My First Half-Century in the Iron Game

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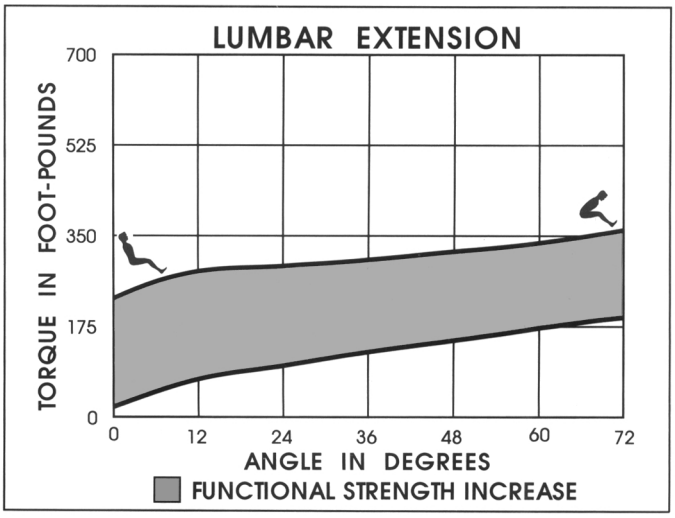
Look carefully at the following illustration: this chart shows several things of great importance, none of which factors were even suspected as recently as seven years ago.



The above illustration is a photograph of two actual tests that were performed on a MedX Lumbar-extension machine; the lowest curve (the bottom of the shaded area) shows the subject's initial level of fresh, full-range strength of the totally isolated muscles that extend the lumbar spine, the "low back" muscles, perhaps the most important muscles in the body and certainly the most critical muscles (the ones that cause the most trouble); while the higher curve (the top of the shaded area) shows the same subject's fresh level of strength five months and eight days later, showing gains in strength that were produced by specific exercise that was performed only once each fourteen days during that period. The grey area between the two curves shows increases in strength that were produced.

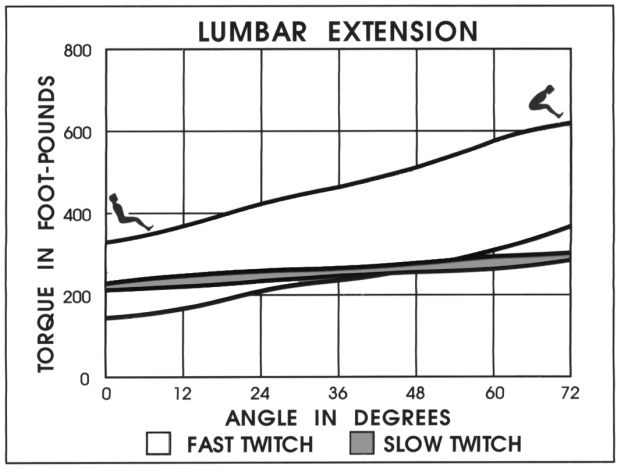
On the right side of this chart, in the so-called "flexed" position, the usual position of greatest strength, this subject produced 340 foot-pounds of torque when first tested; but, at first, we refused to believe that test result, did not believe that the relatively small muscles of the lower back were capable of producing that much torque. So we assumed that the testing machine was over-stating strength, was giving us test results that were much "too high."

But when we calibrated (checked for accuracy) the machine we found that there was less than two tenths of one percent of error; when a known torque of 100 foot-pounds was imposed upon the machine, it registered between 99.8 and 99.9 foot-pounds, so in fact the test results were accurate, even if surprisingly high.

Why did we not initially believe the test results? Because we had been testing the strength of this same subject's quadriceps muscles (leg extension) for several years, and with both legs working together his fresh strength of the quadriceps muscles was only 400 foot-pounds of torque (which is way above average), and since the cross-section of this man's quadriceps muscles was about twenty times as great as the cross-section of his much smaller lumbar muscles it did not appear to make any sense that his much smaller lumbar muscles were nearly as strong as the much larger thigh muscles.

