

Size and Strength

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(this is a 'sister' article to "What inroad are you traveling?")

Introduction

This can be a confusing subject to analyze. I was confused, repeatedly, for years with this one. It really appeared to me (as with many others) that a person's gain's in size and strength, (the ratios) can vary depending on training. The answer is yes and no. The qualifications? It depends on what you consider the size of and how you gain your strength.

What science says

The strength of a muscle is very proportionate to it's CSA (cross sectional area). This fact both enlightens and confuses. On the one hand, we know that size and strength are tied with close constraints. On the other, were perplexed when we gain strength and see no concurrent size increase. What we miss, is this. Science is looking at the increase in fibril CSA. These are the actual contractile elements within the muscle. If the number of these are increased, there will be more crossbridges per area and the muscle's strength will increase proportionally.

Exercise performance

Another area we fail to recognize is the comparison of getting better at an exercise vs. actual muscular strength increase. The latter will produce size increases, the former may, or may not. If your bench press poundage increases from an increase in the number of fibrils (in the involved musculature), then your strength increase will reflect a size increase. However, if your bench press has increased due to slight alterations in ROM, increased neural coordination, or finding a better 'groove', you may not see much, or any increase in size.

Where the house of cards collapses with training programs

First on the list is impatience. "I trained like X for 3 months, I added 50 lbs to my bench and gained no size!". If this happened, then yes, your training didn't allow for muscle growth. But why? Ask yourself these questions and be honest as one of these must be the answer.

- 1) Did you let your form drift, so that even though you added weight each week, in reality you were keeping the stress the same?
- 2) Did you 'know' the exercise well enough that the neural learning curve was finished?
- 3) Did you change exercises during that time, or hand spacing, grip, etc. so that you never could completely finish the 'learning' of the exercise?
- 4) Did you just 'hoist' the weight, or did you use the exercise to 'work' the muscles?

Other programs producing 'more size per strength'

When science checks the CSA of a muscle, they use sophisticated methods. They know that using a tape is highly inaccurate. MRI, ultrasound, as well as other methods are used to actually 'see' inside. Intramuscular glycogen, fat, water retention, etc. can all change the external size of a muscle. You may have used a high volume program and noticed quick size gains. But if you didn't gain strength proportionately, (while keeping form, ROM, etc. all consistent) you cannot be sure your size came from an increase in fibril numbers. In fact, if

you didn't increase strength rapidly in accordance with the size, you most definitely did not gain your size from fibril hypertrophy.

Back to the nitty-gritty

If you (insert name here) add a certain amount of fibrils, you (insert name again) will gain a certain amount of strength. It does not matter one iota how you added those fibrils, neither your exercise volume or intensity will alter your personal 'strength to size' ratio. The only thing that can cause a change in the appearance of your strength to size ratio (besides beginner's neural learning) is a change in the performance of the exercise.

What can one do?

Make darn sure you train in such a way that when you record a strength increase, it's really a strength increase. If you have to, time your reps, have your training partner (if you have one) holler at you for altering your form or ROM (range of motion). Make sure, you stimulate the muscle to grow, and that growth shows up as a strength increase. Do not try to use strength increases as a means to force growth. If you grow, you will need to add weight to the bar to keep within your desired rep range.