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Accentuate the Negative

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In a recently published article, I said, "… no EASY method of training will ever be discovered; not, at least, in connection with the production of worthwhile results."

But I might have been wrong.

It now appears that outstanding results in the form of increases in both muscular size and strength actually can be produced form workouts that can only be accurately described as "easy."

During the last five weeks we have had Casey Viator and another of our trainees on a program of "negative resistance" workouts. With very impressive results – to say the least.

At the end of this article, I will outline the exact workout that we are using with Casey and the other trainee. Having carefully read this article, anybody can then make use of the exact training methods that we are now using in DeLand – and I honestly think that most of the people who try this method will produce IMMEDIATE and large-scale increases in muscular size and strength.

But in the meantime, I want to stress the importance of carefully reading and understanding ALL of the points that I will bring out in this ENTIRE article.

There is nothing complicated, nor mysterious, about the method of training that I will outline a bit later – but it does involve some points of knowledge that will probably be new to many readers. Points of great importance.

POSITIVE RESISTANCE (or "positive work"). When you lift a weight you are moving against "positive work." For example, while bending your arms during a barbell curl you are moving against positive resistance.

NEGATIVE RESISTANCE. When you LOWER a weight you are moving against "negative resistance." Performing "negative work." Again using the example of a barbell curl, you are involving negative resistance when you straighten your arms.

Thus, in a curl, you perform both positive work and negative work during each repetition – positive resistance is involved when you are bending your arms and raising the weight, and negative resistance is involved when you are straightening your arms and lowering the weight.

"Up" is positive – "down" is negative.

Muscle physiologists have known for many years that negative work produces more muscular soreness than positive work does – but nobody yet knows just why this is true.

If a previously untrained individual performs a set of dumbbell curls in the following fashion, then a rather surprising result will be produced.

Using a dumbbell that will permit the performance of ten or twelve repetitions of the one-handed curl – RAISE the weight with the right hand, and LOWER it with the left hand. Curl the weight UP with the right hand – then transfer it to the left hand. Curl the weight DOWN with the left hand – then transfer it back to the right hand. Up with the right hand. Down with the left hand.

The right hand performs positive work ONLY. The left hand performs negative work only. Continue in that fashion until you fail only – until the right arm is no longer able to raise the weight. When you fail, you will fail only with the right arm – the left arm could continue for many, MANY more repetitions. BUT – when the right arm fails, stop with both arms.

You “feel” such a set far more in the right arm than in the left arm – but it will be the left arm that gets sore, or sorer.

The above example is chosen to demonstrate the difference in negative and positive work – it is NOT intended to be an example of the type of training we are using with Casey. In this example, both positive and negative work are involved, positive work with the right arm and negative work with the left arm – but in Casey’s routine he is performing negative work ONLY.

Also – in the above example, the positive resistance is about right, about what it should be. But the negative resistance in such a case would NOT be enough. If you can perform a positive movement, then the resistance is probably far too light for a proper negative movement.

I say “probably” because, frankly, we simply do not know just how much resistance is required for the production of best-possible results while using negative workouts. The exact amount of resistance is still an unanswered question – a question that will require additional experimentation.

But in the meantime, since we don’t know the proper amount of resistance – we are using as much as possible. Far, far, FAR more resistance than Casey could possibly use in a positive workout.

For example, in the Hip and Back Machine, Casey uses 300 pounds for about twelve repetitions during his normal positive-negative workouts (regular workouts) – but in his negative-only workouts he is using 400 pounds for an equal number of repetitions, BUT WITH ONE LEG AT A TIME.

The full weight stack on a selectorized Nautilus Hip and Back Machine has 400 pounds of built-in weights – and that is more than enough resistance for almost anybody when using the machine in the normal fashion. BUT – in a negative only workout, it isn’t anywhere near enough resistance.

At first Casey was using the full 400 pound weight stack, with a 215 pound man standing on top of the weights to add his bodyweight to the resistance; but that still wasn’t enough resistance – so, now he is using the full weight stack only, but doing the movements with only one leg.

Casey could not begin to perform even one repetition of a positive movement with so much resistance. But he can perform negative movements with that much weight.

It requires the combined efforts of three or four strong assistants to pull the weight up into the starting position, and Casey does absolutely nothing in the way of helping with this positive part of the work – but when the weight has been raised by the helpers, then Casey takes over and tries to stop the weight from going back down. And he can stop the movement of 400 pounds, while using only one leg – so maybe that still isn’t enough weight.

