My First Half-Century in the Iron Game

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Somebody once said . . . “The only thing we learn from history is that we do not learn from history.” Somebody else said . . . “Those who fail to learn from history will be forced to repeat it.”

Unfortunately, a great deal of the history that is taught in this country concentrates on names and dates, both of which are usually utterly irrelevant; properly taught, history should concern itself only with ideas. “Who said it” or “when they said it” matters very little, if at all, all that really matters is “what they said.”

Unfortunately, in this country today, there is a strong tendency to consider “source” rather than “substance.” Rather than trying to determine the facts and work things out for themselves on a basis of common sense, many people spend their lives in fruitless efforts to locate some “guru” who will then, they hope, lead them by the hand to the promised land. Nowhere is this tendency stronger than in the field of exercise physiology.

One reason for this widespread foolishness is, I believe,. due to the fact that the results of exercise are not immediately apparent; that is, exercise does not produce instantaneous results apart from some level of fatigue. A second reason is that the actual results of exercise are very difficult to measure; and it is obviously impossible to meaningfully evaluate anything that cannot be measured accurately.

Thirdly, so many different factors are involved in exercise that it is very difficult to determine just which, if any, of the factors are actually productive, and which factors are counterproductive. The almost unavoidable result being that people frequently give the credit for an apparently good result to a factor of no slightest importance, while ignoring things that actually are productive.

Scientific research, if it is properly performed (which it damned rarely is in the field of exercise) requires testing things one at a time; because, if more than one factor is involved, then it is very difficult, and usually is impossible, to determine which factor was “:good” and which was “bad.”

Then, when we add the fact that meaningful measurement of the results of exercise is far more difficult than most people even suspect, we find ourselves in a very confused situation.

To the best of my knowledge, the first tools that were designed for the purpose of testing strength were introduced by Cybex twenty-odd years ago. But, in fact. these tools were not capable of performing any of their intended functions. In very simple terms they did not work.

Such testing machines used what they called an Isokinetic function: that is, Cybex claimed, the resistance pad on these machines could move only at a steady speed, a speed that could be preselected and set by the user. Then, in theory, the subject being tested was supposed to exert a maximum effort throughout the range of motion; the result being, they claimed, so-called “accommodating” resistance, a level of resistance that would be “equal and opposite” to the effort produced by the subject being tested.

In effect: if you produced 100 foot-pounds of torque in one position during the movement range, then you would encounter exactly the same level of resistance in that position. And if you produced only 50 foot-pounds of torque in another position, then again you would encounter that exact level of resistance. The result supposedly being that you would have maximum resistance in every position.

But that was the theory, and the facts were something else entirely. To begin with, the machines did not provide a constant speed of movement, instead the actual speed varied all over the place. If, for example, you selected and set a speed of 60 degrees of angular movement per second, the actual speed would vary from ZERO to as much as 500 degrees per second. The movement, rather than being perfectly smooth at a constant speed, consisted of a series of stops and jerks.

The graphs on pages 664-5 clearly show what actually happened when a test was conducted with a Cybex machine. In this test we did not use a human subject, because it was impossible to know just what, if anything, the subject might do; instead, we conducted the test with a known level of torque. If the Cybex machine actually measured torque, then the resulting test results would look exactly like the torque curve shown by the first chart; but that did not happen.

Instead, the actual test result produced the violent peaks and valleys of force shown by the second chart. Given the amount of torque used in the tests, the highest level of force should have been 100 pounds, but in fact a level of 460 pounds was recorded by the machine. That is not a measurement of torque, is instead a measurement of impact force produced by the rapidly changing speed of movement.

Then, following that initial high level of force, the measured forces varied all over the place, rapidly jumping up and down. The Cybex people try to explain these results by calling them "torque overshoot," when in fact they have nothing whatsoever to do with torque.

Then, next, the Cybex people attempt to hide these results by running the test data through an electronic device that they call a "damp," a device that changes nothing but instead serves to hide the actual test results. Having filtered the results through this damp device they then present you with a test result that looks like the third chart. Then they call that a "strength curve," when in fact it is nothing apart from pure bullshit.

And it would still be bullshit even if the machine actually did measure torque, because it unavoidably ignores three distinct sources of nonmuscular torque that have nothing whatsoever to do with muscular strength, torque from gravity, from friction and from stored energy, all of which factors they simply ignore. Hoping, I suppose, that you are stupid enough to be unaware of these critical factors.

