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Current Dietary Recommendations in Strength Training

By Protica Research

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Efforts to expand the limits of human strength and endurance have kept the scientist and the athlete occupied for centuries. The quest for another pound of muscle, or to lift next couple of kilos has been relentlessly pursued in the gym and the laboratory alike. As the questions and conquests became more challenging, the answers have become more elusive and complicated. Few concepts and conclusions have withstood the test of time in exercise physiology. Even as we tackle the metabolic and genetic basis of skeletal muscle response to strength training, there are only some things that we know for sure.

Strength is the cumulative expression of the innumerable myofibrils orderly arranged to form the muscle. Strength training attempts to boost these protein motors and the biological machinery that supports them. Resistance exercises create a biochemical environment in the body wherein the turnover of proteins is optimized and the protein synthetic machinery is primed for growth. All that is needed to trigger a spurt of growth is a protein rich meal. This response occurs in all age groups, although it is less efficient in the elderly. According to Philips SM, Tipton KD and others, in young individuals, the muscle is receptive to protein and amino acids for 48 hours after a workout. The only limiting factor for the hypertrophy of skeletal muscles during this period is the availability of high quality proteins.

A few tricks can amplify the growth response to strength training. The synthetic machinery has a ceiling. It can only handle a certain amount of amino acids at a time (specifically, six grams of protein). However, as the response lasts for two days, Bohe` J., in a dose-response study published in Journal of Physiology, 2003, recommended that repeated supplementation with three to six grams of high quality protein during the 48 hours after a workout can optimize the protein synthetic response without topping out the protein synthetic enzyme systems. Combining protein supplements with adequate carbohydrate (35g of sucrose with every 6g of protein) is also helpful. The carbohydrate acts as fuel for the muscle fibers sparing the protein for growth.

Research into the response of untrained strength athletes has come up with surprising results. The demand for proteins increases in both the trained and the untrained states. However, the relative

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protein requirement of an untrained athlete per kg per day often exceeds the trained counterpart. The initial phase of resistance training is exemplified by rapid growth and hypertrophy of skeletal muscles, before it hits the plateau. Another factor is the relative inefficiency of the protein synthetic machinery in the untrained state. Well-formulated protein supplements are thus necessary to sustain even the early phases of resistance training.

This is not to say that the protein requirements of the trained strength athlete are comparable to the sedentary population. By the time the maintenance phase of resistance training is reached, the lean body mass would have expanded exponentially. The total quantity of proteins that are broken down and reformed during protein turnover in a trained strength athlete is still many times higher than normal levels. Phillips SM, in his review on Protein Requirements in Strength Athletes, states that this requirement may be as high as 1.5 times baseline levels.

The hunt then is for a high quality protein diet that would supply all the essential amino acids required. Considering the various biochemical principles discussed, this protein supplementation should be rapidly absorbable so that amino acids delivery can be accurately timed to the post-workout period. Rapid absorption would also enable multiple doses of the protein supplement to be taken during this period. The protein supplement also needs to be in small quantities (3 to 6g) to prevent saturating protein synthesis pathways and to minimize protein waste through excretion.

Protein supplements that meet all of these requirements, such as Profect protein beverage by Protica Research, are used widely across weightlifting communities. The unique constitution of Profect enables it to provide not only all the essential amino acids, but also the specific amino acids used in muscle fiber synthesis. Profect promotes the synthesis of Glutathione, an antioxidant that neutralizes free radicals. These free radicals, produced during anaerobic workouts like resistance training, injure the cell membranes. Short term insults like muscle sprains to long term effects like aging and cancer have been attributed to free radicals. Supplementing the diet with Profect can boost the normal levels of the free radical scavenger, Glutathione and help avert free radical damage.

Undeniably, protein reigns as the supreme building block for strength training. The difference between you and your next pound of muscle can oftentimes be a measurement of the type of protein formula you use in your diet.

About Protica

Founded in 2001, Protica, Inc. is a nutritional research firm with offices in Lafayette Hill and Conshohocken, Pennsylvania. Protica manufactures capsulized foods, including Profect, a compact, hypoallergenic, ready-to-drink protein beverage containing zero carbohydrates and zero fat. Information on Protica is available at www.protica.com

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Top Ten Reasons To Add Strength Training To Your Daily Routine

By Monique Rider

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1. Strength training tones, builds and firms your body.

Using any type of resistance (bands, weights, water, etc.) tones and builds the muscles. For certain exercises, even body weight can accomplish this. The muscle will become firmer and the skin around the muscle will tighten. This produces a more sculpted look.

2. Strength training burns body fat.

The higher your muscle to fat ratio, the more muscle on your body. The more muscle on your body, the more fat you'll burn because it takes more calories to maintain muscle.

3. Strength training builds strong bones.

Bone density can be increased by strength training. Therefore, reducing the risk of Osteoporosis.

4. Strength training can be done with very little equipment.

Most people think they need expensive equipment to begin a strength training program. Not true! All you need is a set of hand held weights or several sets of weights.

5. Strength training is fun and motivating.

You may not feel motivated to begin a program at first, but after a few weeks of strength training, you'll notice a more sculpted body. Then your motivation will build and you'll want more of that same result. When performed in a group setting, strength training is even more fun and motivating.

6. Strength training helps rid us of mental and physical stress.

Due to the level of concentration needed when strength training and the endorphins that are being released during exercise, stress levels are greatly reduced and you'll have a clearer head!

7. Appetite is improved due to strength training.

You learn to listen to your body and feel what it needs. After a session of weight training you may be hungry but it's not usually for "junk food." The body usually begins to crave whatever it needs to replenish energy after a strenuous workout. You'll find yourself heading for fruit, yogurt, or protein.

8. Strength training is for both male and female.

Yes, women should be strength training right along with men. No, a woman won't wake up one morning looking like a man!! Women don't have the hormones to pack on the muscle like men do. Women who strength train will end up with shapely, sculpted bodies that look healthy and toned.

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9. Strength training means your scale weight is irrelevant.

Strength training adds muscle and reduces body fat. Muscle is denser than fat. Therefore, you will not need to pay attention to your weight on a scale if you're strength training. The scale may show you're weight increasing but it may be because you're adding muscle. Learn to judge by your appearance, how you feel and how your clothes are fitting.

10. Strength training is a method of self care that will get you many compliments!!

Do this for yourself! Take care of your body now – it's never too late. Even senior citizens are strength training with amazing results. If you're shy about accepting compliments – you'll be learning how to accept them because many will come your way once you begin a strength training program.

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Monique is a survivor of adversity! She believes there are blessings in our struggles. Monique is also the owner of Trinity Coaching Services, a company that provides personal development coaching services. In addition, Monique is a competitive bodybuilder, wife, mother, and published author. To learn more about Monique and personal coaching visit:

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