**Nautilus and Free Weights - The Controversy - The Truth**
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Roger Schwab
Foreword - C. A. English, M.D.
Bryn Mawr Sports Medicine Clinic

FOREWORD

The results of improper exercise fill an orthopedist's office daily. These are usually seen as the result of an acute injury, or more commonly, the over-35 year old whose resultant degenerative musculo-skeletal changes have become symptomatic.

I strongly feel the use of slow weight-training, as opposed to fast, violent or explosive weight exercises, lessens the chance of immediate injury or later progressive degenerative changes.

Properly supervised training as described herein on Nautilus equipment would result in maximum gains with minimal injury potential.

C.A. English, M.D.
Bryn Mawr Sports Medicine Clinic

Through the last years of the 1970's right up to 1984, the hottest topic still raging in the exercise arena is the question: "Which is superior for building muscular size and strength, Nautilus machines or free weights?". These are the two most widely used tools in the gyms, strength rooms and fitness centers in the United States. Most of the discussion thus far has been based strictly on opinion, hearsay, and the written word in the latest trade journal or muscle magazine, listing the current routines of popular physique champions. Virtually none of the discussion has been based on established medical information (of which there is precious little), basic physics, or cause and effects of muscular strength and size. Am I getting too technical? It's about time someone did! Because, if the facts are not generated soon, the entire field of strength-training will dig itself an early grave from which it will not likely escape in time for the current generation to reap its enormous potential value. For, if the truth be known, the field of exercise, though gaining in popularity, is "faddish", a religion to some; but in respect to results, in many quarters, it has been marching steadily backwards. I would conservatively estimate that for every unit of benefit derived from today's strength-training routines practiced in weight rooms across the country, there are at least ten (10) units of damage--and that does not include the cripples and the deaths. How many times have we heard, "Only free weights, not machines, build bulk."? This should tell the intelligent listener that the person issuing such a statement knows little or nothing about the cause and effect of exercise. If properly utilized, free weights or Nautilus machines will stimulate the skeletal muscles of the body to respond. And if the tools are utilized properly--which in most instances they are not-- results can be stimulated safely, sensibly, and fast.

What we have, however, is hundreds, if not thousands, of people in responsible positions telling kids the "best way" to train. How these "experts" got into responsible positions in the first place is ridiculous, if not pathetic. Some twenty years ago, I was assigned the position of strength coach of the football team of a major university. Not because I understood the value of proper strength-training--at the time I knew nothing of value about strength-training--but because I "looked the part". I had big muscles and the football coach thought so too. So I was placed in charge of the strength program of one of the' nation's foremost "powerhouse" football teams. And I proceeded to train them in a manner that was of no value at best, and in some cases, nearly destructive. I could not at the time understand it. After all, it did work for me, didn't it (despite a few nagging injuries)? Never mind the fact that it didn't work for anyone else. I didn't understand that at the time, but I do now. It took me many years and many injuries to realize that there is a right way and a wrong way to lift weights. And most people today do it the wrong way.

Every mistake that I made coaching strength-training to athletes twenty years ago is being repeated today at every level--from the high schools to the pros, and the situation is even worse. Only after I was unable to stimulate results either for myself or the athletes that I trained, did I finally wake up! I finally realized that I was on a treadmill, a dangerous treadmill at that, going nowhere fast and usually creating injuries--thus, going backwards. Experience does not produce learning, but without experience no learning at all is even possible. Change does not produce improvement, yet without change even the slightest possibility of improvement is impossible.

Today, coaches, teachers, even trainers and therapists, in many instances, glean most of their information on strength-training not from the scientific or medical communities, but from the high-gloss, low-tech, "glitzy" muscle magazines. Upon thorough (one minute's worth) inspection it is obvious that the publication in hand is geared basically to the 12 - 15 year old "kid" (maybe also to the 20 - 30 or even 40 year old "kid") searching for the elusive "secret"--the way to big muscles--the way the champs do it! The magazine then lists the weight workout of the latest Mr. Muscle telling the four-hour a day, six-days a week training program that transformed Mr. Muscle from a 99 pound weakling into 225 pounds of shapely muscular mass. And the 12 - 15 year old kid believes what he just read. And, pitifully, so does the 20, 30 and 40 year old "kid"--which would be funny, if it wasn't pathetic. And the problem doesn't stop here. The strength coach, who should know better, reads this pulp as if it were the Bible and has his athletes or bodybuilders follow these phony workouts to the letter. And here, folks, is the truth.

Almost every article written in most muscle magazines in the last twenty (20) years (geared to building bigger muscles) has been outright nonsense. The article by-lined by the champ(?) lists a 3 - 4 hour a day, 6-days a week workout in which, of course, he says he trains "hard". Such a workout, by its very nature, could not be "hard". If it was, it would probably kill him. It certainly would not build muscles. You don't believe me! Well, try 6-days a week, 3 - 4 hour "hard" workouts for one day yet alone for six days--see you in the morgue!