Then, having established that the test results were accurate, we went around for several days telling ourselves that this was probably the strongest man in the world in these muscles, we did not then believe we would ever find many (if any) other men that would be that strong. And we rationalized his apparently high level of lower-back strength on the grounds that he had been training hard and heavy for nearly twenty years and that he had been using a Nautilus lower-back machine for seven years. Previous exercise that we believed to be responsible for his unexpected high level of strength.

But, as things turned out, we were in for an even greater surprise. Look at the following chart, which also shows two strength curves, with either a white or grey shaded area between the two curves.



The lowest strength curve on this chart (the bottom of the shaded area) again shows this subject's lower-back strength when he was first tested, while the higher curve (the top of the shaded area) shows "average" strength of these muscles with a previously unworked man, a man with no exercise experience. So it turned out that this subject, rather than being unusually strong in these muscles, was actually below average strength. But, at the time of this man's first test, the level of "average" strength had not yet been established; because these test results were produced by the first person who was ever meaningfully tested for the strength of those muscles, prior to the date of this first test there had never been a device that was capable of accurately testing these muscles. The shaded area on this chart shows how much below an "average", untrained level of strength he was when first tested.

Cybex, among others, had then been selling machines that supposedly were capable of testing these muscles for several years; but, in fact, their machines (and all others then existing) were utterly worthless for any purpose, and dangerous as hell to boot. Meaningless test results produced by a dangerous testing procedure.

Cybex test results were biased by impact forces, by gravity, by friction, by stored energy and by a failure to provide the isolation required for meaningful testing procedures; trying to test lower-back strength with such a machine makes as much sense as trying to determine your bodyweight by using a typewriter as a scale. None.

So, in fact, the above test results were literally the "first" meaningful test results of the strength of these important muscles; thus, at first, we had nothing for comparison purposes, no standards to go by. "Strong" is a relative term … strong compared to what? Nothing can be evaluated without standards for comparison, and at the start we had no such standards.

And just how could the small muscles of his lower back produce nearly as much torque as the much larger muscles of his thighs? Because, at first, we failed to consider the leverage provided by his joints; the knee joints, in a mechanical sense, are very poor, more than 90 percent of the actual force of contraction provided by the quadriceps muscles is wasted by the very poor leverage of the knee joints; which is why your quadriceps muscles are so large, they have to be very large and very strong in order to compensate for the bad leverage provided by the knee joints.

In stark contrast, the leverage provided by the joints of the lower back is very good, particularly good in the fully-flexed position. If your quadriceps muscles produce a force of contraction of 100 pounds, then measured output of torque will be only about 8 foot-pounds; while a force of 100 pounds from the lower-back muscles will usually produce a measured output of 200 foot-pounds of torque in the fully-flexed position.

So, in the knee we have strong muscles and a poor joint; while, in the lower back, we have relatively much weaker muscles linked to a far better joint system.

Now look again at the chart at the start of this article: the grey area between the two strength curves shows gains in lower-back strength that this subject produced as a result of specific exercise; on the right side of this chart, showing his strength in the flexed position, he increased his initial level of strength by 103 percent; on the left side of the chart, showing strength in the fully-extended position, his starting strength was increased by 450 percent.

The subject that produced these test results was Joe Cirulli, a man who operates two very successful health clubs and a rehabilitation clinic in Gainesville, Florida; now using MedX equipment exclusively. In addition to our line of large and very sophisticated testing and rehabilitative-exercise machines intended for clinical use, we are now distributing a full line of exercise-only machines that represent nothing short of a major breakthrough in the field of exercise; having revolutionized the field of exercise with Nautilus machines more than twenty years ago, we have now produced another major breakthrough in exercise.

All competing exercise machines, Nautilus, Cybex, and a long list of others, have a number of major problems; but we have now solved these problems and produced equipment that represents nothing short of a giant leap forward in exercise.

But, again, I am not trying to sell you something; instead, I am merely trying to make you aware of the current state of the art, and in order to do so it is necessary for me to mention all recent developments in this field, good or bad, steps forward or steps backwards.

