

Shock Yourself out of the Comfort Zone Part III

Researched and Composed by Adam "Old School" Knowlden

Warning: If you're a gym poseur, go no further. Save yourself the time of reading this article and get back to using the "Thigh master" as a replacement for squats...

Mentality of Conquest

In the previous two editions of this series we have discovered profound methods of unleashing the hidden depths of our hardcore essence. The goal of this series has been to get the reader to view old school shock techniques in a new light and discover ways to reach ascended heights in their training. The fundamental nature of these endeavors has been to leave the comfort zone and thrive in the growth zone.

Inside each of us is the mentality of a champion. What does it take to bring this spirit to the surface? It takes an uncompromising will, an unparalleled mindset, a beyond hardcore discipline, and a desire to see your own blood spilled.

With the last installment of this series we will seek new ways to release the hidden depths of our inner being. Each one of us must learn to look fear in the face, shove it down, and stomp on it like a bug.

Consider this installment the grand finale of this series as you learn to deliver a barrage of bullets to your body...and like it!

The Heart of Hardcore

I can't tell you how many times I have heard lame excuses in the gym for avoiding the extremes of weight training.

I just want to ask these types, "What are you here for then?"

Always precede a workout with this mindset:

"I'm here to work out hard, not to take it easy, and my workouts will reflect that attitude."

The excuses these characters come up with are all too familiar.

"That's overtraining", "that's for guys on steroids", "that's too heavy, that's too hard, that's too draining, that's too many sets, that's too extreme".

Excuses, excuses, excuses. The following is a concept we are going to dwell on and put deep into our minds as we approach the aspect of hypertrophy training from henceforth...

No excuses!

Don't be fooled by cheap imitations. If you want to grow, you need to push the envelope.

New age body building is nothing more than mentally projected failure. What is "New age body building?"

This recent wave of thinking involves limiting oneself's mindset in the area of hypertrophy. These limitations can occur through a number of mediums. They can rear their ugly heads through training strategies, dieting tactics or in compromising

the Z factor. But no matter where the new age ideas fall, they always limit themselves and close their minds to the extremes of the body building lifestyle.

In my opinion these concepts reflect both physical and mental defeat and the physiques of these cults' followers always demonstrate their lethargic workouts.

But perhaps the worst aspect of this "training" is the self-induced boundaries these cultists willingly adhere too. They will never consider any ideas that fall outside of their comfort zone. They like to stay as contented as possible in the gym and do not like to be challenged either physically or mentally.

For example, the majority of hypertrophy occurs at the cellular level. The cell is both an amazing and mysterious machine. In all reality we know very little about it's vast complexity and mechanical design.

Yet we are constantly hearing "new age" ideas as though they are facts.

"DOMS is useless".

This is a prime case of limiting oneself in the world of hypertrophy.

There may very well be a vital connection between DOMS (Delayed Onset Muscle Soreness) and hyperplasia.

There are two primary mechanisms in which new fibers can be formed. First large fibers can split into two or more smaller fibers and secondly satellite cells can be activated.

Satellite cells are myogenic stem cells which are involved in skeletal muscle regeneration. When you stretch or intensely work a muscle fiber, satellite cells are activated. Satellite cells can undergo mitosis or cell division and give rise to new myoblastic cells.

These immature muscle cells can either fuse with a pre-existing muscle fiber causing that fiber to get bigger (hypertrophy), or these myoblastic cells can fuse with each other to form a new fiber. This is one of the ways to achieve hyperplasia!

The most acceptable theory of the cause of DOMS (really know one knows exactly what causes DOMS, although we have very good theories. But it is probably a combination of factors, some of which we are not yet aware of!), is that DOMS is caused by eccentric muscle contractions in which muscle fibers are lengthened as force is applied to them.

The two leading factors in the activation of satellite cells are extreme stretching and intense exercise. Combine these two and you have a lethal combination capable of producing hyperplasia!

There could be a vital link between DOMS and hyperplasia. Only time will tell as our advancement in cell understanding increases.

My main point is this. For every bit of knowledge we accumulate about the cell, the more we discover we know practically nothing! Indeed the cell is a masterpiece design! For this reason I think it is an error in logic to totally eliminate possible hypertrophy/hyperplasia scenarios at the cellular level.

"Fascia stretching is useless".

Another sampling of mental limitations. Current research is indeed showing that stretching connective tissue is a leading factor in hypertrophy in a selected region of skeletal muscle.

Imitating the process of muscle memory has to focus on the stretching of connective tissues. In fact, failing to do so could be one of the main reasons for plateaus in growth!

"That's too much volume".

We could talk for days on this topic. But indeed higher volume can result in a greater release of Growth Hormone output; especially during the natural hormone rebound period that takes place post-workout. Higher volume also increases mitochondrial density in the cell- which in turn is relative to the time under tension factor, which in turn relates to growth.

"That's too high of a number of repetitions".

The fact is there are many types of muscle fibers in the body—both deep and superficial. And each type responds differently by growing to various times under tension. Jacob describes this as the fundamental principle to hypertrophy. "The raw essence of gaining mass, as far as training goes is the exact time that your muscles are forced to work "under intense loads." In other words, optimal mass gains are directly proportionate to exactly how long your sets last!"

