MAXIMIZING AEROBIC POTENTIAL

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Most of the scientists who have been involved in the field of exercise physiology during the last thirty years have devoted the vast majority of their attention to research related to the results of aerobic exercises, exercises performed for the purpose of improving cardiovascular condition. Very similar exercise and testing procedures have been performed literally thousands of times in hundreds of schools all over this country, and the supposedly scientific journals have devoted most of their attention to such studies.

Why? Primarily, I believe, because the people who performed all of this research were attempting to limit their efforts to things that they could measure, attempts to determine the direction and magnitude of any physiological changes that resulted from such exercises. Improvements in cardiovascular condition certainly have value, but, in general, the most commonly used exercises that have been utilized in attempts to produce such cardiovascular improvement also produce physiological changes that are not desirable; if you are attempting to increase your muscular size or strength, or both, then you should avoid most of the aerobic exercises that are now being used like the plague, because, almost inevitably, they will lead to over training for your muscles, on the one hand not being hard enough to stimulate muscular growth, and on the other hand overworking your muscles to such a degree that overuse atrophy, a loss of muscular size and strength, will result.

If there is a successful bodybuilder in the world who ever performed much, if literally any, aerobic exercise then he has not come to my attention; yet it does follow that such people have poor cardiovascular ability; in fact, many of them have far better cardiovascular ability then the level shown by a typical hardcore jogger.

Having preached the gospel that "more is better," that if running fifty miles a week is good then running two-hundred miles a week is better, for nearly thirty years, even the "Father of aerobic exercise," Dr. Kenneth Cooper finally seems to be coming to his senses. But, then, like most fanatics, having gone overboard in one direction initially, Cooper now appears to have gone overboard in another direction. Fairly recently, Cooper said, or words to that effect, that people who perform more than one hour of exercise weekly are not doing it for physiological reasons; but, even more recently, he has started to believe that exercise may cause cancer if overdone.

Personally, knowing him quite well, I would suggest that Cooper concern himself with things that he understands, which might limit him to things like tying his own shoes, if he is ever capable of that.

Almost since day one, and still very much in evidence almost anywhere you look, there has been an almost universally accepted myth about exercise that might be best described as an "either/or" belief; in effect, you must train "this way" for increasing muscular size and strength and "that way" for improving cardiovascular condition, must lift weights to build strength and must jog to increase cardiovascular condition. Half of which belief is true, since jogging will do very little or nothing to build strength and will, in fact, if overdone, as it usually is, do quite a bit in the way of reducing both muscular size and strength. But it is not true that proper strength-building exercise will do nothing for cardiovascular condition.

Properly performed, which they seldom are, strength building exercises are not a "good" way to improve cardiovascular condition, they are, instead, by far the best way to improve cardiovascular condition. Strength building exercises require a level of resistance that is high enough to lead to momentary muscular failure after a few repetitions while exercises for improving cardiovascular condition involve a very low level of resistance which will not lead to muscular failure after a few repetitions. Anaerobic (heavy) exercise or aerobic (light) exercise.

If, as usually happens, you perform a set of heavy exercise for strength building purposes, and then sit on your ass or shoot the shit with a friend for five minutes before performing the next exercise, then you probably will increase both your muscular size and strength, will doing little or nothing in the way of improving your cardiovascular condition. But if, instead, you move almost immediately from the end of the first exercise to the start of the second exercise, with almost no rest between the two exercises, then you will increase both strength and cardiovascular condition; in fact, that style of training, properly performed, will lead to a level of cardiovascular condition that is far higher than you could ever produce by any amount of jogging or any other cardiovascular exercise. Such a style of exercise simultaneously provides anaerobic exercise for strength building and aerobic exercise for improving cardiovascular condition.

BUT, A STRONG WORD OF CAUTION: do not jump feet first into such a style of training with no preparation; doing so without a careful period of preparation will, at best, make you as sick as a poisoned dog, and might literally kill you. So devote at least two weeks, and maybe as much as four weeks, to a gradual

"break in" to such training; start with a three minute rest between exercises, and then gradually reduce the rest periods until you are moving from one exercise to the next as fast as possible. Once you reach the target rate of exercise you will find that your pulse rate remains at a very high rate throughout the workout, far higher than you could ever maintain with any sort of aerobic exercise; yet your muscles are being worked anaerobically, as they must for strength-building purposes.

