Ironman Articles
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The Next Step

EXERCISE is capable of producing two distinct results – one favorable, one undesirable; the favorable result is produced only "some of the time" – the undesirable result is ALWAYS produced.

Under certain conditions, exercise is capable of producing growth stimulation – and this is positive; but under ANY conditions, a negative result is always produced – at least a certain percentile of the momentarily-existing recovery ability is exhausted.

For the production of best-possible results, it is necessary to induce the maximum degree of growth stimulation – without exhausting all of the recovery ability. Muscles WILL NOT grow if the intensity-of-effort required by an imposed workload falls below a certain level – and muscles CANNOT grow if the recover ability is entirely exhausted by too much exercise.

In spite of widespread belief to the contrary, it is my personal firm conviction that the "percentile of success" in bodybuilding is far lower today than it was twenty years ago; and I think I know why this is true – I think far too many current bodybuilders are trying to "buy success" are trying to eat their way to great muscular size, or find strength in a bottle, or a needle. Twenty years ago, there was only one route to success in the bodybuilding field – plain hard work; and while it may or may not be true that there are more outstanding men on the scene today than there were twenty years ago, this proves absolutely nothing – after all, there are far more bodybuilders now than there were then, and out of this much larger number it is only to be expected that a greater number of individuals would reach the top.

"But leading bodybuilders of today are far larger than they were twenty years ago."

Are they? In one or two individual cases, perhaps; and that, too, is only to be expected from a much larger number of trainees.

During the last year, literally hundreds of bodybuilders have visited our training facilities in DeLand, Florida – and one very distinct overall impression has been forced upon me; almost without exception, the bodybuilders of today simply don't know what hard work is – most of them are convinced that "more" work equals "harder" work, and the belief, of course, is ridiculous. Secondly, a very high percentage of them are downright fat; and thirdly, very few are anywhere near as strong as they should be.

Human nature being what it is – and, in my opinion, not being subject to much (if anything) in the way of large-scale improvement – most people are not really interested in the truth, especially when it leads to unavoidably "hard" solutions to their problems; most bodybuilders may or may not be lazier than the momentary average – but they certainly show few if any signs of being more industrious than the average.

During the leg portion of a very fast but extremely hard workout for the entire body, three days ago in the DeLand Public High School gym, one of our trainees performed 25 rapid, non-stop repetitions on a leg-press machine with 460 pounds, then INSTANTLY followed that with a set of 22 thigh-extensions with 200 pounds, and then instantly followed that with the 17 repetitions of the full squat with 400 pounds.

Training with him and following immediately this trainee, Sergio Oliva reached the squat rack after 17 reps with 460 in the leg-press and 16 reps in the thigh-extensions with 200 pounds, and when he "broke the lock" in his knees for his first rep in the squat with 400 pounds, he went to the floor like he had been knocked in the head. After being helped to his feet, he tried it again – with the same result; whereupon we removed 100 pounds from the bar – during which delay Sergio was afforded some rest – and then he performed 7 reps with 300 pounds.

During a second "break-in" training session, Sergio performed four reps with 400 pounds in the full squat at that same point in the workout – and during his third workout here, he was successful with six reps with 400 pounds; after his left thigh "seized-up" during the thigh-extensions and locked into a straight position, and after he spent about five minutes hopping around the gym in pain with me beating on his thigh with my fist.

Sergio is accustomed to training his latissimus muscles for at least two hours, almost non-stop – but during his first workout here, one cycle of four exercises performed within a period of about four minutes was all he wanted; after which four minutes he spent a considerably longer period of time stretched out on the sidewalk in front of the gym. And less than eight minutes of training for his arms was more than enough.

Because this really is "hard" training.

And make no slightest mistake about one thing, Sergio Oliva is a MAN; he is one of the strongest men I have ever seen – and he is the only man I have ever seen with a legitimate "cold" 20 inch muscular arm – measured by myself, in front of witnesses, on the first flex, at right angles to the bone, with a literally paper-thin and perfectly accurate tape that was checked there and then against a steel rule.