It is imperative on the quest for maximum mass that we do not limit ourselves in the area of repetition number. To do so is nothing more than robbing yourself of growth.

Moreover, research is demonstrating that there are two ways to trigger hypertrophy. These are known as sarcomere (Sarcomeres are the smallest functional unit of a muscle fiber. Within the sarcomere is where the muscle actually contracts.) hypertrophy and sarcoplasmic (a sarcoplasm is made up of minerals, fats, dissolved proteins, a relatively large amount of glycogen; compared to the cytoplasm of the muscle cell), and some organelles. It is also the abode of myoglobin (myoglobin carries oxygen to the mitochondria in a muscle cell) hypertrophy.

The first one is linked with growth of the contractile components of the muscle fibers (the actin and myosin complex) and the second with growth of the structures supporting and surrounding the contractile elements (the sarcoplasmic reticulum and sarcoplasm). Sarcomere hypertrophy, maximally stimulated by power lifting type training, results in significant increases in strength, while the sarcoplasmic variety, which is enhanced through the typical bodybuilding style training. (Siff & Verkhoshansky "Supertraining" 1998 Ch 1.12).

"Isolation exercises are a waste of time".

Unbelievable...Isolation exercises are the key to skeletal muscle shaping, and deep muscle stimulation, which are firmly rooted in establishing a solid mind-muscle link as well as increasing vascularity.

"A blood pump has little, if anything, to do with growth".

This is nothing short of body building blasphemy. As a result of intense muscular exertion there is a resulting accumulation of metabolic by-products. These byproducts cause a release of other various hormones. The anabolic consequences these hormones create reveal the ideal environment in which to stimulate muscle hypertrophy. Intense force requires a great deal of energy expenditure. In order for our bodies to meet the demand of this effort it increases the metabolism to energize the muscular contractions. As a result increases in respiration and heart rate occurs this in turn causes a rise in body temperature and blood pressure.

Remember that for any action there is an opposite and equal reaction. In this situation, it is the production of byproducts and other chemical substances that interact in a masterpiece of complexity throughout the central nervous system (Read more about CNS' amazing design here.)

The most predominant byproduct in this instance is lactic acid. Lactic acid has some very important features that interest us as body builders. One is its ability to stimulate the production of testosterone. Also, recent studies show that there may be a correlation of this and the release of growth hormone. The same level of intensity that creates the pump also has the ability to stimulate the CNS to release Beta-antagonists. These powerful anabolic agents in turn release adrenaline hormones like epinephrine and norepinephrine. The relationship of these chemical productions all originates from the muscle exertion and the byproducts that accompanied it!

Body building is a life-long sport. I have forsaken the idea of genetic limitations a long time ago. I truly believe the only limits there are, are the ones we impress upon ourselves!

It is my belief that we have a "mental perception of genetic potential." This means that our true genetic potential is limited by our mind. Our brain is the most powerful machine on earth. No computer can even come close to compare to the speed and efficiency in which the mind transfers, translates, and stores information. On top of this, we only use about 2% of our mental capacity! Can you imagine what we would be like if we are able to use, say 3%? What about 100%?? Some theorists suggest if we used as much as 5% of our brains, we would be able to do such things as heal ourselves just by thinking about healing, change our physical looks by focusing our mental energy on change, and basically blow Einstein out of the water!

If we condition our minds, we can push our bodies past our "genetic potential". Take Arnold for example. His critics said his calves were "genetically inferior" to the rest of his body. Simply put, he had weak calves. People said they were too small, long and narrow. So what did he do? He worked his calves every day for over a year and proved his critics wrong! He changed the entire structure of his calves!

So as far as genetic potential goes, the skies the limit! The only thing that can hold you back is your mental perception of it."

One of my favorite quotes is, "A journey of one thousand miles begins with a single step." Remember that as you embark on your quest for magnitude.

Never limit yourself in aspects of training. Seek to rock your own world, and think outside of your comfort zone. Strive for new challenges and seek new thresholds... your body building longevity will thrive on these attitudes.

Let us recall a quote from Jacob from his master piece article, "X-ray vision part 2"

"And anytime you pass up a situation in which you could have gained something, even from what you think is an unlikely source, you have made a mistake. In logic circles, this is known as the fallacy of dismissal. Ask any Logician, and they will explain to you, that this is one of the largest fallacies committed in the world today. Remember, it is those with a mind willing to expand in any situation that take our society to the next level. Blowing off potential gains, is essentially an unwise move. It is for this reason, that I make a concerted effort to treat each other(meaning members on the forums) with the utmost respect. By discouraging free thought, and creativity, we discourage the very thing that leads to advancements!"

Interestingly enough, the tactics used by the body builders of yore are being shown, time and time again, to coincide perfectly with the latest scientific research. Not to mention the empirical evidence these methods demonstrate on the physiques of hard core body builders!

But before we delve into the different shock factors this article will unfold, I want you to set a new goal for yourself each and every time you enter the gym.

"I will be the most hardcore person in the gym. No one can surpass me in this endeavor."

Even if you're not the strongest physically, become the bravest mentally! Push yourself harder than anyone else.

