

Nutritional Information & Key Points to Remember in a Resistance/Cardiovascular Training Program

1. **Health:** As defined by the World Health Organization (WHO) it is a *complete state of mental, physical and social well being, not merely the absence of disease.*”
2. **Fitness:** The definition of fitness can mean different things for different people, but in general it is a state of well-being both mentally & physically (muscular & cardiovascular) that provides optimal performance or it can be defined as the successful adaptation to stressors in ones lifestyle.
3. **Components of Health Related Fitness:** There are 5 components of health related fitness. These components help someone to successfully perform general physical tasks. They consist of cardiovascular endurance - the bodies ability to utilize oxygen for a sustained amount of time without tiring, muscular endurance - the muscles ability to sustain activity for an extended amount of time without tiring, muscular strength - the muscles ability to perform maximal work under a short period of time, flexibility - the range of motion of the body’s joints & muscles & body composition - lean muscle to fat ratio.
4. **Components of Performance Related Fitness:** There are 5 components of performance related fitness. These components help someone to successfully perform specific physical tasks. They consist of power – maximal muscle contraction for a few to one repetition, speed & quickness – the ability to get from point A to point B in a shortest amount of time possible, agility – the ability to be agile & nimble, balance - the ability to maintain your center of mass within the limits of your base of support, motor skill development - including proprioception (concept of where you are in space & time), co-ordination (the control of more than one muscular group at the same time).
5. **Importance of Resistance/Cardiovascular Training:** Improves the overall health of an individual by strengthening the heart, skeletal muscles and overall body. Reduces the change of injury or disease, slows the aging process along with many other very positive benefits.
6. **Safety First!:** Use a spotter where needed. Lift with correct form. Examples: Bench Press, Squat, Leg Press, Dumbbell work, etc... Leave the horseplay at home, in the fitness center our objective is to focus on our personal fitness goals.
7. **Warm-Up & Cool-Down!:** The warm-up prepares the body for exercise. The increased heart rate from the warm-up increases blood flow to the body’s muscles acting as lubrication, therefore reducing the chance of injury. The warm-up & cool down help the body transition from rest to activity and activity to rest. In addition, the cool down helps rid the body of lactic acid so that you are not as sore the next day.
8. **Stretch!:** Stretching is very important. It helps to increase flexibility, reduce injury and relaxes the body. Stretching should be done after the warm-up, in between exercises and after the workout.
9. **Work in a Full Range-of-Motion!:** This is very important for proper & full muscle development and it also delivers a more efficient workout to the muscle itself.
10. **Do It Right!:** Form is very important for both injury prevention and muscle development. Example: 4 sec. on the eccentric phase (extension of the muscle belly or easier part of the lift) & 2 sec. on the concentric phase (contraction of the muscle belly or difficult part of the lift). You should lift with control and consistency. Variable speed training can be introduced at a later time, for instance when you are proficient enough with the exercises.
11. **Breathe!:** Never hold your breath when performing resistance exercises! When you become comfortable with resistance training, understand that there is a better breathing technique. Example: exhale on the concentric phase of the lift and inhale on the eccentric phase of the lift. There are exceptions to this rule with certain lifts.
12. **F.I.T. Principle:** Frequency: How often are you training? Ex: Are you training 2, 3, 4 days a week, etc... Intensity: How hard are you training? Are you taking every set to failure or just the last one in an exercise? Are you working around a specific target heart rate? Time/Duration: How long are your workouts; are you lifting 30 minutes, 1 hour, etc...? How much total-time-under-tension are you muscles receiving in your training program? All of these components help to make-up a good resistance training program. Working to failure and pushing yourself through your workouts develops good discipline and maximal results.
13. **Sets & Reps?:** A set makes up the total number of completed lifts per one bout without rest. Reps or repetitions make-up each individual lift per set. Example: 3 sets of 12 reps., this means that you will lift the weight for 12 continuous repetitions, rest & repeat this two more times.
14. **Rep Ranges:** 12-15+ reps per set on average works to increase muscular endurance. Anything close to 10 reps works on muscle hypertrophy (growth). 6-8 reps tends to work on muscle strength and <6 reps tends to work on power. Remember these are guidelines. Also, there is nothing wrong in combining high reps with light weight and low reps with heavy weights in the same week. Just be prepared for the different work load from each type of lift. The larger muscle groups like legs are capable of receiving more punishment from higher reps ranges than the smaller muscle groups like triceps and biceps. Remember lifting heavier loads of weight requires good control, form and experience.