And while it is widely believed that a trainee "cannot make best-possible gains unless he devotes himself entirely to his training, avoiding work in the form of gainful employment like the plague and becoming an outright fanatic," I would like to mention that Sergio, until very recently, was employed full-time in a foundry – perhaps the hottest, hardest work you can find and he told me very plainly that he made BETTER GAINS while he was working full-time in the foundry – since leaving that work, he said, he has found himself getting lazy, he no longer has the same drive for his workouts.

Twenty years ago – if they had been offered even a hint that success might lie in some "easier direction" the bodybuilders of that period might have been just as lazy as some of them are today; but no such route to the top had been suggested – and there was only one way "up," outright hard work. And exactly the same thing is true today – but with a difference; many people now sincerely believe that they can get there some easier way. And they continue in their false beliefs in the face of literally overpowering proof to the contrary; some few, actually a pitifully small percentile, do finally reach the top – but in most cases, they do so almost literally "in spite of their efforts," and then usually give the credit to some factor that had little or nothing to do with their success. In many cases, credit is actually given to a factor that retarded progress.

You think otherwise? Then just try convincing a bodybuilder who has been training for twenty hours a week – for ten years – that a much better degree of results could have been produced by about 15% of the amount of training, EVEN WITH CONVENTIONAL EQUIPMENT (with Nautilus equipment we can produce even better results with about 3% of the usual amount of training.) During the last six months, John Grimek, Milo Steinborn, Dick Fudge, Ed Sash, Arnold Schwarzenegger, Franco Colombu, Ell Darden, Chuck Amato, Boyer Coe, Red Lerille, Sergio Oliva, Casey Viator, Dan Howard, John Meyers, Pete Caputo, Julian Levine, Alvin Roy, Jan Paul, Chris Dickerson and literally hundreds of others have visited our training facilities in DeLand, Florida, for the purpose of personally investigating the new types of machines; it would be nice if I could tell you that all of these people instantly understood the principles incorporated into these machines and fully realized the significance of these new developments – it would be nice, but it would not be true. Many of these people did understand, some others didn't really understand but realized that "something" significant was happening when they saw the results from very brief workouts and or short periods of training – and some few simply could not understand, or WOULD NOT; which is not surprising – since many people can never quite bring themselves to admit the value of anything new, millions of people were still screaming "get a horse" every time they saw a car long after Henry Ford made his first hundred million dollars. And even today, nearly seventy years after the fact, and in the clear face of simple overpowering evidence that the airplane has literally changed history, most people are still "not quite sure" about flying.

But it is a bit amusing, since the very people who sincerely feel that they have been searching for a "better" answer are frequently the ones who are slowest to accept it when such is clearly pointed out to them; primarily, I think, because doing so would obviously involve an admission that a large part of their own previous efforts were wasted – or, at the very least, misdirected. But I also think that many such people – while "claiming" that they are training very hard – are simply not prepared to engage in actually heavy training. The training programs followed by many football players would literally kill most currently-active bodybuilders if they attempted to jump into such training without a careful break-in.

A few years ago, the so-called PHA system of training was in vogue for a rather brief period with some bodybuilders; and while the benefits of such cycle training are of actually very great value insofar as cardiovascular efficiency is concerned,

they seem to be of little or no value in the opinions of most bodybuilders – who are primarily interested in building maximum-possible muscular size, with or without actual muscular efficiency or overall "condition." The appearance of great strength seems to be of far greater importance than actual strength.