Become the heart of hardcore, not the icon of self-defeat.

Concentric Rest-Pause Power-rack training

As Jacob described so eloquently in his article, Concentric Super Overload, the positive portion of any lift, can have a vital impact in the role of muscular hypertrophy.

Concentric Rest-Pause Power-rack training is an excellent way to increase an exercises positive range of motion explosiveness and power.

The concept is straightforward yet highly effective. I lightly touched on this idea in the 8 weeks to Battering Ram Pushing Power series.

You will be using a power-rack and a barbell for this training method. These two pieces of equipment are literally the ball and bat of body building!

There are a few basic rules to apply to get the most out of this concept:

1. Set the power rack safety bars just out of reach of the barbell from the bottom of your range of motion.

2. Explode up on the concentric portion of the movement and proceed with the same speed on the eccentric portion of the movement as you did with the concentric portion of the range of motion.

In other words, if it took me one second to perform the positive portion of the movement, it should only take me one second to perform the negative portion as well (as opposed to the typical 2 seconds that is generally taken). However, the weight is always under control. We are emphasizing the concentric, but don't get sloppy on the eccentric. That can promote injury.

3. Of course the advantage with this principle is using heavier weights for more reps and longer durations!

To better illustrate this technique let's use the forearm behind the back wrist curl.

Begin by picking up the bar and doing a behind the back curl with no weight. Always use this time as a focal point to adjust the power rack accordingly. Fine-tune the power rack safety bars so that at the bottom of your range of motion the power rack safety bars are as close as possible to the barbell but are not actually touching the bar.

The most basic way to perform this shock is to start by carrying through a set of forearm behind the back wrist curls like normal.

Upon failure of the set, "rest" the barbell on the power-rack for one second and immediately power the weight back up through the concentric portion of the exercise.

From here use rest-pause to continue the set to utter failure.

You should increase the rest-pause time by a few seconds as the "beyond failure" portion of the set continues. Carry on in this manner until you have reached your endurance point with this particular weight.

So a time scale of this set could look like this:

Begin set: normal set for 30 seconds.

Failure: rest-pause for one to two seconds until exhausted with this time frame.

Beyond failure: Continue upping rest-pause time until total exhaustion occurs. I wouldn't recommend a rest-pause time of over 30 seconds. If you are going heavy enough and truly going beyond failure, you shouldn't be able to go past this time anyway.

Remember the main goal of each of these reps is to power up and explode on the concentric portion of the rep. Concentrate heavily on this form even as the severe pain sets in during the beyond failure portion of the set.

Try this technique with the following exercises for giant gains in strength and explosion!

Dead lift-

This is one of the best all-star mass builders for the back. Apply the Concentric Rest-pause principle and see a whole new side to this already insanely hardcore exercise.

This exercise is commonly called the Rack Dead lift or Pin-Pull lift.

Good Mornings-

Barbell good mornings are perhaps the most brutal of all erector exercises.

Concentric Rest-pause power rack Good Mornings will enhance your lower back explosiveness and power like never before. Use these and watch your dead lift, squat, and bench press maxes sky rocket. I wouldn't advise going too heavy with this one without proper warming up and plenty of stretching, and remember to stay in total control.

Barbell Shrugs- If a bull size neck is your goal, then this is your exercise. Nothing will blast this area, like the power-rack principle!

Try them forward and behind-the-back for optimal development!

Standing press- As I described in the "8 weeks to bigger delts part 2", this is an excellent way to increase your shoulder power. Another great thing about this particular exercise is that as you rest pause you can use your feet to push off and help cheat the weight up. I like to begin using this when I get deep into the rest-pause portion of the set.

Squats- Get ready for a burn baby! These will fry your legs. However, like the good mornings, really be careful if you decide to go heavy. This can really strain your lower back if you're not warmed up. So wear a thick belt and stretch heavily. However, I don't want to scare you off, this is an excellent exercise.

Static Barbell Hold- OUCH! Lee Priest would be jealous if he knew about this exercise. This will singe the deepest forearm fibers! I recommend picking a weight that you can hold for 15-30 seconds, then begin rest-pausing!

Barbell Calf raises- An outstanding way to increase both power and size in the calves. These are also a great exercise for increasing your vertical leap.

Of course there are alternatives to any shock technique and this one is no different!

Partial Reps- You can use this principle to attack particular areas of a range of motion of an exercise. For example if you are having problems with the bottom portion of a standing shoulder press apply this shock to the partial reps principle.

Set the safety racks at the bottom of the range of motion of your standing shoulder press. As you begin the exercise, push off the power rack and perform a partial rep, stopping about half way up through the full range of motion. Now come back down, rest-pause on the safety rack, and press up again!

This is a superb means of conquering concentric weak points and increasing explosiveness in a range of motion of any given exercise.

One excellent exercise for partial-rep power rack rest-pause concentric training(whew) is the barbell curl. Let's say ,for example, the top of the range of motion is your problem area in this exercise.

I would have you adjust the power rack safety bars to the mid point of the range of motion for a standard barbell curl. Now curl the weight off the power-rack and complete the half-rep, accenting the concentric aspect of the lift, then lowering the barbell back down on the safety-rack.

