Think Muscle Newsletter

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The Think Muscle Newsletter publishes the latest news and research on exercise physiology, dietary supplements, performance enhancement, lifestyle management, health & nutrition, and bodybuilding & fitness. The newsletter is dedicated to providing accurate and unbiased scientifically based information.

Editor-In-Chief: Bryan Haycock, MS, CSCS
Email: info@thinkmuscle.com

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From the Introduction:
Recently, I gave a training seminar, and before we got started, someone pulled out this huge 3-ring binder and said "Here is everything you've ever written!" I was actually surprised at the amount of material this amounted to, and also flattered that someone

would take the time to copy and assemble it all.

About six months later, that experience came to the surface when it occurred to me that publishing all of my written work in the form of an e-book might have a lot of appeal.

When the idea first occurred to me, I realized that there are several training and nutrition authors who's collected works I would certainly be interested in purchasing, were they available.

So I began searching my computer files, as well as the several magazines and websites I've written for, and the result is well over 110,000 words of my thoughts and approaches to the training sciences.

There are several unique benefits of this volume as well:

1) Here, you're seeing my articles before they were "dumbed down" by the magazines they appeared in (this has never happened with the web sites I've worked for, but was common in *Muscle & Fitness* and *Muscle Media 2000*).
2) Each article starts with a short introduction from me, explaining either my current thoughts on the subject matter, interesting feedback I've received about the article, and/or "behind the scenes" information that was not originally published.

3) Exercises discussed are illustrated with photos (often, the original article did not include photos, particularly if it was originally published on the web.

4) The Q&A section is categorized by subject.

5) This volume contains a table of contents, a complete exercise glossary linked to photos, a glossary of terms, and an index for convenient access to the information.

The careful reader will notice some contradictions from article to article. I consider myself a student first and a teacher second, so naturally, my approach has changed over the years.... all else being equal, later articles are more indicative of my current philosophy and methods.

I sincerely hope you find the following information beneficial. The learning process is enhanced by carefully considering and questioning the information presented. Can you find loopholes in my reasoning? Can you find opposing research to my conclusions? If so, kudos to you. I'm flattered when I see people reading my writings, but when I see people taking my work beyond my original concepts, it makes me feel like I'm making a difference.

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A note about "Low Carb" bars, Glycerol & the FDA.

By Bryan Haycock

Anyone familiar with the latest crop of low carb bars is familiar with that "bite" you get in the back of your throat as you eat it. This is caused by the glycerol they use to sweeten them with. I have no problem with this. However, did you notice how they do not include glycerol on the label? Did you know that by law they should?

Glycerol is a colorless, odorless, sweet-tasting, syrupy liquid. It is technically an alcohol. One unique property of glycerol is that it is hygroscopic, or in other words, it absorbs water from the air. Glycerol is about 60% as sweet as sucrose and is used in the food industry to sweeten as well as to add a chewy texture or "mouth feel". I don't usually do this, or at least I try not to anyway, but here is an excerpt from the IFT newsletter from their Food Laws and Regulations Division (Newsletter - Vol. 9, No. 1 - Winter/Spring 1999). You can visit their site at http://www.ift.org. You can also stop by the FDA's web site at www.fda.gov. Anyway, here is the *second* hand scoop on how the FDA feels about glycerol, carbohydrates and food labeling.

> "According to James E. Hoadley, Ph.D. of FDA's Office of Food Labeling, glycerin is labeled as carbohydrate and, if any claim is made regarding sugar content, also as a sugar alcohol. The following is an abstract of a letter signed by Hoadley and provided by Mitzi Elkes of JEMS International, Inc.:"
>
> "When part of the fat molecule as the glycerin components of the fatty acid-glycerol esters, glycerin is included in the weight of total fat in nutrition labeling. However, when added to a food as a separate ingredient, glycerin is labeled as part of total carbohydrate. "Carbohydrates are polyhydroxy aldehydes or ketones conforming to the general formula (CH20)n and their derivatives... ...three carbon sugars include glyceraldehyde (an aldehyde) and dihydroxyacetone (a ketone). The hydrogenated derivative of both these is glycerin [CH20)3H]. The chemical definition of carbohydrate is clearly inclusive of all three compounds...There is no rational basis to consider glycerin as anything but a carbohydrate."
>
> "...total carbohydrate content of a food...shall be calculated by subtraction of the sum of the crude protein, total fat, moisture, and ash from the total weight of the food..."
>
> "Glycerin is clearly included with this "Carbohydrate by Difference" definition which is used to calculate carbohydrate content..."