A very large part of what we believe, and the things we do, is a result of instinct; has nothing to do with the facts. In the case of so-called "experts" (in any field), the instinctive reaction to anything new that appears in their field will be as follows: First, they will ignore it and hope it goes away … second, if it does not go away as a result of their having ignored it, they will then try to ridicule it … third, if it still continues, they will start to attack it … fourth, and if their attacks fail to kill it, they will be forced to try to copy it … fifth, and eventually, now that they have thought about it, they will remember that they invented it in the first place. Ignore, ridicule, attack, copy, steal; this is the pattern stamped into the genes of experts. It happened to Edison, the Wright Brothers, Einstein, Tesla, and it happened to me; most of the exercise machines now on the market are attempted copies of my earliest Nautilus machines, and the few that were not such copies were firm steps in the wrong direction.

I strongly suspect that whoever discovered sex, fire, the wheel, the bow and arrow, and anything else you can think of, was treated in the same fashion by the "experts" of their time.

People with no experience with such things generally assume that a patent provides total protection for the inventor, and I certainly wish that this was true; but, in fact, the usual result of a patent is to make a lot of lawyers very rich while driving the inventor out of his mind. And while I was awarded a number of patents for various Nautilus machines, I never made any attempt to defend those patents, did not sue any of the people who copied them; but things have changed and now I will defend the patents that I hold for MedX machines. While the patent situation is still a great distance from being "right," it has improved during the last twenty years. The Supreme Court has finally begun to realize that an inability to defend a patent has caused American industry enormous losses, which of course also means a great reduction in the collection of taxes by the government (which is the primary concern of government).

Or are you stupid enough to really believe that the people in government are trying to help you? Governments are apparently incapable of helping anything; they are never the "solution" and are usually the "problem." Or do you like what they have done to our schools during the last fifty years? Or how they have "solved" the drug problem. Or "helped" the poor. And in those rare cases where it does appear that the government has done something of value, when you consider the actual cost it usually turns out that the result was not worth the price.

Now they are going to "straighten out" the current mess in the health care system, and it certainly is a mess; but if you believe that the current situation is a mess, wait until you see what it is after the government takes charge of it. Many of the current problems in that field are direct results of earlier laws and regulations; today the average doctor has to spend at least half of their time filling out forms that are seldom even read by anybody in government, few of which forms even make any sense, most of which are damned near impossible to understand.

A year or so ago, two young female agents from the FDA (Food and Drug Administration) came around for the stated purpose of "evaluating" our equipment and our manufacturing procedures, and I seriously doubt if either of these young women know the difference between a hammer and a crosscut saw, they damned certainly know less than nothing about either testing procedures or exercise. Yet they were sent by the government to determine whether or not what we are doing is "right."

Later, according to a report I got from the brother of one of these young women's live-in boyfriend, she stated that she did not like me, and that she intended to try to put me out of business. So far, nothing has followed, but I will not be surprised if it does. But, if it does, that young women is in for a big surprise; because we can clearly establish that what we are doing is "right." And can also establish that everything else in this field is utterly "wrong."

Having wasted a couple of days of our time, with no slightest understanding of anything we showed or told them, the only suggested improvement that they could think of was to tell us to "calibrate our drill presses every morning."

Whatever that is supposed to mean, if anything. If it is possible to calibrate a drill press I am totally unaware of it, never heard of doing so, would not know where to start, would not know which tool to use. Her suggestion was, quite literally, utterly stupid. But that is usually the case when you are dealing with government agents.

And these are the people that are going to "protect" you. Sure.

If, as they now intend to do, the government actually does take full control of health care in this country, you will see a situation that will make the current mess in this field look like a miracle; it will become all but impossible to get health care of any kind, and the cost will go through the roof. Count on it.

Total costs of health care in this country are now estimated to be in excess of $830,000,000,000.00, and about 12 percent of that cost (around a hundred billion dollars a year) is a result of chronic lower-back pain; and here we sit with both the equipment and knowledge that are required to reduce those total costs by about 80 percent, thus saving about eight billion dollars a year, to say nothing about preventing an enormous amount of pain and suffering, and in general the so-called "experts" in this field are not even aware of what we have done, refuse to even look at the facts.

Eventually, that situation will probably change, because the facts cannot be ignored forever; but my age being what it now is, I seriously doubt that much change will occur during the rest of my life. Which is certainly not meant to imply that we have failed, or that we are failing; quite the contrary, hundreds of thousands of chronic lower-back pain patients are now being treated with very good results in several hundred different medical clinics. But in the meantime millions of other patients are not being treated with worthwhile protocols, are wasting both time and money to no purpose.