15. **Rest Period:** How long should you rest between sets? Well it depends on your overall goals. If you are focusing on cardiovascular health and increased muscular endurance rest <30 seconds. If you are primarily focused on muscular endurance rest up to a minute; and if you are looking for muscular strength rest 2-3+ minutes.
16. **Training Principles:** There is roughly 13 main training principals. The three most popular principles used by beginners are: **Pyramiding Principal** – Consists of lifting the lightest weight first for the largest amount of reps, the 2nd set is slightly heavier in weight with less reps and the 3rd set is the heaviest weight with even less reps. 12, 10, 8 with 2.5-10lb. jumps. **Muscle Priority Principal** – Consists of lifting the muscle groups that you feel you are weakest in. **Set System Principal** – Consists of completing one set per muscle group per workout.
17. **Variety is Key!:** Keep your workouts fresh, switch programs up on average every 4, 6, 8 or 12 weeks. This allows for new stimuli to be applied to the muscles, which in return helps to diminish the possibilities of plateauing (a point in your workout where you can not move up in weight or reps due to fatigue). There is no set rule to how long you should continue with one program or one exercise, but a good guideline to follow is: If you are unable to excel in the lift any longer or if you are getting bored of the workout program. Keep it exciting and fun for you and your partner. Continue to think of new ways to stimulate the particular muscle you are looking to develop.
18. **Strive for a Complete Overall Body Workout:** Don't forget about those hard to see muscles too, like your rear deltoid (back of the shoulder), rotator cuff muscles, forearms, calves, etc... & Don't Forget To Lift Your Legs! Your legs are just as important as your upper body in every aspect of overall muscular development.
19. **Create Your Program Around Your Goals:** Sit down and put some thought into your program. Try to design your program around your specific goals & needs (whether it be cardiovascular, muscular, fat loss or all three). Set your goals small and work up towards a larger goal. Keep in mind the F.I.T. principal, rest periods, rep ranges, sets, choice of exercises & of course nutrition.
20. **Don't Be Afraid To Ask Questions?:** Exactly That! Ask around, talk to people (including instructors, trainers and others working out) in the fitness center or the gym where you train. No Question is a stupid question.
21. **Read, Learn & Keep Up-to-Date:** Read & research about resistance training, cardiovascular training & nutrition. Not every program or idea works for everyone. The more you know, the better you will be able to create a program that gives you the results you are looking for. Keep your resources reputable. Don't be satisfied with one resource either. Look around and read various thoughts on one or more ideas to get an overall better understanding.
22. **No Pain, No Gain!:** Yes, in my opinion and experience this is true, but there is a difference between good pain & bad pain, know the difference! Are you experiencing a sharp, pulling or severe pain with the lift? Stop if you are and talk to the instructor, or is it just muscle soreness & general pain? Learn the difference! Also, the harder you work the more results you will see.
23. **Overtraining:** Overtraining is where you have not allowing the body enough time to recover from strenuous exercise due to continued work. Some signs & symptoms of overtraining are: decreased energy levels, continually tired, repeated injuries, lifts getting weaker. On average, smaller muscles groups require 24-48 hours to recovery, where larger muscles groups need 48-72 hours to fully recover. So therefore you should not be training the same muscles two days in a row with the exception of the abdominal muscles. They may be trained up to 5 days a week. The allotted rest periods are not for everyone; some people need a longer recovery time, where others are ready to go in one days rest. Muscle Group Examples: Smaller - shoulders, biceps, triceps. Larger - chest, back, legs.
24. **Muscle Groups:** Lift the larger muscles first, and then lift the smaller muscles. The reason behind this is you will need the greatest amount of energy to tax the larger muscles effectively. If you train the smaller muscles first, for example the triceps, you will not be able to fully exhaust the chest muscles in the same workout. The reason why is when lifting primary muscle groups such as: chest, back & legs you will receive help from the smaller muscle groups (secondary) like the triceps, biceps & shoulders. For instance, when lifting chest, the triceps and front shoulders help with the lift. When lifting back, the biceps and rear shoulders help with the lift. When lifting legs using a compound lift like the squat or leg press you involve the quadriceps (thighs) & hamstrings (back of leg) with secondary help from the glutes, (butt) groin and calve muscles.