Rest-pause and proceed again, gradually increasing the time of the rest-pause from one too two seconds until total failure occurs.

You can also use the partial-reps principle here to bust plateaus in strength as well! Let me explain using the above barbell curl example.

In the above sample, we focused on the upper portion of the range of motion. I would recommend two sets in the same manner for the top of the range of motion. Next we would want to focus on the lower portion of the barbell curl. Simply adjust the power-rack so that it is just out of reach of the bottom of the range of motion. Now use the principle to rest-pause out concentric partial reps focusing on the bottom of the range of motion!

By centering on both parts of the barbell curls range of motion, you will gradually be able to add more weight to your normal barbell curls, and bust through plateaus like never before!

Can it get more hardcore Old School?

Oh ye of little faith! Now that you have decimated the upper and lower portions of the barbell curls range of motion, strip some of the weight off, and perform 7 complete reps! Seven reps? That seems familiar? It should! I call this (get ready) Concentric Power-rack rest-pause partial rep 21's! In other words get 7 concentric rest-pause reps at the top of the range of motion, 7 at the bottom, then strip some weight, and do 7 regular barbell curls!

Talk about a pump! You'll love that one!

Try this same principle with reverse barbell curl as well as triceps extensions and calf raises.

Static Shocks

Muscular contraction is the key to success in the pursuit of hypertrophy. Perhaps there is no better way to stimulate this than through an added emphasis on the static portion of a given lift.

By emphasizing the peak contraction of a lift you can increase hardness, separation, and density. Another added benefit is the increased mind-muscle connection that is established as a direct result of static training! I don't have to tell you how vital a strong mental link to the body is in regards to growth.

No one can argue that time under tension plays a monstrous role in achieving new gains. We can break this down even further by directly emphasizing time under tension with the concentric, negative, or static portion of a set.

Static conditioning is an area no body builder should ignore. However it his highly excruciating, so if you give in to pain easy this is not the shock for you.

“If it’s painful do it, if it hurts strip it, and if it’s pumped stretch it”. - Jacob Wilson

That is one of those immortal quotes we all need to memorize and adhere to. Static training fits into that equation to the tee.

Dead Weight

The first principle I’m going to discuss is barbaric in nature and will provide a total nervous system shock.

There is nothing difficult about it to understand, but I believe it is paramount in the pursuit of lifting mammoth weights.

Static contractions of dead weight focuses muscular coordination to such a point that your body will begin to fine tune itself from the inside out.

As an example let’s say your goal is to one day be able Dumbbell press 150 pound dumbbells, what are some good ways to go about achieving that goal?

Well, number one, you have set a goal, and that is half the battle. Next you might go about strengthening your shoulders or triceps, as well as working on increasing your overall pressing power. You might also work on some of the incredible suggestions Jacob discussed in The Theorem of Repeated Efforts and Enhanced Neural Drive articles.

But, I believe there is another vital step to achieving that goal. It’s what I call “getting a feel for the weight”.

In other words the first step to pressing your goal weight would be simply picking the weight up, or in this case grabbing 150 lbs. off the rack and just holding them. This would send shock waves throughout your entire body! You have essentially just strapped 300lbs. on your body. If you've never picked up heavy weights like this before it's quit a rush. Even if you can do nothing but stand there with them, it feels great. And I'm telling you it sky rockets your confidence!

Next you could build up to walking around a bit with those bad boys. Man is that a buzz! (FYI- it may take several weeks to reach this next goal. But setting a long term goal such as pressing the 150lbs. is better met by setting shorter term goals that help you reach your final destination)

Finally, I would recommend placing a flat bench a good distance from the dumbbell rack. Now walk over to the flat bench with the dumbbells and work on powering them up to your knees as though you were about to start the press.(Again, it may take you several more weeks to reach this next part.)

The nervous system has an uncanny ability to adapt to new stress. So by just picking up your future goal weight, you will be miles ahead of relying solely on upping your pushing power.

It is my firm belief that this also affects the athlete mentally. Just the knowledge that you have man handled a weight that is beyond your current reach can have a profound psychological effect on your soul.

The next step would be for you to assume the dumbbell press position with your hands held up as though you were at the top of the range of motion. Now have your spotter or partner place the 150lbs in your hands. Now simply hold the weights in that position until you feel static failure setting in. Once failure begins to set in, drop the weights, wait 10-15 seconds, then proceed with a set of dumbbell presses that will allow you to fail within 4-6 reps.

Doing this will build connective tissue, increase muscle density, and excite your nervous system!

There are a few rules to adhere too if you decide to incorporate this principle.

1. Select a weight that you feel you can hold for at least 5-8 seconds.

The last thing you want to do is select a weight that is so heavy it will just crash down on you. Doing so could easily strain a muscle or tendon.

Say you are currently working with the 50 lb. on your dumbbell press. I would not recommend trying to hold up 150 lb. dumbbells.

2. Your spotters only job is to place the weights in your hands, and stand nearby so the weight doesn't crash down on you. Your partner is not to help hold your arms up, or force any kind of statically contracted state when dealing with a compound movement.