> "A sugar alcohol (or polyol) is the hydrogenated derivative of a sugar. As noted above, glycerin is the hydrogenated derivative of glyceraldehyde and dihydroxyacetone, and thus is a sugar alcohol. Nutrition labeling regulations provide for a voluntary statement in the nutrition label of the number of grams of sugar alcohols per serving. Declaration of the sugar alcohol content becomes mandatory when a claim is made about sugars...and sugar alcohols are present in the food. As such, when glycerin is an ingredient of a food and the food label bears a claim about sugar content, the amount of glycerin per serving must be declared both as part of the weight of total carbohydrate and as a sugar alcohol."
>
> "In summary, the terms glycerol and glycerin refer to the same substance. FDA nutrition labeling regulations require that when glycerin is used as a food ingredient, it must be included in the grams of total carbohydrate per serving declaration. Also, when the label of a food containing glycerin has a statement regarding sugars, the glycerin content per serving must also be declared as sugar alcohol."

Can it be any clearer than to have the FDA's office of food labeling state, "*FDA nutrition labeling regulations require that when glycerin is used as a food ingredient, it must be included in the grams of total carbohydrate per serving declaration. Also, when the label of a food containing glycerin has a statement regarding sugars, the glycerin content per serving must also be declared as sugar alcohol*"? I have no problem with using glycerol as a sweetener, but I do have a problem with having to explain to my clients and readers that the bars they are eating are mislabeled…intentionally to get you to think there are fewer carbs in it than there really is. It is deceptive and dishonest and it gives the food/supplement industry a bad name.

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Androgen receptors down regulate…Don't they? Part 1.

By Bryan Haycock MS.

There is as much *mis*information about steroids as there is good information had among bodybuilding enthusiasts. Go to any gym and you will hear some kid spouting off to his buddies about how steroids do this, or how they do that, or whatever. This soon starts somewhat of a pissing contest (excuse the expression) as to who knows more about steroids. It's the same kind of titillating and infectious banter that adolescent boys get into about girls and sex. With steroid banter you hear all the popular terms like Deca, Test, GH, gyno, zits, raisins, "h-u-u-u-ge", roid, freak, monster, roid-rage, "I knew this guy once", etc., etc.. If by some rare chance they are smart and have been reading this or

some other high quality bodybuilding site on the net, they may actually get a few details right. More often than not they know just enough to be dangerous. Fortunately steroids haven't proven to be all that dangerous. Not only that, but most of these guys who are infatuated with steroids won't ever use or even see them except in magazines.

This kind of ego driven gym talk doesn't really bother me until they begin giving advice to other clueless people who actually have access to them. Spewing out steroid lingo gives other less experienced kids the impression that these kids actually know what they are talking about. That's how all of the psuedo-science folklore about steroids perpetuates. This is also why most people who actually use steroids know little about them. This last fact should bother anyone who cares about bodybuilding and/or bodybuilders.

I started out with this article planning on giving some textbook style explanation as to why using steroids doesn't down regulate androgen receptors (AR). Then after considering some of my critics views that I tend to write articles that hardly anyone can read, I decided to write an easy to read, yet informative explanation about what androgens actually do and how this precludes androgen receptor down regulation. I still have a few references but not so many that it looks like a review paper.

Androgen receptors down-regulate….Don't they?

One misunderstood principle of steroid physiology is the concept of androgen receptors (AR), sometimes called "steroid receptors", and the effects of steroid use on their regulation. It is commonly believed that taking androgens for extended periods of time will lead to what is called AR "down regulation". The premise for this argument is; when using steroids during an extended cycle, you eventually stop growing even though the dose has not decreased. This belief has persisted despite the fact that there is no scientific evidence to date that shows that increased levels of androgens down regulates the androgen receptor in muscle tissue.

The argument for AR down-regulation sounds pretty straightforward on the surface. After all, we know that receptor down-regulation happens with other messenger-mediated systems in the body such as adrenergic receptors. It has been shown that when taking a beta agonist such as Clenbuterol, the number of beta-receptors on target cells begins to decrease. (This is due to a decrease in the half-life of receptor proteins without a decrease in the rate that the cell is making new receptors.) This leads to a decrease in the potency of a given dose. Subsequently, with fewer receptors you get a smaller, or diminished, physiological response. This is a natural way for your body to maintain equilibrium in the face of an unusually high level of beta-agonism.

