Think Muscle Newsletter #13

August 15, 2001 - Number 13

Think Muscle
http://www.thinkmuscle.com/

ISSN: 1532-0561
12,618 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.

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

PDF Version: http://www.thinkmuscle.com/beta/newsletter/013.pdf
HTML Version: http://www.thinkmuscle.com/beta/newsletter/013.htm

IMPORTANT NOTICE: If you haven't been getting the newsletter and you are a subscriber, you may have been inadvertently removed from the list. Please send a blank email to info@thinkmuscle.com to add your email address back to the Think Muscle Newsletter list.

Contents

- Team Think Muscle

Message from the Editor-in-Chief

Hello everyone. Let me be the first to apologize for the lateness of this issue of the Think Muscle newsletter. Let me also be the first to say "Thank You" so much for all the kind emails. Think Muscle readers from all over the world seem to be the most gracious, appreciative, and intelligent readers I have ever witnessed in a magazine of this type. I get a lot of mail from readers and seldom, if ever, is it negative. We at Think Muscle can't thank you enough for all your support, but we can, and do, commit to continue to bring you the best information available anywhere about exercise, nutrition, supplements, hormones, or anything else important enough to investigate and write about.

I have a pressing issue that I must offer up for your consideration and feedback. As most of you know, I love supplements. I have probably spent enough money on supplements over the years to pay off my school loans. I have used them for over 20 years (I've calculated that over the years I have consumed at least 1,000 lbs of protein powders alone). I write about supplements for print magazines and websites. I even work as a consultant for the supplement industry. But after all the writing and consulting, what has given me the most satisfaction and sense of purpose, has been (and continues to be) the mail I get from readers.

Unfortunately, from the mail that I get from Think Muscle readers from all corners of the globe, it is clear that there is a tremendous amount of confusion about which supplements work and which don't. This is no surprise considering the type of marketing practiced by the current crop of supplement companies.

Supplement companies today are certainly aggressive, and many times deceitful, in their marketing tactics. This is what bothers me most. Let me explain to you why many supplement companies feel compelled to lie to you to get you to buy their products.

Supplement companies today are afraid NOT to lie to you in their adds. This fear stems from their lack of faith. Faith in what? Faith in the quality and effectiveness of their own products. Why can't they have faith in the quality and effectiveness of their own products? Because they lack the education, knowledge, and experience required to formulate high quality and effective supplements. How do I know this? Well, for one thing they call me to ask me questions that a supplement company would not ask if they knew what they were doing. Not only that, but anyone can see the pitiful lack of competence in the industry by picking up a bottle, looking at the ingredients and comparing it with the claims they are making.

Now before I offend any of my friends that work for, or own, supplement companies, let me say that not *all* people working in the industry are incompetent. There are a few (I can count them on one hand) that are extremely intelligent, creative, and very good at what they do. Unfortunately, unless they own the company, they are not *usually* involved beyond formulation of a single

product for any one company. Seldom do they have anything directly to do with marketing either.

I have always said that if I had a chance to make my own supplements, I would do it differently. First of all, I would only make supplements that did something measurable or that had a demonstrable effect in research, regardless of what was "flying off the shelves." No one has a truly justifiable reason to sell anything that doesn't work. Secondly, I would not make any claims about the product except what could be backed up by research. Lastly, I would not overly "hype" my own line of products. If the line really does *deserve* some hype, let the people who have used it with good results hype it themselves by word of mouth. Not only that, but I would continue to report on and support *any* ingredient or supplement that was effective, whether I made it or not. Now this has been met with plenty of skepticism by those who feel it impossible to compete with the persuasive yet false advertising of the current crop of companies. I know it seems that way, but when I read your (Think Muscle readers) emails I am confident that if you had a source of trusted "unbiased" information (which we are committed to remain as), *and* a source for a few key supplements, fairly priced, that you could equally trust, it would work out well for everybody.