But – enough weight or not – that is how we are doing it at the moment. If we could get enough weight on the machine, then Casey would perform the movements with both legs working at the same time – but since we can’t get enough weight on the machine, we are forced to do the one-leg movements.

And, in any case – if we could get enough weight on the machine, and that would mean at least 800 pounds and perhaps 1,000 pounds, then we probably wouldn’t be able to raise the weight for him. Because, raising that much weight would require the combined efforts of at least six or eight people (strong people), and it would be impossible for that many people to get close enough to the machine to help.

So the conditions aren’t quite ideal – and we are forced to use any method we can. But even without ideal conditions, we are still producing outstanding results – in five weeks of negative-only workouts, Casey added seven pounds of bodyweight while increasing his muscularity, and also increased his upper-arm measurement by nearly a full half-inch, while markedly increasing his strength.

And I call this an “easy” workout? YES – by comparison to his previous workouts it is almost ridiculously easy. His pulse (heart rate) doesn’t increase much, his breathing stays at an almost-normal rate during and after the workout, and he doesn’t even sweat much – and he seems to recover from such a workout in an hour or so.

Whereas – in his normal workouts, his pulse hits a peak of 180 or more, his breathing rate increases enormously, he sweats like a man in an oven and it takes him two or three days to fully recover from a workout.

BECAUSE – assuming the weight was the same in both cases, a negative workout involves only about 14 per cent of the work of a similar positive-negative (normal) workout.

THUS – even if the negative workout uses twice as much weight as a regular positive-negative workout, it follows that the actual work of the negative workout is only about 28 per cent of the work of a regular workout.

QUITE SIMPLY – you are not working as much, in spite of the greater amount of weight. The total of work in a negative workout using twice your normal amount of weight is only about a fourth as great as the total of work in a regular workout.

SO – if you work less, you don't have to breathe so hard, and your heart doesn't have to beat so fast, and you don't sweat so much.

AND – since the intensity of work is very high, while the amount of work is very low, your recovery ability isn't used up so badly.

THUS – you grow faster, since your recovery ability isn't constantly working a full tilt in an effort to reverse the exhaustive effects of your workouts. More of your recovery ability is available for growth.

Or so it now appears – but, for whatever reasons, IT WORKS. And that is the important point.

BUT – it isn't all milk and honey. Such training has at least one obvious disadvantage; it does little or nothing for your cardiovascular ability.

If, like most bodybuilders and other weight-trainees, you are interested only in the size or strength of your muscles – then this style of training may be just what you have been looking for. But you SHOULD be concerned with your heart and "condition" as well – and such training won't help you in those regards.

AND – a second disadvantage to such a method of training is the unavoidable fact that it may not be much work for the trainee but it certainly is a lot of work for the people helping him train. At the end of such a workout the trainee feels fine – while the helpers are stretched out on the floor in complete exhaustion.

BUT – for active athletes (football players, etc.) who get all of the "conditioning" types of training that they need from their other activities, such negative-only workouts may well prove to be the very best type of training.

FOR SEVERAL REASONS – one because such training is almost ridiculously fast and brief, a full workout taking only ten or twelve minutes – two, because such workouts don't leave the trainee exhausted and too tired to perform his normal sports-connected training for football, etc. – three, because (in spite of, or perhaps even BECAUSE OF, the amount of weight used in such workouts) these may be the safest workouts you will ever perform, and should actually serve to greatly reduce the chance of injury.

Which last point deserves a bit of explanation …

Injuries are primarily caused when a muscular contraction produces a pulling force that exceeds the strength of the connective tissue – and something gives, tears, loose.

The "pulling forces" involved in negative-only workouts are far GREATER than the same forces in a normal workout – which might at first glance make such training appear very dangerous. But in fact it appears that the opposite is the case.

BECAUSE – the pulling forces are applied gradually, and the muscle is constantly moving in the direction of the pull instead of against the pull. Instead of contracting (shortening) against the force, the muscle is extending (moving with) the force.

It logically appears – and practice seems to bear out this conclusion – that such training is thus safer than normal training, and that it will also serve to enormously strengthen the connective tissues and tend to prevent injuries rather than cause them.

I will now remind the reader that the above conclusions are premature in the extreme. Additional experimentation may lead to changed conclusions – so, up to this point, at least part of this article must be considered conjecture.

However, from this point until the end of this article, there will be no conjecture – the rest of this article is simple, undeniable fact.

