

# HYPERplasia Challenge Research Article

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## Introduction

Sports are a central part of our society. Millions of fans gather together to marvel at the precision, control, and speed of movement displayed by athletes; and to watch as athletes avail themselves to brutal competitions.

Sports have a rich history, going back centuries ago. Baker (1988, ch. 2) states that 'the story of organized athletics in the ancient world is primarily the story of Greece.' The Greeks believed that the mind and body were separate entities (Liberti, 2005). Within this framework, the most popular view was that these entities should be equally developed, which in large part explains the Greek's interest in physical activity. The two main city states in Greece were Sparta and Athens. The Spartans were opposed to weakness, and even killed babies who were deemed unfit. They utilized physical activity to harness strength and ability to fight. By the age of 8, boys were entered into gymnastics training. According to Liberti (2005) 'sports such as wrestling, boxing, distance running and javelin were especially prioritized in this society.' Athens, on the other hand, believed in a balance between mind and body, and used physical activity as a means to further educate, without the strict emphasis on battle as the Spartans had.

While differences existed between city states, the Greeks were united in the concepts of *agon* and *arête* (Liberti, 2005). *Agon* represents the good struggle, and focuses on the process of the events, rather than the outcome. Athletes could receive severe beatings for breaking rules (Liberti, 2005). Therefore, *agon* not only represents the struggle, but also the sportsmanship involved in that struggle. An example is found within Homer's *Illiad*, in which the funeral games are discussed (Dickie, 1984). Here, the athlete Anilochus comes in last in a foot race, and yet loses with dignity and honor. For this reason, he is rewarded with the addition of a half a talent of gold by Achilles. *Arête* represents the competitor who through hard-work, discipline, and wit attains excellence (Liberti, 2005).

Through the medium of sports, we have seen athletes attain amazing feats. Such feats have lead many to suggest that competition "brings the best out of us." Therefore, optimizing performance through competition or other avenues has been thoroughly investigated.

Two concepts which can be used to measure and reward successes are competition and cooperation. Coakley (2004) suggests that competition is "A social process that occurs when rewards are given to people for how their performance compares with the performances of others during the same task or when participating in the same event." This involves an outcome (competitive) goal orientation of comparing performance to others and defeating them. On the other hand, cooperation can be defined as "A social process through which performance is evaluated and rewarded in terms of the collective achievement of a group of people working together to reach a particular goal" (Coakley, 2004). This definition suggests that cooperation involves

individuals helping each other towards a common goal, and receiving a shared reward for their efforts.

Triplet (1898) conducted the earliest known experiment on the effect of competition on performance. Participants were cyclists, who were instructed to ride alone with a pacer that recorded time, or in competition with another racer, who rode with them. Results found that cyclists were faster when competing against another racer, than when riding alone with a pacer.

More recently, Deutsch (1949) performed a classic study on the effects of cooperation vs. competition on performance and behavior. Participants consisted of college students, who were instructed to solve a puzzle over a 5 week time span. Participants were divided into two conditions. Participants in condition one were placed in a competitive environment, in which participants were told that the participant in the group that solved the highest number of puzzles would be rewarded. Condition two was a cooperative environment, in which participations were informed that they would be rewarded based on the total amount of puzzles the group solved, in comparison to other groups. Results found that participants in the competitive group were selfish, focused on defeating others, and did not communicate or trust members in their group. While the cooperation group communicated freely, had a better time, shared information, developed friendships, and solved more puzzles than the competitive group!

Similar behaviors of aggression and hostility in competitive environments are commonly seen. For example, the professional football player Jack Tatum (1980) admitted that he deliberately attempted and often succeeded in injuring opposing players, in order to eliminate them from the competition. And today we see drug use rising in many sports, including bodybuilding, largely for the sake of winning. But competition may not be what causes these problems. Weinberg and Gould (2003) suggest that "competition is inherently neither good nor bad. It is neither a productive nor a destructive strategy—it is simply a process." What determines whether competition will be a positive or negative experience for someone is largely dictated by the social environment (i.e. parents, players, coaches, etc.) and the goal orientation of the individual (i.e. competing to have fun or to win).