Let me know what you think. If you think that supplements can still be sold solely on the basis of what they do, instead of what greedy, faithless companies want you to think they do, tell me so (see survey at bottom of newsletter). Now, please take time to do this, even if you never respond to surveys, please take a moment to fill out the survey below. The reason I'm so interested in your opinion is because if Think Muscle readers say they want their own line of supplements, composed ONLY of those few products that actually do something, we are going to pool our resources together to create a Think Muscle line of supplements, formulated by us (using available research) and built to our standards. If these initial products meet with your approval, we will then be able to develop some never before seen supplements that have only seen the light of day in research journals and the Think Muscle collective conscious. More on that later.

Thanks again to everyone who lends an ear every month…or so.

Sincerely,

-bryan

P.S. Don't forget to voice your opinion! Whether you like the idea of Think Muscle creating supplements or even if you just want to vent about being taken advantage of one too many times by false claims. Speak up now!

Bryan Haycock MS

Editor in Chief - ThinkMuscle
http://www.thinkmuscle.com

About Bryan Haycock

Bryan Haycock M.Sc. is an exercise physiologist and NPC judge. Bryan has been bodybuilding for over 20 years and holds certifications with the NSCA, ACE, and is a member of the American College of Sports Medicine. Bryan is currently the Editor in Chief of ThinkMuscle.com and is the founder and CEO of LifeStyleMgmt.com. Bryan is a highly sought after authority on the physiology of muscle growth and fat loss. Bryan also specializes in the management of type-II diabetes through diet and exercise.

Research Update: Cycling Creatine, Steroids and the Heart, Meal Replacement Drinks

by Bryan Haycock MS
bryan@thinkmuscle.com

As we approach the new millennium we find the science of building muscle progressing faster than ever before. Long gone are the days of simple trial and error when it comes to building muscle. The modern bodybuilder demands more than just "hear say" if they are to adopt a new training routine or nutritional supplement. This column was created to keep today's bodybuilder on the cutting edge of scientific research that might benefit them in their quest for body perfection.

Are you cycling your creatine? Find out why you may want to.

Title:

Creatine supplementation in health and disease. Effects of chronic creatine ingestion in vivo: down-regulation of the expression of creatine transporter isoforms in skeletal muscle.

Researchers:

Guerrero-Ontiveros ML, Wallimann T.
Institute for Cell Biology, Swiss Federal Institute of Technology, ETH-Honggerberg, Zurich.

Source:

Mol Cell Biochem 1998 Jul;184(1-2):427-37

Summary:

These researchers studied the *in vivo* effect of dietary creatine as well as 3-GPA (a creatine analog that is a competitive inhibitor of creatine entry) on the expression of the creatine transporter (creatine T). Long term feeding of rats with 3-GPA has been previously shown to decrease creatine levels in skeletal muscles without effecting creatine T expression. In this study,

the expression of the creatine T was examined in rats chronically fed either 4% creatine or 2.5% GPA. *Dietary creatine administered for 3-6 months, significantly lowered the expression of creatine T polypeptides.* The rats fed the creatine analog GPA showed virtually no change (perhaps even a slight increase) in creatine T polypeptide expression.

Discussion:

The wide spread use of creatine among athletes and bodybuilders has raised concerns about possible negative side effects. Of course most of the nay sayers are looking to control its availability with little real concern for the well being of those who use it. This study has answered a question that has rested on the minds of many, which is, "Is there any reason to cycle creatine?" From the study above we see that the abundance and activity of the creatine *transporter* is negatively effected by long term creatine ingestion. The creatine transporter is down regulated with continued exposure to extracellular creatine.

Human skeletal muscle has an upper limit of creatine that can, or will, be contained within the cell. This limit is around 150-160 mmol/kg of dry muscle. As the intracellular concentration of creatine approaches this level, the synthesis of creatine transporters declines and even stops depending on the amount of creatine ingested over time. In the study above, it was shown that the creatine transporter is regulated by the content of creatine in the cell rather than by the interaction of creatine, or it’s analog 3-GPA, with the transporter.

