



Think Muscle Newsletter #30

July, 2005

ISSN: 1532-0561

19,356 opt-in subscribers

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.

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Message from the Editor in Chief:

Hello everyone,

It seems I am always apologizing for the lateness of the newsletter. This time it isn't really late, its more like reanimated. It's alive. IT'S ALIVE!!

Not much to blab about really, although I did find it ironic that Mars Inc, makers of M&Ms, Snickers and other nutritious candies, is getting into the health food market. First they give you the disease then they sell you the cure. I guess they just want a piece of the 15 billion dollar health food market.

Ok, instead of trying to come up with some inspirational speech about why you should care about muscle and your health I'll just get right into the content of this months issue. First a piece on stretching. In spite of growing evidence the stretching serves little function before exercise, coaches and gurus continue to require it. In this issue we take a look at a new study that demonstrates significant strength-endurance losses after

stretching. We discuss the implications of this when trying to use stretching for muscle growth.

Then we've got article taking the results from a study on carbs, glycemic index and performance and applying them to weight loss strategies. Without spoiling it for you, just know that there is room for carbs in a fat loss program.

Finally a case study on what can happen when you just push a little to hard to get those bench press numbers up.

Hope you enjoy and we'll see you next time.

As Always,

-bryan

P.S. The [HST forum](#) is the best place for information on muscle growth on the internet.

Stretching for SIZE

Because most muscle heads are gluttons for punishment, they are always trying to figure out new ways to self-inflict pain and suffering in the gym. Recently there is a growing interest in stretching as more and more people become aware of the importance of high-tension levels for muscle growth. The idea of stretching to induce growth isn't necessarily new. I first suggested it some 9 years ago on Mesomorphosis.com I used the term "loaded stretching" (contrary to popular belief, this method does not require consuming alcoholic beverages prior to stretching). But I didn't invent it, not even close. The method of loading a muscle by stretching it to get it to grow had been used in hypertrophy research for years prior to me mentioning it. Not only that, I doubt I was the first one to suggest stretching specifically for muscle growth. If I recall, I think the old Cybergenics workout used to recommend stretching. Boy, those were the days... Anywho, stretching seems to be regaining interest among lifters.

With this growing interest in stretching it is important to establish the best way to incorporate it into our workouts. The "best way" means that we find a way to use it that brings us closer to achieving our goals. It has always been my aim to use research to get to the factual bottom of things. I think we are seeing some new relevant research we can use.

Recently I wrote an article entitled, "Stretching the Truth". (<http://www.thinkmuscle.com/articles/haycock/benefits-stretching.htm>) In that article I sited a study Stephen Thacker which was reported in Medicine and Science in Sports and

Exercise (1). This study was asking the question, does stretching really prevent injury? Their conclusion was that it doesn't, and I quote, "Stretching was not significantly associated with a reduction in total injuries and similar findings were seen in the subgroup analyses." Simply put, no one seems to be able to demonstrate that stretching before activity prevents injury.

Recently a new study was published in *The Journal of Strength and Conditioning Research* (2) As the title of the study so aptly states, acute muscle stretching inhibits muscle strength-endurance performance. In this study two separate experiments were conducted. In experiment 1, the hamstring strength-endurance exercise (Nautilus leg curl machine) was measured by exercise performed at 60 and 40% of body weight following either a no-stretching or stretching regimen. In experiment 2, using a test-retest protocol, a hamstring strength-endurance exercise was performed at 50% body weight on 4 different days, with 2 tests following a no-stretching regimen and 2 tests following a stretching regimen. Their findings indicated that there is a significant and repeatable decrease in hamstring strength-endurance performance using leg curls following an acute stretching treatment.

Now this is not the first study demonstrating the deleterious effects of pre-exercise stretching on strength and power. Research has shown an inhibitory effect of pre-exercise stretching on maximal strength (3,4,5,6,7,8,9,10), vertical jump performance (11,12,13,14,15), and sprinting (16,17). Despite all this evidence, people, including exercise professionals and coaches still think pre-exercise stretching is critical. Old habits die hard, especially in the world of coaching.