Sport Psychologists suggest that there is one common thread to the negative influence of competition (McCullagh, 2005). And it can be summed up nicely in the following quote by perhaps the greatest football coach of all time, Vince Lombardi, "Winning is not a sometime thing; it's an all the time thing." Our society is fascinated with winning. As displayed, this leads to numerous unhealthy habits and behaviors. Many will do anything to win, from cheating, to harming others. It also leads to a lack of trust, and hostility between people.

Ways to avoid such detrimental behaviors in competition will be discussed, momentarily; but first, the effect of competition vs. cooperation on performance needs to be investigated further.

Johnson and Johnson (1985) attempted to answer this question through the examination of 122 studies performed between 1924 and 1981, which analyzed various skills such as accuracy and speed tasks. Their findings were consistent with the work of Deutsch (1949). 65 studies indicated that cooperation produced greater performance than competition, and only 8 studies contradicted this. Further, 108

studies indicated that cooperation produced greater performance than working individually, with only 6 studies contradicted this.

Now, it needs to be understood that it is not competition that is harmful. Rather, it is the focus our society has on winning at all costs that is harmful. In fact, competition can be a wonderful thing that is not only fun, but entertaining. It can also facilitate goal setting through a structured environment. Athletes commonly note that competition motivates and inspires them, such as when Ronnie Coleman goes head to head against Jay Cutler. For example, writer James Michener states that (1976):

I am always on the side of healthy competition. I love it. I seek it out. I prosper under its lash. I have always lived in a fiercely competitive world and have never shied away. I live in such a world now and I would find life quite dull without the challenge.

Lastly, in reality, numerous of our sport settings, and real life settings involve competition. So it is practically inevitable to avoid in our society. However, it does not, and should not be altogether avoided. What should instead be focused on is the structure of sports. There are several ways coaches can facilitate a cooperative, friendly environment for their athletes. The following paragraphs will discuss such methods, based on the research of various Sport Psychologists (McCullagh, 2005; Weinberg & Gould, 2003; Orlick, 1978).

In a sport where there is a competitive end, such as basketball, you can reinforce cooperative means during practice, such as emphasizing sharing the ball, instead of being a ball hog.

In individual sports, such as bodybuilding, coaches can reinforce athletes for working together and helping each other through feedback on their bodies, giving spots in the weight room, and giving dieting and training tips. A good example of cooperative means to reach individual ends is Arnold Swarchenegger and Franco Colombo. These two athletes trained together, motivated each other, and helped each other to achieve monstrous bodies. Arnold won 7 Mr. Olympia Titles, while Franco won 3.



Picture of Arnold and Franco

Interestingly enough, this pair can also be used as an example of poor cooperation to reach individual ends. In the movie *Pumping Iron*, Arnold is shown using several psychological tactics to get an advantage over his competitors. In an interview before the contest, he discussed strategies to discourage new comer, Lou Ferrigno. The interviewer countered this by saying his partner, Franco, was much smarter than that, and would not fall for his psychological tricks. Arnold responded with the following quote: "Franco is pretty smart, but Franco's a child, and when it comes to the day of the contest, I am his father. He comes to me for advices. So it's not that hard for me to give him the wrong advices." Arnold, of course, won the contest. But again, this displays how the attitude of winning at all costs can be harmful to people—even close friends.

A method that everyone can use is reinforcing healthy behaviors. Instead of giving one reward to only the winner, coaches can give several. Coaches should reinforce sportsmanship, cooperation, and fair play. Coaches should also support their athletes, and make the sporting environment one where their athletes can achieve success and have fun.

And once again, we must change the winning is all that matters mentality. Players should be encouraged to have fun, give their best, and cooperate with others; while winning should be downplayed. In other words, we should focus on the "agon"—process or means—athletes go through to achieve their results, rather than the outcome. Results indicate that this will not only facilitate healthy behaviors, but it will also enhance performance! For more on proper goal setting, click [Here](#).

For more support for cooperation and proper goal setting, click [Here](#).

With so much evidence supporting cooperative activities, implementing such strategies in a bodybuilders program would seemingly be advantageous. In this context, the purpose of this study was to investigate the benefits of facilitating a

cooperative environment during a 12-week bodybuilding competition called the HYPERplasia Challenge. It was hypothesized that this contest would facilitate friendship, enjoyment, and enhance performance.

