

Dwight White

Professor Linda Mingo

LAN151 Research & Writing

Final: Research Paper

Oct. 11, 2014

Lean Mean Machine

Building lean muscle can be the difference between being in a wheel chair and walking on your own strength. It could be the thin line between playing with your grandkids and simply watching your grandkids play. It is saddening to say, but constructing lean muscle can be a matter of life or death. Lack of lean muscle makes people more vulnerable to disease and lessens the ability to heal (Shilstone). Another reason lean muscle is imperative is because it provides more energy and keeps people fully functional. Furthermore, personal appearance is another obvious reason for building lean muscle. Not only will you feel better but you will also look better. Lean muscle will give you the physique you always wanted. The body becomes trimmer because muscle takes up a third of the space that fat occupies. To discover the most effective method for building lean muscle we will explore eating habits, calisthenics, managing hormones, supplements, and weight training.

The first step in acquiring lean muscle is eating healthy. Eating to acquire lean muscle is a three part plan. It includes eating the right foods, eating the appropriate number of times per day, and eating at the most beneficial times of the day. If the proper foods are not consumed it

will eradicate every minute of work in the gym. Some people starve themselves to shed unwanted fat and that is a huge mistake. Eating healthy grants the body with the fuel it needs to perform at an optimal level. However, skipping meals will cause the body to break down muscles to obtain the fuel it requires to operate efficiently. Consequently, it is imperative to eat and eat the right food in order to build lean muscle (Shilstone 27). Certain foods have a positive influence on building lean muscle. Eggs and beef are two examples of food that are rich in protein, and important for adding lean muscle. Proteins are like vitamins for your muscles (Muscle and Strength). Nonetheless, food does not directly build protein. When people talk about building lean muscle, they are really talking about building the components of the body that are supported by amino acids. As food is consumed it builds amino acids, and amino acids make up proteins. Amino acids support cell structure in muscles, internal organs, and red blood cells. It takes twenty-two amino acids to make up a protein. Some food can almost make a complete protein when eaten. In addition, some foods have the ability to make types of protein that our bodies cannot make on its own. Proteins helps build, maintain muscle, and repair muscles (Muscle and Strength). Because of all these factors, proteins are referred to as the building blocks of muscle. However, the effectiveness of proteins was not unanimous. According to link.springer.com, many experts are critical when it comes to protein. On the other hand, beets are also eaten to increase strength and power. Brown rice will produce fat loss, provide energy, and boost human growth hormone (Muscle & Strength). Forming lean muscle may call for a change in diet for some people; however, a change in diet does not automatically

mean fewer calories. The traditional three meals a day goes out the window and five or six meals a day are recommended (Shilstone 127). Eating more frequently but smaller meals will help speed up your metabolism. A faster working metabolism leads to more energy to work out and build muscle. The last step to eating to get lean muscle is, timely eating. It is a good idea to eat something as close to waking up as possible, to kick start the metabolism. It is an even better idea to eat while working out. Not a full-course meal, but rather some fruit or an energy bar. These eating habits will help decrease muscle depletion while working out, and assist with recovery time. Moreover, The Journal of Nutrition supervised a study to determine how protein and calcium would effect lean body muscle. Ninety participants were placed into three random groups; group one received high protein and high dairy (HPHD), group two received adequate protein and medium dairy (APMD), group three received adequate protein and low dairy (APLD). The HPHD group accumulated more body mass over a sixteen week period than any other group. Therefore, indicating that eating food with higher protein and dairy makes more lean body mass. Ultimately, forming the correct eating habits is as important as working out, and will be the difference in how fast you get the body you want.