You could also use this to increase your bench press. Let's say you've been stuck at a 225 lb. bench for the past few weeks. Apply this method and strap say 275 or 300 on the barbell. Now with the aid of a spotter (never do this alone!) un-rack the weight and just hold it in the contracted position until you feel failure coming on. Re-rack the weight, and have your partner strip you down to your current max and begin pressing!

Use this technique for compound barbell exercises such as squats, dead lifts, or shoulder presses. It also works well with dumbbell movements such as dumbbell curls and tricep extensions.

One word about the using this with squats. I am convinced that using this technique in a contracted squat position will put you on the road to diesel strength faster than you ever dreamed.

I believe the greatest hindrance to increasing squat maxes is the fear of placing enormous weights on the back! This technique will help you conquer that fear in record time. After you get a feel for holding 14 plates on your back, squatting 4 or 5 will seem easy.

In fact my squat bumped up 100lbs. after I began applying this! What! 100lbs! That's right the plateau never really existed! It was all in my mind. Once I knew I could support the weight, my confidence to squat it sky rocketed!

Static Pyramiding-

I whole heartedly believe that this is an unsurpassed way to increase mitochondrial density.

Static pyramiding is a very demanding shock, but the results are well worth the effort.

There are two variations to this theme. The first one we are going to discuss is loaded static pyramiding.

I recommend using this technique at the end of 2 or 3 regular working sets. So that you have fatigued the targeted muscles and have a good blood pump going in the selected area.

This first form will require two spotters.

Begin with a moderate weight that you can hold fairly easily in the statically contracted position. Have both spotters slowly and evenly adding weight to both sides every 3-10 seconds. I would recommend moderate increases in weight. Remember to keep tight and contract hard!

Continue in this manner until you begin to lose grip of the static contraction. This would be your maximum static weight for the set.

When static failure sets in have your spotters begin reversing the process and removing the weight they have previously been adding. Hold each drop for as long as you can, being sure to keep tight. As you begin to fail with the current weight,

have your partners strip to the next lower weight (use a head nod, or some signal to let your spotters know to when to reduce you down to the next weight).

Your spotters should begin to strip the weight off as fast as your strength gives out.

You could also do this technique with just one partner, on some machines and by using the EZ curl bar.

For example let's take close-grip presses for triceps using the EZ curl bar.

Perform 2 sets of standard close grip EZ curl bar bench presses to failure.

On the third set (which I recommend following up after 30-45 seconds after the 2nd set) simply hold the weight you used in the second set in the maximally contracted position so that your muscles are extremely tight. Focus your mental energies on this tightness. Do not let it go under any circumstances.

Next, have your spotter begin slowly adding plates evenly to both sides of the EZ curl bar(I recommend having the plates ready to go).

Continue in this manner until static failure sets in, then have your spotter remove the weights as fast as your static strength gives out.

You can add another level of intensity to this technique. Using the same example, let's say you reached the point where you are now at your maximum weight in the contracted position of the close-grip tricep press. At that point begin executing partial burn reps to failure, reassume the static position, then begin using the strip static technique to blast the localized muscle group to nothing. This variation will work all the muscle fibers in the tricep as well as train them for explosiveness via the partial reps.

Manual resistance static contraction-

Another variant of this pyramiding theme entails manual resistance while you are maintaining a statically contracted state.

I also feel this will create a mental bond between partners that is on another level. I call this the "mind meld". Over time partners can develop this to such an extent that they can "read" each others bodies to a tee! This method of static contraction will enhance that bond tremendously!

Let's use the seated calf raise as our sample exercise.

Begin just as we did using the plate pyramid technique, working through two grueling sets of raises.

As I said earlier static contraction of dead weight strengthens connective tissue. As a general rule of thumb always incorporate fascia stretching after a set of static dead weight.

Now, for this method, instead of adding weights to each side, your partner will apply resistance with his or her hands.

The goal here is to press down hard enough that your partner is struggling to maintain the weight statically, but not so hard that you are performing a forced negative. In other words don't try to tear their calves off. Push just enough so that their calves can be in a fully contracted peak position without moving and the pressure you are applying is challenging.

Now as you see your partners calves start to fail in their contracted state, begin releasing pressure from the static push. Continuing releasing pressure in this manner until your partner can not hold a peak contraction at all.

This requires excellent communication between partners. You both have to be extremely focused and paying close attention to the others body signals.

Eccentric Obliteration

The Descent....Your arms feel as though they are being torn off your torso. As you plunge into the pain the burn begins to pierce...the sweat begins to boil...you want to quit but you won't...you can't...and it happens...blood is shed.

I don't have to tell you the severe pain the negative portion of any exercise induces. In fact you have to be almost masochistic to endure it and in most of our cases...like it!

Perhaps no one described this mindset best than the seven time Mr. O himself did in "Education of A Bodybuilder":

"That was when I realized that pain could become pleasure. We were benefiting from pain. We were breaking through the pain barrier and shocking the muscles. I looked at this pain as a positive thing, because I grew. It was a fantastic feeling to gain size from pain. All of a sudden I was looking forward to it as something pleasurable. The whole idea of pain became a pleasure trip. I couldn't tell anybody about it then, because I knew they would say I was weird. Which wasn't true, I had just converted the pain into pleasure - not for its own sake but because it meant growing. We bragged to each other about how much our workouts hurt. "--- Arnold Schwarzenegger

The reason we endure this pain? In a word, Growth.

