

## “Scientific Bodybuilding”: Can it help you build muscle?

You see it with more frequency all over the web: ‘Scientific Bodybuilding’;

“Use our system because it’s bodybuilding that’s backed by science.”



In conjunction with these claims, those making them will often sling the term “**bro science**” as a label to describe any opinion that’s not in alignment with theirs; the ones purported to be scientific. Simply put, the purveyors of “scientific bodybuilding” appear to think that all opinion that’s not backed by a research study here or there is simply the guess work of knuckle-dragging idiots.

This raises a question: Is there really such a thing as ‘scientific bodybuilding?’ Of course there have been some studies done on bodybuilding and strength training over the past few decades. But as with anything, those study’s topics have been selectively chosen among countless that could have been. Also, as with anything, the research performed has varied in its strength of credibility. Along with this and sometimes as a result of it, the findings of some studies conducted a decade or so ago have been refuted by more recent studies of a few years ago. So, as with “science” in anything, scientific bodybuilding is not infallible.

This inherent fallibility, along with the scatter-gunned approach by which strength and **muscle building** topics have been researched, should have any thinking bodybuilder asking:

What does it mean for something to be legitimately labeled “scientific?”

Should you trust that the best advice for you to follow is that labeled “scientific” just because a trainer or muscle building guru tells you it is?

“Do findings from ‘scientific bodybuilding’ always trump the tribal knowledge from gyms that’s been so arrogantly dismissed as ‘bro science?’”

And of all significant scientific bodybuilding discoveries made, which ones even add to your ability to **build muscle**? Which are just nice-to-know pieces of information?

### ‘Scientific Bodybuilding’: First... what does “scientific” mean?

For information to be legitimately labeled “scientific”, it needs to be borne out of the findings of scientific studies. That means certain questions have been asked, hypotheses have been formed from those questions, and scientific research experiments have been performed on the hypotheses. These experiments need to have been as controlled as possible using large enough, carefully chosen sample populations of research subjects. Those subjects need to have been divided into ‘control’ and ‘experimental’ groups. The groups need to have been compared to test a hypothesis for a legitimate length of time. Measurements in such studies need to be thorough and accurate, while being performed by researchers with no biases about the research outcomes.

In addition, the most reputable research studies are those that have been peer reviewed and published in respectable scientific journals. “Peer reviewed” means other scientists within the field have scrutinized a new study before it’s submitted for publication. This objective analysis by a fresh set of eyes ensures the study meets certain scientific standards. The peer review makes certain the experiment was well designed and that the study’s researchers used logical reasoning of deduction to arrive at answers, or more questions. It also ensures the work was built on reputable findings of past research. This is because scientific knowledge is cumulative.

So now that we have an idea of what ‘scientific’ means, let’s look more closely at some claims that are being made about

bodybuilding methods being scientific.

### **“Scientific Bodybuilding”: Is it... just because a trainer says so?**

As mentioned, some trainers and online muscle gurus are labeling their methods ‘scientific bodybuilding.’ They contrast these methods with those they deem “bro science” or hearsay information that’s of, hence – in their minds, menial value. From what you and I know about the word “scientific”, however, these claims are fairly easy to verify or refute.

Obviously, the first things you’ll want to check when someone throws the words “scientific bodybuilding” around is reference material. Look to see if they have any. It should exist within their written materials. There should be a listing of the reputable studies that have led the trainers/authors to their conclusions. For example, following any verbal or written claim that appears something like this:

*“Research has shown that resting 40 to 60 seconds between sets is optimal for hypertrophy... yadda, yadda, blah-blah-blah...”*

... There should be a small number after the sentence that corresponds with a footnote or endnote that looks something like THIS:

*Kraemer WJ, Adams K, Cafarelli E, Dudley GA, Dooly C, Feigenbaum MS, Fleck SJ, Franklin B, Fry AC, Hoffman JR, Newton RU, Potteiger J, Stone MH, Ratamess NA, Triplett-McBride T, ‘Progression models in resistance training for healthy adults’ American College of Sports Medicine and Science in Sports and Exercise [2002, 34(2):364-380]*

A reference like this at the end of an article, book, training manual, or training video starts by crediting the researchers of the study being referenced. Then it provides the name of the study, which clearly describes what the study was about. It then names the research publication in which the study’s been published. After that there are some document reference numbers for locating the study within the publication, along with a date that it was published.