All the arguments about creatine absorption being a limiting factor in creatine content within the cell are bogus. Creatine does not need to be "micronized" or "effervesent" to lead to an increase in creatine content within your muscles. The activity of the creatine transporter is the limiting factor. Any trick increase in creatine absorption will only hasten creatine transporter down regulation. It only requires about 5 grams per day for 30 days to increase the content of creatine within muscle tissue to the same extent as 30 grams per day for 6 days. The sooner you reach the upper limit the sooner your muscles become unable to take up creatine. It is better to maintain sufficient levels of creatine transporters in order not to cause a rapid decline in creatine content once creatine supplementation is discontinued. Clearly there appears to be good reason to cycle creatine supplementation.

The authors of this study recommend not using creatine for over 3 months at a time. To truly cycle creatine you will have to take at least 4 weeks off. Creatine levels take at least one month to return to pre-supplement levels. It may be important to take the entire month off because one speculated mechanism of creatine transporter downregulation is that when the intracellular levels (levels inside the muscle cell) are increased the creatine transporters are taken down and not replaced as long as creatine levels remain elevated. Thus it might take as long as a month for creatine transporters to return to normal after chronic creatine supplementation. Keep in mind that no one has actually shown that long-term supplementation with creatine is a bad thing.

Researchers too quick to blame steroids for changes in heart muscle.

Title:

Left ventricular wall thickening does occur in elite power athletes with or without anabolic steroid Use.

Researchers:

Dickerman RD, Schaller F, McConathy WJ
Department of Biomedical Sciences, University of North Texas Health Science Center, Fort Worth, Tex., USA.

Source:

Cardiology 1998 Oct;90(2):145-8

Summary:

Researchers examined 4 elite resistance-trained athletes by two-dimensional echocardiography. In addition, they retrospectively examined the individual left ventricular dimensions of 13 bodybuilders from our previous echocardiographic studies. All 4 elite resistance-trained athletes had left ventricular wall thicknesses beyond 13 mm. One of the elite bodybuilders has the largest left ventricular wall thickness (16 mm) ever reported in a power athlete. Retrospectively, 43% of the drug-free bodybuilders and 100% of the steroid users had left ventricular wall thickness beyond the normal range of 11 mm. In addition, 1 drug-free subject and 3 steroid users were beyond the critical mark of 13 mm. No subjects demonstrated diastolic dysfunction. In contrast to previous reports, we have demonstrated that left ventricular wall thicknesses >/=13 mm can be found routinely in elite resistance-trained athletes who do not use anabolic steroids.

Discussion:

Left ventricular hypertrophy is characterized by thickening of the left ventricular wall secondary to cardiac fiber enlargement. Left ventricular hypertrophy is normally caused by a chronic increase in systemic blood pressure. It may also be seen with sudden or rapid weight gain. The thickening of the ventricular wall due to increased afterload from elevated vascular resistance can be viewed as adaptive protection up to a point. Beyond minor wall thickening, left ventricular hypertrophy is a strong predictor of serious cardiovascular risk.

During heavy lifting, systemic blood pressure is increase from what is called the valsalva maneuver. It is simply the act of forceful expiration with the mouth and nose closed producing a "bearing down" on the abdomen. Pressure also increases due to blood vessels being occluded by contracting muscles. It should be noted that the LVH seen in bodybuilders and power lifters is called "concentric left ventricular hypertrophy", meaning that it is the result of contracting against acute increased systemic pressure, and was not considered pathological. "Eccentric" LVH is caused by constant increases of blood pressure not as a result of the valsalva maneuver but instead clinical hypertension that forces the ventrical to expand against resistance. It was previously believed that the intermittent increase in blood pressure that is caused by heavy lifting

was not sufficient to elicit left concentric ventricular hypertrophy (CLVH). Any evidence of CLVH in strength athletes or bodybuilders was seen as a sign of anabolic steroid use.

In the study above researchers identified LVH at or beyond 13mm in not only bodybuilders using anabolic steroids but also in "drug free" athletes as well. Although it was shown that those using anabolics showed significantly more ventricular thickening, at least one drug free athlete was beyond the 13mm limit.

Are meal replacement drinks really that important after your workout? Read on and decide for yourself.

Title:

Hormonal responses to consecutive days of heavy-resistance exercise with or without nutritional supplementation.

Researchers:

Kraemer WJ, Volek JS, Bush JA, Putukian M, Sebastianelli aWJ
The Human Performance Laboratory, Ball State University, Muncie, Indiana 47306, USA.

