



Plateau Buster: A Look at Goals and Iix Fibers

People who are unable to motivate themselves must be content with mediocrity, no matter how impressive their other talents.
-- Andrew Carnegie

The pursuit of an Adonis-like physique is often punctuated by several periods of frustration. Save the few genetic freaks, building serious muscle is on the order of a lifetime achievement. Out of sheer desperation, many guys add countless sets and reps. They randomly add in a motley of drop sets or negatives, with no real rhyme or reason. Why is muscle sometimes so elusive?

Still, many are on the quest for more muscle despite all setbacks. Muscle is like women—sometimes quality can be hard to come by and you're just thankful for what you *can* get. Yet in the rat race of muscle development, too many people don't size up.

Adding muscle almost always comes with a concomitant increase in fat. We can keep the fat largely limited with proper nutrition protocols. The frustration begins by stepping on a scale and trying to justify the weight gain as muscle. Most economical means of evaluating body composition calculate only LBM. Thus, the increased weight could be attributed to water retention, increased food volume, or even inaccuracy with the measurement tool.

If muscle were really that easy to gain, you'd see a helluva lot more guys at the gym busting through t-shirts. Instead, we often find poor souls wondering aimlessly from machine to machine with much to be desired. We were started from the bottom of the totem poll with no meaningful frame of reference. Along they way, we either researched information ourselves or found the tutelage of a seasoned veteran.

In the weight room as much as life, we can find ourselves saying, “If only I knew then what I know now.” I’m just lucky enough to have made enough mistakes at a young age, so I’m hoping the least I can do is pay it forward for those in are in a rut.

Performance Based Goals

The great debate of powerlifting vs. bodybuilding is a dead horse. Don’t beat it (Frankie says relax anyway). In the modern day of strength training everything doesn’t need to be mutually exclusive; there’s a tremendous amount of overlap. Not too many things are an either/or situation now. For instance, hypertrophy is highly dependent on strength. The biggest guys, heh, are generally the ones who lift the heaviest and eat the most.

The quickest way to look like you bench press 400 pounds would be to actually be able to bench 400 pounds. There is the camp of guys saying they don’t care about how much they lift as long as they look huge, but if you take a step back these same guys are often stronger than hell. I don’t want to hear about the genetic anomalies and pharmacy “sponsored” athletes. Even the high volume camp can’t argue with this. A lifter with a max of 400 pounds will be able to achieve more hypertrophy than a similar structured lifter maxing out at 200 pounds.

Hypertrophy as a goal is abstract and misleading, I’d opt for performance-based goals instead. You see, with performance-based goals you have a clear idea of the progress you are making. They give you a definitive result to aim for. If you want more money, and someone hands you a dollar you have achieved your goal. It might not be what you wanted, but the lack of specificity yielded a less than optimal result.

Napoleon Hill, author of one of my favorite books *Think and Grow Rich*, discusses goal setting throughout. The first step in creating goals is to write out specifically what you intend to achieve. The book is about money, obviously, and setting a goal of “I want more money” is useless. Someone could hand you a dollar and you would have met your goal.

There are many people out there who have been chasing hypertrophy for so long that the idea of improving strength is a foreign concept. Why can’t hypertrophy be a bonus “side effect” from the development of other qualities? Sometimes there’s too much micromanagement of sets, reps, pauses, and every finite detail that leads to paralysis by analysis. I hesitate to give the recommendations below, because mechanics can vary greatly in people, but as a rough idea:

For the beginner lifter looking to advance to an intermediate status:
(Remember pure beginners need to focus on somewhat higher rep work initially)

- Bench: 1.5x BW
- Squat: 2x BW
- Deadlift: 2x BW

The intermediate guy looking to take it to an even higher level of performance might seek numbers in the neighborhood of:

- Bench: 2x BW
- Squat: 2.5x BW
- Deadlift: 2.5-3x BW

For a 200-lb athlete (who call us athletes anyway?) an intermediate guy would have a 300 lb bench, 400 lb squat, and 400 lb deadlift. These numbers are pretty high by typical standards, but to build t-shirt ripping muscle you must up the ante. An advanced athlete at this bodyweight would boast about a 400 lb bench, 500 lb squat, and 500-600 lb deadlift.

Performance based training is about increased the load of weight lifted. I'm in agreement that we need volume for maximum hypertrophy. Here's a car analogy for the mechanically astute: if you are weak (small engine) adding volume is just creating a longer race. However the objective isn't to go farther, it's to go faster. To do that you need to trade in the 4-cylinder engine for a gas guzzler with more horsepower (strength). In the world of resistance training, strength and speed dominate and those with the most of both can achieve faster hypertrophy gains if desired.

Continuing to build the case for heavy lifting we're look at tonus. There are two kinds of tone, myogenic (which may be particularly interesting to you) and neurogenic (still interesting to geeks like me). The former is just your muscle tone at rest, which is primarily affected by the density of your muscle. Lifting heavy weights promotes increases in hypertrophy by increasing the amounts of actin and myosin and is dubbed myofibrillar hypertrophy. This type of fiber hypertrophy leads to increased muscle force production₁. If you want to look dense, hard, or solid then heavy lifting is right for you.