I mentioned earlier that we don't yet know just how much resistance is the "correct" resistance. When performing normal exercises with weights there is very little choice when it comes to a selection of the amount of weight to be used; you must use an amount of weight that will permit you to perform the desired number of repetitions – no more and no less. But with negative movements you could use literally ANY AMOUNT of weight – so a much greater range of choice is involved.

Viewed logically, your choices can be broken up into several categories, as follows:

> One, an amount of weight that will permit at least one positive repetition. I will call this "light".
>
> Two, a level of resistance that you can "hold" in any position but can not move in a positive direction. I will call this "medium".
>
> Three, so much weight that you can not hold it in any position. This one is obviously "heavy".

Up to this point in our experiments we have chosen to limit ourselves to the use of "medium" or "heavy" resistance – an amount of weight that Casey can barely hold or cannot hold.

Two or more assistants "lift" the weight into the starting position and hold it until Casey is ready – then the helpers slowly and smoothly release the weight so that Casey is holding it without assistance. Or trying to hold it by himself.

But since the weight is so heavy that Casey can NOT hold it by himself, it gradually overpowers him and forces him to move. In a curl he takes the weight at the "top" and then fights the weight as it forces his arms into a straight position – but he fights it all the way, constantly trying to stop the movement.

At the "bottom," when his arms are forced into a fully straight position, the helpers again take the weight out of his hands and lift it into the "top," starting position for the next repetition.

It is important that the weight is not "too heavy" – if the resistance was so high that his arms were jerked straight then injury might result. So the weight must be heavy enough to force movement against his maximum efforts to stop the movement – but not so heavy that fast movement results in spite of his efforts.

We do not count repetitions, but do try to use a weight that will permit about ten or twelve repetitions. The set is finished when Casey finds it impossible to control the weight. When the weight starts moving fairly fast in spite of his efforts to stop it – then we call it quits.

How fast? No exact time – in his case a bit of common sense must be applied. If it appears that smooth, fairly slow movement is occurring "under control" – then it is probably safe to continue the set. But if the movement is out of control, then it is probably dangerous and we stop.

How much weight should you use if you wish to experiment with such training? At first I would recommend a fairly "light" weight – one that you could perform at least two or three positive repetitions with. So, if you can curl 125 pounds in good form for three repetitions then use that weight as a starting point.

Do NOT actually perform the positive movements – simply use a weight that would permit such movements if you tried to do them.

Have your helpers lift the weight into the top position – grip the bar in the usual manner – then have the helpers smoothly release the weight – then slowly let your arms move into a straight position.

A properly performed repetition should probably take about three or four seconds. Movement should not stop – but should be smooth and under full control.

At first, if the weight is right, you should be able to stop or even reverse the movement – but don't stop.

After several repetitions you will no longer be able to reverse the movement even if you tried – and after two or three more repetitions you could not even stop the movement – and the set should be terminated when you are unable to "control" the movement.

How many sets? ONE set of each exercise. How many repetitions per set? Ten or twelve should be enough. How many exercises? Casey is doing one set of each of thirteen (13) exercises. How long should such a workout require? Well, if your helpers can stand the pace – you could be finished with the entire workout in fifteen or twenty minutes, or less.

Casey's exact workout is as follows:

Nautilus Hip and Back Machine.
Nautilus Thigh Machine.
Nautilus Leg-Curl Machine.
Nautilus Pullover-torso Machine.
Nautilus Torso-Arm Machine – to chest.
Nautilus Behind-neck Torso Machine.
Nautilus Torso-Arm Machine – this time to behind-neck.
Nautilus Rowing Machine – used backwards, for chest.
Parallel dips – with a lot of weight in addition to bodyweight.
Behind-neck "presses" – with special parallel-grip bar.
Barbell "curls"
Nautilus Triceps Machine.
Nautilus Curling Machine.

And sometimes – when we have enough people to lift the bar – a set of stiff-legged deadlifts with a barbell.

Putting two trainees through this workout takes a total of about an hour – but the trainee could easily go through it much faster if the helpers could stand the pace. One man training and three or four people helping should result in a workout time of well under fifteen minutes. But don't be surprised when it becomes hard to find helpers – the romance wears off very quickly.

A word of caution – the helpers must also serve as "spotters" and must be constantly alert and ready to grab the weight if the trainee loses control. This is especially important in the behind-neck "presses" – since you give out suddenly on this movement and you might lose control and drop the weight on your head or neck, or jerk an arm out of its socket if the weight dropped behind your back.

