PREMIUM PERFORMANCE TRAINING INC.

Health & Fitness Newsletter

VOLUME 8, ISSUE 2 MARCH/APRIL 2017

PREFACE

This is a bi-monthly publication of Premium Performance Training Inc. aimed at providing general information regarding current health and fitness trends.

Quote to Remember:

"It's easier to wake up early and workout than it is to look in the mirror each day and not like what you see"

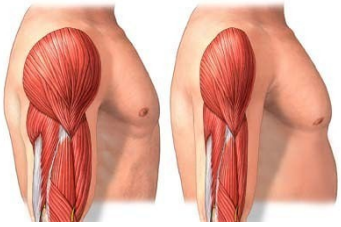
- Jayne Cox

INSIDE THIS ISSUE:

Building Muscle - The Science Behind Muscle Growth

There are two stereotypical reasons why people use the gym: to lose weight or build muscle. However, despite muscle building is one of the fundamental reasons why many people workout, very few persons truly understand the physiological chain of events which results in muscle growth. Subsequently, some of the best methods to enhance, or mistakes to avoid, to maximize your muscle building potential are not known by many gym users.

The Physiology of Muscle Growth



The muscle growth process begins with a stimulus to your muscles, (your workout/training session) which results in small tears in the muscle fibers of the affected muscles. Your body then repairs or replaces the damaged muscle fibers through the activation of 'satellite cells'. Satellite cells are usually dormant but are activated when the muscle fiber receives any form of trauma, damage or injury. When activated these cells multiply, and the daughter cells are drawn to the damaged muscle site, where they fuse and bind to the existing muscle fibers, forming new muscle protein strands (myofibrils). This satellite cell activation and proliferation period lasts up to 48 hours after the trauma has occurred, and the addition of these new myofibrils during the repairing process results in the increased thickness and number of myofibrils in the muscle and results in muscle growth. The effectiveness of this process can be impacted by different factors which would result in varying levels of muscle repair (and subsequent muscle growth) as muscle growth can only occur when; (1) the rate of protein synthesis is greater than the rate of muscle protein breakdown, and (2) your body is rested as this provides the opportunity for your body to ensure the physiological changes and adaptations can be performed and completed fully.

Continues on Page 4

Shapely Legs & Glutes Workout

Almost every woman's goal is to have nice shapely, toned legs and glutes. Below is a leg workout which you can incorporate into your normal weights routine to help tone and sculpt your lower body.

General Workout Notes:

- Warm up for 5 minutes on any cardio machine before beginning the workout
- Perform one warm up set for the Leg Press, Leg Extensions and Straight Leg Deadlift exercises before beginning their listed number of sets
- After completing the workout, cool down with 5 minutes on any cardio machine followed by stretching

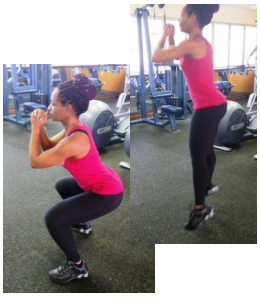
Leg Press

Leg Extensions (Single leg)

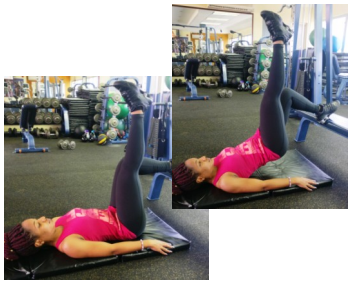
Dumbbell Straight Leg Deadlifts

Exercise	Sets	Reps
Leg Press (leg positioning — wider and higher on the plate)	5	20
Leg Extensions (Single leg)	4	15
Dumbbell Straight Leg Deadlifts	4	15
Pulsing Squats (PS) superset with Jump Squats (JS)	3	20 (PS) & 15 (JS)
Single Leg Hip Thrusts Off Bench	3	20
Walking Lunges	2	50