In reality this example using Clenbuterol is not an appropriate one. Androgen receptors and adrenergic receptors are quite different. Nevertheless, this is the argument for androgen receptor down-regulation and the reasoning behind it. The differences in the regulation of ARs and adrenergic receptors in part show the error in the view that AR down-regulate when you take steroids. Where adrenergic receptor half-life is decreased in

most target cells with increased catecholamines, AR receptors half-live's are actually increased in many tissues in the presence of androgens.1

Let me present a different argument against AR down-regulation in muscle tissue. I feel that once you consider all of the effects of testosterone on muscle cells you come to realize that when you eventually stop growing (or grow more slowly) it is not because there is a reduction in the number of androgen receptors.

Testosterone: A multifaceted anabolic

Consider the question, "How do anabolic steroids produce muscle growth?" If you were to ask the average bodybuilding enthusiast I think you would hear, "steroids increase protein synthesis." This is true, however there is more to it than simple increases in protein synthesis. In fact, the answer to the question of how steroids work must include virtually every mechanism involved in skeletal muscle hypertrophy. These mechanisms include:

- Enhanced protein synthesis
- Enhanced growth factor activity (e.g. GH, IGF-1, etc.)
- Enhanced activation of myogenic stem cells (i.e. satellite cells)
- Enhanced myonuclear number (to maintain nuclear to cytoplasmic ratio)
- New myofiber formation

Starting with enhanced growth factor activity, we know that testosterone increases GH and IGF-1 levels. In a study by Fryburg the effects of testosterone and stanozolol were compared for their effects on stimulating GH release.2 Testosterone enanthate (only 3 mg per kg per week) increased GH levels by 22% and IGF-1 levels by 21% whereas oral stanozolol (0.1mg per kg per day) had no effect whatsoever on GH or IGF-1 levels. This study was only 2-3 weeks long, and although stanozolol did not effect GH or IGF-1 levels, it had a similar effect on urinary nitrogen levels.

What does this difference in the effects of testosterone and stanozolol mean? It means that stanozolol may increase protein synthesis by binding to AR receptors in *existing* myonuclei, however, because it does not increase growth factor levels it is much less effective at activating satellite cells and therefore may not increase satellite cell activity nor myonuclear number directly when compared to testosterone esters. I will explain the importance of increasing myonuclear number in a moment, first lets look at how increases in GH and IGF-1 subsequent to testosterone use effects satellite cells…

In part 2 we will discuss the role of satellite cells and myonuclei and how testosterone (androgens) activates these systems to create muscle growth far beyond what simple activation of the androgen receptor can produce.

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Strategic Deconditioning: Priming the muscle for continued growth.

From the Hypertrophy-Specific Training Series.

By Bryan Haycock

While utilizing Hypertrophy-Specific Training (HST) techniques, our goal is to present the muscle with a growth promoting stimulus at the moment the muscle is physically susceptible to microtrauma. When is this exactly? Well, it is, or was, whenever you first began weight training. It may also have been after you took a long vacation or simply took a break from training for one reason or another. The point is, it is whenever the muscle has never been conditioned or when it has been allowed to *decondition* itself during an extended lay off. The optimum time for training is when the deconditioned muscle has retained the additional myonuclei from previous training, but has lost enough of the protective connective tissue to allow growth promoting microtrauma. HST takes into account this need to apply the growth stimulous when the muscle is most receptive. We call this *Strategic Deconditioning*.

Training after Strategic Deconditioning results in much more rapid gains in size and strength. This phenomena lead to the idea of "muscle memory". When done properly not only do you quickly regain previously attained size and strength but you will put on new muscle and reach new levels of strength beyond your previous plateau.

So what is "Strategic Deconditioning"?

What does strategic deconditioning mean and how do we apply it to continue growing? Strategic deconditioning is simply a period of time free from training which is long enough to allow a reversal of some of the acute adaptations in muscle tissue, referring specifically to the repeated bout effect. This usually requires 9 - 12 days strait with no training. The term strategic is used because this 9 - 12 day period is not chosen at random or whenever you begin to feel "burned out" or even simply lose interest. It is done every 6-8 weeks depending on whether you finish your cycle with 5 rep work or with eccentric work respectively.