The inducement of a eccentric contraction is notorious for achieving new found mass. And new studies are revealing a link to hyperplasia and the negative! This is due to the greater injury to muscle fibers produced as a direct result of the eccentric contraction. We can link this variable to the verity that induced muscle fiber injury activates satellite cells; one of the key components to hyperplasia!

Hyperplasia- Know No Boundaries!

As we discussed earlier, hyperplasia arrives as a result of two components. The minor component being muscle fibers splitting and the major component being satellite cell proliferation (satellite cells are the cells responsible in part for the repair of injured fibers, the addition of myonuclei to growing fibers, and for the formation of new muscle fibers.)

Although science has evidences of hyperplasia in animals, direct proof in humans is still out of reach. The reason behind this is the sheer number of muscle fibers and our ability to count them! The tibialis anterior muscle (on the front of the leg) contains approximately 160,000 fibers! Imagine counting 160,000 fibers, for just one muscle! The biceps brachii muscle probably contains 3 or 4 times that number! (Costill, D. L., E. F. Coyle, W. F. Fink, G. R. Lesmes, and F. A. Witzmann. Adaptations in skeletal muscle following strength training. *J. Appl. Physiol.* 46(1): 96-99, 1979.)

We have to rely on indirect evidence for hyperplasia...however that indirect evidence provides a clear conclusion.

Studies have revealed that bodybuilders have larger fibers instead of a greater number of fibers when compared to a control population. (Häggmark, T., E. Jansson, and B. Svane. Cross-sectional area of the thigh muscle in man measured by computed tomography. *Scand. J. Clin. Lab. Invest.* 38: 355-360, 1978. / MacDougall, J. D., D. G. Sale, S. E. Alway, and J. R. Sutton. Muscle fiber number in biceps brachii in bodybuilders and control subjects. *J. Appl. Physiol.* 57: 1399-1403, 1984.)

Jacob gave us this quote in *Physiological Aspects of Physique Building Part 1* and I felt it is worthy of repeating:

"Some scientists have suggested that the reason many bodybuilders or other athletes have muscle fibers which are the same size (or smaller) versus untrained controls is due to a greater genetic endowment of muscle fibers. That is, they were born with more fibers. If that was true, then the intense training over years and decades performed by elite bodybuilders has produced at best average size fibers. That means, some bodybuilders were born with a bunch of below average size fibers and training enlarged them to average size. I don't know about you, but I'd find that explanation rather tenuous. It would seem more plausible (and scientifically defensible) that the larger muscle mass seen in bodybuilders is due primarily to muscle fiber hypertrophy but also to fiber hyperplasia. So the question that needs to be asked is not whether muscle fiber hyperplasia occurs, but rather under what conditions does it occur."

A quote from Jose Antonio PhD from: Antonio, J. and W.J. Gonyea. Skeletal muscle fiber hyperplasia. *Med. Sci Sports. Exerc.* 25(12): 1333-1345, 1993.

On a side note this is why guys like Seksi and myself are so opposed to this notion of "genetic limitations". It may well be that what we deem as "good hypertrophy

genetics" is in fact due in part to hyperplasia! Science is now revealing that there may very well be a lot more to achieving mammoth proportions than genetics alone.

Although hyperplasia of new muscle fibers is unproven at this time, hyperplasia within the muscle fiber and cell is confirmed reality.

Nikituk and Samoilo identify two types of subfibrillar hyperplasia:

- Sarcoplasmic hyperplasia, which involves an increase in the number of sarcoplasmic organelles

- Myofibrillar-mitochondrial hyperplasia, which involves increase in the number of myofibrils and mitochondria.

An increase in muscle diameter is due to enlargement of individual muscle fibers by an increase in the number and size of individual myofibrils (Goldspink), accompanied by an increase in the amount of connective tissue (McDonagh & Davies). That is why limiting yourself mentally to being "genetically challenged" is illogical. The purpose of this article is to destroy this myth of limitations. The truth is we don't know enough about hyperplasia and its properties to set boundaries around it.

We have seen "bad" genetics defied again and again. There are many classic examples of guys who would by today's standards have been labeled as having "bad genetics" that went on to become body building champions!

Lou Ferrigno and Larry Scott being two of the most infamous cases.

However when we examine these mighty men of valor up close, we see they have very common traits...their ability to destroy mental barriers! They ignored the critics, set solid goals, and stopped at nothing to achieve them.

How much of their growth was pure hypertrophy and how much was due to hyperplasia? We'll never know, but the central theme is that they pushed the restrictions of both, and the result was world-class physiques!

In the Physiological Aspects of Physique Building Part 1, Jacob describes five plausible means of inducing muscular hyperplasia.