<u>Chest</u>	<u>Back</u>	<u>Legs</u>	<u>Shoulders</u>	<u>Biceps</u>	<u>Triceps</u>	<u>Abdominals</u>	<u>Miscellaneous</u>
Upper	Upper	Quads	Front	Long Head	Medial Head	Upper	Forearms
Middle	Middle	Hamstrings	Medial	Short Head	(bottom)	Middle	Rotator Cuff
Lower	Lower	Glutes	Rear		Lateral Head	Lower	Neck (possibly)
	Lats	Inner Thigh			(outer)	Obliques	Fingers
		Outer Thigh			Long Head (back)		
		Calves (soleus, gastrocnemius)					

25. **Good Things Take Time!:** Don't expect to look like Ronnie Coleman, Kim Klein, a supermodel or have the stamina of Lance Armstrong, in 3 weeks, 3 months, etc... Good things take time. If your goal is to lose 5 lbs. and it took you 5 years to put it on, you're not going to rid the fat in 5 days or possibly even 5 weeks! Same goes for muscle too. Be patient! Work hard and you will see results!

26. **Split Routines:** There is a wide variety of training routines out there to try, but I recommend to training the body in a split routine. What this means is that you train the entire body in segments for instance, Monday lift chest, triceps, shoulders & abs. Wednesday lift back, biceps, shoulders & abs. Friday lift legs & abs. If you lift on Tuesday maybe try chest, triceps, shoulders & abs. Thursday try back, biceps, legs & abs. Remember the general rest periods needed for each muscle group.
27. **Compound vs. Isolated Lifts:** Compound lifts can be defined as lifts that are multi-joint in nature and involve the utilization of several muscle groups (2-5). So therefore, these lifts are more energy demanding, harder to complete/master and need to be completed with strict form so injury does not occur. Examples: cleans, dead-lift, squat, leg presses, back rows, pull-ups, bench presses, push-ups & shoulder presses. Isolated lifts can be defined as lifts that are single-joint in nature and involve the utilization of one muscle group. So therefore, these types of lifts are easier to perform, because they require less energy, but are still very effective for muscle strength and endurance. Beginners generally learn isolated movements first and lift the compound exercises on machines to learn proper form.
28. **Core Training:** Core training is extremely important for all individuals, especially athletes in the reduction of injury and unwanted back pain. A strong core improves the body's center of gravity and balance. Core training is especially important for those that play sports at the recreational and/or competitive levels that involve torso rotation. The abdominal muscles are one of the few muscle groups that can be trained up to 4x a week or two consecutive days. Working at a high rep range (25, 50, 75, 100) with the abdominal muscles is beneficial for core endurance.
29. **Burning Fat:** Some people's goal is to lose weight or burn fat. This is ok too, because the goal of losing unwanted body fat is a positive lifestyle change in many aspects. For instance, losing unwanted body fat requires eating healthier and committing to a cardiovascular (CV) program. A few key benefits of this are: improved CV health, muscular tone/endurance, increased energy, reduction of disease/injury and of course loss of body fat. **FYI:** to burn 1 pound of body fat you must burn a total of 3,500 calories. On average (depends on current body fat percentages) it is healthy to lose up to 1lb. of body fat a week (500 calories a day or 10-20% of your daily caloric needs). Losing/burning anymore calories than that a day usually results in burning unwanted muscle mass unless the individual is severely overweight or obese.
30. **Determining Maximum Heart Rate (MHR):** Maximum Heart Rate is simply what your heart rate is at 100% effort. To determine MHR simply take 220 – (your age) and this is it. For instance, if you were 20 years old, your MHR would be 200 beats per minute (bpm). For those interested in percentages that deal with improving certain aspects of training; try to work around 65% of your MHR for fat burn and 85%+ CV for muscular endurance gains. The formula to figure out a certain percentage is: $220 - (\text{your age}) * \% = \text{target heart rate (THR)}$.