A very similar situation exists in the field of general exercise; most of the people who are now exercising, for any purpose, are largely wasting their time and efforts, are producing nothing close to the results that could be produced by much less exercise than they are now performing; a situation that is primarily caused by simple ignorance, a lack of knowledge.

Tens of millions of words are published every year on the subject of exercise, but almost all of it is outright hogwash, and some of the suggestions being offered are nothing short of dangerous. What I am trying to do in this series of articles is to make the readers clearly aware of the actual facts that have been established in this field, and also to make them aware of things to avoid. What to do, what to avoid. How to do it, how not to do it, what is right, what is wrong.

When I first stared exercising, more than fifty years ago, I tried damned near everything that I heard of, and a lot of things that I thought of myself; and, after a few years of trial and error, I eventually settled upon a routine that involved three weekly workouts that required four hours of hard work during each workout, performing four sets of each of twelve exercises, with each exercise being continued to a point of failure, to a point where I could not produce continued movement against the resistance being used.

And, up to a point, my results appeared to be good; but then I would reach a "sticking" point where no additional progress was being produced. When several weeks of continued hard training failed to produce any additional gains, then I would quit training entirely. Then, a year or so later, I would go through the same procedure, would gain rapidly at first, gain more slowly later, and eventually reach the same sticking point again. I suspected that something was wrong, and something was wrong, but I did not understand the problem.

The problem was that I was overtraining; I was "stimulating" increases in muscular size and strength by the hard exercise, but I was not "permitting" any additional gains. The sticking point was caused by the fact that my workouts were draining my recovery ability to such an extent that I barely had time to fully recover between workouts, and was not permitting my muscles the rest between workouts that was required for additional gains in size and strength.

Having been "up" and "down" like that about a dozen times over a period of nearly twenty years, and having always reached the same sticking point, I then made a simple change in my workouts; I reduced the number of sets of each exercise to two instead of four, and instantly I stared to grow again, added a full half inch to the size of my upper arms, added ten pounds to my bodyweight, and greatly increased my strength, and all of these gains were produced within a period of only a week as a result of three workouts.

At the end of that week, having very quickly reached a size and strength level that was previously impossible, I was forced by circumstances to stop training altogether for a year, was traveling all over the world and simply had no opportunity to train. But I did not stop thinking. So, when I did start to train again, I asked myself … "If cutting my workouts by half produced that kind of results, what would happen if I cut my workouts even more?"

So then I started using a workout that involved only two sets of each of eight basic exercises, standing presses with a barbell, behind the neck chins with a parallel bar, bench presses with a barbell, regular-grip chins, parallel dips with parallel bars, barbell curls, behind the neck triceps curls with a pulley arrangement, and squats with a barbell and a squat rack. Sometimes I would add calf raises and/or wrist curls with a barbell, but both my calves and my forearms have always been far larger than average and I have never needed much exercise for these muscles.

The first Black to win the Mr. America contest, Chris Dickerson, in 1970, was a man who was noted for having unusually good calf muscles, but he told me that his twin brother, who had never trained, had even better calf muscles; I met his brother a few years later, and his calf muscles were better than his brother's.

When I started training again following a year out of training, and using only a third as much exercise as I had used earlier, my gains were so rapid that I could hardly believe it; within a period of seven weeks, as a result of twenty workouts, I reached levels of both muscular size and strength that were far above anything previously produced. Then was forced to quit training for another year.

A year later, still on a routine of only sixteen sets during each workout, I repeated the gains produced a year earlier during the first seven weeks of exercise, but then continued to train; six weeks later, after thirteen weeks of reduced training, I weighed a very lean 205 pounds at a height of five feet seven and three-eights inches, my upper arms were 17 1/8 inches measured accurately and measured "cold" (before exercise), which is about 20 inches the way most bodybuilders measure their arms.

Thirty-odd years later, I firmly believe that my results would have been even better if I had used only one set of each exercise and if I had trained only twice each week instead of three times. I also believe my results would have been better if I had given more attention to the negative part of the exercises.