Another method for building lean muscle is doing calisthenics. Calisthenics are repetitive exercises that use the resistance of your own body weight to build strength and burn fat. The keys to getting lean muscle through calisthenics are variation and technique. For example, when doing pushups the goal may be to do one-arm pushups, but to reach that goal you will need some variation. The body will adjust to doing the same exercise; therefore the trainee should not just

do regular pushups with the expectation of one day being able to do one-arm pushups. Instead, the trainee must add some variation to their routine. The trainee can do close pushups, then uneven pushups, and then the clap pushups as each exercise is mastered. This is called progressive calisthenics (Bodybuilding). In order for calisthenics to be most effective, the trainee must progressively challenge him or herself. An additional reason for doing calisthenics is because of the wide range of choices it presents. The trainee can join aerobics classes, bike classes, or even dance classes. Calisthenics will have a huge impact on the journey to becoming a lean mean machine. Another reason for doing calisthenics is that it causes significant amounts of weight loss, which allows muscles to be lean and not bulky. Therefore, calisthenics increases the heart rate, decreases fat, and forms lean muscle. An additional cause for doing calisthenics to build lean muscle is the impression it will have on your metabolic rate. Calisthenics will trigger a boost in your resting metabolic rate, which will allow you to burn calories while at rest. Calisthenics also offers some benefits over weight lifting, or can serve as a nice change of pace. In comparison to weight training, calisthenics are a lot easier on the joints. As a result, calisthenics are safer because of the limited amount of stress on the body. Because calisthenics only uses body weight, it will never put more strain on the body than it can handle. The decreased amount of wear and tear provides a change in routine. In other words, calisthenics can be a break from weight lifting. Pushups, dips, and chin-ups are calisthenics that will rapidly develop lean muscle. Running and jogging are better for cutting fat. Convenience is the last reason to do calisthenics. You do not have to join a gym to do calisthenics. There are no protein

shakes, or weight loss pills involved with doing calisthenics. All that is needed to do Calisthenics is space. Calisthenics will not hurt your muscles or pockets, but they will do the trick.

Unfortunately, calisthenics by itself may not allow for timely results. Yet, when included in a plan to build lean muscle, they will do just fine.

Managing your hormones is a little known aspect of building lean muscle. Younger people normally have higher hormone levels. In addition, youth's possess a lower body fat composition, which allows their hormone levels to be higher than older people do. With this, most people gain weight and become less active as they age. For these reasons, managing your hormones needs to be a part of the trainee methodology to obtaining lean muscle if you do not consider yourself young. Consequently, action must be taken to stop this downward trend. The issue is finding ways to produce human growth hormones and insulin. These hormones have the most influence on the body's ability to make lean muscle. The optimal way to increase these hormones is high intensity training and performance nutrition foods (Lean and Hard). Managing your hormones will be another step in the direction towards getting the body you desire.

Many studies have been performed on supplements and the results vary depending on who administers the study. The Journal of the International Society of Sports Nutrition, cite that creatine monohydrate (CM) as the most effective nutritional supplement for increasing the capacity to gain lean muscle. They also claim CM is not only safe but also beneficial for preventing injuries. There is no scientific evidence that using CM can be detrimental. No other supplement has been studied more, and revealed to have a higher propensity to increase high-

intensity training, which will lead to more lean muscle. Nearly seventy percent of the studies compiled on CM conclude an improvement in exercise capacity. CM provides energy for continuous high-intensity training, quick recovery time, and allows for fast results. Conversely, anecdotal media reports have alleged that CM usage is dangerous and unnecessary. The accusations against CM are that the muscle development comes from water retention and it has side effects. CM can cause possible renal distress, cramping, and dehydration.

The Journal of Clinical Endocrinology and Metabolism also conducted a study on how to build lean muscle. They maintain that via testosterone lean muscle can be gained in the most effective manner. To back up their assertion they organized a study. A therapist gave thirteen non-athletic men two-hundred mg per week of testosterone for a six month period. These men saw almost a ten percent spike in lean muscle. The American Journal on Addiction agrees with the positives, but also cites some negatives about supplements (Young). Their belief is that too much of this supplement can cause physical change, psychological disturbances, and morbidity (Millan and Ross).