If the guru’s training material is absent of references that appear like this example, it’s your first indication that his or her claims of “scientific bodybuilding” could be a farce.



### **Scientific Bodybuilding: ‘Scientific’ doesn’t always mean conclusive**

Even when a scientific experiment demonstrates certain evidence of measurable results, it’s not always conclusive. Follow-up research studies will sometimes produce quite different results. This is occasionally an outcome of imperfect controls or too small a sample size having been used in the first study. Whatever the reason, this phenomenon is why results of multiple studies of a hypothesis carry more weight than a single study. And it’s why a statistical study called a “meta-analysis” is sometimes used by researchers to draw out more conclusive findings.

A meta-analysis is a study of a group of studies. It’s a statistical method that can be used to detect patterns among a collection of research results that explored a specific hypothesis. Obviously, findings from a meta-analysis of studies will typically carry even greater weight, garnering more respect than the results of one or two studies. To my knowledge, there’s not yet been any meta-analysis published in strength training or muscle hypertrophy.

### **‘Scientific Bodybuilding’: Assumptions are made when ‘PhD’ follows names**

Human beings are prone to making assumptions; we do it easily and often. But assumptions are what too often lead us to false conclusions. That’s why true science tries to eliminate or isolate assumptions as much as possible through acknowledgment and control of variables.

Many claims you hear from today’s online bodybuilding gurus are made using MASSIVE assumptions. You see it in their emails. In order to grab your attention, they’ll resort to telling you something alarming, such as the possible “poisoning effects” of a popular bodybuilding supplement. If you investigate these assumptions, however, you’ll often find that they’re

flimsy – based on a patching together of hear-say stemming from disparate and unreliable research.

Since at least the late 1980s, many bodybuilding assumptions labeled as “scientific” have been made from the work of a single researcher and his team. The researcher is **William J. Kraemer PhD**. Dr. Kraemer is, without doubt, an accomplished and outstanding scientist in the fields of kinesiology, strength, and sports performance. Given his scientific professionalism, he concludes articles about his study findings with distinctions between what those findings can conservatively conclude and what calls for further research. But such careful wrap-ups by a scientist don't stop self-proclaimed bodybuilding experts from going forth with runaway assumptions under the banner of ‘scientific bodybuilding.’

For example, back in 1990, Dr. Kraemer and a research team did a study [published here in the Journal of Applied Physiology](#). It demonstrated how different heavy resistance training protocols (HRTs) produced varying degrees of acute endogenous hormone release during training. The study showed the greatest **growth hormone (GH)** release occurred among subjects when they trained with 10 repetitions at a 10-reps maximum weight using only 1 minute of rest between sets.

So what have the gurus of muscle knowledge done with this?

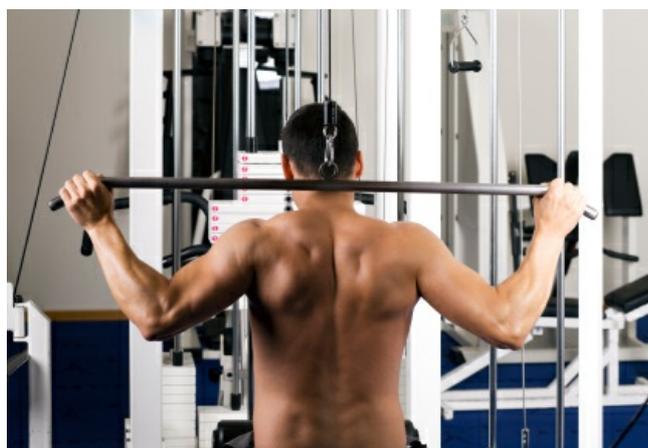
Some have taken it as gospel and based their most prized **muscle building routines** around it. Furthermore, they've used other research showing that anabolic hormones drop after an hour of weight training and decided that workouts of less than 60 minutes are the road to anabolic paradise.