The training programs that we are now using in DeLand have much in common with the PHA system of training – and maximum-possible degrees of cardiovascular efficiency are produced very rapidly; but this result is actually a "side benefit," it was not the benefit we were seeking when our programs were designed – instead, we were trying to outline programs that would produce the fastest-possible gains in both muscular size and strength. But maximum-possible increases in muscular size and strength literally CANNOT be produced without such cycle training; thus we would be forced into a position of upgrading cardiovascular efficiency even if such was unwelcome – which, of course, it is not. Thus it just may come to pass that most bodybuilders will some day actually be as strong as they look – and won't fall on their faces in a dead faint if forced to run a few hundred yards. Both of which results would certainly be welcome changes.

Why is "cycle training" required for building maximum-possible degrees of muscular size and strength?

Because it is apparently the only possible way to work muscle structures as hard as they must be worked for the production of best-possible results. Performing almost endless sets is NOT the answer; because you are simply working the same few muscular fibers over and over, and if carried to extremes, which is usually what happens, such training will literally make much in the way of progress impossible, because the recovery ability will be exhausted beyond its ability to recuperate between workouts.

But with a carefully outlined program of cycle training, it is possible to involve a far higher percentage of the total number of available muscular fibers – and much more in the way of growth stimulation is induced, with minimum depletion of the recovery ability; one or two cycles of three exercises – a total of only three, or six, sets – will induce more growth stimulation than any number of sets performed in the usual manner, and will do so without exhausting the overall system to the point that growth becomes impossible.

Using Nautilus equipment, our trainees devote a total of less than twenty-four minutes a week to training their arms – three weekly workouts of less than eight minutes each; and if you just can't believe that is enough, then I will ask you this, "… have you ever vomited as a result of doing one set of curls?" "Or passed out cold after three or four exercises for your arms?" If not, then you simply don't know what hard training is.

But even without any of the new types of equipment, it is still possible to produce very good results from a training program for the arms that requires less than an hour and a half of weekly training.

How many exercises? How many sets?

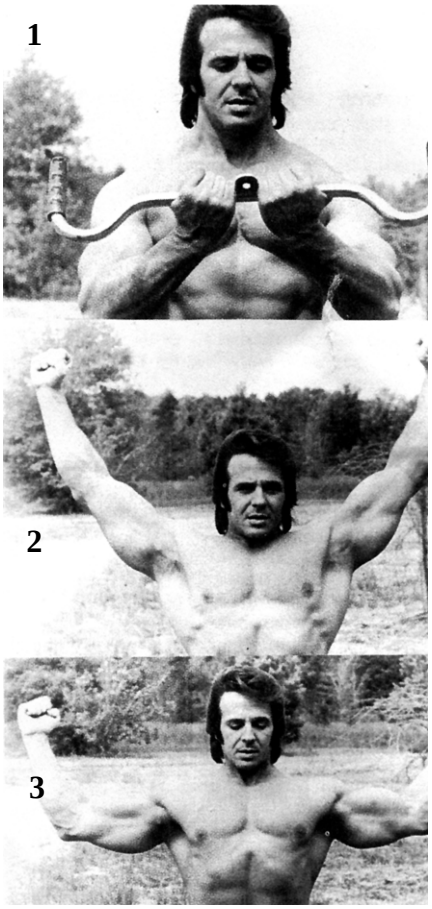
For the upper arms, two sets of each of four exercises – a total of only eight sets; for the forearms, two sets of two exercises.

First do one set of standing barbell curls, IN THE PROPER MANNER – which means doing them until the bar literally drops out of your exhausted hands, a point that should be reached within eight to ten reps – and then INSTANTLY perform an equally hard set of pulldowns to the chest with a lat machine bar, using a palms-up, close grip. Both sets should be performed to the point that any degree of additional movement is utterly impossible.

Rest a minute, and then perform an equally hard set of triceps curls – instantly followed by a set of parallel dips carried to the point of utter failure.

Rest another minute, and then do a set of about fifteen reps of palms-up wrist curls – to the point of failure. Follow that immediately with a set of reverse-grip (palms down) wrist curls – again to the point of failure.