The goals of the competitors ranged from losing fat to gaining muscle. Therefore, an important factor to consider was how to manipulate body composition. In this context, Tsai et al. (2003) investigated the effects of creating a 25% caloric deficit through either diet or exercise in 13 participants. Participants were randomized into exercise or diet induced deficit conditions. This was a two phase study. Participants in condition 1, during phase 1 would switch to condition 2 in phase 2. Phases were separated by 5 days of energy repletion. Comparison of exercise and diet induced energy deficit conditions found that the dieting condition lost more weight, than the exercise condition. However, the exercise condition lost more body fat. For the athlete, this provides the benefit of maintaining size while losing more body fat.

However, this does not negate the importance of controlling diet. In this context, Miller, Koceja, and Hamilton (1997) examined the therapeutic effectiveness of diet, exercise, and diet plus exercise for weight loss in obesity. A meta analysis was performed on all human research reported in English, published in peer-reviewed scientific journals within the past 25 years ( $n = 493$  from  $> 700$  studies). Participants ranged from individuals of the age of 40, who were moderately obese, monitored for about 16 weeks, to younger individuals, with lower body fat, over a shorter time span. Results found that weight loss through diet, exercise, and diet plus exercise on average was 10.7, 2.9, and 11 kg, respectively. Further, it was found that at one-year follow-up, diet plus exercise tended to produce greater results. Svendsen, Hassager, and Christiansen (1993) further investigated the effect of exercise added to an energy-restrictive diet in overweight postmenopausal women. 121 healthy, overweight postmenopausal women (age 53.8) were randomly assigned to 3 groups: controls, a 4,200 kJ/d diet, or a 4,200 kJ/d diet with combined aerobic and anaerobic exercise. Results showed that weight loss was similar in diet and exercising plus dieting groups (9.5 kg versus 10.3 kg); however, the diet plus exercise group lost more fat (+7.8 kg versus +9.6 kg,  $p < 0.001$ ), and no lean body mass (-1.2 kg versus -0.0 kg,  $p < 0.001$ ). The diet plus exercise group also significantly increased resting metabolic rate ( $p < 0.009$ ).

Therefore, a combination of both diet and exercise appears to be optimal for changing body composition.

Numerous studies have found that through proper diet, exercise, and supplementation, athletes can lose fat *and* gain muscle at the same time.

For example, Matthew et al. (2001) investigated whether HMB (to learn about HMB, read this, [Beta-Hydroxy-Beta-Methyl-Butyrate—A Comprehensive Analysis](#)) would benefit 70 year old adults undergoing a five day per week resistance training program for 8 weeks. Participants consisted of thirty one men (16) and women (15), who consumed either 3 grams of HMB or 3 grams of a placebo. Results found that HMB tended to increase lean mass gain over the placebo group (+.8 kg of LBM compared to -.2 kg of LBM). HMB also significantly increased the amount of body fat lost over the placebo (-.66 vs -.03 %). There was also a significantly greater decrease in body fat % with HMB supplementation. Panton and others (2000) examined the effects of supplementation of HMB in a resistance training study. The HMB group had greater increases in lean body mass (1.4 vs. .9 kg), and decreased

their body fat to a greater extent (-1.1% vs. -.5%) than the placebo group. Nissen, Panton, Wilhelm, and Fuller (1996) found that body fat significantly decreased and LBM increased when supplementing with HMB. Similarly, Neighbors et al. (2000) found that supplementation with HMB decreased body fat and increased LBM in experienced football players.

Nancy and Price (1994) investigated changes in body composition in 68 women over 30 after a 12-week weight training program. Participants performed 13 exercises, 3 days per week, for 12 weeks. Results indicated that the participants lost a significant amount of fat and gained a significant amount of LBM.

There are several proposed mechanisms by which athletes may gain muscle and lose fat the same time.

One of the most popular theories is the Nutrient Partitioning Hypothesis.

Nutrient Partitioning can be defined as the distribution of ingested nutrients among basal metabolism, growth, tissue maintenance and repair, physical activity, and other forms of energy expenditure and nutrient storage. The goal for a bodybuilder is to partition nutrients away from fat storage, and towards other vital functions such as replenishment of glycogen stores (which is the storage form of glucose, and the predominant source of energy used during high intensity exercise, such as weight lifting).

