

# RESISTANCE TRAINING AND CARDIOVASCULAR WELLNESS

BY: EVERETT AABERG

We all know that there are numerous benefits we can derive from planned exercise besides attempting to improve “Golf Performance”. We may also argue that some of these rewards may be even more important towards our overall health even if they do not directly improve our swing or game. Probably the most obvious benefits from exercise can be an improved cardiovascular system. Exercise has been proven to make physiological benefits that enhance cardiovascular function that can dramatically reduce a person’s risk of heart disease and stroke hence increasing the longevity and quality of our lives. Research has also traditionally pointed specifically towards “Aerobic” exercise as the primary way to develop cardiovascular health resulting in hordes of people choosing to venture outdoors to run, swim, and bike, or spend time in the gym on treadmills, stationary bikes, step machines, elliptical climbers or in group aerobic and fitness classes. However, what is not so well known is that cardiovascular training can also be derived from “Anaerobic” exercise such as resistance training and that there may be also some serious downsides to electing to perform high volumes of “Aerobic” exercise particularly for those who Golf or desire to improve in other sport-specific movements.

Before presenting these facts, let's first define what constitutes “Cardiovascular” exercise and also determine the difference between training in an Aerobic or Anaerobic state.

Cardiovascular exercise has been defined as; “an activity engaged in that promotes physiological, metabolic and bio-energetic adaptations that increase the efficiency of the cardiovascular and respiratory systems.” Whereas, the words “Aerobic” and “Anaerobic” refer to the specific energy system the body is utilizing to produce ATP which is the biochemical agent necessary for any muscular action. There are only three such choices the body has for ATP production with two out of three being Anaerobic. These energy systems are as follows;

1. ATP-CP System – This Anaerobic system provides ATP from the actual ATP and CP stores in the muscle. This system provides for quick immediate energy for a very brief duration so is the primary energy source for short duration, high powered events such as sprinting, jumping, quick arm movements such as throwing or punching, or maximum lifting movements. This system is depleted in about ten seconds of maximum muscular demand so offers little cardiovascular benefits.
2. The Glycolytic or Lactic Acid System – This system produces ATP from anaerobic processes involving the use of glucose and lactic acid as energy sources. The glycolytic system is the primary supplier of energy for all out exercise activities ranging from 60 to 180 seconds. Examples would be longer sprints such as 400 and 800 meter, one to three minutes of wrestling, or a typical set of resistance training ranging from 8-17 repetitions to failure depending on tempo. This system when used for prolonged periods utilizing a variety of movements offers great cardiovascular adaptations.



# RESISTANCE TRAINING AND CARDIOVASCULAR WELLNESS

3. The Oxidative System – This energy source utilizes oxygen in the production of ATP so is therefore an “Aerobic” energy source. The oxidative system is the least powerful energy source and can not produce enough ATP per second to allow the performance of any high intensity exercise. However it is the most important energy source for endurance activities that require prolonged use of muscular contraction under low intensity and often rely on repetitive joint motions such as marathon running, long bicycling and swimming events and therefore demands a Cardiovascular response. However the Oxidative system can also work in tandem with the other energy systems to provide for improved overall endurance in anaerobic sports such as tennis, boxing, or football by aiding in recovery.

By reading the above descriptions it is apparent that activities such as resistance training that utilize the Lactic acid – Glycolitic system, although being an “Anaerobic” energy source can elicit important cardiovascular improvements. This fact was not first revealed from early research simply because the traditional resistance training protocols studied placed long rest periods between sets which obviously would not require much cardiovascular demand. As early as the late 1970’s however, circuit training protocols that combined a collection of resistance training exercises performed in a continuous manner with little rest between exercises showed great results in cardiovascular improvement. However the classical circuit resistance training trend fell from popularity by the early 90s due primarily their use of fixed resistance training equipment that did not produce the more functional strength gains we now know to be more important for meeting the strength demands for daily activity and that of most any sport.

However, today we have seen a huge swing back to a circuit training model that utilizes more free weights, cable stations and other fitness tools that can improve functional strength, build muscle and also train the cardiovascular system all at the same time. Such training routines offer much in a minimal amount of time that meets the needs of most fitness enthusiast desiring to maximize their use of time and effort. From a biomechanical standpoint, it has also become more apparent that the repetitive motion performed for most all Aerobic training whether indoor or outdoor such as the afore mentioned indoor running, swimming biking, stair stepping, and elliptical climbing, all can produce drastic muscular imbalances and promote joint wear if performed too frequently and with the absence of contrasting and complementary movement patterns. As people are becoming more educated to such facts, we see more people gravitating to exercise programs that stress variety and mixture of a plethora of Anaerobic activities including such modalities as Yoga and Pilates along with a reduced and more occasional use of “Aerobic” training.

However, it is important to realize that not all exercise modalities and movement patterns whether done “Anaerobically” or “Aerobically” are going to be appropriate for the golfer or the specific needs of each individual. As every one of us has some level of muscular imbalance, postural deviation, or distinct combinations of joint instability and lack of mobility issues that should also be considered. Each person should have their own tailored exercise program to address these issues as well as assist with accomplishing their cardiovascular and wellness goals. This can only be done through first engaging in a precise comprehensive assessment that can identify each person’s unique collection of needs in order to design any type of training circuits or overall exercise program that would be maximally effective and safe for that individual. You may wish to look into the TELOS “Ortho-KineticR Assessment” in order to help you design your own exercise program that incorporates the use of Anaerobic exercise for improving cardiovascular health as well as building the strength, increasing the flexibility, and enhancing your body’s overall performance that you desire.

ORTHOKINETICS®