It should also be noted that I did not use drugs of any kind, and did not use so-called food supplements, or even vitamins.

For those of you who may be stupid enough to use the so-called growth drugs, steroids, etc., it should be noted that Paul Anderson was probably the strongest man who ever lived on this planet, and that he performed lifts about forty years ago that have never been equaled since, and he damned sure did not use drugs that had not then been invented.

And Paul is not the only such example that could be given; Doug Hepburn also set weightlifting records that have never been equaled, and some of the current records were set nearly a hundred years ago.

In 1948, a Black man from Buffalo, New York, Melvin Wells, appeared on the bodybuilding scene with a muscular physique that had to be seen to be believed; and he developed this physique under what were probably the worst-possible conditions, training with home-made equipment in an unheated garage in one of the coldest cities in the country. Most of his barbells consisted of a pipe with two buckets full of rocks as weights. I still have films showing what this man looked like in his prime, and he was certainly the equal of the best physiques in the world today.

He probably trained very briefly, I imagine that it was so damned cold in the unheated garage that he could not stand it very long; while brief training, if I am right, might go a long way in the direction of explaining just why his results were so good.

Also … the statue of the Farnese Hercules was created by an artist thousands of years ago; and it shows a muscular physique that has never been equaled since; posed in the same manner even the largest of current bodybuilders would appear to be underdeveloped by comparison to the man who posed for that statue.

"Yes," you might say, "but that is only a statue, and is no proof that such a man ever actually existed."

Wrong. Such a man did in fact exist; because the bodily proportions are correct, and they would not have been correct if the sculptor did not have a subject that looked like that. Changes in muscular size produce changes in bodily proportions, but such changes could not be determined if they had not been seen, so such a man really existed, thousands of years ago. I wonder what kind of drugs he used? And what brand of high-protein products he consumed?

There are more outstanding physiques on the scene now than there were fifty years ago for the simple reason that a hell of a lot more people are now training; there are probably a thousand times as many people training now as there were fifty years ago. Given a much larger pool of subjects to draw upon it is only logical that we will find more outright freaks among them, individuals who were blessed with a literally freakish degree of muscular potential; when such people train they will produce results that are simply impossible for most people, but it does not follow that they really understand just why their results were so good, in fact they seldom understand the situation.

The factors that turned my interest in the direction that eventually lead to the invention of Nautilus machines, and later lead to out current MedX machines, were a result of a genetic accident. As a result of genetic factors that I did not even suspect many years ago, I had above average potential for muscular size and strength in both my arms and my legs, which made it relatively easy for me to increase the size and strength of my arms and legs; but it also happened that my potential for size and strength in most of the other muscles in my body was below average, which made it very difficult for me to develop these other muscles.

If, instead, my potential had been below average in all of my muscles, then it is almost certain that having tried exercise I would have quit in disgust, wrongly convinced that it was worthless. In which case neither Nautilus nor MedX would have occurred.

But, as it happened, the good results with my arms and legs made me clearly aware of the value of exercise, while much poorer results with my other muscles made me suspect that either my training methods or my equipment was wrong, and that turned me in the direction of trying to determine the best style of training and also caused me to start trying to improve the tools that were then available for exercise.

It was obvious to me more than fifty years ago that your strength varies greatly from one position to another position during a full-range movement, and thus the need for a variable source of resistance was obvious. A need that I tried to provide in the late 1930's by welding hooks to a barbell and suspending heavy chains to these hooks, so that the weight of the chains would be added to the weight of the barbell as it was lifted; which in fact was impractical as hell. But was a start.

Not having had the opportunity to fly fighters during the Second World War, 1948 found me in Tulsa, Oklahoma, where agents from both Israel and Arabic countries were trying to recruit fighter pilots for their airforces in the then ongoing Jewish/Arabic war; and, yes, they have been fighting that long. Having absolutely nothing in the way of political opinions at the time, I really did not care which side I fought on; what I really wanted to do was to fly ME 109 fighters, and I was prepared to go with either side that had that type of plane. But, as it happened, I did not fight on either side, because I frankly did not trust either side, which turned out to be one of the few smart things I have ever done.