Pulsing Squats



Jump Squats



Single Leg Hip Thrusts Off Bench

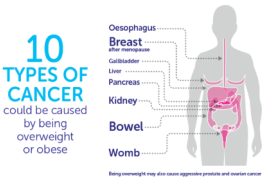
Walking Lunges

Ask Yourself Answers

1. **True**
2. **True**
3. **False - Your left lung is smaller than your right lung**
4. **False - Your biceps is comprised of two heads but your triceps is comprised of three heads**
5. **True**

Research the Facts

Obesity & Cancer



Cancer is caused by genetic errors in protein synthesis that result in abnormal cell growth that often spreads to other parts of the body. Normally, cells can correct sequencing errors in DNA. Cancer occurs when these 'fail-safe' mechanisms don't work right. Obesity interferes with intercellular signaling that triggers genetic errors in protein synthesis and abnormal cell development. Anabolic hormones such as insulin and IGF-1, which increase with obesity, enhance the early stages of cancer development. Cancers of the esophagus, liver, kidney, breast, gallbladder, pancreas, prostate, ovary and uterus are particularly sensitive to metabolic changes triggered by obesity. Fortunately, even modest weight loss can improve metabolism and reduce the risk of these cancers.

(The Scientist, November 2015)

Vitamin D Is Essential for Lean Muscle and Strength

Low Vitamin D levels are linked to poor bone health, muscle weakness, deficiencies in reproductive hormones, low aerobic capacity and increased body mass index. A review of literature by Stephane Walrand from the University of Auvergne concluded that vitamin D is essential for building muscle strength and muscle mass in older adults, and that supplements could benefit people of any age. Vitamin D is synthesized in the body in a reaction involving sunlight. It can also be consumed in the diet by eating fatty fish, mushrooms and supplements. Supplements work best in people who are vitamin D-deficient and those over 65.

(Geriatrie et Psychologie Neuropsychiatrie du Vieillissement, published online April 21, 2016)

Exercise is the Best 'Smart Pill'

Even moderate physical activity can improve brain health and function, and may delay the decline in mental performance that occurs with age. Exercise has been shown to improve the ability to learn, remember, think and reason. It can overcome the negative effects of a poor diet on brain health and promotes the creation of new nerve cells (neurons) in the brain and throughout the nervous system. Exercise increases brain levels of brain-derived neurotrophic factor (BDNF), which helps brain cells grow, strengthens the synapses that connect neurons and improves brain function, and, therefore, enhances the nervous system's ability to change and adapt. Exercise also has a protective effect on the brain as people age, helping to delay, or even prevent, the onset of neurodegenerative disorders such as Alzheimer's disease.

(Journal Exercise Rehabilitation, 12(3): 156 - 162, 2016)

Post Injury Nutrition Important For Optimal Healing

Athletic injuries pose severe metabolic challenges to athletes. According to June Kloubec and Cristen Harris from Bastyr University in Washington a healthy diet is essential for optimal healing. Athletes should consume enough calories to promote healing and fuel the 15% - 20% increase in metabolic rate that accompanies injuries. Caloric intake should be less when training intensely but more than when sedentary. Recovering athletes need more protein than normal - at least 1.5 - 2.0 grams of protein per kilogram of body weight per day. Carbohydrates are important but they should not be overemphasized, in order to prevent weight gain. Carb intake should be approximately 5 - 8 grams per kilogram of bodyweight. Adequate fiber intake prevents constipation promoted by post-injury medications. Athletes should also consume foods high in omega-3 fatty acids, vitamin C, vitamin E, beta-carotene, vitamin A, selenium and zinc to help control free radical damage and excessive inflammation. Foods such as blueberries, strawberries, carrots, broccoli, and pineapples are good post-injury foods. Similarly recovering athletes should avoid calorie-dense junk foods.

(ACSM's Health & Fitness Journal, 20(2): 7 - 11, 2016)

Building Muscle - The Science Behind Muscle Growth

….Continued from Page 1

Factors Important To Muscle Growth

Training Stimulus - A major component involved in muscle growth is the ability to continually put more stress on the targeted muscles compared to what those muscles had previously adapted too. The main way of achieving this is to progressively lift heavier weights as this additional tension on the muscles will cause the damage to the muscle fibers which is required to begin the growth process. Research has shown that muscle growth is maximized in a moderate 'hypertrophy' rep range of 6 - 12 repetitions per set, which should equate to approximately 75% - 85% of your one rep max.