These include "Old School Negatives", assisted negatives, heavy negatives, emphasizing the negative, forced negatives, stretch overload, and blitz style

workouts. I covered "Old School Negatives" quite extensively in part one of this series. As a side note, "Old School negatives" were the invention of body building legend Mike Mentzer, who was known for his Herculean mass and strength. No doubt this man's size was largely induced by hyperplasia. In fact what most don't realize about HIT is that it is really training for hyperplasia, not so much as hypertrophy. True HIT is taking a set to the brink of injury and then some... In this final installment of this series I am going to cover forced negatives and heavy negatives. Two brutal shocks that will have you on the path of splitting fibers like a battle axe!

Before we get into the fun stuff though, I want to emphasize how imperative stretching and a complete warm-up are to these two shocks. Remember intensity and insanity are the two premier variables involved in the hyperplasia formula. Either two of these factors alone are extreme enough, but combining the two into one set is sheer madness. Be sure you are flexible and warmed up before attempting any type of hyperplasia-inducing set.

Heavy Negatives-

I am a firm believer that conquering fears establishes new heights to grasp for. Perhaps nothing will release more terror than intentionally loading a bar with more weight than you know you can handle. Heavy negatives live and thrive on that mindset! For example when we discussed the Dead Weight Principle we conferred the importance this shock plays in increasing connective tissue strength. Let's take this principle one step further. Deliberately loading a bar with more weight than you know you can handle triggers a signal of fear throughout your psyche. Many body builders believe that fear itself has the potential to unleash phenomenal strength! That's why time and time again you'll see pictures of Arnold performing squats using insane poundages with no spotter or safety rack!(FYI- I don't recommend this!)

Is there any science to fear and growth? The answer is unequivocally yes! Fear is an excellent example of the endocrine system producing a quick response.

The endocrine system is one of the most complex systems in the human body. It consists of three parts – glands, hormones and receptors in target cells. Working together these three parts relay information and instructions throughout the body.

The endocrine system controls many tasks, including:

- responding to external stimuli
- growth and maintenance

- metabolism

Some endocrine actions, such as your body's reaction to fear, are rapidly occurring, sometimes taking place within seconds.

But, for every job it controls, the endocrine system follows this general pattern:

- a signal is received
- a hormonal response takes place
- a reaction occurs

Most endocrine activities are synchronized by a series of intricate feedback loops. This brings up an impending question...

How does your body react to fear?

"The adrenal glands, seated on top of each kidney, are part of the endocrine system, that is: the internally secreting or ductless glands which release their secretions directly into the blood stream. The adrenals, often referred to as the suprarenal, are the Creator's most intricate chemical factories. "It would take acres of chemical plants" to synthetically manufacture "the 50 odd hormones or hormone-like substances" produced by the adrenal glands. (Ratcliff, 1975, p. 69)"

The adrenal glands are a pair of endocrine (ductless) glands, situated atop the kidneys. Each gland is composed of two distinct areas: the large, outer area (the cortex) and smaller inner area (the medulla). Each area is responsible for the production and secretion (releasing) of several different and very potent bio-chemicals.

Essentially, your heart rate increases due to the endocrine system releasing hormones that in turn cause noticeable physical changes (i.e. a tensing of muscles, faster heart beat, sweaty palms, etc.). So, how does this happen?

First the adrenal glands detect chemical signals triggered by nervous stimulation in response to physical or mental stress. Once signaled, the adrenal gland releases the hormones adrenaline and noradrenaline (also known as epinephrine and norepinephrine) into your bloodstream.

These hormones then journey to a target cell, attach with the cell's receptor site and set off complex chemical chain reactions that assemble glucose and fatty acids. Cellular energy reserves are increased and your muscles contract. These instinctive and abrupt chemical responses bring about the "flight or fight" syndrome!

Increased eccentric contractile strength via adrenaline "rush" ,combined with an overload of negative force limitations is an ideal environment for hyperplasia.

Now that we've discussed the advantages to this technique, let's delve into the mechanics of it. Heavy Negatives will force your body to suffer new levels of muscle blasting intensity. I suggest tackling these when you are fresh in your workout, and ready to administer a self-inflicted beating to yourself. I advise one or two sets of super slow semi-heavy emphasized negatives to prepare for this shock both mentally and physically.

For this case let's use the Incline barbell bench press. Begin your first heavy negative set loading the bar with approximately 10% more than your 1 rep max. Your spotter's job is to help you through the concentric portion of the exercise. Your job is to shoulder the negative. Really struggle to take the brunt of the weight. You CAN NOT simply lower the weight. I can't emphasize that enough! You have to actively push (or pull) against the weight, aggressively battling it all the way down.

Do not cut the eccentric range of motion short. This is where partner trust comes in, and also the point where fear is most likely to be released! Make the most of this situation, and sink deep into the bowels of the movement. Battling the depths of the overloaded eccentricity will generate the atmosphere of hyperplasia. The best way to describe proper execution of a heavy negative movement is to concentrate your efforts as though you are trying to perform the concentric aspect of the movement. As the weight bears down on your frame, subject it to every morsel of muscle you can muster! Go to total eccentric annihilation. You'll know you've reached this point, when you can not even muster enough strength to control the weight on the descent. For any proceeding sets you can ascend in weight up to 20% more than your 1 RM. Another option is finishing a set off by stripping the weight and continuing on. I highly recommend this principle for heavy barbell compound

movements. The squat is a prime example. Nothing will generate nausea faster. Your spotter should help you reinforce the concentric portion of the movement, but let you take the heavy negative.

