

Cardio Training

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Most of you reading this article will be indoctrinated in the philosophy that regular cardiovascular conditioning is important for your health and that such training reduces your risk of heart attack. If you do agree with this premise, you are also very likely to believe that to achieve cardiovascular conditioning you must regularly perform cardiovascular exercises, such as running and biking or using one of the many cardiovascular machines.

But is this the case?

First let's look at the issue from a perspective of natural history.

Our evolution into the human species from our ape ancestors is thought to have occurred some 2.8 million years ago and possibly as long as 6 million years ago. It should interest you that in the early 1900s, coronary heart disease was rare in the United States, but just 48 years after the grain industry began hydrogenating plant and grain oils in 1907, coronary disease was the leading cause of death among Americans.

Now, I find it interesting that there is such a big hype over cardiovascular exercise as necessary prevention for heart attack or even heart disease, when such diseases were relatively nonexistent less than 100 years ago -- but a flash in the pan of human evolution.

Did Our Ancestors Regularly Participate in Cardiovascular Exercise?

This is not likely. First of all, it would not be energy efficient to run around gathering berries, firewood and nuts in your target zone.

Nor would it have been wise to run through the bush trying to get a workout in while hunting, since any animal would hear you coming from hundreds of yards away and be long gone by the time you got there. Worse yet, advertising your presence could mean dinner to a big cat.

If there was a cardiovascular stressor in our native environment, it was most likely when we had to send a messenger to a neighboring village or during times of battle, where you were either running for your life or fighting for your life for extended periods. Typically, performing any physical activity for 30 or more repetitions will result in an aerobic response in the working tissues.

When you look at most sports played today (See Table 1, below), recreational activities and work-related tasks, the great majority of them place anaerobic demands on the body.

Table 1. Contribution of short, intermediate and long-term energy systems to common sports. This information is useful in determining acute exercise variables for program design. Please note that most sports are anaerobic, yet many athletes and coaches make the mistake of using aerobic training to prepare for anaerobic sports, which actually decreases performance.

Referenced from:

M.C. Siff, Y.V. Verkhoshansky. 1993. Supertraining: Special Strength Training for Sporting Excellence. School of Mechanical Engineering, University of the Witwatersrand, South Africa.

Short Intermediate Long

Sport	Term System	System	Term System
Badminton	80	10	10
Baseball	80	20	0
Basketball	85	15	0
Cricket	80	20	0
Fencing	90	10	0
Field hockey	60	20	20
American football	90	10	0
Golf	95	5	0
Gymnastics	90	10	0
Ice hockey:			
forwards, defense	80	20	0
goalie	95	5	0
Lacrosse:			
goalie, defense, attack	80	20	0
midfielders, man-down	60	20	20
Rowing	20	30	50
Rugby	90	10	0
Skiing:			
slalom, jumping, downhill	80	20	0
cross-country	0	5	95
pleasure skiing	34	33	33
Soccer:			
goalie, wings, strikers	80	20	0
half-backs or link players	60	20	20
Squash	50	30	20
Swimming and diving:			
50m, diving	98	2	0
100m	80	15	5
200m	30	65	5
400m	20	40	40
1500m, 1 mile	10	20	70
Tennis	70	20	10
Track and Field:			
100m, 200m	95	5	0
Field events	90	10	0
400m	80	15	5
800m	30	65	5
1500m, 1 mile	20	55	25
3000m	20	40	40
5000m	10	20	70
10 000m	5	15	80
Standard marathon	0	5	95

Volleyball	90	10	0
Weightlifting	95	5	0
Wrestling	90	10	0

Aerobic Fitness-The Needle in The Haystack

Now, surely some of you grew up on a farm or have done hard labor before. When performing any intense work, you begin breathing faster and faster. As a matter of fact, you will go aerobic within a few minutes if the work efforts demand so much of your anaerobic energy systems that the demand for energy can't be replaced by anaerobic and intermediate energy systems (ATP/PC & fast glycolytic).

I have many memories of bucking hay. The bales weighed more than 75 lbs., yet you've got to keep up with the tractor as it moves through the field. And as you might have guessed, my dad didn't let me stop for a minute every 12 bales (See Figure 1).

When there are thousands of bales to haul in, and you are in the field for hours at a time, you will soon find that your anaerobic stimulus (the bales) produce a demand that the purely anaerobic phosphagen system can't maintain on its own. It only lasts about 8-12 seconds.

This results in ATP production by anaerobic glycolysis (which you may recognize as lactic acid production) and aerobic metabolism, respectively. By this very mechanism, our anaerobic capacity is recharged during sports such as tennis, soccer, hockey and basketball that require explosive movement for prolonged periods of time.

I use hay bucking because it is a real-world example of the type of natural anaerobic stimulus we have used to maintain aerobic fitness from the beginning of human evolution. If you can follow my logic here, you should be wondering why we are so encouraged to offer aerobic exercise to our patients and clients by most every medical, physical therapy, chiropractic and personal training education program that exists.

It's straightforward actually. It's the very same reason we are being told that we must eat a high carbohydrate diet for energy and the reason why doctors tell people they must take this or that drug: big industry influence.

Exercise Equipment and Out of Pocket Expenses

Quite simply, there's not much money in the manufacture and sales of dumbbells, weight plates and Olympic bars, but there are huge amounts of money to be made if you can convince the masses that aerobic exercise is necessary for disease prevention.