That is one cycle. Rest about two or three minutes and then perform one more cycle in exactly the same way – and THAT IS IT. This portion of your workout should be performed last – because, if you do it right, you literally won't be able to do anything else afterwards; and if you can do anything else afterwards, then you didn't do it right. But this



routine should not be used alone, it should be part of an overall training program for the entire body – including the legs – a program to be practiced three times weekly.

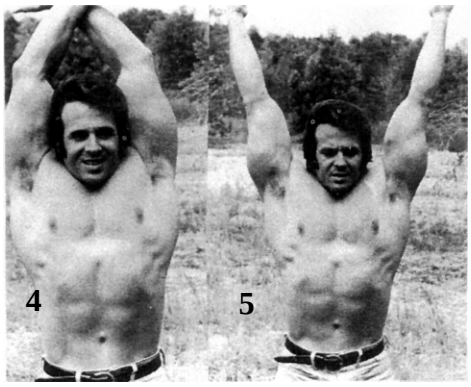
And I am fully aware as I write these words that many bodybuilders will consider the above outlined arm routine almost ridiculously simple; many bodybuilders, having devoted years of training to long complex, supposedly "modern" workouts, have completely lost sight of the fact that SIMPLE workouts are of any value for anyone except rank beginners – but the truth of the matter is that simple solutions are frequently the only possible answer to seemingly complex problems. People with such beliefs might be well-advised to give consideration to the fact that beginners usually show far better rates of progress than long-experienced trainees using far longer workouts; while it is certainly true that SOME of the fast gains produced by most beginners are due to factors which no longer exist in the cases of more experienced trainees, it is at least equally true that the actually very slow production of results experienced by most experienced bodybuilders is directly due to the fact that a factor of great importance has been dropped from their workouts – a factor that could have been retained, and must be retained if good results are desired. In most cases, there is absolutely nothing PROGRESSIVE about the workouts of experienced bodybuilders – little or no attempt is made to increase the resistance employed or the repetitions performed.

For the production of best-possible results, every possible effort must be made in the direction of progress – and if this is done properly, then at least some sign of progress will be seen in almost every workout; you will be able to perform one or two extra repetitions or use a bit more weight for the same number of repetitions, or bodily measurements will increase, or muscular definition will be improved – but some sort of progress will be obvious in almost every workout, if you are really pushing. And if you are really pushing, then it doesn't take much in the way of such exercise to produce good results.

Secondly, sometimes very "simple" changes are capable of providing almost unbelievable improvements – look what knocking the corners off of square wheels did for transportation.

Then look at the bar that Pete Caputo is holding in picture No. 1 – a properly designed "pulldown" bar. Instead of the normal employed long bar, a correctly made bar should be quite short; because a wide grip is NOT desirable. Secondly, instead of the normal "palms facing forward" grip, a parallel grip should be used. This bar is designed to provide both proper hand-spacing and grip. You can make such a bar for a few dollars if you are not concerned with appearance or chrome or fine workmanship – and it will improve your present lat exercises by about 300%.

And since most people are slow to accept something which they don't understand, I will now explain the advantages of such a bar so clearly that anybody will be able to understand. In picture No. 2 Pete is holding his arms over his head in the position that would be employed at the start of a wide-grip pulldown behind the neck; in picture No. 3 he has his arms in the position they would be in at the finish of the exercise movement. Keep it clearly in mind that the lats connect the torso and the upper arms – and that the relative position of the forearms has nothing to do with the matter, so long as the forearm position does not place limitations on the movement of the upper arms; but in this exercise – as it is usually practiced – the position of the forearms does have a very important bearing on the matter, because the forearm position makes much in the way of movement of the upper arms impossible.



By comparing the relative positions of the upper arms as shown in pictures 2 and 3, it should be obvious that the upper arms have moved very little from the start of the movement to the end of the movement; and it should be equally clear that the lats were NOT "stretched" at the start of the movement – and were not fully contracted at the end of the movement. Actual movement was limited to the mid-range of possible movement.