Don't confuse deconditioning with recuperation. Recuperation denotes a restoration or re-building of the tissue. This is what your average personal trainer commonly advocates. He or she will tell you, "Give the muscle plenty of time to rest before you train it again." This pattern of training will not only produce slower gains but you will inevitably plateau more quickly, albeit a fully recuperated plateau. Your muscles will be fully recuperated within the first 7 days of the deconditioning period. At 7 days you will also still retain most of the repeated bout effects. Additional down time is required to allow the muscle to lower it's defenses. 9-12 days is just long enough to allow deconditioning, but to prevent undue muscle atrophy.

Equally important as the deconditioning period is what you do during the 6-8 weeks of training. Standard practice is to split up your body into muscle groups and train each one separately or in groups on different days. This usually means training a given muscle

once or maybe twice per week. If you were to train this way during the 6-8 weeks before your Strategic Deconditioning period you would be sorely disappointed in the result. This would only provide three workouts every 5 weeks, certainly insufficient to produce a growth promoting environment. Instead of traditional training practices you must use HST techniques to create a consistant environment that the muscle must adapt to by growing larger and stronger.

During the 6-8 weeks of training you will do full body workouts utilizing only 1-2 compound exercises per muscle group as outlined in HST (http://www.thinkmuscle.com/beta/newsletter/008.htm). For example, for legs you will do either squats (or leg press) and leg curls. For chest you will do incline bench and weighted dips. For back do wide grip bent over rows and close grip weighted chins or pull downs. Pick one or two shoulder exercises that hit your weakest area and one exercise for biceps and one for triceps. You may alternate exercises for each muscle group from workout to workout. By alternating exercises from workout to workout you can utilize more exercises over the course of the week. This isn't necessary f r growth, but many people chose to do this with great success.

Each and every workout you should increase the weight you use for each exercise. This means 5-10 pound increments for upper body and 10-20 pound increments for legs. This obviously requires that during the first week you are not using your previous cycle's max loads. If the Strategic Deconditioning is done properly, you won't need to. To choose a starting weight for your exercises, go backwards from the weights you finished with at the end of the previous cycle. Allow for 6 increases in weight with the last increase being slightly above the previous cycles finishing weight. Once again, more details can be had by reading the original publication of HST (http://www.thinkmuscle.com/beta/newsletter/008.htm).

It is this practice of frequent loading followed by Strategic Deconditioning that allows a person to reuse submaximal poundages to illicit new muscle growth.

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health, fitness, nutrition, training, and supplementation to all your colleagues, friends, and family. Give all these people THE BEST and latest information to allow them to increase their knowledge base and develop their best body ever! By sharing this incredible information, you are giving the gift of health. ACT NOW! Anyone can subscribe to the FREE weekly newsletter by sending an email to thinkmuscle-subscribe@listbot.com or subscribe online at http://www.thinkmuscle.com/newsletter.htm. You can also send us the name and email addresses of five of your friends and we will automatically send them an invitation to join and a copy of our most recent newsletter. Imagine people you refer getting this amazing and detailed information for FREE. They will definitely be indebted to you! If you refer five people to us, we will also enroll you for FREE into Team Think Muscle which will give you some great benefits in the future -- more details to come!

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Reader Survey
Tell Us What You Think?

1. Glycerol, Low carb bars, and the FDA
[ ] It was good.
[ ] It was okay.
[ ] I didn't like it.
[ ] I'm not interested.

2. Androgen receptors down regulate…Don't they? Part 1
[ ] It was good.
[ ] It was okay.
[ ] I didn't like it.
[ ] I'm not interested.

2. Strategic Deconditioning: from the HST series.
[ ] It was good.
[ ] It was okay.
[ ] I didn't like it.
[ ] I'm not interested.

3. What type of articles would you like to see in the future? (Check all that apply.)
[ ] Anabolic Steroids and Pharmaceuticals
[ ] Anti-aging medicine
[ ] Body Transformation
[ ] Children's Health and Nutrition
[ ] Competitive Bodybuilding
[ ] Diet and Nutrition Reviews
[ ] Dietary Supplements
[ ] Exercise Physiology
[ ] Fitness Competitions
[ ] Fitness Psychology

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We hope you have enjoyed the latest issue of the Think Muscle Newsletter. Suggestions? Comments? Questions? We'd love to hear them!

Best regards,

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