Source:

J Appl Physiol 1998 Oct;85(4):1544-55

Summary:

Nine resistance-trained men consumed either a protein-carbohydrate supplement (Twin Lab's MassFuel) or placebo for 1 wk in a crossover design separated by 7 days. The last 3 days of each treatment, subjects performed resistance exercise. The supplement was consumed (half serving) 2 h before and immediately after (half serving) the workout, and blood was obtained before and after exercise (0, 15, 30, 45, and 60 min postexercise). Lactate, growth hormone, and testosterone were significantly (P </= 0.05) elevated immediately postexercise in both placebo and supplemented groups. The lactate response was significantly lower during supplementation on days 2 and 3. Growth hormone and prolactin responses on day 1 were significantly higher during supplementation. After exercise, testosterone declined below resting values during supplementation. Cortisol decreased immediately postexercise on day 1; the response was diminished on days 2 and 3. Glucose and insulin were significantly elevated by 30 min during supplementation and remained stable during placebo. Insulin-like growth factor-I was higher during supplementatiom on days 2 and 3. These data indicate that protein-carbohydrate supplementation before and after training can alter the metabolic and hormonal responses to consecutive days of heavy-resistance exercise.

Discussion:

The reason for performing this study was to see what would happen after consecutive days of training and supplementation with a carb/protein drink. Most all previous studies looking at the effect of macronutrient supplementation are done acutely after a single bout of exercise.

The results of this study are not surprising. There was a significant increase in post-exercise glucose and insulin due to the carbs and BCAAs in the supplement drink. As with previous studies, there was also an increase in post exercise growth hormone however, it was only greater than placebo after the first workout. After the second and third workouts the differences were very small. There was a significant increase in resting IGF-1 levels in the supplemented group with no difference in post exercise levels when compared to placebo. This is not unusual in conditions of "over feeding". The supplement added between 1575 - 2475 kcals per day in this study.

There was a trend for reduced cortisol levels for both placebo and the supplement groups. Surprisingly, cortisol levels were not greatly different after post exercise supplementation. Performance appeared to be unaffected by supplementation. This is not unusual after such a short training protocol (3 days). There was one significant difference that should be noted, namely serum testosterone was significantly *lower* in the MassFuel group. The authors explained this observation from a macro nutrient ratio perspective. You see, while supplementing with MassFuel the percentage of calories from fat drops to 14% compared to 24% for the placebo period. It is well known that the highest resting testosterone levels are achieved when fat provides ~30% calories. It can be optimistically speculated that free testosterone levels remained the same from data measuring the ratio of total serum test and SHBG.

What is the take home message from all this? First, there was virtually no difference in the way the body responded to three consecutive days of training the same body parts. It is not unreasonable to consider training a body part for two or three days in a row and then giving it a couple days off. And finally, by using a carb/protein supplement in liquid form after training you can ensure that protein synthesis will begin as soon as possible after exercise.

Creative Applications of Circuit Training: Fatigue Management Strategies for Bodybuilders: Part I

by Charles Staley
staley@myodynamics.com

When I teach acute training parameters in seminars across the USA, a very common question regards which exercise to do first, second, third, etc., in any given workout. Traditional wisdom says to do whatever exercise is most important first, since fatigue accumulates over the course of the workout. While I agree, there is a much more refined way to address the problem of accumulating fatigue, and it’s called circuit training.

Of course, whenever one uses the term "circuit training," serious lifters often conjure up images

of PACE classes which are used in Gold's Gym's across the World. PACE is in fact a form of circuit training, but it's simply one variant out of hundreds, and it unfortunately leads serious trainees to assume that circuit training is more appropriate for the "chrome & fern crowd" than it is for dedicated, experienced weight trainers.

I'm here to tell you that circuit training is a tool that will improve your workouts regardless of your experience level, and I'll show you exactly how. I don't care if it's your first day in the gym, or if you are a dedicated athlete finally closing in on a 500 pound squat, circuit training will get you toward your goals faster than any other alternative.

What Exactly is Circuit Training?

