

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LEARN ABOUT

ENERGY SYSTEMS

**FACTORS THAT AFFECT
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**AEROBIC PERIODIZATION
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**SAFE AND EFFECTIVE
AEROBIC TRAINING**

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Robert Barnett is the author of several new eBooks and his groundbreaking “The Barnett Training System” was first published in 2002. He was a Powerlifting champion and he is currently a 7th Degree Blackbelt in Kenpo. Robert is a graduate of USC and Cornell University. He has been a fitness trainer for the last 16 years and has been weightlifting himself for over 40 years. He is married and has four children.

AEROBICS

AEROBICS FOR A RIPPED BODY

The heart is a muscle. Just like skeletal muscles, it needs exercise to become strong and healthy. Aerobic exercise strengthens the heart and will help your primary cardiovascular goals. Weight training, as important as it is in physical fitness, does not have all the heart-strengthening benefit of aerobic exercise. The most notable adaptations accompanying aerobic training include:

- An improvement in Body Composition
- An increase in Heart Size
- An increase in Blood Volume
- An increase in Cardiac Output
- An increase in Oxygen Extraction
- A lowering of Heart Rate
- A reduction of Blood Pressure



ENERGY SYSTEMS

There are three forms of energy production: Direct ATP Breakdown, Anaerobic Glycolysis and Aerobic Energy Processes. An understanding of these energy systems will help you focus on the system that most effectively promotes an improvement in body composition.

1. DIRECT ATP BREAKDOWN

ATP is an organic compound found in muscle, which enables muscular contraction. This form of energy is the body's immediate energy source. The body uses ATP, which is already available. It provides energy for a burst of maximum effort and for transitions to higher activity levels. This direct ATP pathway can max out in as little as 6 seconds.

2. ANAEROBIC GLYCOLYSIS

This form of energy is often referred to as the "short-term energy source". Anaerobic glycolysis takes over as the Direct ATP Breakdown slows.

As an example, Direct ATP Breakdown fuels your first intense rep in the bench press and the next 10 reps are all primarily powered by anaerobic glycolysis. It supports short-term (2 minutes), of high intensity exercise.

3. AEROBIC ENERGY PROCESSES

All three forms of energy production contribute during most activities. However, there is a basic progression from one form to the next. Aerobic Energy Processes provides long-term energy and is most responsible for improving your body composition.

FACTORS THAT AFFECT TRAINING

To achieve muscularity and aerobics fitness there needs to be biological adaptations by employing appropriate overload. This can be achieved by manipulating combinations of training:

- Intensity
- Duration
- Frequency
- Mode

INTENSITY

Training-induced physiological changes depend primarily on the intensity of the overload. The general practice for establishing aerobic training intensity is to either measure a person's VO₂ max (the largest amount of oxygen that your body can use during exercise), or estimate their maximum heart rate, and then develop a training program that corresponds to some percentage of these maximums.

As a rule, aerobic capacity improves if exercise increases heart rate to about 70% of maximum. This intensity appears to be the minimal stimulus required to provide training improvements. Is strenuous training more effective? Generally speaking the greater the training intensity, the greater the training improvement. Nevertheless, this is true only within certain limits. There appears to be "thresholds" below and above which there are no further gains.

The lower and upper limits depend on the individual's initial capacity and state of training. The training threshold for people in poor condition is approximately 60% of their heart rate max. For someone in great condition, 90% of his or her heart rate max is thought to be the upper limit. However, I recommend 85% as the upper limit.

DURATION

A threshold duration per workout has not yet been identified. Such a threshold depends on intensity, frequency and initial fitness level, and thus it is hard to determine. Three to five minute sessions might produce training effects in poorly conditioned people. With high-intensity training improvements, occur with 10 to 15 minute exercise periods. Conversely, a 45-minute exercise period is required when the intensity is below the threshold heart rate. Lower intensity is clearly offset by increased duration.

FREQUENCY

Several studies using interval training showed that 2-days-per-week training resulted in changes in max VO₂ similar to those observed with 5-days-per-week training.

As was the case with training duration, if the training is performed at a lower intensity, training that is more frequent is beneficial. Training that is more frequent is not that profitable in terms of physiologic function; however, for weight reduction one should exercise 5 to 7 days a week because of the caloric expenditure.

According to the American College of Sports Medicine, “training fewer than 2 days a week does not produce adequate changes in body composition and to bring about meaningful weight loss through exercise, it is recommended that each exercise session last at least 60 minutes and be of sufficient intensity to expend at least 300 kcal.”

MODE

If intensity, duration and frequency are held constant, training improvements are similar regardless of the training mode. However, the exercises must involve the large muscle groups, and be activated in a rhythmic nature.

LEAN BODY OBJECTIVE

- Walking
- Treadmill Walking
- Slow paced Stationary Cycling

MUSCULARITY OBJECTIVE

- Running
- Jumping Rope
- Stepper
- Biking
- Fast paced Stationary Cycling
- Most “fast” Sports

METHODS OF TRAINING

Each year improvements are made in training methodologies. Currently, the most popular training methods are interval training, continuous training, and Fartlek training.

INTERVAL TRAINING

According to E. L. Fox in his Journal of Applied Physiology, many elite athletes attribute their success to interval training. The major benefit of this form of training is that it permits high-intensity exercise over a relatively long period.

The disadvantage to this training method is that it can be very dangerous to coronary-prone individuals unless it is done very carefully and progressively.

Repeated exercise bouts, with relief intervals, can vary from a few seconds to several minutes. The ratio of exercise to relief is the critical factor.