There are several ways athletes can manipulate nutrient partitioning. Supplements such as HMB have been shown to enhance fat catabolism (breakdown), while concomitantly enhancing muscle anabolism (growth). Certain fats such as [Medium Chain Triglycerides](#) and [Essential Fatty Acids](#) have been found to enhance metabolic rate (increasing the amount of calories you metabolize) and also increase anabolism. And there are many more such like dieting and supplementation strategies discussed in JHR.

Therefore, by consuming certain foods, the athlete can optimize fat oxidation and muscle growth.

Another avenue to influence nutrient partitioning is through exercise.

Wilson (2005) in [The Growth Hormone – IGF Axis and its Role in Muscular Hypertrophy](#) showed evidence that Growth Hormone and IGF-1 are the primary mediators of muscular hypertrophy (growth). He also found evidence that you may be able to maintain local anabolism in the musculature trained, while losing fat at the same time, through manipulation of IGF-1. Here is a quote:

During catabolic states, when muscles are taxed the body adapts by lowering IGF-1 levels, while local IGF-1 levels in the trained musculature increase. This creates systemic catabolism, while maintaining the possibility for local anabolism. Theintz (1993) suggests that this attenuates somatic growth while maintaining muscular adaptation during states of caloric restriction. These hormonal adaptations have been seen in both female gymnasts and wrestlers who enter states of catabolism during weight loss periods, while still

maintaining or adding musculature in the trained regions (Jahreis et al., 1991, Roemmich & Sinning, 1997, Elokim et al., 2005).

Further, evidence suggests that exercise can cause several rerouting effects, in that it promotes fat oxidation in the musculature, and inhibits its uptake and storage in fat tissue. For more information on this, refer to Wilson and Wilson (2005), [Fast Acting Hormones and their Role in Fuel use during Exercise](#).

Therefore, a second purpose of this study was to analyze various physiological adaptations made during a 12-week bodybuilding program. It was hypothesized that by using the advanced training and dieting methods prescribed at ABCbodybuilding.com, many athletes would be able to lose fat and gain muscle at the same time. If this did not occur, it was hypothesized that there would not be a significant decrease in muscle mass, or increase in fat mass among participants. This has extreme implications, as many bodybuilders claim this is a highly improbable event, and therefore, advocate long, strenuous bulking cycles, in which they add large amounts of adipose tissue, followed by long, strenuous cutting cycles, in which they lose large amounts of muscle, in order to shed the unwanted fat gain. The current author suggests that a happy medium between these two extremes would produce greater results.

## **Methods**

### **Participants**

Participants consisted of 10 bodybuilders (9 males and 1 female). Several participants dropped out of the study, due to personal reasons.

### **Apparatus**

The participants trained at their own local gyms, which had various resistance training machines and free weight equipment. The participants recorded their results with a body fat caliper measurement. They recorded their diet, workouts, and progress continually throughout the 12-weeks in the Online Bodybuilding Forum on ABCbodybuilding.com. You can access this forum by clicking [Here](#).

### **Measures**

The participant's performance was measured by body composition. They used 9-point caliper measurements to monitor body fat percentage. The results were based on the first and last measurements taken. To increase the reliability of the measurements, participants were required to list their measurements on the first three consecutive days of the challenge (August 17th-19th) and the last 3 days of the challenge (November 6th-8th) during the same time of the day on each day (i.e. always at noon—this is to assure the highest reliability). These measurements were statistically analyzed, and an average was taken to eliminate outliers.

At the end of the contest, the participants were interviewed. The interview was used to measure whether or not the contest was successful in its goal to facilitate cooperation and enjoyment for the participants.

### **Procedure**

The contest lasted a total of 12-weeks from August 17<sup>h</sup> to November 8<sup>th</sup>. Participants were referred to the following article for instructions on how to compete in the event, [The HYPERplasia Challenge](#). Within, rules and guidelines were listed.

The participants were divided into male and female competitions, and bulking and cutting competitions. The goal of the bulking challenge was to maximize muscle gain, while minimizing fat gain, or optimally, losing fat. While the goal of the cutting challenge was to maximize fat lose, while minimizing muscle lose, or optimally, gaining muscle. Therefore, a weighted scale was used for each contest. The cutting challengers were rewarded 1.5 points for every pound of fat lost, 1 point for every pound of muscle gained, and -1 point for every pound of muscle lost. The bulking contestants were rewarded 1.5 points for every pound of muscle gained, 1 point for every pound of fat lost, and -1 point for every pound of fat gained.