Proper Nutrition - Food is the fuel which is needed to help replenish and repair your muscles as your body synthesizes muscle tissue from energy. Therefore, to help increase muscle growth, a surplus of calories is required to ensure adequate fuel is available to carry out the required processes. Protein is considered the most important macronutrient, as it relates to muscle growth, as the repair and regeneration of your muscle fibers specifically requires the use of proteins. Proteins provide the amino acids which are the building blocks of muscle growth. As a result of this fact, for persons training intensely aiming for muscle growth, it is suggested that daily protein consumption be between 1.5 - 2.0 grams per kilogram of bodyweight. Similarly, the timing of the consumption of meals can impact the efficiency of the muscle building process as research has shown that consuming meal within 30 minutes of the completion of a workout, is an effective way to restore amino acids and carbohydrates in the muscles and improve the muscle recovery and the subsequent muscle growth process.

Recuperation & Adequate Rest - As explained previously muscle growth does not actually occur during training but occurs during rest periods when your body recovers and repairs the damaged muscle tissues allowing them to return in a stronger, larger, more adapted state to handle the increase in stress which it was previously subjected to. In fact, this is not only limited to your muscular system as during intense workouts (weight training or cardiovascular), your neurological system is subjected to similar stresses and, subsequently with adequate recovery this system also improves and adapts to those stresses to subsequently improve its efficiency as well. How much rest is required depends on multiple factors such as the intensity of your exercise, the frequency of your exercise, the duration of your exercise as well as your bodies' recuperation abilities, and your nutrition regiment. Hence, despite the fact that the quicker your body is able to recover after exercise the greater potential for faster muscle growth, if you subject your muscles to another stressful trauma before it has fully recovered it can result in a performance plateau and, overtime, overtraining will result, ultimately causing a decrease in performance and an increased risk of injury.

Continues on Page 5

ASK YOURSELF ..... True or False ?

Score: _____ out of 5

1. Apples float in water because 25% of their volume is made up of air	**TRUE**	**FALSE**
2. Women hearts beat faster than men	**TRUE**	**FALSE**
3. Your right lung is smaller than your left lung to make room for your heart	**TRUE**	**FALSE**
4. Your biceps and triceps muscles are both comprised of two heads	**TRUE**	**FALSE**
5. Women's speed world records across sports such as running, swimming, cycling, rowing & skating are all approximately 90% of their men's speed world records, in short, middle and long distances	**TRUE**	**FALSE**

Answers can be found on the bottom of page 2

Building Muscle - The Science Behind Muscle Growth

….Continued from Page 4

The Role of Hormones In Muscle Growth

Hormones or hormone-like compounds in the body play a direct role in the muscle building process and are another component largely responsible for muscle growth and repair. These hormones stimulate satellite cells to produce gains in muscle fibre size and determine the potential for an increase in the amount of muscle tissue the body can generate. Three of the most well known hormones which are important in the muscle building process are:

Testosterone - this maybe the most advertised hormone as it relates to muscle building as its role in the hypertrophy process is vitally important. In theory the more testosterone a person has, the higher their muscle-building capability. This very fact is the main reason why men have the potential for faster & larger muscle growth and development compared to women (women make testosterone at 1/10 the amount compared to men). Testosterone has been shown to have multi-faceted benefits in the muscle building process as it: stimulates Growth Hormone response to exercise; increases protein synthesis; inhibits protein breakdown; activates satellite cells; and, stimulates other anabolic hormones. Although most testosterone is bound in the body and, therefore is not available to use, strength training seems to help not only release more testosterone, but also make the receptors of your muscle cells more sensitive to your free testosterone. Testosterone can also stimulate growth hormone responses by increasing the presence of neurotransmitters at the damaged fiber site, which can help to activate tissue growth.