To most fitness enthusiasts, circuit training (I'll abbreviate it to "CT" from here on out) is thought of as a method of integrating resistance and aerobic exercise by performing several (9 to 12) exercises in "vertical" progression (meaning you perform one set of each exercise on the workout "menu" until all have been completed, as opposed to finishing all sets of the first exercise before progressing to the second exercise, and so on) with little or no rest between exercises. The supposed benefit of this type of exercise is you'll improve aerobic and anaerobic functioning at the same time.

Unfortunately, this narrow definition has done a disservice to CT and to those who have dismissed this method as an ineffective fringe variant used by only the profoundly unfit as a way of regaining some semblance of fitness. In truth, CT has much to offer, for weight trainers at all levels, if you'll allow for a slightly broader definition of the term and a bit of creative application.

First, CT is NOT defined by the number of reps per set, the length of rests between sets, the number of exercises performed, or even the exercises chosen. It is defined by the fact that you progress from one exercise "station" to another in sequence, until the entire circuit of stations has been completed. You then continue until you have completed the prescribed number of circuits.

(Incidentally, "non-circuit training" is any exercise format where you complete all prescribed sets of a particular exercise before moving on to the next exercise.)

If you were to conduct a poll of weight trainers, you'd find that between 90 and 98 percent use "non-circuit" training. This is unfortunate, when you consider the enormous benefits of CT, which I'll describe in detail.

Macro and Micro Circuits

Within the context of CT, there are actually two distinct ways that you can organize any training session: macro or micro circuits.

The macro circuit is what most people mean when they think of CT: you simply perform one set of each planned exercise in the circuit, and then repeat for the desired number of circuits.

The is another way to perform CT, however. It's called micro circuits: here, you break up the

circuit into several small circuits of 2-3 exercises each, and then repeat for the desired number of circuits. For example, if you have planned to perform 4 exercises, do the first 2 circuit style until all planned sets are completed, then finish off the second two in the same manner.

Benefits of CT

No exercise method is perfect of course (if there was such a thing, I would have discovered it by my 13th birthday!), but CT is about as close as you can get. Compared to the alternatives, CT is more efficient, more motivational, and far more versatile. Here's a quick run-down of CT's assets:

Efficiency

CT allows for more work to be done in the same time frame. For example, let's imagine that you're performing dumbbell incline presses and close grip lat pulldowns. Let's further assume that each set takes 30 seconds to complete, and that you're resting 2.5 minutes between sets.

If you perform this workout "non-circuit" style as most people do, you're getting 2.5 minutes rest between sets of whichever exercise you're doing.

But if you perform this session CT style, you'd perform one set of incline presses, rest, then do a set of pulldowns, rest, and so on. Here, you're obtaining 5.5 minutes of rest between two sets of the same exercise! This is more than double the rest, yet your total exercise duration does not increase. Now it is true that you're still doing a set every 2.5 minutes, but fatigue from different exercises, particularly if they are for different muscle groups, tends to be specific. This means that even though you may still be too fatigued to accomplish another set of the same exercise, you will still be able to complete a set for another exercise. For this reason, CT is clearly a better way of managing fatigue through the workout.

If you arrange your exercises stations in antagonistic fashion (i.e., a hamstring exercise is followed by a quadriceps exercise), you'll further enhance the efficiency of CT through a principle known as reciprocal inhibition: since muscles work in antagonistic pairs, when you perform a set for the agonist (in this case, the hamstring), the antagonist (quadriceps) achieves a better contraction because the hamstrings are too fatigued to oppose it.

Motivating

For many people, "sampling" from each item on the menu is more satisfying than simply finishing off your swordfish, then your rice pilaf, then your veggies, and so on. Similarly, in a work environment, it's more productive to alternate between tasks than it is to spend a huge block of time on a single task.

Training is no different. Somehow, it's intrinsically more satisfying to move from exercise to exercise as opposed to "slugging it out" on a single exercise until it's finished.

Versatility

CT can be integrated with your favorite training techniques, such as rest-pause training, drop sets, eccentric training, you name it. You can also use any exercise you wish, including free weights, machines, plyometrics, Olympic lifts, whatever is appropriate given your particular circumstances. CT accommodates all set/rep schemes as well.