31. **Sanitation:** A very important part of a good hygiene is to shower daily, wash your hands regularly and wipe the equipment down after using it. All of this helps to reduce the chances of bacterial and/or fungal infections. If you perspire more than others, consider bringing a small towel with you.
32. **Drink Water!:** Water is very important for the body in all aspects. It helps to flush the body of toxins that are created by everyday activity, especially after resistance training. Water also helps to drive nutrients into the muscles and allow special processes to occur at the cellular level, which is extremely important! It also keeps you feeling full, which in return you will eat less.
33. **Supplements:** Supplements are a touchy subject. I recommend all people to eat a balanced diet consisting of a variety of foods such as: whole grains, fresh fruits & vegetables, lean proteins and drinking adequate amounts of water. But, I do recommend if you are an avid weight trainer, cardio fanatic, active on a regular basis, an athlete or do not eat a balanced diet to take a good multivitamin. Always consult your parents & doctor before taking any supplements!
34. **Metabolism:** Your metabolism is what drives you; it utilizes your caloric intake for energy. The higher your metabolism, in general, the better. Why? Increased metabolism = increased calories burned throughout the day. What affects your metabolism? genetics, food choices, sleep, age, gender activity level & lean muscle mass. More muscle mass with less fat = higher metabolism. Less muscle mass with more fat = slower metabolism. Also sleep is very important for proper body functions and recovery to occur proficiently. Strive for 7-9 hours of sleep a night. Your body is most anabolic (building/recovering) when you are sleeping and right after your workouts!
35. **Genetics:** Genetics or genes are the hereditary information that is passed down from your parents to you. This information contains both the physical and psychological traits & characteristics that make you who you are not including environmental factors. If you notice some people have good genetics (high metabolism, great immune system, ideal body type, etc...) and others struggle, maybe with a slow metabolism or even a hyper-active metabolism, have a history of diseases within the family or get sick often. Nothing can be done about the genetic makeup of you. The best advice I can offer to those with certain genetic traits is to modify your exercise & nutritional program to meet your needs. If that includes eating a much cleaner diet or exercising more than others than that is what should be done. Results will come!
36. **Eat to Grow, Eat to Recover!:** Nutrients/Nutrition is just as, if not more important than training itself. If you don't replenish what you have used up in your workout, you will not recover effectively and if your body can't recover, you most certainly won't grow! Try to eat something small 30 minutes to 1 hour prior to your workout. The added nutrients will help keep your energy levels up. You should eat again immediately after your workout or within 30 minutes. This is the optimal time to feed your muscles, because they have just been taxed with an intense resistance session. Eat again two hours after your workout. **What to Eat?** Your meals should consist of both protein and carbohydrates. The carbs help to feed your muscles and keep the muscle glycogen (energy) full. Protein is very important for muscle growth and repair, without protein it is very hard to gain muscle and/or recover. Learn to eat healthy; it's better for your body! Slowly cut back on the junk food until you no longer crave it.