Weight lifting is probably the most popular method for gaining lean muscle mass. In an online article entitled, *A comparison of strength and muscle mass increases during resistance training in young women*, nineteen women were studied to see how quickly they would gain strength and muscle. Ten women performed upper and lower body exercises all on the same day for two days out of the week. The remaining nine used four days. They took two days for upper body and two days for lower body. The study only lasted ten weeks, which is not a long enough sample to

show significant changes in lean muscle. Conversely, the first group displayed early signs of increased strength. The early gains in strength may be due to adaptations within the nervous system such as increased motor neuron activation and motor unit synchronization: when group one did their weight lifting exercises they focused on utilizing one joint at a time. The article suggests that more complex weight lifting exercises play a dominant role in training. Complex exercises that involve movement at more than one joint will cause a delay in hypertrophy. In this context, hypertrophy is the process that cells and muscle fibers go through which leads to muscle growth. Furthermore, the females in the study who trained with single joint exercises, showed earlier signs of hypertrophy, and as they got stronger, the workout intensified. Their quadriceps experienced a 5.6-6.6% increase and their upper arms increased 5.4-7.9% in muscle mass (Chilibeck 170-172). The simple weight lifting exercise they did was leg and bench press. To summarize, their belief is weight lifting that isolates particular muscles will cause lean muscle quicker than complex weight training. Other sources such as physical trainers, give a less scientific approach to gaining lean muscle; doing high reps seems to be the consensus from physical trainers. According to Dennis Phillips, it does not necessarily have to be low weight as most trainers believe but the reps should total approximately twenty reps. He favors the weight lifting machines because they target specific muscles. What's more, he attributes his success to an evolving routine. His suggestion is that the trainees switch up their training regimen every three months, because muscles have the capability to adapt to the same routine. As a result, once you have mastered a routine it is time to switch it up to present a new challenge. Phillips also

stated that there should be minimal time elapsed in between reps; within three minutes your body regains all the energy it can without an extended rest. Inside one minutes your muscles receives seventy two percent of its strength; therefore, stimulating and fatiguing the muscle will grant the best method for building lean muscle (Lean and Hard). Furthermore, author Shilstone Mackie has adopted the methodology of high intensity interval training as the most effective routine for forming lean muscle. In addition, he recommends the igniting of two systems, the ATP-CP system and the lactic acid system. The ATP-CP system is responsible for explosive power that can last for eight to ten seconds. The lactic acid system comes into play for activities that cover up to ninety seconds within a trainee's workout. Mackie alleges that rapid interval training will activate three phosphate molecules in the ATP-CP system. These molecules will disburse a high level of energy and without this energy your muscles will not be able to contract. Moreover, exercises lasting thirty to ninety seconds use the lactic acid system. The slight irritation caused by the accumulation of lactic acid in the tissues is one of the stimulating mechanisms that causes the body to create greater lean muscle by building itself back up (Lean and Hard).

Overall, there are a variety of ways to build lean muscle. Machines can help isolate any particular muscle. Calisthenics are convenient, can provide a change of scenery, and are less of a strain on the joints. Supplements also have their place in the hemisphere of shaping lean muscle. Although, supplements may be the leading candidate for enhancing lean muscle trainees should proceed with caution. Managing your hormones and weight lifting also play a vital role in the quest for building lean muscle. Trainees must not forget to feed their muscles. To grow muscles

you must plant the seed of protein. Every method for building lean muscle has pros and cons; as a result, it is up to the trainee to decide what method suits them. Growing lean muscle can be burdensome, but the rewards are well worth it. Inescapably, if you want to build lean muscle the most effective way is to live a lifestyle that is exemplary of what you want.

Annotated Bibliography

Body Building. Body Building LLC. 2014. Mon. 14 Oct. 2014.

This is a new and innovative website. Plenty of popular body builders stand by this website. You can get all the information you need about building muscle from people who have done it from experience.

Chilibeck, Philip D., Aaron W. Calder, Digby G. Sale, Colin E. Webber. "A comparison of strength and muscle mass increases during resistance training in young women".