Casey's results – and the results of the other trainee – have been so good that I feel safe in predicting that almost literally ANYBODY will produce very good results, and QUICKLY, from such workouts.

But I would strongly suggest that you follow a workout very much like the above one – and that you do NOT perform much if any more than the suggested number of exercises. Not more than three times weekly.

You can EXPECT to get sore – and quickly. But after a few workouts the soreness will be gone and probably won't return as long as you continue training regularly.

If you don't have the use of Nautilus equipment then design your own workout using conventional training equipment, a barbell, a squat rack, a chinning bar, parallel bars, etc.

With conventional equipment, I would suggest the following program:

Barbell squats – WITH SAFTEY SUPPORTS to stop the "down" movement at a safe point. Or leg presses. Or perhaps both squats and leg presses.
Leg curls with a conventional machine or iron boots.
Standing presses with a barbell.
Regular-grip (palms up) chinning movements.
Bench presses with a barbell.
Behind-neck chinning movements – with a parallel grip if possible.
Parallel dip movements.
Barbell curls.
Triceps "pressdown" movements on a lat machine or overhead pulley.
Stiff-legged deadlifts with a barbell.

If past performances are any clue to their thinking, then I would expect many "experienced" trainees to perform at least four times as much as the suggested amount of training – or maybe ten times as much.

And what will happen if they do? I don't know – it might not hurt them; but then again, it might – and in any case, I don't think it will help.

So if you are still being silly enough to equate "more" with "better" – then press on at your own peril. But if you are intelligent enough to at least try what appears to be reasonable advice, then try this type of training in an amount close to that indicated above. After all, if you can get good results in a brief period – why spend your life in a gym?

It may be that you can "stand" a literally enormous AMOUNT of such training. But I don't believe that it is required, or even helpful – and it might even prevent good results.

NOW – and make no slightest mistake on this point – we do NOT claim to be the first people to think of or try such a style of training. Negative resistance movements are known to physiologists as "eccentric contractions" and such work has been used in the past. But NOT, to my knowledge, by anybody who really had much idea about what he was trying to do – and NOT to such an extent that any really meaningful conclusions reached.

RECENTLY, in fact – several people have been stating in clear terms that negative resistance was "bad," of no value, dangerous, and counter-productive. Which statements are outright hogwash – hopefully intended to conceal the actual facts.

And why would ANYBODY want to hide the true facts? Because it is to their commercial value to do so. The people who have been knocking negative resistance during the last year or so JUST HAPPEN by coincidence no doubt, to be in the business of building and selling exercise machines that do NOT have any negative resistance. So, for rather obvious reasons, since they don't have it they then feel called upon to knock it – for fear that the shortcoming in their machines might be noticed, they are trying to maintain that an actual fault is an advantage. Some "advantage."

Such machines use a "speed limiting" device – an arrangement which permits movement at a pre-set speed only. There is no actual "resistance" in the true sense of the work – but if you pull as hard as possible, then you will (in theory, at least), be encountering maximum-possible resistance during a large part of the movement.

The people making such machines insist that they are "full range" movements – but such is simply not true. Actual full-range movement against resistance is utterly IMPOSSIBLE with anything except a rotary form exercise machine – which rotary-form movement is not a part of the machines under discussion.

When using such a machine, you are urged to pull "as hard as possible" at all times – but if you are silly enough to follow such poor advice then don't be surprised if your blood pressure rises so high that you start spurting blood out of both ears like a two-spigot fountain. And don't be surprised if you yank your muscles clear loose from their attachments – which could easily happen.

And why would anybody use such a form of "resistance" if it is in fact of little or no value – and dangerous to boot?

Simply and ONLY because it is a very low cost form of resistance to build into a machine. Most of the presently offered machines use a "black box" made of plastic and rope – an arrangement of low cost materials that weighs a few ounces or a very few pounds at most.

Such a form of "resistance" can NOT stop movement – it can only delay movement, prevent fast movement, and regulate the rate of movement. So all of the work performed on such a machine is POSITIVE work – it is simply impossible for such a machine to provide NEGATIVE work. So, since their machines have it, the makers of these machines are singing the praises of positive work – and since they do NOT have it, they are knocking negative work.

But the fact of the matter is that several undeniable advantages of exercise are utterly LOST without negative resistance. For example, "pre-stretching" of a muscle is IMPOSSIBLE without negative resistance – because it is the negative resistance that pulls a muscle into a fully extended, "pre-stretched" position. The position that almost all muscle physiologists agree is required for best-possible results from exercise.