But these conclusions don't come without a HUGE assumption; that increases of exercise-induced anabolic hormones will result in greater **muscle growth**. Do they?

Interestingly, a **2010 study** published in the same ‘Journal of Applied Physiology’ claims they don't, at least not in younger men. Twelve male subjects were tested for both strength increase and muscle hypertrophy under the control of two conditions – one being low hormone-release training and the other being a high hormone-release protocol. Each respective training regimen produced hormone release response as expected – the high intensity training stimulating a big growth hormone and **testosterone boost** above baseline. But results showed no difference in hypertrophy or strength between the two, leading researchers to finish their abstract with the following:

*“We conclude that exposure of loaded muscle to acute exercise-induced elevations in endogenous anabolic hormones enhances neither muscle hypertrophy nor strength with resistance training in young men.”*

By pointing this out, am I concluding that enhancement of acute, exercise-induced anabolic hormone surges have no value? No; I can't be sure, especially in the case of older trainees. However, I am pointing out that anyone citing the first study with grandeurs of being a purveyor of scientific bodybuilding is definitely jumping the gun. There appears to be enough assumption going around to allow anyone spreading so-called “bro science” nearly the same credibility as anyone else.



**'Scientific Bodybuilding':** Learning about it can definitely make you aware of the importance that measurement and feedback plays in your long-term muscle building success.

### **'Scientific Bodybuilding': When it became subordinate to my own “bro science”**

Personally, I take all research studies in bodybuilding with respectful consideration and a grain of salt. I enjoy the insights they can provide to whatever extent they can enhance my fitness and bodybuilding education. But I view very few of their

findings as irrefutable conclusions. Holding this attitude while being experimental with my own body (with sensitivity to feedback) has opened my mind to the possibility that gigantic assumptions are what could be causing widespread frustration for many would-be natural muscle builders.

For example, when I was really young in 1990, I bought a training manual by Leo Costa. In that book, the author said that recent research had shown that muscles begin to atrophy sooner after training than had previously been thought. Basically, he alleged that a muscle trained any less often than every 36 hours was a shrinking muscle. He recommended frequent training of each muscle (2X per week) and short training sessions (45 min), twice a day.

I bought it – both the book and his ideas, much to my later chagrin. I not only didn't **gain muscle** on the system, I lost a little (and a lot of time).

All these years later, I'm making very gratifying **bodybuilding gains** by not only ignoring the "scientific bodybuilding" he'd allegedly cited, but thumbing my nose at it completely. I train muscles with an infrequency that's scoffed at by both bodybuilding experts and their followers alike.

Scientific Bodybuilding: Will it help you build muscle?

To the extent that it motivates you to start making your workouts measurable and your mind receptive to feedback, I'd say... "Yes, it CAN help you build muscle.

### References

1. W. J. Kraemer, L. Marchitelli, S. E. Gordon, E. Harman, J. E. Dziados, R. Mello, P. Frykman, D. McCurry, and S. J. Fleck ' *Hormonal and growth factor responses to heavy resistance exercise protocols*' (Journal of Applied Physiology; October 1, 1990 vol. 69 no. 4 1442-1450)
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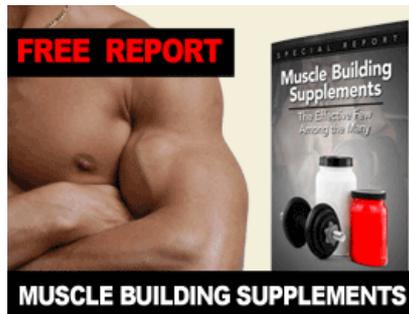
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