CT also works well in non-gym environments, such as the high school track (where you can create circuits consisting of sprints, jumps, and throws) or a community park (where your circuit might contain pull-ups, sit-ups, push-ups, lunges, short sprints, and so forth).

Drawbacks

For all the benefits of CT, there are a few drawbacks as well, but most can be solved with a bit of creativity and imagination.

For technical exercises such as the Olympic lifts, which demand a very refined sense of timing and coordination, CT should not be used, at least during competition preparation cycles. This is because the enormous effort and specific coordination involved in executing say, a snatch, would have a negative transfer to something like a clean & jerk when both lifts are performed in CT style. Nevertheless, CT remains an effective training option for Olympic lifters in the early preparatory phase of their training.

Another possible problem: in crowded gyms, you may find someone has "stolen" your next station while you performing the last exercise. Although this can usually be solved by simply waiting until the station is available, you can get around this by doing "micro circuits" where you're only going back and forth between two machines. Or, simply make a quick substitution "on the fly," such as substituting a machine bench press for a dumbbell bench press.

In Part II of "Creative Applications of Circuit Training: Fatigue Management Strategies for Bodybuilders" you will learn how to adapt circuit training methods for your specific goals. We'll have detailed circuit training workouts to help you build strength, power, size and even performance.

Anorectic Pharmacology Part I: The Absurdity of the New Diet Drugs

by Karlis Ullis, MD with Josh Shackman, MA

I have greatly enjoyed reading Bill Roberts' Anabolic Pharmacology Column and I applaud him for his help in bringing much needed common sense to the area of anabolic hormone research. Only recently with the HIV/AIDS epidemic and the AIDS wasting syndromes has research on the therapeutic use of anabolic steroids become respectable again. However, as clueless as the medical establishment has been on drugs that make you bigger, it is often even more misguided on the use of drugs that make you smaller. Unlike the minimal amount of research devoted to

anabolic steroids which, millions and millions of dollars and hundreds and hundreds of studies have been done to develop and test the efficacy of diet drugs. The rapidly increasing plague of obesity in America has been well established, but nothing significant has been done to stop it despite the copious volumes of new research data and new diet drugs. This series is meant to expose the scandalous use of expensive and ineffective drugs, and show how cheaper and more effective drugs have been largely overlooked.

The Quest for the New "Phen-Fen"

For a brief moment, obesity had the appearance of being cured. Doctors were getting rich doling out a combination of Phentermine and Fenfluramine dubbed Phen-Fen. While these drugs were only indicated for seriously obese individuals, almost anyone looking to lose a few pounds had no trouble getting a prescription. Of course, both of these drugs had been around for years. The positive results of the long-term Weintraub obesity studies (1) with this combination drove the American obesity industry into a frenzy. The combination was more effective then either drug alone. As an added plus, the mildly sedating and satiating properties of Fenfluramine seemed to partially negate the stimulating effects of Phentermine. Thus the combination apparently had fewer side effects than either alone as well (or so we thought). However, phentermine is still on the market and new combinations are being concocted with it.

We all know now that Phen-Fen proved to be a fiasco. Needless to say, this "cure" for obesity and the millions doctors were making could not go on forever. The revelation that Fenfluramine can cause pulmonary disease and heart problems has lead the medical establishment to start over again in its quest to find a new "cure", a new "Phen-Fen" that proves as effective (and profitable) as the original...

Attempt #1: Meridia (Sibutramine)

Meridia is an attempt to combine the properties of Fenfluramine and Phentermine in one pill. Phentermine is a stimulant, scientifically referred to as an adrenergic or catecholaminergic drug. A catecholanminergic drug increases brain levels of andrenaline and/or noradrenaline, your body's most stimulating neurotransmitters. Phentermine makes you stimulated and energized, thus reducing appetite, delaying time for food intake and increasing your metabolic rate . Fenfluramine, on the other hand, stimulates serotonin release. Serotonin is one of your brain's most sedating, satiating and relaxing neurotransmitters. Fenfluramine, by increasing serotonin levels, makes you feel less anxious, decreases carbohydrate cravings , and produces a feeling of rapid satiety - thus reducing food intake.