Participants were informed that they would be rewarded with several prizes for winning the competition. However, it was emphasized that all participants would greatly benefit from the competition in that they would receive personal assistance from the local credentialed scientists on ABCbodybuilding.com, would receive the gratification of seeing their bodies transform over a 12 week period of time, and their data would be used to further the scientific body of knowledge through this article. The participants were not shown this article and were told little detail about the purpose of the study until after the contest.

The participants were shown where they ranked in order from first to last during the half way point of the competition. At the end of the 12-weeks, the current author collected the data, and then posted the winners for everyone to see.

### **Interventions**

The conductors of the experiment continually encouraged the competitors, and offered assistance through many avenues, including through personal emails, and on the online forums.

The current author created a thread where he offered his personal assistance to any contestant who needed help. Within this thread, participants would ask questions, and he would answer them based on scientific evidence.

When it was seen that the contestants had healthy behaviors, such as supporting members, or had a mentality which focused on improving themselves, rather than focusing on the outcome of winning, the investigators reinforced the participants.

For example, one of the male participants, Njari, stated that, "Honestly, I only set out to meet my personal goals, and there's still a chance I might be able to do that. I'm shedding lots of water this week, which will strongly skew my lbm (and therefore my points). I suspect this will return to normal once my creatine arrives." In

response to this, the current author stated, "That is a great mentality, Njari! Evidence suggests that type of mind-set is great for performance and motivation." The female contestant, littleamazon, responded by saying, "I do the same thing but sometimes, some competitiveness helps increase determination and focus on monitoring performance and other variables. Like, thanks to the HPC, I have been monitoring my diet and workouts more closely." This showed the benefits of both competition and performance and process oriented goals.

Conversely, when a competitor showed a mindset that focused on the outcome, the experimenters intervened, and attempted to sway the participants thinking. For example, the participant Roz stated that:

Hey Venom, need some advice here. Well I haven't been putting on the weight like I wanted to since I started the challenge. According to the scale I've only gained one pound but I've definitely got a lot bigger which is a bit odd to me. Anyways what I'm asking is do you think it would be wise to increase my calories and put on some good mass and risk loosing the competition by putting on too much fat? but it seems to me like that is the only way I'm going to get some good weight going. And if i put on this weight, id be going body fat hence, losing chances at winning this competition? But then again if I haven't put on the weight already my chances at winning this competition are almost already over. Thanks

In response to this, the current author (Gabriel "Venom" Wilson) stated:

Hi Roz!

The first thing I highly recommend doing is altering your mindset. It sounds like you are basing everything on winning this competition, and that is not optimal for performance or motivation. Read this recent post I made, [here](#).

So I advise taking a mastery goal orientation, and just focus on what is optimal for you and improving yourself.

You should assess what goals you want according to your own desires and not just this challenge. If your goals are to gain mass and keep fat gain to a minimum that can certainly be done.

Weight is not an accurate measure of body comp. So I would not put too much into the scale.

But yes, adding more calories is definitely an option. But there are many more. Including manipulating your macronutrients.

As for gaining fat, if you make slow proper adjustments, this can be minimized or eliminated, depending on your metabolism.

The first thing I will need to do is check out your diet. When you have time, make a post of what your current diet is (include a sample day of what you eat, your calories and macros) as well as your supplements (in your journal

and not here—I want to keep this thread as economical as possible). Then, we can analyze your training program etc.

In response to this, Roz stated:

Thanks so much Venom

After reading your post I finally realized what I need to do to reach my goals and not necessarily win this competition. My goals now are more important than winning this challenge and ill now be more focused on that. Your post really saved me. Thanks for the advice. I'm glad I got another perspective on this. Thanks again.

In response to this, Venom encouraged him and reinforced his new mindset.

The participants were also strong advocates and followers of many of the scientific methods prescribed on ABCbodybuilding.com, and its scientific journal, the Journal of HYPERplasia Research. This scientific guidance provided for the participants was hypothesized to facilitate optimal fat loss and muscle gain.

Finally, before the results were announced, the current author stated that they were all winners, and was proud of all of them for their efforts.

### **Results**

The winners of the female cutting challenge, and male bulking and cutting challenges were Littleamazon, Damien Voorhees, and leviagra151, respectively (Table 1; Figures 1 & 2).