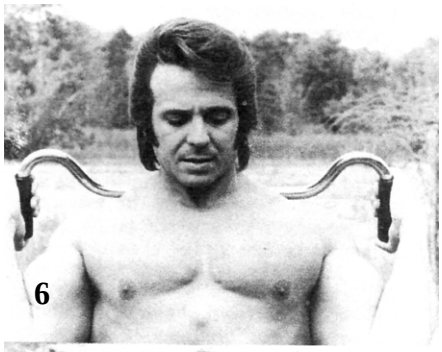
Now look at picture No. 4 – where Pete has both arms as high as possible, with the hands actually crossed above and behind his head; that would be the ideal starting position for this exercise insofar as the position of the upper arms is concerned – if it was a possible starting position, which it is not. It is an impossible starting position because the hands, being crossed, will limit movement to a range-of-movement of only a few degrees – it would be impossible to come anywhere close to a position of full contraction.

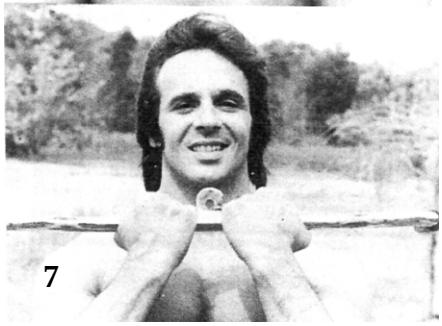
Thus, in practice, it will be found that the best "possible" starting position is the one shown in picture 5; the hands are as close together as they can be – while still permitting a range-of-movement that extends to a position of full contraction.

Picture No. 6 shows the finishing position of the exercise – a position of full contraction for the lats. By comparing the possible range-of-movement clearly shown in pictures 5 and 6 to the very limited range-of-movement shown in picture 2 and 3, it should be instantly clear to anybody that this change in hand-spacing provides a simple enormous improvement in this exercise.

But why the parallel grip?

Because, with such a grip the upper arms are in their strongest possible position – whereas, using the normal palms-facing-forwards grip, the arms are in their weakest position. Even under the best of possible circumstances, you fail in this exercise when your arms fail – not when your lats are unable to continue; so why make a bad situation worse than it already is by working the arms in their weakest positions – by simple twisting the hands into a position of full supination, you can greatly increase the usable strength of the arms, and enormously improve this exercise.





A very "simple" change – once it has been clearly pointed out; but one that will at least quadruple the benefits that can be produced by this exercise.

Finally, in picture No. 7, Pete is shown holding the same bar in front of his neck – with a palms-up, close grip; this shows the finishing position of another exercise using the same bar – but in this instance, almost any type of bar could be used with equally good results. Pulldowns to the front (regular-grip chins) should immediately follow the behind-neck pulldowns; first set of behind-neck pulldowns carried to the point of utter failure – INSTANTLY followed by a set of pulldowns to the front using the grip. Pete is demonstrating, again going to the point of utter failure. Two or three such cycles performed in a period of about six, or nine, minutes will do more for the lats than any amount of sets of similar exercise performed in the usual manner; and you do NOT require any new equipment – apart from the bar shown in the pictures, and you can make that for yourself.

Literally hundreds of such examples could be given; examples of actually very simple changes that will enormously improve currently-practiced exercises – without the requirement for any new equipment apart from simple items of equipment that can be made by almost anybody.

In general, attempts should be made to "make exercise harder" –anything that makes an exercise more difficult will usually improve it; but it should be understood that this means "harder for the muscles you are trying to work" – simply making an exercise uncomfortable will not necessarily improve it.

However, it must also be understood that it is simply impossible to involve ALL of the available muscular fibers in any form of conventional exercise; and now I will clearly explain why it is impossible.