Growth Hormone - this is one of the key hormones in the whole process of muscle building. The level of Growth Hormone released into the blood stream as a response to exercise is largely dependent on the intensity of the exercise being performed, with higher intensity strength workout routines generally resulting in a greater volumes of Growth Hormone being released. The presence of Growth Hormone stimulates the uptake and incorporation of amino acids into proteins, which are used and generated in the building and repair of the muscle fibers.

Insulin Growth Factor - Insulin Growth Factor plays a major role in the regulation of muscle mass growth. They are responsible for promoting protein synthesis and muscle cell repair, which ultimately result in making the muscle stronger, and as strength develops, the muscle is capable of lifting more weight. This improvement in strength will generally correlate to an increase in muscle size (once the weight used is increased) and the muscle size increase process can continue until a natural plateau is reached.

Why Rapid Muscle Growth Is Unlikely

Muscle hypertrophy is a relatively slow process and it takes time (usually several weeks or even months) before persons will generally see visible growth. The length of time or amount of change seen would also depend on each persons genetic potential as genetics play a large role in the potential for muscle growth. Some of the factors which are genetically dependent that would affect potential muscle growth are hormonal output, muscle fiber type, muscle fiber number and satellite cell activation ability.

In Summary

For muscle growth to occur you must stimulate your muscles at an intensity that is above what it is already adapted to. This would result in the breakdown, repair and subsequent growth of your muscles as they are forced to adapt to the increased stress load. This adaptation occurs not when you are training but after your workout is finished and can only be optimally done if adequate rest, to allow your body to recover, and proper nutrition, to provide the required fuel to your muscles, is provided.

Healthy & Great Recipe

Eating healthier does not have to mean eating boring. In our 'Healthy & Great' recipe section we will introduce you to some incredible recipes which are lower in sugar, fat and calories compared to their 'traditional' counterparts but are still full of flavour.

Omelette in a Baggie

MAKES 1 SERVINGS

- 1 large egg
- 2 large egg whites
- 2 tablespoons reduced-fat sharp cheddar
- 2 tablespoons lean ham
- 2 tablespoons onion, chopped
- 2 tablespoons green bell pepper, diced
- Salt and pepper to taste

Method

1. Fill a large saucepan three-quarters full of water and bring to a low boil.

2. Place the egg and egg whites into a sealable plastic bag that zips shut, and mix the eggs together by gently squeezing and shaking the sealed bag.

3. Once the eggs are well mixed, add the remaining ingredients, and reseal the bag tightly, making sure to remove as much excess air as possible. Shake the bag gently to evenly distribute the ingredients.

4. Place the bag into the water, and cook for 12 minutes.

5. Using tongs, remove the bag from the water. Open the bag and slide the omelette out onto a plate. Serve immediately.

NUTRITIONAL INFORMATION PER SERVING

Calories: 180 / Carbohydrates: 5g (Sugars: 3g) / Total Fat: 7g (Saturated Fat: 3g) / Protein: 22g / Fiber 1g/ Cholesterol: 225mg / Sodium: 510mg

Recipe obtained from "Eat What You Love" - By Marlene Koch

Contains more than 300 incredible recipes which are low in sugar, fat and calories and are great for weight loss & diabetic diets

CONTACT US

PREMIUM PERFORMANCE TRAINING INC.

Premium Performance Training Inc.

17 Hoytes Terrace
St. James
Barbados
Tel: (246) 233-6433
Website: www.pptfitness.com
E-mail: admin@premiumperformancetraining.com
Facebook: https://www.facebook.com/pptfitness246/
IG: https://www.instagram.com/ppt_fitness246/

ACKNOWLEDGEMENTS

Writer: Jamil Jones

Editor: Janielle Jones

Special thanks to Melissa Burrowes for her assistance with this issue

---

Let Us Know What You Thought Of This Issue

Read something that you disagreed with, that you did not understand or that was really helpful? Send your feedback to **jamiljones@premiumperformancetraining.com**