Participants in the male bulking challenge gained a significant amount of LBM (+16.2 lb on average; Table 2); however, their body fat did not significantly change (Table 3). Though, there was slight trend for fat mass to increase (+1.1 lb on average).

Participants in the male cutting challenge lost a significant amount of body fat (-12.9 lb on average; Table 3); however, they did not gain a significant amount of LBM (Table 2). Though, there was a trend for LBM to increase (+3.76 lb on average).

### **Interviews**

Interviews with the contestants can be viewed by clicking [Here](#).

The interviews indicated that contest facilitated friendship, enjoyment, and cooperation.

## **Discussion**

A large volume of evidence suggests that cooperative activities produce greater results than competition. Implementing such strategies in a bodybuilders program would seemingly be advantageous. In this context, the purpose of this study was to investigate the benefits of facilitating a cooperative environment during a 12-week

bodybuilding competition called the HYPERplasia Challenge. It was hypothesized that this contest would facilitate friendship, enjoyment, and performance.

Based on the interviews of the contestants, this hypothesis was supported. The contestants reported that they enjoyed the challenge, developed and strengthened friendships, and that people were very cooperative and helpful with each other.

The evidence from this study suggests that the HYPERplasia challenge may be used as a template to develop successful competitions in the future.

The goals of the competitors ranged from losing fat to gaining muscle. Therefore, an important factor to consider was how to manipulate body composition. The review of related literature revealed that a combination of diet and exercise would result in optimal body composition changes. Further, it appears that through nutrient partitioning techniques, athletes may be able to lose fat and gain muscle at the same time. It was therefore hypothesized that by using the advanced training and dieting methods prescribed at ABCbodybuilding.com, many athletes would be able to lose fat and gain muscle at the same time. If this did not occur, it was hypothesized that there would not be a significant decrease in muscle mass, or increase in fat mass among participants. This has extreme implications, as many bodybuilders claim this is a highly improbable event, and therefore, advocate long, strenuous bulking cycles, in which they add large amounts of adipose tissue, followed by long, strenuous cutting cycles, in which they lose large amounts of muscle, in order to shed the unwanted fat gain. The current author suggests that a happy medium between these two extremes would produce greater results.

The research hypothesis was partially supported.

Participants in the male bulking challenge gained a significant amount of LBM (+16.2 lb on average); however, their body fat did not significantly change. Though, there was slight trend for fat mass to increase (+1.1 lb on average). This suggests that bodybuilders can gain a substantial amount of LBM without adding a significant amount of body fat.

Participants in the male cutting challenge lost a significant amount of body fat (-12.9 lb); however, they did not gain a significant amount of LBM. Though, there was a trend for LBM to increase (+3.76 lb on average). If the sample size was larger, this would have quickly reached a level of significance. These results suggest that a bodybuilder can lose a substantial amount of fat, and not lose any muscle mass, and may actually add some.

Because there was only one female participant, it was not possible to analyze gender differences.

### **Practical Applications**

The findings in this article lead to several methods a bodybuilder may consider implementing in their training program. The following paragraphs will convey several practical methods.

#### **Competition vs. Cooperation**

A substantial amount of evidence suggests a cooperative approach is superior to competition. This was supported in the current study. As the King Solomon said:

**Ecclesiastes 4:9-12**

9 Two are better than one; because they have a good reward for their labour.  
10 For if they fall, the one will lift up his fellow: but woe to him that is alone when he falleth; for he hath not another to help him up. 11 Again, if two lie together, then they have heat: but how can one be warm alone? 12 And if one prevail against him, two shall withstand him; and a threefold cord is not quickly broken.

There are several ways to promote cooperation. Here are some tips:

- In a sport where there is a competitive end, such as basketball, you can reinforce cooperative means during practice, such as emphasizing sharing the ball, instead of being a ball hog.
- In individual sports, such as bodybuilding, coaches can reinforce athletes for working together and helping each other through feedback on their bodies, giving spots in the weight room, and giving dieting and training tips.
- A method that everyone can use is reinforcing healthy behaviors. Instead of giving one reward to only the winner, coaches can give several. Coaches should reinforce sportsmanship, cooperation, and fair play. Coaches should also support their athletes, and make the sporting environment one where their athletes can achieve success and have fun.
- We must change the winning is all that matters mentality. Players should be encouraged to have fun, give their best, and cooperate with others; while winning should be downplayed. In other words, we should focus on the "agon"—process or means—athletes go through to achieve their results, rather than the outcome. Results indicate that this will not only facilitate healthy behaviors, but it will also enhance performance!