The bulk or mass (the actual "size") of a muscle is directly related to its strength; given all of the required information, a very accurate estimate of the strength of a muscle can be determined from measurements of its mass. However, it should be clearly understood that such strength may not be measurable in relation to its existing level if attempts are made to compare the strength of one individual to that of another; that is to say, no logical grounds exist for comparisons of actual strength – if anything approaching accuracy of measurement is desired, then a man's strength can only be compared to the same individual's strength at another point in time.

There is a distinct difference between the "input" of strength and the "output" of strength; the input of strength is primarily determined by, and in all cases dependent upon, the relative mass of the muscular structures involved – but the output of strength is limited by other factors, by differences in "angles of insertion" of muscular attachments, by differences in the "moment arms" involved, differences primarily determined by actual points of insertion and relative bone lengths.

Thus a well-conditioned 16 inch upper arm will always be capable of producing more power than an equally well-conditioned 14 inch arm – but, in practice, the smaller arm could easily be capable of actually lifting more weight; in effect, the larger "motor" will always produce more power – but it frequently happens that a high percentage of such power is lost because of a "slipping clutch," and thus a smaller motor with a better clutch might actually deliver more power to the wheels.

Franco Colombu is decidedly "stronger" than his much larger friend Arnold Schwarzenegger –in spite of the fact that Arnold probably has at least twice the overall muscular bulk of Franco; but this proves nothing beyond the fact that Franco can "lift more weight" than Arnold can – and it is directly due to the fact that Arnold has very poor bodily leverage factors to overcome. In order to lift the same amount of weight that Franco does, Arnold may easily have to exert three times as much actual power; in effect, he has a bad clutch.

Such poor leverage factors could easily be directly responsible for at least a large part of Arnold's literally huge muscular development; because even a fairly light weight forces his muscles to work much harder than they would be required to do if his leverage was better – and it is "intensity of effort" rather than "amount of work," that builds large muscles.

To determine the torque (actual resistance) involved in an exercise such as the standing barbell curl, it is necessary to multiply the moment arm by the resistance employed. Doing so is quite simple; first draw a vertical line that passes through the point of rotation – in this case the elbow joint – and then draw another vertical line that passes through the center of the resistance, in this case the bar of the barbell. A measurement of the horizontal distance between these two vertical lines will determine the moment arm; which should be multiplied by the resistance in order to determine the torque.

A glance at figure No. 1 will make it obvious that there is literally NO RESISTANCE at the start of a curl, because there is ZERO DISTANCE between the two vertical lines, and thus zero moment arm, and zero multiplied by any amount of weight still equals zero.

But by looking at figure 2 it should be clear that — after the first forty-five degrees of movement in a curl – the moment arm has increased from Zero to 8 inches (in this example), and thus (assuming a 100 pound barbell) the torque has increased from zero to 800 "inch pounds."

And after another forty-five degrees of movement, at the so-called "sticking point" of a curl – as show in figure 3 – the moment arm has increased to 12 inches and the torque has reached its highest point, a level of 1,200 inch pounds (or 100 "foot pounds").

From the above three examples it should be clear that more torque would have been involved if the subject's forearms were longer – because such greater length of forearms would increase the moment arms involved. Arnold's forearms are much longer than Franco's – and thus he must produce far more power too curl a barbell of equal weight.

But length of the bones is not the only factor involved; the "points of insertion" are of extreme importance as well – if, for example, the tendons of the biceps are attached very close to the joint, then a man with such arms will not be able to curl much weight. Given the same muscle size, and the same length of forearm – but with attachment points located a greater distance away from the joints – a man could demonstrate more strength, even though his muscles would actually be producing exactly the same amount of power.

During the actual practice of a barbell curl, the elbows do not remain fixed in one position – instead, as shown in figure 4, the elbows move forward after the first ninety degrees of movement, and this serves to reduce the moment arm, and thus the torque, at an even faster rate than might be expected. When the barbell has completed 135 degrees of movement, the torque would have returned to 800 inch pounds of resistance IF THE ELBOWS DID NOT MOVE; but in fact, since the elbows move forward, the torque is reduced faster than that – to a point of only about 600 inch pounds.