Secondly, there is absolutely NO resistance in the contracted position – the ONLY position in which it is possible to involve all of a muscle in any form of exercise, any muscle.

Thirdly, if you follow the instructions given by the makers of such machines then the danger is extreme – because each repetition is a maximum effort. Whereas, with a barbell or a Nautilus Machine, the first few repetitions are NOT maximum efforts – and by the time you do become exhausted to a point where you are working (pulling) as hard as possible you have then "pre-exhausted" your muscles from the first few repetitions to such an extent that the actual pulling forces are not very great, and thus the danger of injury is much reduced.

I suppose it is only natural to expect people who have large green horns growing out of their heads to consider such horns "beautiful" – an advantage of some sort – but it remains to be demonstrated that horns are an actual advantage to modern man. So such claims can be accepted as just what they are – hogwash, self-serving propaganda.

And when it comes to spouting supposed "facts" – then we can certainly be excused for taking the trouble to make ourselves aware of the true state of affairs.

So the facts are – and this can be supported forwards, backwards, and sideways in all sorts of ways, and can NOT be refuted – that negative resistance is an actual ADVANTAGE in exercise.

How much of an advantage? We don't know, exactly – but we do know that workouts consisting of negative-only resistance can and will produce very rapid increases in strength and muscular size.

During a trip to the recent Olympics in Germany, Ell Darden of Florida State University talked to a man who claims that negative resistance is ALL or NEARLY ALL of the value-producing factor involved in weight training.

I have not as yet seen a copy of the research report that indicated this result – so I can't give details; but details will be published as soon as they become known to me. And in the meantime, we are conducting research of our own.

Within the near future, in cooperation with the Dept. of Physiology of a major university, we will conduct the following experiment:

> Fifty subjects (or more if possible), will perform a very brief, very simple negative-only workout.
>
> An equal number of subjects will perform an exactly similar workout with positive-only resistance.
>
> Another group of that size will perform the workout with both negative and positive resistance.

Then we will compare the average results after a period of four weeks – during which period all of the groups will perform twelve such workouts.

While we certainly do NOT expect to produce any spectacular results from such programs – we do expect to be able to make reasonable comparisons between the styles of training involved. And now I will go out on a limb and state in advance that I personally EXPECT to produce far better results from the negative-only workouts than from the positive-only workouts. But if I am wrong, I will say so – loudly and clearly.

Such fairly large-scale experiments are the best type of research for making the type of comparisons that we are interested in – because the potential of the large number of subjects will "average itself out." If an outstanding individual in one group produces unusual results, they will be balanced out by an unusually poor individual – and so on. Thus the "average" results for a large group – when compared to the average results of another large group – are meaningful.

However, when working with a "known subject" like Casey, we can also make meaningful conclusions based on his results – because we have trained him for a long enough period of time to know more or less what he is capable of doing, and what type of training is required for him as an individual.

So far, Casey has produced a rate of growth that is at least equal to his best results in the past – and he has done so from very BRIEF workouts; so, since he is training LESS, his actual rate of growth is better than it ever was in the past.

How big can he get on such a program? We don't know – but at the rate he is growing it probably won't take us long to find the answer to just how big and strong he can get. Eighteen months ago, when he won the Mr. America contest in the most spectacular style in history and at the youngest age for such a winner, Casey weighed 218 in hard muscular condition at a height of just less than 5 feet 8 inches – with a nineteen and five-sixteenths inch COLD upper arm.

Recently, at a bodyweight of only 203, his upper arm measured COLD was 18.75 - which is larger than ever at that bodyweight. And we now hope to get his bodyweight well over 220 pounds – in even more muscular condition, and with an arm size that will be larger than ever.

And REMEMBER – these are ACCURATE measurements; not the outright lies claimed by most leading bodybuilders. And not FAT measurements either.

So those are the facts – not final conclusions, but food for thought and additional experimentation.

In the next chapter, we will have more results of our continuing research – in the meantime, we would be interested in hearing from trainees who try such training for themselves.

But remember – I said that this was a "productive" method of training. I did NOT say it was the only worthwhile way of training. And it certainly is NOT a "practical" style of training unless you happen to have a large number of strong-backed, weak-minded helpers who are willing to work themselves half to death so that you can enjoy the advantages of an "easy" mode of training.