So my point in pointing out all this evidence that if you want to incorporate stretching into your routine for the purpose of increasing a growth stimulus, there would obviously be a good and not so good time to do it. I hear a lot of people saying that they are adding stretches after each set. This would not be the best time to use loaded stretching in that it may compromise your strength and prevent you from getting in as much volume at a given weight as you need. The best time to do your stretching would be after the last set for any given muscle group. And as always, use caution when stretching vulnerable joints such as shoulders.

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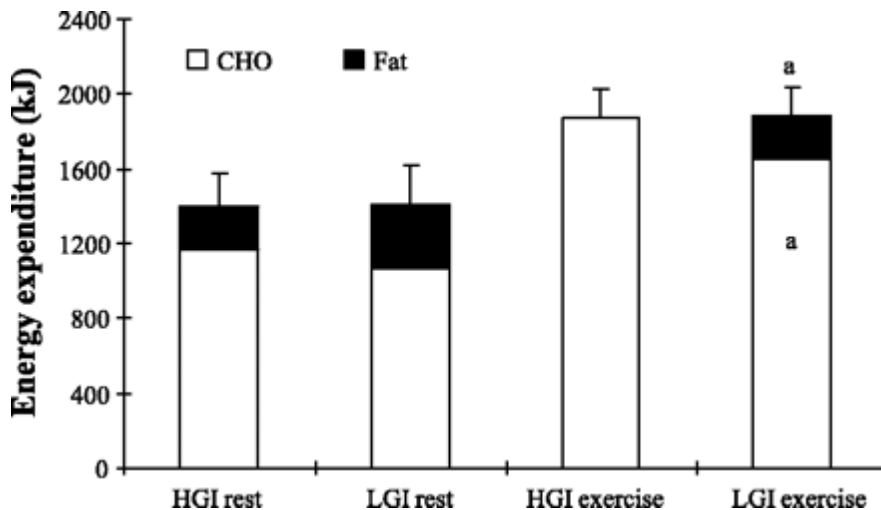
Much Ado about Carbs: Go High or Low Glycemic Index?

There are several camps of opinion when it comes to the virtues of high- or low-glycemic index (GI) carbs and performance. There are seemingly conflicting results from dozens of studies trying to figure out if high or low GI carbs are better for exercise performance. Fortunately, I'm not particularly interested in the performance angle for this article. That being the case I'm going to borrow the results of a recent carb study to shed light on the virtues of high or low GI carbs for fat loss.

The title of the study is “*Ingestion of a high glycemic index meal increases muscle glycogen storage at rest but augments its utilization during subsequent exercise.*” (1) The study was set up as follows, on two occasions, 14 days apart, seven trained men ran at 71%VO₂ max for 30 min on a treadmill. Three hours before exercise, in a randomized order, subjects consumed either a high GI or low GI carb breakfast. The low GI breakfast consisted of 80 g bran flakes, 200 ml skimmed milk, 360 g canned peaches in own juice, 300 g apples and 500 ml unsweetened apple juice. The high GI breakfast consisted of 60 g corn flakes, 240 ml skimmed milk, 100 g white bread, 30 g raspberry jam, 265 ml Lucozade original energy drink, 587 ml water. Both meals provided about 175g carbs and 21 grams of protein. Both meals provided the same number of calories.

The two meals had significantly different effects on substrate utilization during exercise. Once again, I'm not going to explore the performance angle of this study. Instead I want to illustrate the impact that GI can have on fat burning. Here is a graph (1) from this

study demonstrating what proportion of glycogen and fat were used during the subsequent treadmill session.



Although there was a trend for less disruption of fat burning during rest, the real effects were seen during the workout. During exercise, total carbohydrate oxidation was 12% lower during the low GI trial with a compensatory increase in fat oxidation compared with the high GI trial. Although the total number of calories burned were similar, the proportion of fat burned was significantly higher. This after eating the same amount of carbs (175g) before exercise!

Too often we get so caught up in avoiding carbs that we forget our real goal is to burn fat. If it were possible to burn just as much fat eating carbs as not, I think the overwhelming majority of us would choose to eat carbs.

Beyond the relief from walking around in a low-carb haze all the time, there are physiological benefits to having more exogenous or dietary carbs coming in. Research has demonstrated that not only is thyroid activity sensitive to overall calorie intake, it is also sensitive to carb intake. (2,3,4,5) It appears that the level of circulating T3 remains higher on fewer calories if more of those calories are from carbs. We're not talking anything magic here, just a trend in the right metabolic direction.