PubMed. 1997. Sat. 01 Nov. 2014.

This article offers a large amount of profitable information. It also included a list of references, which is imperative when citing a source. Author Chilibeck has written several articles on creatine, which leads one to believe his work is dependable.

International Society of Sports nutrition position stand: creatine supplement and exercise.

Josse, Andrea R. Stephanie A. Atkinson. Mark A. Tarnopolsky. Stuart M. Phillips. Increased Consumption of Dairy and Protein. "The Journal of Nutrition". Volume 141. Issue No. 9.

Google Scholar Citations. Web. Fri. 31 Oct. 2014.

This Journal has the support of the Dairy farmers of Canada, the Dairy Research Institute, and the Canadian Institute of Health Research. The journal has shown some stability. It has been in existence since 2011.

Journal of the International Society of Sports Nutrition. 30 August 2007. Web.

This appears to be a very creditable source, because they included their contradictors comments. Their willingness to display the alleged negatives about their research exemplifies their confidence. This journal is also very familiar with these types of studies. This is an area of expertise for the Journal of the International Society of Sports Nutrition.

Mackie, Shilstone. *The Body You've Always Wanted in Just 12 Workouts. Lean and Hard.* New Jersey. John Wiley and Sons Inc. 2007. Print.

Lean and Hard is an online book that comes highly recommended. Their training techniques are cutting edge. This book is published locally and therefore easily contacted. Shilstone Mackie is known as a premier sports performance manager and fitness expert. He has over twenty-five years of experience in the physical training. Shilstone Mackie has worked with over three-thousand athletes.

Millman, Robert B. Emil J. Ross. "Steroid and Nutritional Supplement Use in Professional Athletes". *The American Journal on Addictions.* 2003. Abstract. Google Scholar Citations. Thurs. 30 Oct. 2014.

This journal cited its material, which is always a good sign of a reputable citation.

Publishers Taylor and Francis are very knowledgeable in health care journals. Author Robert Millman had been in the medical field for forty-nine years as a psychiatrist. He has also wrote at least three other similar articles. The experience of the authors and publishers makes this article very trustworthy.

Muscle and Strength. Muscle and Strength LLC. 2005. Mon. 14 Oct. 2014.

Young, N.R. H.W. Baker. G. Liu. E. Seeman. "Body composition and muscle strength in healthy men receiving testosterone for contraception". *The Journal of Clinical Endocrinology and Metabolism*. 2013. Sat. 01 Nov. 2014.

This journal received nothing but the highest accolades in its reviews. Authors are allowed to submit manuscripts, but the manuscript must fit the journals strict criteria. Then it is placed under heavy review before being approved. This is a thorough journal.

Work Cited

Building. Body Building LLC. 2014. Mon. 14 Oct. 2014.

Chilibeck, Philip D., Aaron W. Calder, Digby G. Sale, Colin E. Webber. "A comparison of strength and muscle mass increases during resistance training in young women".

PubMed. 1997. Sat. 01 Nov. 2014.

Josse, Andrea R. Stephanie A. Atkinson. Mark A. Tarnopolsky. Stuart M. Phillips. Increased Consumption of Dairy and Protein. "The Journal of Nutrition". Volume 141. Issue No. 9.

Google Scholar Citations. Web. Fri. 31 Oct. 2014.

Journal of the International Society of Sports Nutrition. 30 August 2007. Web.

Mackie, Shilstone. The Body You've Always Wanted in Just 12 Workouts. Lean and Hard. New Jersey. John Wiley and Sons Inc. 2007. Print.

Millman, Robert B. Emil J. Ross. "Steroid and Nutritional Supplement Use in Professional Athletes". The American Journal on Addictions. 2003. Abstract. Google Scholar

Citations. Thurs. 30 Oct. 2014.

Muscle and Strength. Muscle and Strength LLC. 2005. Mon. 14 Oct. 2014.