

My First Half-Century in the Iron Game

Having previously published several articles in which I clearly pointed out several of the problems with Cybex machines, problems which made it impossible for such machines to perform any of their intended functions, in January of 1972 I published an article in which I stated my intention to design and build testing machines that would be capable of accurately and meaningfully testing muscular strength. In that article I stated that such a design project would cost about \$200,000.00 and would require about six months of work; neither of which statements represented my true opinions, since, in fact, I believed that such a machine could be designed and built within about three weeks at a total cost of less than \$10,000.00.

How wrong can you be?

Our first project was an attempt to build a machine for testing knee functions: a machine that could measure strength of both the quadriceps and hamstring muscles. To be meaningful, such a machine would have to be capable of several functions: would have to be able to measure both the level of torque produced by the muscles being tested and the full ranges of possible movement, and would, additionally, have to correlate positional measurements with the output of torque. This last requirement being essential since changes in position produce changes in torque even if the input of muscular force of contraction remains constant throughout the full range of movement, which it does not.

As I had initially estimated, within the first three weeks we did have a machine capable of measuring the total output of torque; but we could not then correlate this torque with accurate positional measurements. Eventually we discovered a total of seven distinct problems related to the introduction of errors into positional measurements. In our first prototype machine an error of as much as 30 degrees was produced by stretching of the chain, and this was a double chain rated for continuous high-speed use with a load of 7,200 pounds, a very strong chain. Yet, under load from the torque produced by the quadriceps muscles of a strong man, this chain stretched so much that the resulting positional measurements were meaningless for our purposes; and that was only one of seven such problems.

Later prototypes of that machine were used in research performed in Colorado in 1973 (the "Colorado Experiment") and later, in 1975, at the United States Military Academy, West Point. But I had so little confidence in the test results that I refused to publish any of them.

But, in the meantime, Cybex machines which were capable of measuring absolutely nothing, neither torque nor position, were being used all over the country, and their stated results were being widely published and generally were believed. Now, more than twenty years later, Cybex machines are still being used to no good purpose by people who should know better but do not. Worse: many of the current theories regarding knee rehabilitation are based upon utterly worthless testing procedures. Cybex machines, and copies of them introduced by several of their competitors, provide none of the actual requirements for meaningful testing of muscular function (requirements covered in a previous chapter in this series). But that did not stop people from selling such garbage, or stop other people from buying and using such useless and dangerous equipment; nor did it stop many self-declared "experts" from using them during supposedly scientific research programs.

One of these published reports, co-authored by Tom Pipes and Jack Wilmore, supposedly proved the "superiority" of isokinetic exercise, and over a period of several years Cybex distributed more than a million copies of that published report. Well, in fact, that study was never performed, the whole thing was an outright fraud; Tom Pipes simply made up the published test results. Which is not surprising in the case of Pipes, since he has a long history of outright fraud, having called himself a "doctor" when he had no such degree or training in that direction.

Later, when this study was clearly established as outright fraud (not exposed by me but by others, although I was also aware that it was phony), Jack Wilmore, a co-author, suddenly "remembered" that he was out of the state during the period when the study was supposedly performed, and thus had no actual knowledge of it. Sure. Which raises an interesting question: if he was, as he later said, not involved in the study, then why was he listed as a co-author?

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Primarily as a result of his association with that utterly phoney study, Jack Wilmore was later elevated to the position of President of the American College of Sports Medicine.

More recently he became the Editor of a major scientific journal, a position which gave him the ability to sit in judgment of the work of others in this field. A field about which he knows less than nothing. Dr. Michael N. Pollock, a full professor in the School of Medicine at the University of Florida, Gainesville, sent an article to the journal being edited by Jack Wilmore and he refused to publish it; then, in a very condescending letter to Dr. Pollock, Wilmore suggested that Pollock should consult with some “real experts” in that field.

Why? Because Wilmore is both stupid and arrogant, and because he refuses to even consider the fact that somebody else might know something of value that he was not even aware of. In Dr. Pollock’s study, which Wilmore refused to publish, Pollock showed the results of twelve weeks of training with a MedX Lumbar-extension machine; during which period, on the average, the subjects gained more than 100 percent in strength in the fully-extended position of the spine. FROM ONLY ONE EXERCISE EACH WEEK DURING THAT PERIOD.

In his letter, Wilmore said (or words to that effect) . . . “Everybody knows that one exercise each week is worthless; to produce good results you must perform each exercise nine times every week.”

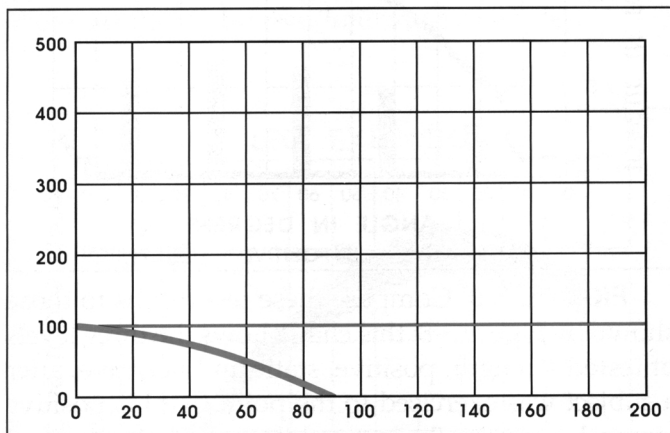
Three sets of each exercise during each of three weekly training sessions, a total of 108 exercises in twelve weeks; which is the usual program in most of the research that has been published during the last twenty-odd years. Then, if they show a strength gain of 25 percent, they brag about what good results they got. Pollock’s study showed more than four times as much gain from only one-ninth as much exercise; so Wilmore simply rejected it out of hand.