Meridia is a drug with both catecholaminergic and serotonergic properties. It works by blocking your brain’s reuptake of both serotonin and noradrenaline, thus prolonging and increasing the activity of these neurotransmitters (2). Theoretically at least, Meridia should be highly effective as it should help suppress appetite through two different pathways. So Meridia theoretically should be the next Phen-Fen.

Early clinical trials do in fact did look impressive. Two separate year-long studies showed

Meridia at recommended doses to produce much larger losses in weight than a placebo. At 10 mg per day, the Meridia group lost 4.8 kg over a year while the placebo group lost 1.8 kg. At 15 mg per day, the Meridia group lost even more weight - 6.1 kg while the placebo lost only 1.8 kg. (3)

However, Meridia is not exactly flying off the shelves like Phen-Fen. Very few of my patients have requested a prescription for Meridia, and many have told me that they have tried it and it didn't do anything for them. None of my medical colleagues have reported much success with Meridia either. So why is Meridia so effective in studies (funded by the pharmaceutical company that makes it), and yet apparently ineffective in the real world? I believe the studies mentioned above are somewhat misleading since the drop out rates were exceptionally high - around 50% in both studies. A common reason people drop out of diet drug studies is because they feel the drug is ineffective. Obviously, the people losing the most weight are most motivated to stay in the study. Thus the results are likely biased.

A survey by the newsletter Obesity Meds and Research News showed that of 248 people who had used Meridia for longer than four weeks, 45% were deemed "non-responders" - i.e. failed to lose more than one pound per week (4). While this survey was not scientific, it does parallel with my own observations that Meridia is not especially effective.

Meridia's apparent lack of efficacy may be due to its mode of action. Unlike Fenfluramine which stimulates the release of serotonin, Meridia is a serotonin reuptake inhibitor. Like Prozac and other anti-depressants, Meridia "recycles" your brain's serotonin instead of increasing serotonin production. Meridia and Prozac are safer than Fenfluramine, as the excess serotonin from Fenfluramine is what led to heart problems in Phen-Fen users. However, serotonin reuptake inhibitors are simply not as effective as Fenfluramine. Prozac might have some use for short-term weight loss, but in trials lasting longer than six months it is a failure. Patients might even gain more weight than a placebo when using Prozac (3). Since Meridia has similar properties as Prozac, its lack of success as a new Phen-Fen does not surprise me.

Attempt #2: Xenical (Orlistat)

This is an especially silly drug. Yes, clinical trials do show that patients on Xenical lose more weight than a placebo, and even keeps weight off longer than Meridia does when the drugs were terminated. Perhaps it was simply Pavlovian conditioning with the fear that when you eat fat you may leak stool and get stinky.

In the real world, I predict Xenical will be even more of a flop than Meridia. Unlike studies on Meridia, the Xenical studies controlled for diet. Both the Xenical and the placebo groups were put on restricted calorie diets. Strictly speaking, Xenical is not a classic anorectic drug like Meridia, phentermine, or fenfluramine. Xenical does not effect appetite much but prevents your body from processing dietary fat by blocking the digestive enzyme lipase. As a result up to one third of your dietary fat is excreted in your feces when you are on Xenical. So if you have two group of people each with consuming the same amount of calories, and the same dietary composition the group taking Xenical will lose more weight since they will be absorbing less

calories from their dietary fat.

But let's look at real world conditions. Your average overweight person with a prescription for Xenical will not have his food intake monitored closely by a scientist. However, this patient will know that up to one-third of his fat calories will magically be gone. So do you think he will continue to eat as he was before, or might he be tempted to increase his fat intake by one-third? I'll let you be the judge, but I'm quite sure what the outcome will be. Since Xenical does not suppress appetite or increase metabolism, I really doubt it will have any long term effects on weight loss. Xenical requires strict adherence to a low fat diet to have any effect, but its use will likely encourage people to eat more high-sugar, high fat junk food instead of less. Xenical will also cause a few unfortunate "bathroom-related" side effects. Anything that causes you to excrete more fat--leaky stool will inevitably make going to the bathroom a less pleasant experience, and compound the social problems that the obese all ready have. Side effects of Xenical include liquid stools, fecal urgency, fecal leaking, and fecal incontinence. The last side effect can be especially embarrassing – fecal incontinence is just a polite, scientific way of saying that Xenical can make you "crap in your pants". Another problem is that the fat soluble vitamins--vitamin D, and the carotenes have been shown to be lowered in the Xenical studies. Researchers recommend daily multi-vitamin supplementation for those taking Xenical . Probably all fat soluble vitamin levels are ultimately affected—vitamin E, K etc.