**Nutrient Partitioning**

Many bodybuilders advocate long, strenuous bulking cycles, in which they add large amounts of adipose tissue, followed by long, strenuous cutting cycles, in which they lose large amounts of muscle, in order to shed the unwanted fat gain. The evidence from the current study suggests this may not be necessary.

By following the scientific methods prescribed on ABCbodybuilding.com, the participants in the bulking challenge were able to gain an incredible 16.2 lb of LBM on average, and did not gain a significant amount of fat. This means that bodybuilders can gain muscle, and not have to worry about going on a cut for months, in which they end up losing a great deal of muscle that they worked so hard for, because they must revert to extreme methods. And even if they don't lose muscle during their cut, they have to go through the mental depression of being fat from their bulks, and instead of spending those months gaining more muscle, they must spend it losing fat mass. This study clearly suggests that if a bodybuilder uses proper dieting and training principles, they do not have to revert to eating unhealthy foods such as KFC everyday, and can still get fantastic results.

The participants in the cutting challenge were able to lose a whopping 12.9 lb of fat on average, and did not lose a significant amount of muscle. In fact, there was a trend for LBM to increase (+3.76 lb on average). This no doubt would have reached a level of significance with a larger sample size. Therefore, bodybuilders can lose a substantial amount of fat without reverting to muscle wasting starvation diets.

The current study supports going on clean bulks, and realistic cuts, instead of dirty bulks and starvation diets.

Future research can be done on the optimal amount of calories that should be ingested by an athlete. Often times, bodybuilders consume thousands upon thousands of calories above maintenance. But is this really beneficial for adding more lean body mass? That is certainly a question to be investigated. But the current study suggests you do not have to revert to these extremes to get excellent results.

Keep it Hardcore,

Venom

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## Tables

Table 1

*Summary Statistics of Lean body Mass (LBM) and Fat gained or lost, and Points Achieved*

Contestants	Fat Lost/Gained lb	Muscle Lost/Gained lb	Points Achieved
<b>Male Bulking Challenge</b>			
Damien Voorhees	-7.98	+24.48	44.7
Steakzilla	+5	+20	25
q22weasel	+4.68	+11.32	12.3
Hells Fire	+2.8	+9	10.7
<b>Male Cutting Challenge</b>			
leviagra151	-13.55	+8.35	28.675
Sucramdw	-18.7	-.28	27.8
Tarheelsykes	-17.65	-.35	26.12
TForce	-7.29	+9.29	20.22
Njari	-7.3	+1.8	12.75
<b>Female Cutting Challenge</b>			
Littleamazon	-5.16	+ 5.86	13.6

Table 2

*t-test Comparison of LBM Before and After Competition*

	Male Bulking	Male Cutting
t Stat	-4.54	-1.78
P(T<=t) two-tail		
Significant		
5 % level	0.02	.15
t Critical two-tail	3.18	2.77

Table 3

*t-test Comparison of Body Fat Before and After Competition*

	Male Bulking	Male Cutting
t Stat	-1.78	5.27
P(T<=t) two-tail		
Significant		
5 % level	.14	.006
t Critical two-tail	2.77	2.77