So, we see that if we diet right we can eat our carbs, and burn our fat too, as long as we stick to the low-GI variety. Here are a few rules of thumb that you can use when choosing carbs to diet with.

1. Use high bran cereals instead of low sugar cereals.
 2. Choose whole fresh fruit instead of processed fruit products
 3. Choose foods and meals with a low Glycemic Load (GL) (Glycemic Load = GI/100 x amount carbs in food portion or meal)
 4. Avoid high GI and high GL foods and meals
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That's really about it. You will find by following these rules of thumb you will end up eating whole fresh fruits and vegetables and lean meats and very little if any refined and processed foods. Sound familiar?

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Its all fun and games until someone loses and eye!

Anyone who lifts weights knows that it is recommended that you not hold your breath while lifting. Nevertheless, we all do it, and for good reason. Take squatting, for example. During the squat lift, muscles of the trunk play several mechanical roles. The coordinated contractions of trunk muscles stabilize the spine so as to prevent it from buckling. The contribution of the abdominal muscles to lumbar spine stability during lifting is complicated by their roles in respiration. However, it is evident from research that holding one's breath does serve to create a "rigid cylinder" which directly through the abdominal musculature or indirectly through fascial connections to the vertebral segments assists in supporting heavy loads. (1-10)

Unfortunately, there are some risks associated with very high intra-abdominal pressures one of which is hemorrhaging of blood vessels. One recent report in the Clinical Journal of Sports Medicine presented a case study of a bodybuilder with sudden and unexplained vision impairment in one eye. Here is a summary of the case report:

“A 37-year-old man presented with mild left-sided blurring of vision and metamorphopsia with duration of a few hours. He was an experienced amateur bodybuilder and reported having set a personal record during the previous evening’s training, lifting about 105 kg (231.5 lb) of weight from the supine position (bench press).

Funduscopy examination of the left eye demonstrated a hyperemic optic disc edema, flame-shaped hemorrhages on the disc margin, nerve fiber layer hemorrhages in the posterior pole, and venous engorgement. The fellow eye appeared normal. Fluorescein angiography showed left-sided optic disc hyperfluorescence, cystoid macular edema, and limited leakage of dye in midperiphery.”(11)

In short, the guy blew a gasket in his eye! Now, I can think of, and have seen, worse places to blow a gasket, but losing one’s vision for the sake of a personal best on bench press hardly seems worth it.

The issue here is that while we hold our breath to help stabilize the trunk, and thus provide a more rigid foundation upon which other muscles may anchor themselves, we also increase intra-ocular pressure. In this case the pressure grew to such levels as to burst the microvasculature of his eye. Fortunately it wasn’t permanent, but what a scare!

Though my primary reason for highlighting this case report was because I thought it was interesting, I would also like to take the opportunity to offer a suggestion. Among lifters, there is a culture of pushing one’s limits. After all, how can we grow unless we go right up to the edge and push on through? Nevertheless, we must accept responsibility for our own health, because frankly, no one else will. When you feel your body sending you signals that it has reached its limits, back off a bit before you get injured. You really have nothing to prove by pushing yourself so hard you end up in the hospital. If you really love lifting, and by that I mean if it is a part of who you are and feels as if it will always be, always be careful not to do anything that will rob you of that privilege in the future. Whether it be getting under a weight you are not ready for, or ignoring pain when you know you shouldn’t, or using any drug that might rob you of your natural abilities, think twice and live to lift another day. Don’t trade a lifetime of personal bests for a moment of foolishness.

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Reader Survey

Tell Us What You Think?

1. Message from the Editor in Chief:
 - It was good.
 - It was okay.
 - I didn' t like it.
 - I' m not interested.
2. Stretching for Size:
 - It was good.
 - It was okay.
 - I didn' t like it.
 - I' m not interested.
3. Much ado about CARBS
 - It was good.
 - It was okay.
 - I didn' t like it.
 - I' m not interested.
4. Its all fun and games until someone loses an eye!
 - It was good.
 - It was okay.
 - I didn' t like it.
 - I' m not interested.

5. 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
- General Health Topics
- Lifestyle Management
- Men' s Health
- Powerlifting
- Seniors Health Topics
- Sports Specific Training
- Women' s Health and Nutrition

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

Best regards,

-bryan

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