After all, have you priced a treadmill, step mill, spin bike, rowing machine, elliptical machine or any such equipment lately? If you have, you will find they cost anywhere from several hundred to several thousand dollars per unit. They often have hundreds of moving parts, which wear out, break and need to be replaced. How many Olympic bars or dumbbells have you replaced lately?

It is not at all unusual for a gym or rehab clinic to spend \$75-100,000 on cardio equipment alone, and they will need to be replaced every few years. The same facilities usually don't spend more than \$15-20,000 on free weight training equipment, which can last the life of the gym.

Yes, I know they spend large sums of money on fixed axis resistance training machines, but that is but another sign of industry influence and their ability to maintain misinformation and professional passivity.

When you get several large equipment manufacturers with multi-million dollar investments in the production of aerobic exercise equipment, you can rest assured there will be a comparatively large commitment to creating an aerobic exercise consciousness.

The proof is all around us, in our exercise and bodybuilding magazines, trade journals, on TV infomercials, in our training manuals and from most educational institutions.

Who do you think sponsors the educational institutions and pays for the supportive research?

So, Who Needs It?

The issue is not one of prevention of cardiovascular disease by aerobic exercise. It is an issue of getting the right kind of exercise to



Figure 1. Bucking Hay

benefit both your physiology and meet the demands of your work and sports environment.

For example, aerobic conditioning is not general. If it were, any world-class marathon runner could jump on a bike and win the Tour De France or even the Hawaii Iron Man competition. Strength training is also not general. There is a very finite amount of carryover from one lift or movement pattern to the other. Otherwise, the best squatter would be the best dead lifter as well.

Everyone needs to build fitness, yet for fitness (aerobic or anaerobic) to last, it must be built upon a foundation of health principles. Proof of this premise can be seen when a noted running expert like Jim Fixx and champion bodybuilders like Lou Barry (See Figure 2), previously Mr. Australia, died of heart attacks at an early age.

When we eat correctly for our metabolic type, eat high quality organic foods, eat regularly to maintain our blood sugar levels in an optimal range, get to bed at a reasonable hour and learn to manage our stressors, the addition of an exercise program of any type becomes truly therapeutic and offers disease prevention.

Aerobic fitness atop the standard American diet of carbohydrates, refined sugar, additives and preservatives will not offer resistance to disease. In fact, it may well bring it on.

Why?

The answer is simple: Both cardiovascular exercise and eating incorrectly are catabolic stressors that elevate glucocorticoid (stress hormones) production. If you add more tension to an already stressed system, it will crash.

You may think this is simple, logical, straightforward stuff, but it isn't because, again, there is big money involved here. I could list a thousand examples, but here's one that cuts to the chase: Scripps Hospital in San Diego recently partnered with McDonald's. So now McDonald's feeds all those sick and dying people in the hospital their unhealthy foods, while they pedal away on bikes, pump pedals on stair masters and about every other expensive aerobic machine you can imagine.



Figure 2. Lou Barry

If You Want Functional Aerobic Fitness

I suggest you study the principles presented in my book, "How to Eat, Move and Be Healthy!" While you are in the process of vitalizing your body from the inside out, I recommend that you choose movement patterns that offer injury prevention and improved performance in the environment where you work and play. The most important movement patterns for general motor skills development are (aside from walking) squatting, lunging, bending, pushing, pulling and twisting. These patterns are most functional when performed standing and unsupported by a balance aid of any type.

To start off safely, you must not only restore internal health through the application of foundation principles, but you must also activate and strengthen your core stabilizing muscles.

While this can be a very technical topic, I show the necessary tests in "How To Eat, Move and Be Healthy!" For those of you wanting a straightforward program of sequential development, I suggest working yourself into optimal functioning by committing four weeks (or more if needed) to the following programs in sequence:

- **Stability Training:** [Ultimate Stability Balls II](#) or [Functional Anatomy of the Core](#)
- **Integration Training:** [The Essence of Stability Ball Training](#)
- **Strength Training:** [Core Conditioning Exercises](#) or [Dynamic Dumbbell Training I](#)
- **Power Training:** [Dynamic Medicine Ball Training](#)

Once you have spent a week or two mastering each of the exercises in these programs, and you want more functional cardiovascular conditioning, follow these steps:

1. Wear a heart rate monitor and determine your target heart rate zone. You can also take your pulse manually at the carotid artery if you don't own a heart rate monitor.
2. To increase the aerobic stimulus of the exercise program you've chosen, simply shorten your rest periods in 15-second increments. As your rest periods shorten between exercises or exercise circuits, your heart rate will begin elevating. If it goes too high, wait till it drops to 60 percent of your target heart rate before beginning your next exercise or circuit. In short order, you will progressively get a greater aerobic response via the activity you have chosen.
3. To find balance between cardiovascular stress and strength development, I suggest alternating workouts on a 2:1 ratio; two workouts of cardio for each strength workout if you want cardio development and vice versa if you want strength development as your primary focus. Just remember that whenever you mix the two types of training, you will always get partial adaptation to

each, but never the full effect of either done in isolation. This should only concern you if you are an advanced level athlete who needs highly specific conditioning.

If you follow these simple guidelines, you will learn to "eat, move and be healthy," and you will have the greatest form of prevention from heart disease - Health.

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