If I produced only a 25 percent gain in strength from a twelve-week training program I would probably go insane and kill all the subjects, because such results would make it obvious to me that the subjects were not trying, were simply goofing off, wasting their time and mine. In 1975, in West Point, we increased the training group’s average strength by 60 percent in only six weeks, and all of the subjects were far above average strength at the start and thus had less than average potential for additional strength gains; and these gains were produced by only three exercises each week, one set of each exercise during each of three weekly workouts.

Having started work in an attempt to develop a good knee testing machine in January of 1972, it took us 19 years and 3 months of continuous work to solve all of the related problems, and during most of that period it appeared that what we were trying to do was simply impossible, and it damned near was impossible. But, eventually, we were successful; so now, at last, after years of bullshit from Cybex and others, it is possible to accurately and meaningfully measure knee functions, which functions turned out to be far different from anything previously suspected.

There have been, for example, dozens of articles published on the subject of the “ideal” relationship of quadriceps strength to hamstring strength; but since the equipment used to measure both of these factors was simply worthless, it naturally followed that any assumptions based upon such studies were utterly worthless.

fig. 1



The “shape” of the published strength curves of quadriceps torque that were measured with Cybex machines has nothing in common with a true strength curve of these muscles. And the same is true in regard to published strength curves of hamstring strength.

If a known level of torque is imposed upon a Cybex machine, and permitted to move at an absolutely constant speed through a range of 90 degrees, then the resulting torque curve would look exactly like FIGURE ONE; but that is what it should be, and would be if the machine was actually measuring torque, which it does not; instead, it records impact

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forces produced by the fact that a Cybex machine does not, as it claims, provide a constant speed of movement; instead, provides a quickly changing speed with sudden starts and stops.

Then, when the results of such a trial with a Cybex machine are recorded accurately, you get a result that looks like FIGURE TWO; with no slightest similarity to what it should have been.

So they take these actual results, a recording of impact forces rather than a measurement of torque, and run them through a device that they call a “damp,” which is nothing more nor less than an electronic lying machine which totally distorts the true results. These supposed, but utterly phony, results are then presented to you in the form illustrated by FIGURE THREE.

These three figures show you “what should have happened” together with “what did happen” and “what they told you.” Applied to the knee, such testing is outright fraud; applied to the lower back, it steps across the line into the area of criminal malpractice.

In one of their advertisements a few years ago, Cybex claimed that . . . “714 scientific research programs have been conducted with Cybex equipment; thereby proving the validity of Cybex testing.” Well, in fact, they actually proved the stupidity of all of the people associated with any such programs; after all, who but the stupid would use an utterly worthless and dangerous tool for such a purpose?

And, of course, they also proved the stupidity of all of the editors of various scientific journals who published all of this outright bullshit.

When I first introduced Nautilus machines, twenty-five years ago, people from Cybex violently attacked my ideas and developments; then, later, when a company called Eagle started selling poor copies of my machines, in direct violation of my patents, Cybex bought that company and later changed the name from Eagle to Cybex. What I was doing, according to them, was all “wrong,” but their poor copies of my machines were supposedly “perfect.”

When I started Nautilus I had no real competition and very quickly dominated the field of exercise equipment; now, a quarter of a century later, there are about fifty companies selling poor copies of machines that I invented over twenty years ago, all of them, of course, claiming to be “better,” but all of them, in fact, being much worse than early Nautilus machines.

So now we do have a lot of competition, but we also have a totally new line of MedX exercise machines that is so much better than anything else on the market that any meaningful comparison is impossible. Thus you would be very well advised to “investigate” before you “invest.”

fig. 2

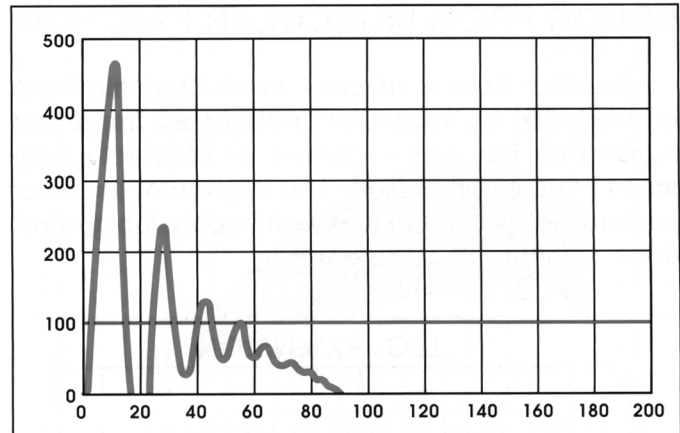


fig. 3