This is not an "easy" style of exercise nor is it "pain free," but it will produce very good results that can be produced in no other fashion. We used this style of training during research conducted at the United States Military Academy, West Point, twenty-two years ago, and the results were so outstanding that Dr. Kenneth Cooper refused to believe them, refused even though his own people performed all of the pre and post testing. Average strength for the test group increased by 60 percent in six weeks, while their cardiovascular condition reached a level so high that Cooper refused to believe it, a level he could not reach in six years of aerobic exercise.

When we first started using this style of training, in 1970, we quickly learned two things about it: ONE, such training must be started gradually, as mentioned above, and if not then it will literally make people sick, immediately sick, sick to the point of vomiting and then passing out; and, TWO, even after such training is being performed, following the essential "break in" period outlined above, producing the best possible results requires such a style of training no more than once a week. During the research at West Point, we trained the cadet subjects three times each week but used this "no rest" style of training only once each week.

Prior to the West Point research, we had been working on the development of strength-testing tools for more than three years, but no such tools were available to us for testing purposes, the prototype testing tools that we did have simply did not work. So evaluating the increases in strength that were produced required us to judge these strength increases by comparing the starting level of resistance and number of repetitions performed to the same two factors at the end of the training period for six weeks; which requirement, unavoidable, introduced some unknown degree of error; nevertheless, the strength increases were so dramatic that any unknown degree of error in the testing procedures were relatively unimportant.

Basing their results upon almost identical testing procedures, most of the literally hundreds of research projects that have been conducted and reported by scientists all over the world during the last thirty years the published results have usually indicated strength increases of about 20 percent following 12 weeks of exercise using 9 sets of each exercise during each week of the training period. In contrast, we produced 60 percent strength increases, three times as much as those reported by most other people, and these results were produced in only 6 weeks of training rather than 12 weeks, so our "elapsed time" was only half as long as usual, and, finally, our results were produced by only 3 sets of each exercise weekly rather than the usual 9 sets of each exercise, which means that our weekly exercise was only a third of the usual training schedule. So our overall, six-week program consisted of a total of only 18 sets of each exercise, rather than the usual total of 108 sets used by other researchers, yet our results were three times as good as theirs were; and, of course, our program produced literally enormous improvements in cardiovascular condition while the other programs, conducted in a usual manner with a lot of rest between exercises, produced little or nothing in the way of cardiovascular improvements.

A detailed report of this research program was published in The Athletic Journal in 1975, and has been ignored by almost everybody ever since.

And it should be noted that all of the pre and post ("before" and "after") testing was conducted, in the case of cardiovascular results, by doctors from Dr. Kenneth Cooper's Aerobic Institute in Dallas, and, in the case of strength increases, by doctors on the staff of West Point; neither I nor anybody associated with me had anything to do with the testing, this being a requirement imposed by me in an attempt to avoid a later charge that the published results had been overstated.

And just what, you might ask, did anybody in the scientific community learn from this study? Not a damned thing, of course, what would you expect? What few, if any, scientists who even bothered to read it apparently either did not believe it or failed to understand the significance of the results.

And remember: these are the same people who, in general, swallow the lies published by Cybex hook, line and sinker.

During that research at West Point all of the cadet subjects were closely supervised during every exercise in order to make sure that the exercises were performed properly and in order to provide us with accurate records of their progress from workout to workout. Conducting research in that manner is both very time-consuming and very expensive; my total costs related to that study were in excess of $1,000,000.00, a large part of which expenses resulted from the fact that the entire program was recorded on 16mm professional motion-picture film that was filmed using more than a dozen professional cameras. Altogether, we used more than 500,000 feet of

film. All of these cameras being synchronous, meaning that the film was exposed at an exact rate of 24 frames per second, thereby providing us an exact record of the time involved in each exercise, speed-of-movement used during the exercise as well as elapsed time.

Nobody else in the history of the world ever came anywhere close to conducting research with such precision, or devoted so much time and money to their research. Years later, after the only testing tools capable of conducting meaningful and accurate testing of muscular strength were available to us, the MedX machines, we invested many millions of dollars in research with tens-of-thousands of subjects. Altogether, more than sixty such research programs have now been conducted, and many of these studies have been published in several scientific journals; yet, in general, they are still being ignored by the scientific community.

If and when the scientific community every comes to its senses, which I doubt, they could learn a lot of things that they need to know but do not now even suspect.