37. **Breakfast:** Breakfast is the most important meal of the day. Breakfast kick starts the metabolism (breakdown of nutrients for energy) after the long night of fasting and prepares it for the days activities. The meal should consists of both protein and complex carbohydrates with very little sugar.
38. **5-6 Meals Daily:** The healthy choice is to consume five to six smaller meals daily instead of the traditional breakfast, lunch and dinner. Why? The body needs energy, but not in three big portions. Smaller portions deliver energy to the body in a more consistent and satisfying manner. Supplying the body with smaller meals helps to keep the metabolism high, energy levels up and is healthier for the digestive system. Try and eat preferably every three to four hours, this will also not allow the body to look for other sources of energy such as muscle, because you are continually supplying it with external nutrients (food). But remember consumption of food (good or bad) in large quantities will be stored as body fat.
39. **Portion Sizes:** Referring back to #32 with eating smaller meals your body can only absorb so much nutrients at one point, no matter what food s are eaten. 300-400 calorie meals for the average sized person are adequate for one meal. Keep in mind that 1 gram of protein is worth 4 calories, 1 gram of carbohydrates is worth 4 calories, but 1 gram of fat is worth 9 calories. Looking at the three main sources of energy, fat really stands out when compared to protein and carbs because it is double in energy when compared to the other two. This is why you must pay attention to the nutritional values of food.
40. **5 Energy Sources:** Protein is the main source of nutrients for tissue repair and enzyme & hormone production. Carbohydrates is the main energy source for the body, especially for moderate to intense activities. Complex carbs (whole grains, vegetables) deliver a slow sustained source of energy and simple carbs (sugars, fruit) deliver a short fast source of carbs. There is also fiber to consider in your diet. Fiber is essential for a healthy digestive tract. There is two types of fiber to consider: soluble – gels along the intestinal wall slowing the absorption of fats and cholesterol. Insoluble – not easily absorbed by the body so therefore it helps to speed the transit time of food in the digestive tract hindering the absorption of fats and cholesterol. Fats – second main source of energy for the body, generally utilized in low to moderate bouts of activity. Vitamins – organic compounds important at the cellular level. Minerals – inorganic compounds important at the cellular level.
41. **Burning Calories:** It is quite simple. You are burning calories all the time. The amount of calories burned throughout the day depends on you (your metabolism & genetics), what you eat and the activities you partake in. If you burn more calories than you consume in a day, you will lose weight. If you consume more calories than you burn in a day then you will gain weight. But be careful when burning and consuming calories, try not to burn or exceed more than 25% of your total caloric consumption daily to avoid negative affects to your metabolism, burning of muscle and unwanted fat gain.
42. **Food Choices:** Stay with natural foods rich in vitamins, minerals and fiber such as: fruits & vegetables. Eat lean meats rich in protein such as: fish, skinless chicken breast & fat trimmed meats (beans are also a good source of protein). Stay away from sugary foods, they only lead to negative effects to your body and tend to diminish your energy levels. Stay away from high fat & cholesterol containing foods, these foods are bad for your heart & circulatory system. Drink lots of water. Remember changing your eating habits is a gradual change that should be focused on around your individual goals. Try not to completely eliminate the poor food choices made in your diet right away. This will only lead to the yoyo effect or craving of the foods in the future. Instead, slowly wean yourself from these foods so that you no longer desire them in the future.
43. **Aerobic Training:** There is a wide variety of aerobic training choices out there, from group activities to individual activities such as: step aerobics, dance, running, cycling, machine workouts and sports (both traditional to non-traditional). The idea behind aerobic training is to strengthen the heart, burn body fat, increase muscular endurance, increase energy levels and raise the metabolism. Work towards a 65% or better THR to improve this aspect of training. Train up to 1 hour a day, 2-5 days a week. Great results require some good effort on your part.
44. **Positive Choices:** Eating healthy foods, exercising regularly and having a positive outlook on life are very beneficial to the body and to the mind. Positive actions/choices are like natural medicine for the body. They help to reduce stress, increase energy, reduce the chance of disease and keep the mind & body strong.
45. **Aerobic vs. Anaerobic Fitness:** Aerobic exercise means the presence of oxygen. For example: running, step aerobics, riding bicycle, soccer, or an activity performed long enough and hard enough to challenge your heart. Anaerobic means without oxygen. Examples would consist of: weight training, sprinting, baseball, or any activity performed for a short duration at high intensity.
46. **Most Importantly, Have Fun!!!**

* The information above is not etched in stone. It is from my own knowledge, experience & opinions that consist of many years of research, reading, talking to other professionals in this field and trial & error. Everyone is different, what works for one may or may not work for another. Use your own judgment, keep your options open, be smart, have fun, follow these basic principles, work hard and results will follow! Please feel free to talk to be about any topic of interest within this field.

- Mr. Franco