And – as shown in figure 5 – after 180 degrees of movement of the barbell, the elbows have moved to a point where there is literally NO resistance.

If the actual resistance in a barbell curl were drawn on a graph to compare both the input of power and the output of force, it would be obvious that there is no resistance in a conventional exercise such as the curl at either the start or finish of the exercise – and that the resistance is "correct" only at one, literally infinitely-small point during the movement, at the so-called sticking point, where the resistance exactly equals the available output of force.

Prior to that point in the exercise the resistance is too low – and after that point, it is too low again.

And it should be clearly understood that the resistance is "correct" only at a point during the exercise where it is literally impossible to involve more than a very low percentage of the total number of available muscle fibers. ALL of the muscle fibers can be involved only in a position of full contraction – and all of the muscle fibers will be involved only if the imposed resistance is high enough to require such involvement; and it should be obvious that ZERO resistance isn't quite enough.

So how do you get around this limitation while using conventional exercise equipment? Well, you simply can't get around it entirely – but if you are at least aware of and understand this limitation you can do quite a bit in the direction of improving the situation.

In the first place, you can start by performing each set of every exercise as if it was the last set that you would ever do – as if your very life depended upon it; if you stop at any point short of outright failure, then you are NOT involving as many fibers as you could have, and as you should have for the production of best-possible results. Doing MORE SETS will NOT give the same results. One properly performed set of an exercise will give you more results than a hundred improperly performed sets – literally.

Twenty-five years ago, John Grimek worked his biceps by performing "leaning forward curls" – keeping the elbows back along his sides so that the forearms were parallel with the floor when the arms were bent as far as possible, thus providing maximum resistance in the position of full contraction.

Also, you can perform your biceps (or other) exercises "in-cycle" – for example, do a set of extremely hard dumbbell curls, and then INSTANTLY do a set of regular grip chins, or pulldowns or a lat-machine using a palms-up narrow grip. Such cycle training will permit you to work your muscles much harder than would otherwise be possible; in the above example, the curls will work the biceps as hard as you can with a barbell, and the immediately following chins or pulldowns will work them even harder, since your assisting torso muscles that come into play in those exercises will force the biceps to become involved far beyond a point of normal failure.

You still won't be involving ALL of the available fibers – but you will at least be involving as many as it is possible to do with conventional equipment, and a far higher percentage than most trainees ever involve, no matter how many exercises or sets they perform.

Nautilus exercise machines provide resistance that is matched to the "output" of force curve" – the resistance is exactly right at each point throughout the exercise.

When using a Nautilus machine, there IS resistance at the start of a movement – and there IS resistance at the end of the movement, in the position of full contraction.

Do such machines involve literally 100% of the available fibers? By and large, NO – but they do involve several times as many fibers as it is even possible to involve with any type of conventional exercise device; and we are now coming out with a new line of machines, the previously unannounced UD (Ultimate Development) Series of machines that do involve 100% of the available fibers. The "next step" is already here.

The UD Series of machines are "compound function" machines, providing perfectly balanced resistance for two or more interrelated muscular functions.

While most of the manufacturers of exercise machines have devoted the greatest part of their efforts in the direction of trying to add as many "stations" as possible to one machine, we have taken the opposite approach; rather than wasting time on a large number of relatively worthless exercises, we have long felt that far better results could be produced in much less time by concentrating on a much smaller number of extremely effective exercises – and we can produce the results to prove that our approach has been the correct one, or at the very least it has been by far the best approach up to now.

But do not assume from the above that I think that literally everybody will soon be using Nautilus equipment; far from it – after all, just how many people are even aware of the value of the barbell, nearly 100 years after the fact?