I also don't like Xenical because it promotes the fallacy that fat is evil and responsible for obesity. As I'm sure most Mesomorphosis readers know, no macronutrient is "evil". There are fats that can make you slimmer such as Omega-3 fatty acids, and those that can be fattening such as saturated fats and partially-hydrogenated fats. The key is to eat a diet balanced in proteins, fats, and carbohydrates with a good portion of the fat coming from Omega-3's. Someone who is eating a good, balanced diet should not take Xenical as it would mean less absorption of beneficial fatty acids for optimum human health. I really believe that the only people who can benefit from Xenical are those with simply atrocious eating habits who simply cannot stay away from potato chips, ice cream, and other such high fat, high starch foods. However, these are the last people who I would prescribe diet drugs to.

In the next installment of Anorectic Pharmacology Dr. Ullis will discuss the appropriateness of these drugs for athletes, bodybuilders or fitness enthusiasts. He will also cover issues such as cost effectiveness and give perspectives on future alternatives.

References

1. Weintraub M, et al. "Long-term weight control study, I-VII". Clin Pharmacol Ther. 1992 May;51(5):586-94

2. Mcneely, Wendy, and Goa, Karen L. "Sibutramine: A Review of its Contribution to the Management of Obesity", Drugs 1998 Dec 56(6) 1093-1124

3. Scheen, AJ, and Lefebvre, PJ. "Pharmacological Treatment of Obesity: Present Status", Int J Obes Relat Metab Disord. 1999 Feb;23 Suppl 1:47-53

4. "OMR Meridia Survey Results" Obesity Meds and Research News, Volume 3, Issue 1 January/February

---

Team Think Muscle

Be on the Cutting Edge!

Spread the word about the Think Muscle Newsletter and send the latest information on 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 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!

Reader Survey

Tell Us What You Think?

1. ***Its about time Think Muscle readers had their own no-nonsense line of affordable "research based" supplements!***

[ ] I agree
[ ] I'm not sure.
[ ] I'm not interested.

2. If I had my choice, and I knew I could trust the manufacturing, I would want a high quality: (check all that apply)

[ ] **Protein powder** (not just another whey protein. I can get whey anywhere)
[ ] **Meal Replacement** (the right protein with the right amount of carbs, essential fatty acids and Vit/Minerals)
[ ] **Thermogenic** (based on ephedra, caffeine or other sympathomimetic(s) from research of its proper usage, safety, and efficacy)
[ ] **Essential fatty acid supplement** (Omega-3s, CLA, Flax, or other body composition altering fatty acid)
[ ] **Anabolic/androgenic** (prohormone based product known to produce androgen induced

muscle growth)
[ ] **Creatine** (nothing fancy, just pure and free of industrial chemicals)
[ ] **Other** (please specify so we know your wants and needs)

3. ***Research Update: Cycling Creatine, Steroids and the Heart, Meal Replacement Drinks***

[ ] It was good.
[ ] It was okay.
[ ] I didn't like it.
[ ] I'm not interested.

4. ***Creative Applications of Circuit Training: Fatigue Management Strategies for Bodybuilders: Part I by Charles Staley***

[ ] It was good.
[ ] It was okay.
[ ] I didn't like it.
[ ] I'm not interested.

5. ***Anorectic Pharmacology Part I: The Absurdity of the New Diet Drugs by Karlis Ullis, MD with Josh Shackman, MA***

[ ] It was good.
[ ] It was okay.
[ ] I didn't like it.
[ ] I'm not interested.

6. ***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

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

Best regards,

The Think Muscle Editorial Staff

URL: http://www.thinkmuscle.com/