While in Tulsa, I was living in the local YMCA, and was training in their very crude weightlifting gym, with a temperature above 100 degrees, 100 percent humidity and no drinking fountain; one well known bodybuilder from California suffered a heat stroke while training there and dropped dead during his workout. It was bad.

A man named Percy Cunningham was training in the same gym, was favorably impressed by the results I had produced, came to me for training advice, and has remained a friend ever since; Percy was then a senior Captain for American Airlines, was earning $1,000.00 a month (which was a fortune in those days), had a new Cadillac convertible and more young, attractive airline stewardesses than he knew what to do with (although he tried), so he had a lot to offer.

Now retired for about twenty years, Percy is nearly eighty years old and lives in Texas. He started flying when he was 14 years old when his older brother (who was a fighter pilot in the Army Air Corps) stuck him into a single-seat fighter and told him to fly it. There were no flight instructors then, you just crawled into a plane by yourself and flew it, or killed yourself in the attempt. The first certificates for flight instructors were not issued until 1939, and the very first

was issued to a rather well known Hollywood actor whose name now escapes my memory. And just how much training did he have? None.

With the money for the required materials being supplied by Percy (a total cost of nine dollars) I then built the first serious attempt in the direction of what eventually lead to Nautilus machines; a machine that was supposed to provide direct, full-range exercise for the large muscle of the back, the latissimus muscles. And while it may have been a slight improvement over exercise for these muscles provided by a barbell, it was not in fact capable of doing what I intended.

During the following twenty years, I designed and built later versions of such a machine, many later versions; built then in Oklahoma, Texas, Louisiana, Florida, New York, Mississippi, Mexico, Columbia (South America), Singapore, Africa and several other places. Everywhere I went I built one or more new versions of the machine. And none of them satisfied me. All had problems that I did not then understand and thus could not solve.

In 1968, then living in central Africa, and having built an exercise machine that obviously still had problems, I had a breakthrough in the middle of the night; suddenly understood at least one of the major problems with my machine and believed that I could provide the solution.

A solution that did not work, but one that failed in such a fashion that I then clearly understood both the problem and the solution. Shortly after that lesson I returned to this country, and immediately started building a machine that incorporated the solution learned in Africa; and it worked like a charm, and Nautilus followed.

Very early in the 1970's then having already published several articles in which I clearly spelled out the problems with isokinetic exercises, I published the statement that I intended to design and build a machine that could in fact produce meaningful strength tests of knee function, which Cybex claimed to be doing but which they could not do (and still cannot), and also stated that providing such a tool would require about six months of work and would cost about $200,000.00 to develop. Neither of which last two statements I believed at the time; in fact, I believed that I could produce such a machine within a period of three weeks and at a cost of about $10,000.00.

How wrong can you be?

In fact, an acceptable version of a knee testing machine was not produced until 19 years and 3 months later, following the designing, building, testing, and rejection of more than 4,000 prototype machines, at a total cost in excess of $75,000,000.00. For many years it appeared to be an impossible task, and it damned near was. Over the years fourteen different teams of highly qualified people worked in continuous attempts to produce an acceptable machine for the intended purposes.

But several years before we eventually were able to produce an acceptable knee machine, we did produce other testing machines of far greater actual value; machines for testing lumbar-extension strength, torso-rotation strength, cervical-extension strength and cervical-rotation strength. We have now been directly connected with the University of Florida School of Medicine in Gainesville for more than ten years, and they have performed a total of 44 scientific studies with our equipment, studies involving several thousand subjects, tens of thousands of testing procedures and hundreds of thousands of exercise sessions. For the last year we have also been directly connected with the department of Orthopedics and Rehabilitation of the College of Medicine of the University of California, in San Diego. Those people are also performing research with MedX equipment with thousands of chronic lower-back pain patients, as well as in cooperation with the U.S. Navy and major industrial firms.

Additional research with MedX equipment has been performed in a number of other locations in this country, in Europe and in Japan, with outstanding results in all cases.

As I have previously stated, most of the things that we have discovered during the last seven years were not even suspected earlier, could not have been suspected earlier because there was then no tool capable of meaningful test results.

Now all we have to do is shove it down the throats of the scientific community, and this will eventually be done. The truth cannot be ignored forever.