Applied to joints like the knee or the elbow, such testing procedures are nothing short of outright fraud, but when applied to joints like the back and the neck they step across the line into the area of criminal malpractice; because, not only are the test results worthless, but the procedure is dangerous as hell, exposing already injured joints to very high and dangerous levels of impact forces.

When these machines were first introduced by Cybex one of their principal claims to fame was the fact that they had no negative resistance, and that was supposed to be an enormous advantage; after all, they said, negative resistance is "bad," almost "evil," to be avoided like the plague because it is "dangerous."

Sure. Well, in fact, if you remove the negative part of the exercise then you have removed by far the most important part of the exercise; without negative resistance in exercise, stretching is impossible, there is no resistance in the contracted position, and prestretching is impossible. In effect, you have a very limited midrange exercise of almost no value.

Nevertheless, Cybex touted this as a tremendous advantage; isokinetic exercise was, they claimed, by far the best form of exercise. When, in fact, it is probably the worst form of exercise., Unfortunately, many people believed these phony claims, and a lot of people still do.

But surely, you might say, the scientists would recognize all of these problems and shortcomings. And, in fact, a very few scientists did see at least some of the problems, and several articles were published in various scientific journals pointing out these problems, But, again unfortunately, these very few intelligent articles on the subject of isokinetics have generally been overlooked or ignored, while most of the supposed scientists in this field accepted isokinetic testing as if they had discovered the key to Fort Knox. For every article that has been published that "knocked" isokinetics, there have been at least 100 that praised it to the Heavens.

My articles on the subject, of course, were generally ignored; after all, I was a competitor and thus, obviously, everything I said was bullshit. I was, after all, not a "member of the club," did not wear a white coat and call myself "doctor."

But in at least one sense Cybex did me a favor, which perhaps makes me unique since they caused nothing but great harm to millions of other people, people who were dumb enough to believe their claims.

Prior to the time that Cybex started putting the knock on the negative part of exercise, I had never given the subject anything apart from casual consideration; I was aware of it, but did not ever really consider its benefits or problems. Had no opinion on the subject, did knot know if it was good or bad. But I knew how to find out: and we did find out by conducting very careful and large-scale research with what we then called "negative-only" exercise. During which research project the subjects performed ONLY NEGATIVE WORK, performed no positive exercise of any kind.

The results? Without exception, the subjects gained both muscular size and strength so fast that we could hardly believe it. Then, having seen the results that we produced from this negative-only exercise, coach Bill Bradford of the DeLand, Florida, Highschool started a weightlifting team at the highschool level.

During the next seven years of competition his team was undefeated and untied, won a total of more than 100 weightlifting meets, were state champions every year for seven years. And how did he train his lifters? Negative-only, what else?

Bradford's record is probably unprecedented in the history of sports. But, then, how many other weightlifting coaches copied his training methods? None. In spite of the fact that he beat them like a drum for seven years they were never smart enough to copy his methods. So much for common sense.

We performed that negative-only research twenty-three years ago, in 1972, and have been using negative exercise wherever possible ever since, generally with outstanding results. We used it during the Colorado Experiment in 1973, when Casey Viator gained 63 pounds of muscle in only 28 days, and we used it during research at the Military Academy, West Point, in 1975, when a large group of football-playing military cadets gained an average of 60 percent in strength in only six weeks; made these gains in spite of the fact that they were far above an average level of strength at the start of this research.

Unfortunately, a negative-only form of exercise is seldom very practical, since it usually requires the help of several strong and willing assistants who are needed to lift the weight for the subject being exercised.

In an attempt to solve that problem, the need for helpers during negative-only exercise, we built and sold a line of Nautilus machines that we called OMNI MACHINES; with these machines the subject could lift the weight with his legs, and then lower it in a negative-only fashion with the muscles of his upper body. But, in practice, I soon discovered that most people simply would not use the machines properly, so then I stopped making and selling them. One advanced bodybuilder asked me, as I was trying to explain the machine to him . . . "Do you have to be a genius to use the machine?" And I told him . . . "No, but it helps if you are not an idiot."

Another potential problem with negative-only exercise results from the fact that a very little of such exercise goes a very long ways; and thus it is possible to engage in serious overtraining without even being aware of it. Most people seem to believe that "if some is good, then more is better," but that certainly is not true with negative-only exercise.

The potential overtraining problems resulting from negative-only exercise are a result of the fact that muscular friction helps you during negative work, and this can permit you to continue an exercise far past the point where it should have been stopped.

In the next chapter, I will discuss our next attempt to solve the problems associated with negative exercise.