The field of exercise is saturated with fraud and lies with little or no scientific logic. And the situation is not getting better, its getting worse. If you seek results from progressive weight-training, you must train hard, and if you train hard you must train briefly. There is no other way--PERIOD!

In coaching circles today, at the high school through the professional level, the favorite exercise for coaches and athletes alike is the bench press. Why? Most coaches will answer, "More than any other exercise the bench press will help our linemen explode off the line of scrimmage. It's the best exercise for upper body strength". Usually the bench press is performed for many "pyramid" sets--hours upon hours spent doing the bench press. Why? Do you want the truth? Because the bench press is one of the easiest exercises and certainly not the best! And certainly not the best way to help linemen "explode" off the line of scrimmage. Ten sets of bench presses is not uncommon in many athletes' workouts. Why, because it's easy! You think not? Well, just for kicks, let's try ten sets of barbell full squats--all the way down and all the way up! The first excuse will be that squats will hurt the knees. Not if they are done right--slow, strict and hard! People will not do ten sets of squats! If performed properly, people won't do two sets of squats! Why not? Because squats are hard, brutally hard. And if you do one set right, you not only don't need two sets or more--you literally can't stand them. I'll give you two examples of hard work:

1. Take a weight that you think you can squat with for ten hard repetitions (have three spotters with you, one on each side and one behind you) and do twenty (20) reps, or until you can no longer stand up--until the spotters have to take the weight off your shoulders while you are in the down position. After you catch your breath and the color returns to your face, you can crawl to the next exercise, no one will have to question you about your second set.

2. Sling about one hundred and fifty pounds around your waist and climb up on a small stool below your chin-up bar. Place your chin above the bar. Lower yourself SLOWLY, about-ten seconds, with your knees bent until you are in a full hang at the bottom. Then climb up on the stool again, get your chin over the bar and lower again slowly. Try to complete ten (10) repetitions. After your tenth rep, while you are lying there on the floor with your eyes rolling around in your head, try to put off the rage to slug someone when he asks about a second set.

This is the best way to stimulate results. In all likelihood, the following workout that these hard squats and "negative" chin-ups are scheduled, will find most trainees, instead, substituting ten (10) sets of bench presses and light dumbbell curls--equating more and easier work with results--not wanting to do the hard work. The results--NO RESULTS! And many strength coaches endorse this high-quantity, low-quality training.

And what about the difference between Nautilus and free weights? Simply, Nautilus allows you to train harder than free weights. Or, performed correctly, Nautilus is harder than free weights; a superior tool. And that is no slap at free weights. Free weights are a good tool, used properly, a great tool. Yet a barbell has certain built-in limitations which limit its function. A barbell offers resistance only in a verticle, up and down direction, straight line by nature. Resistance is not provided against full-range movement. Thus, a barbell, in nearly all instances, does not, literally cannot, work a muscle in the position of full muscular contraction. Thus barbells give resistance in a mid-range position and do not work the whole length of a muscle. Nautilus does and adds proper, balanced, and variable resistance--from the extended position to the position of full muscular contraction. Nautilus allows you to work the full length of a muscle, and when performed correctly, enables you to work harder than mid-range resistance offered by a barbell. Both tools will stimulate results--size and strength--to those who have the potential to develop size and strength. And all of us do not have equal potential. The coach who screams out that, "Only free weights will build size and strength", or that "Linemen should use free weights for bulk and backs should use Nautilus for flexibility", is either ignorant or stupid or both. Ignorance being a lack of knowledge (we all have that to greater or lesser degrees). Stupidity being the inability to learn (we don't all have that). It is not the tool that builds muscle, it is the proper use of the tool and the genetic make-up of the user. For the man who has the potential--long muscle bellies and shorter tendons being the primary factors--great strength and size is attainable-fast. To those of us without that great potential, good results are possible but cannot ever duplicate the results of the physically superior, gifted athlete. Thus, it should be obvious, but usually never is, that to compare one person to the next is meaningless--absurd. The only justifiable comparison is that of comparing one person to himself at a later time.

Please note that women are not purposely being left out of this discussion. Women can realize tremendous value from proper weight-training; it is by far the finest exercise for any woman seeking to realize her full physical potential. Yet, large muscles for women? No way, due to the higher estrogen levels and lower testosterone levels indigenous to women. Great strength, great body, yes! Big muscles, almost never!