### Figure Captions

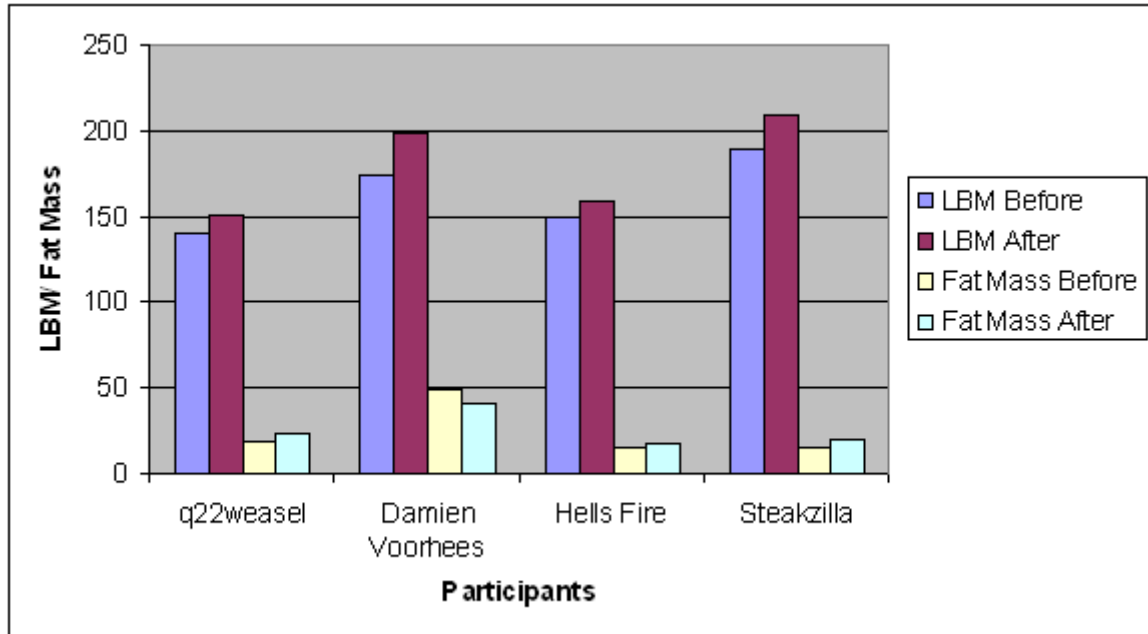


Figure 1

*Male Bulking Challenge Data: Body Fat Mass and LBM Before and After Challenge*

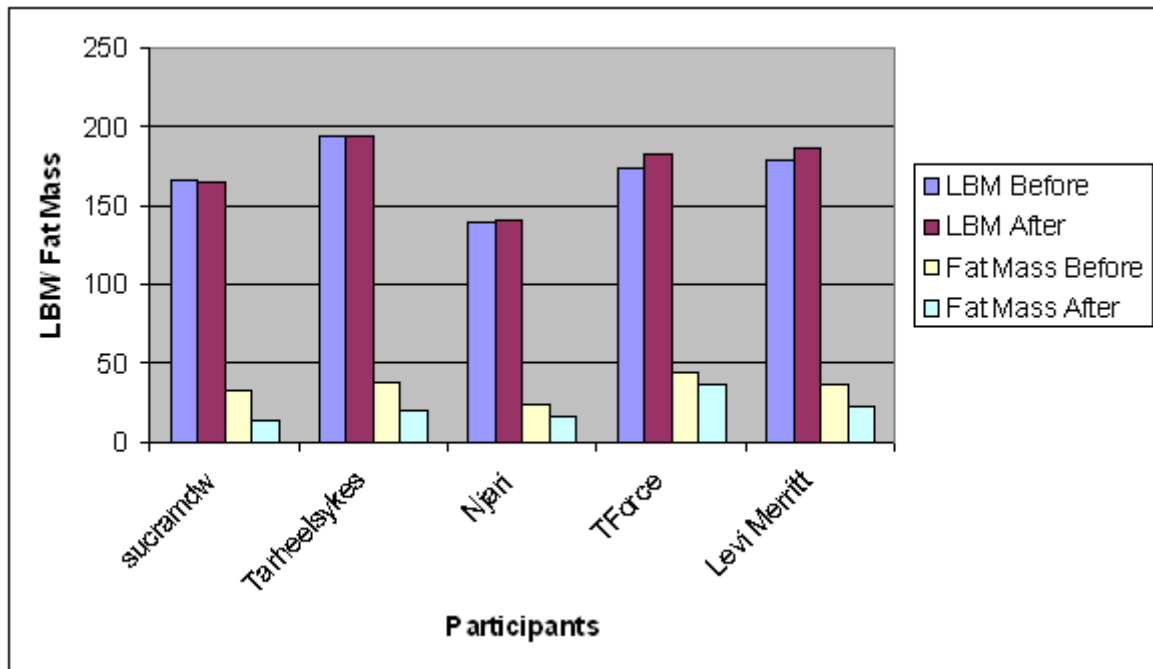


Figure 2

*Male Cutting Challenge Data: Body Fat Mass and LBM Before and After Challenge*