Forced Negatives-

Forced negatives offer an exceptional way to stimulate the eccentric stretch and contraction in any given movement.

The concept is downright barbaric ,and just like the manual static resistance will increase the partner mind meld factor to another dimension. To perform forced negatives begin by lifting a weight in a standard fashion.

As you are enduring the negative portion of a movement, your partner will lightly press on the weight for the purpose of adding additional stress to the eccentric segment of the exercise. I am convinced this technique is a magnet for hyperplasia. The intensity needed for this shock is ruthless to say the least. You will have to have superb mental focus and a drive to push yourself far into the pain zone. But the fruits of your labor will be plentiful! To better explain this shock, envision a set of standing alternating dumbbell curls. I recommend two or three sets of regular standing alternating curls. The goal here is to induce a pump and ensure the tendons and muscles are ready for the impending punishment. I recommend pyramiding up in a rep scheme of 10-8-6. Next you will pick up the dumbbells that caused you to fail in the 10 reps zone. As you curl the weight up, your partner will apply pressure to your arm and force extra emphasis on the negative. For this phase I would recommend a few basic rules. The first being in regards to safety. Your partner should only be pushing down during the mid-range of the exercise. Don't force any negative at the extreme top or extreme bottom of the range of motion. Doing so could easily induce strain. Also, shorten this forced negative range even more for exercises that enhance the stress. For example preacher curls.

Secondly, your partner should lessen the force as the set progresses. In other words your partner shouldn't push down as hard at the end of the set as the beginning. For more madness, throw in a drop set! You can either perform another set of forced negatives or if you are totally exhausted simply hold the drop weight statically to blast static strength.

The end result of this technique is swollen arms, stimulated satellite cells and muscle fibers splitting at their seams! Only the strong will survive this favorite tactic of the Olympian Oak!

Shock Yourself Out of the Comfort Zone...

What does it mean to you?

Does it mean confining yourself to predetermined mental constraints? Or imposing pre-conceived limitations on your body building potential? Absolutely NOT! What it does represent is a mental and physical ascension into the realm of the unattainable! It means grasping for what others deem "out of reach" or "just too hard". It demands thriving in the pain zone and living in a state of uncompromising work ethic. Or as Arnold said, "Never be satisfied with your development, learn to love the challenge and, most of all, stay hungry." Limitations are bound to the psyche. These self-prescribed barriers are what I call "bad fruit". This concept can best be demonstrated by a parable Jesus preached to the multitudes.

3"Listen! Behold, a sower went out to sow. 4And it happened, as he sowed, that some seed fell by the wayside; and the birds of the air came and devoured it. 5Some fell on stony ground, where it did not have much earth; and immediately it sprang up because it had no depth of earth. 6But when the sun was up it was scorched, and because it had no root it withered away. 7And some seed fell among thorns; and the thorns grew up and choked it, and it yielded no crop. 8But other seed fell on good ground and yielded a crop that sprang up, increased and produced: some thirtyfold, some sixty, and some a hundred." Jesus, Mark 3.

Here we see a simple concept displayed. For our purposes the seed represents the mind or psyche.

Some seed fell by the wayside- This is a prime example of someone sharing an idea and without any knowledge of the logic behind it, people demolish it! Some fell on stony ground- Here we see seeds that had the potential to bear much fruit, but once planted they are withered up by people who limit their minds. Some seed fell among the thorns- Of all the places for seeds of wisdom to land on, a patch of thorns is the worst. The seed is choked by others who have projected failure upon themselves. And like a weed it's contagiousness spreads, infesting other minds.

The strange thing about the human mind is that it creates it's own constrains! Have you ever heard the quote, "I'm my own worst enemy!" This is exactly what I'm referring to. I believe in body building, and all aspects of life, mentally projected limitations are our own worst enemy! For if we can crumble that down, homeostasis will have no power to hold us down. The strangest aspect of these cerebral confines is what I call "contagious weeds". This is a phenomenon in which people project their preconceived ideas of failure onto other people, and automatically the person will accept it as truth and impress the limitation on themselves. This always encompasses having no real knowledge of the so called "limitation", and simply accepting another's limitations as fact. In reality they may have tried a new idea but because someone else has planted the seed of doubt in them they have already set

themselves up for failure and won't even attempt it, or if they do will instantly fail due to their pre-assumptions.

As body builders we have to be critical of what we read and hear. We have to test the observational and empirical science behind an idea. We must also keep in mind that the discipline of mass is still in it's infancy. Einstein once said, "As a circle of light increases so does the circumference of darkness around it." He used this to represent the basic notion that for all the questions we answer, the more questions we acquire. In other words, the more we learn, the more we realize we know nothing at all.

So the next time someone tries to limit the science of hypertrophy think of the parable of the sower. But other seed fell on good ground and yielded a crop that sprang up, increased and produced: some thirtyfold, some sixty, and some a hundred. Allow your psyche to dwell in the realm of infinite possibilities. Plant seeds of indestructibility, unbreakable will power, and relentless dedication. Only you can decide where the seeds will land.

- Old School

oldschoolabcbbing@gmail.com