FARTLEK TRAINING

Fartlek is a Swedish term that means, “speed play” or playing with speed. With Fartlek training, the individual determines the training scheme based on “how it feels”. The only constant is varying your speed as the name ‘Fartlek’ indicates. The runner should also vary the distance and terrain from day-to-day. Most Fartlek enthusiasts run over a natural rolling terrain with some good hills.

CONTINUOUS TRAINING

Continuous training is also known as “slow long-distance training”. It involves steady-paced exercise performed at a moderate aerobic intensity (60% of max HR).

Continuous training for an hour or longer is popular for most fitness enthusiasts. It is a sub maximum exercise and thus it can be engaged in for a long time, and in relative comfort and safety. Safety is its greatest advantage. It is also suitable for those just beginning an exercise program.

However, continuous training can also be used effectively when combined with other training methods. It can be used with a high degree of intensity.

PERIODIZATION SCHEDULES

1 TO 2 INTERVAL PERIODIZATION SCHEDULE

If the goal is to just get in shape use a 1:2 interval ratio. You would jog for 10 seconds and then walk for 20 seconds.

Jog 10 Seconds – Walk 20 Seconds			
Weekly Sessions	Intervals Per Session	Total Time	Heart Rate Max
3	7	20 Minutes	70%



1 TO ½ INTERVAL PERIODIZATION SCHEDULE

For muscularity, you might use the 1 to ½ interval ratio. You would jog for 90 seconds and then walk for 30 seconds.

The first month you do 7 intervals for a total duration of 14 minutes and then progress weekly or monthly to our “Complete Optimal Aerobic Training” method which would be reached in month 5 in the Periodization Schedule able that follows.

Jog 90 Seconds – Walk 30 Seconds (2 Minutes per Interval)				
Month	Weekly Sessions	Intervals Per Session	Total Time	% Max Heart Rate
1	2	7	14 Minutes	75%
2	3	10	20 Minutes	75%
3	3	13	26 Minutes	80%
4	4	17	34 Minutes	80%
5	4	20	40 Minutes	80%

OPTIMAL PERIODIZATION SCHEDULE

After an athlete completes at least three months of 1 to ½ Interval Training, he might be ready for my Optimal Aerobic Training Method. This program combines all of the methods of training into one Periodization Schedule.

COMPLETE OPTIMAL AEROBIC TRAINING			
Week	Program	Duration (minutes)	Intensity
1	Intervals 1 to ½	40	Low
2	Fartlek	30	Moderate
3	Continuous	15	High
Rest one week			
5	Intervals 1 to ½	45	Low
6	Fartlek	35	Moderate
7	Continuous	20	High
Rest one week			
9	Intervals 1 to ½	50	Low
10	Fartlek	40	Moderate
11	Continuous	25	High
Rest one week			
13	Intervals 1 to ½	55	Low
14	Fartlek	45	Moderate
15	Continuous	30	High

INITIATING A TRAINING PROGRAM

1. PLANNING

According to N. B. Oldridge in a “Preventive Medicine Review”, the dropout rate is 50% or higher within 6 to 12 months for those who embark on an exercise program.

The reason why this is true is that most people do not have a plan, and those that do lack the discipline to follow their plan.

“If you fail to plan, you plan to fail”. The most important aspect in initiating a training program is to develop a plan and to clearly identify your goals and objectives.

2. COMMITMENT

The second most important aspect in initiating a training program is commitment. You need to tell yourself that no matter what happens you will not quit. Discipline is the result of a strong commitment.

3. “SMART” GOAL SETTING

“S” Specific

“M” Measurable

“A” Action

“R” Realistic

“T” Timed

Using this model, your goals might be to lose 10 pounds, and to get your body fat to 15% by December 31st. These goals are specific, measurable, and within a specific timeframe. Goals have to be realistic, or the subconscious mind will sabotage efforts with doubts. The last element is to take action.

SAFETY

- You must always get your Doctor's permission to engage in strenuous exercise activities such as aerobics. Many people die doing aerobics each year. These individuals have not consulted with a doctor and have overestimated the shape they are in. Your Doctor should be able to recommend a heart rate zone based upon your medical condition.
- Begin an aerobic program with supervision. Use a treadmill or stationary bike, and have a trainer or partner keep an eye on you. If you are unable to carry on a conversation, you are working too hard. Slow down gradually and stop!
- Your target heart rate is calculated as follows: $\text{Your Age} - 220 = 100\%$ of your target heart rate. Your "Zone" is between 60% and 85% of your target heart rate. As an example, if you are 25 years old the formula is $220 - 25 = 195$ (MHR). 60% of 195 is 117, and 85% of 195 is 166. Therefore, your zone would be 117 to 166. Your zone is your intensity monitor.
- While you are doing any of the suggested aerobic activities take your pulse for 15 seconds and multiply times four. Adjust your exercise rate up or down as appropriate.
- The preferred rate for muscularity is between 70% to 75%; however, begin at 50% for two weeks if you are just getting started in an exercise program. Your progression might be 50% for weeks 1 and 2, 60% for weeks 3 and 4, and 70% from then on.



- Warm-up before walking or jogging by doing a few simple stretches. I would always include calf stretches and hamstring stretches.
- Do not run or jog on concrete or asphalt if you have back or knee problems. Run on a good treadmill, grass, sand, or any another appropriate surface.
- Buy the best running shoes you can afford. Good shoes not only provide the needed support for your arch and ankle, they also help absorb impact, which could hurt your back or knees.
- Drink water before, during and afterwards. If you start having cramps, you are probably not drinking enough water. You also might increase you magnesium and potassium.
- Lastly, go slow at first. Yes, you want muscular body, but strenuous aerobics can be dangerous. Start out slow and gradually increase the intensity.