And do not assume that the barbell has been replaced: barbells will be in even more common use in the future than they are now – and they should be, properly used, barbells are almost literally a miracle machine. And do not assume that our new series of machines will replace the previously available Nautilus machines; they won't – and they were not meant to. Actually, we are working in two distinctly opposite directions; we are developing the most effective machines that can be produced, regardless of cost and in spite of the complexity of construction that may be involved – but at the same time, are also devoting effort in the direction of trying to make other types of Nautilus machines that are as simple and as low-priced as possible, while sacrificing the lowest possible degree of function.

And while the following point is somewhat off the immediate subject – if not off the subject of currently-held beliefs in the field of weight training – and while I am fully aware that many people will consider the following clear proof of my ignorance, I feel that a word on the subject of growth drugs is in order; during the course of lengthy conversations with a leading research scientist, a medical doctor whose name I am not free to use, a man who is currently giving steroids to a large number of athletes, the following points were clearly made.

1. There is NO evidence that steroids actually do promote additional muscular growth in healthy individuals.
2. At least 25% of all users of steroids will suffer permanent testicular atrophy. And if you don't know what that means – I strongly advise that you find out.
3. After stopping all use of steroids, it will require at least six months for the body to regain its normal ability to produce hormones in the required amounts – if it ever does.
4. During the period of six months – or longer – the previous user of steroids MUST LOSE both muscular size and strength; even though no additional size or strength was produced by the use of steroids in the first place. This happens because the body, having become accustomed to the artificial hormones, and having reduced its own normal production of hormones during the period when steroids were being taken, cannot instantly start

producing hormones in the required amount; thus a period of time must pass during which the body will not have enough hormones to maintain the existing levels of strength and size – and LOSSES MUST RESULT during that period.

5. The doctor from whom this information was obtained added that he is personally much AGAINST THE USE OF STEROIDS, but that he is forced into giving them to athletes by a realization of the fact that such people will take them without his knowledge or control if he refuses to give them – and he prefers to at least be aware of what is being taken.

So, drug takers – read it, laugh at my ignorance now and weep about your own stupidity later; it's your health, do with it what you will – but don't claim later that you weren't warned clearly in advance.

Arnold Schwarzenegger has used steroids and admitted it to me openly in front of witnesses, Sergio Oliva has used them and also admitted it openly – and both of these men certainly have outstanding muscular development; but I can name quite a few other individuals who also have used steroids with little or nothing in the way of results from their use – or from their training, either. And I can name a large number of people who obtained literally fantastic degrees of muscular development without the use of steroids. How do I know for sure? Because such development was produced literally decades before the growth drugs were even dreamed of.

Physiques like those of men such as Sergio and Arnold are certainly the product of their training – but just as certainly NOT the product of drugs; because, if drugs could produce such results, there would be many more such examples to prove it – but in fact there is only one Sergio and one Arnold. And of even greater importance to the production of their final degrees of results was the factor of heredity; while it is perfectly true that nobody ever "just grew" to the size of Sergio or Arnold, it is just as true that most people could never attain such size – no matter how they trained, regardless of what they ate, and with or without the use of drugs.

A recently-arrived trainee asked me how long it would take him to get as big as Sergio: "Will it take me a year?"

"At least," I told him; but he will, eventually, be just like Sergio – in a hundred years, or so, they will both be skeletons and then nobody will be able to tell the difference between them. But in the meantime, it is possible to tell the difference – and in that particular case, a year one way or the other probably won't do much in the direction of reducing that difference.

But getting back to the main point of this article, the "next step;" some people may fail to understand the real value of exercise machines of such complexity, but if so, then they probably don't understand the points made at the start of this article either. For the production of best-possible results, maximum growth stimulation must be induced – while exhausting the minimum amount of the overall recovery ability; and this can only be done if the exercise being used are as efficient as possible – and while we certainly make no claims that our machines are literally perfect, they are a lot closer to perfection than anything else in the field, physiologically, and mechanically. In future articles, these advantageous features will be clearly explained.