Linemen, as well as backs, can and should train identically--as hard as possible and briefly, by necessity. Whether the tool is a barbell or a Nautilus machine, the method of training is exactly the same. A Nautilus machine is really a barbell--a step beyond--a more logical barbell. Yet how often do we hear, "A barbell requires more muscle fibers, plus skill is required for balance in barbell work". Part of this statement is true. A barbell does require a skill in order to handle it effectively, a skill not needed when using a Nautilus machine. This, however, is more than offset by the fact that a barbell does not, simply cannot, isolate a muscle or work that muscle through its full range of motion, with resistance from the stretch to the contraction. Does a barbell work more muscle fiber? Let's take the bench press for an example. The bench press is performed primarily for building strength in the pectoral muscles. Yet the exercise cannot fully work the pectorals for two reasons:

1. The smaller, weaker muscles of the triceps will fail before the larger pectoral muscles.

2. The bench press does not meet the physiological function of the pectorals. The muscles are not worked from an extended position to a position of full muscular contraction.

The above facts do not imply that the bench press is a useless exercise, far from it! Performed correctly--meaning briefly and as hard as possible--the bench press can yield great upper body strength, though not as great as a Nautilus Pullover, Double Chest, or Omni Chest, or even a set of negative dips. As far as more muscle fibers being used by a barbell, the way most people perform bench presses--INCORRECTLY--many fibers actually are brought into play. Sadly, most of these fibers come from heaving the lower back, pushing the floor with the feet, etc., and not the intended muscles of the chest, for which the athlete is supposedly performing the exercise. Properly performed, the barbell is capable of stimulating enormous results (almost a miracle machine). Improper use of a barbell, however, has the potential to cause great damage to the muscles and to the skeleton of the body. Unfortunately, this is the way the barbell is taught in many sectors-- incorrectly and dangerously! And herein are problems.

For some years now the term "explosive training" has been a catch-word in many, if not most, strength-training facilities associated with contact sports. Demonstrating strength has become more important than building strength. In many camps, weight-training has hit rock bottom with the emphasis placed on heaving weights explosively instead of lifting weights slowly. Such a style of training develops-one thing--the ability to throw a barbell; it builds nothing. So if your goal in sport is to throw a barbell, then train explosively. If the goal is building stronger and larger muscle tissue, lift weights slowly, smoothly, and in proper form. Proper form on an exercise should never be sacrificed.

When the coach yells to his athlete in the weight room, "Train explosively so you'll explode off the line of scrimmage", that coach is guilty of nothing short of criminal malpractice. His athletes will explode all right--their lower backs will explode, their hips, necks, and knees, etc. When the force of movement created by a ballistic throwing of a weight exceeds the breaking strength of the tendon or muscle involved, injury can, literally must, occur. Exercise, when performed correctly, should and will build muscle, stimulate strength--not damage or destroy the skeleton. The next time a person tells you to explode under a weight instead of performing the repetition slowly and smoothly, turn around and walk away from that person--you are listening to a fool--a dangerous fool! There is no nicer way of saying it.

Remember, skill in a sport can only come from one possible source, the practice of the sport itself. Building strength should be general and will improve functional ability in any sport. Trying to simulate your sport in the weight room is always a step in the wrong direction. It will do nothing to increase your strength but it will hurt your skills. Swinging a heavy golf club or weighted baseball bat will do nothing to increase your strength but it will just as certainly, inevitably, lead to confusion, messing up a skill. And to add insult to injury relating to an earlier topic--bench presses and the muscles involved--while productive, are just as certainly not responsible for exploding off the line of scrimmage. The primary mover there is the gluteus maximus and the large muscles of the hips and thighs, and those muscles are best stimulated by heavy, hard leg work--SQUATS. Takes some of the prestige off of the bench press! But you want the truth, don't you?

Since we have exploded several, though certainly not all of the myths surrounding exercise at the present time, we might as well destroy some of the other "sacred cows" while we are at it. Instead of looking for ways to make exercise easier, look for ways of making it harder! Be aware of the latest fad devices usually designed to make exercise easier or more exciting.

Falling into this category, probably to the outrage of some people, are gadgets such as E-Z Curl Bars, reverse gravity boots, and ankle and hand weights. The pitfalls of these devises range from ridiculous to outright dangerous and are so obvious that no explanation should be necessary.

So, in conclusion, free weights and Nautilus machines are both productive tools and valuable whenever greater strength and/or muscle size is desired. And the harder the style of training, the better the results. Nautilus is the superior tool merely because it allows a person/athlete to train harder than a barbell. The best barbell exercises and the ones which should be a staple in every serious barbell trainee's workout should be: Barbell Squats, deadlifts, overhead presses (either in front or behind the neck), bent-over rowing, bench presses, curls and shrugs. The best Nautilus exercises which are the most difficult and hardest weight-training exercises available-are the: Nautilus Duo Squat, Nautilus Pullover/Torso Arm, Negative Chin-ups on Nautilus Multi-Exerciser, Negative Dips on Nautilus Multi- Exerciser, and all of the Nautilus Omni machines, the ones with the foot-pedals, allowing purely negative (eccentric contraction) work. You've never heard of a Nautilus Omni machine? Well, you haven't looked hard enough. But here's a hint--these old "dinosaurs" are still around--as close as Bryn Mawr!