Overall, hypertrophy is generally the result of high volume work, but like I mentioned before having a bigger engine will allow accelerated gains. Hypertrophy from higher rep training is sarcoplasmic hypertrophy and is caused by the growth of sarcoplasm and non-contractile proteins₁. The sarcoplasmic hypertrophy itself offers no increase in force production potential. Does this mean you can't get stronger from high reps? Well, not exactly. It's not sarcoplasmic *or* myofibril hypertrophy, but generally a combination of the two to varying degrees.

Heavy lifting is not a free pass to be the guy in the gym screaming with every rep. It is not a free pass to compromise form. These are all cases of douchebaggery. However, it's a little shortsighted to say that adding load is the only way to a better body.

In the end, we can only ask, "Is getting bigger a specific enough goal?" With conventional body comp measurements it's difficult to set specifics to the amount of muscle or fat you could tolerate in the pursuit of this goal. The problem is not enough people have paid their dues to build a solid foundation of strength from which to expand upon. You can't sculpt a pebble.

The Power of Deloading

It wouldn't make much sense, but the very attributes we seek to maximize with our training actually suffer a regression in response to training. The high glamorized and promoted Type IIx fibers we seek to stimulate suffer transformation into less desirable types as we continue to train. Yup, Johnny Couch Potato has more Type IIx fibers than you do!

Seriously, not even kidding. A recently published study compared the fiber types of bodybuilders to physical education students with no previous training experience². First, the type of training they characterized the bodybuilders performing involved a great number of repetitions, short rest periods, and high intensities. Nothing new.

This method of training seems to shift the muscle fibers to more of the hybrids and type IIa. No matter what kind of fiber was compared, the bodybuilders had larger muscles in all cases. This at least makes it apparent that we can still achieve as much size as we want in the absence of Type IIx fibers.

Type IIa fibers are still very desirable for building muscle, much more so than type I; yet, there are still a handful of questions we have to ask. Were these bodybuilders (and we're discussing national level competitors) genetically predisposed to lose type IIx fibers or is it a result of the training? High-level bodybuilders are born, so there must be many similarities among these individuals.

If they *had* trained differently, could they have slowed or improved their type IIx composition? If they did heavy lifts over 90% or executed normal reps with higher speeds what would the effect have been?

Keep your eye on the prize, we're talking about getting the most type IIx fibers we can—most of us aren't genetically gifted with many, so retention of our own God-given potential is vital.

Other studies agree with the fact that strength training causes a decrease in type IIx fibers^{3,4,5,6}. This strength training sucks. We've all spoon fed you lies about these great type IIx fibers that disappear as soon as you try to stimulate them. You've been training for years without a layoff and now you might as well quit because you're never going to get where you want to be.

And then the light at the end of the tunnel! Taking a break might not be a half-bad idea. Long term resistance training shifts the bigger fibers to the middle of road guys, but a de-loading period can create type IIx fibers in greater abundance than pre-training levels⁵.

It's an anomaly. Bodybuilders are familiar with this—eating candy on the day of a contest to fill out and look harder. It's the only time that junk food will ever do a service to your body and contest day is Christmas in July.

So lift heavy, take a break, and return borderline bionic? Well, it's not so simple. The de-load in the study was **3 months!** Yea, one quarter of a year just to come back with more type IIx.

Sorry, but I'm not sure if you are aware of how fat you can get in three months with no exercise. Not to mention you'd have some degree of muscle loss over this three-month spring break. For the novice there's not much need for a break because they barely have the proper motor patters in order to execute the lifts effectively. An excessive break will only bring you back to ground zero.

If you have been lifting consistently for years you are still looking at a regression in strength and work capacity. The question is whether or not this layoff will cause an overshoot in all characteristics as well. For many, this presents a challenge because training is part of a routine that they enjoy.

Type IIx disappearance during training stimulates processes that fuel the rebound when you take a break. Creatine supplementation seems to accelerate both the switch to type IIa during training and increases in the processes to rebound⁶. Creatine is also known to contribute to strength. This begs the question, "Is there an advantage to having more type IIa fibers as opposed to the other varieties?"

There seems to be a huge disparity in this whole mess. To take time or not to take time off? Well, if you've lifted heavy for any length of time as little as a week off can be a huge service to your joints. The whole physiological mess is intimidating, but we've come full circle with it.

Meat and Potatoes

The bottom line remains that hypertrophy is a goal too many people struggle with. The mindless sets and reps until the cows come home aren't getting the job done. Beginners need to build a solid base of strength and set clear performance-based goals. Seek to improve your best lifts by a specific number of pounds and set your focus on achieving it. Along the way you'll notice that muscle comes as a nice side effect.

When it comes to training to maximize your biggest and best fibers, remember that maximum force stimulates them. High speed with moderate resistance or heavy singles and doubles are the ticket. While time off can help you rebound with more Type IIx fibers, it's up to you if the juice is worth the squeeze. My recommendation is seek alternative ways to deload and find ways to improve your progress in your gym, because in all honesty you'll never know how much type IIx fiber you really have. Generations of men have grown without caring about the physiology, so make sure your focus is on measurable progress.

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