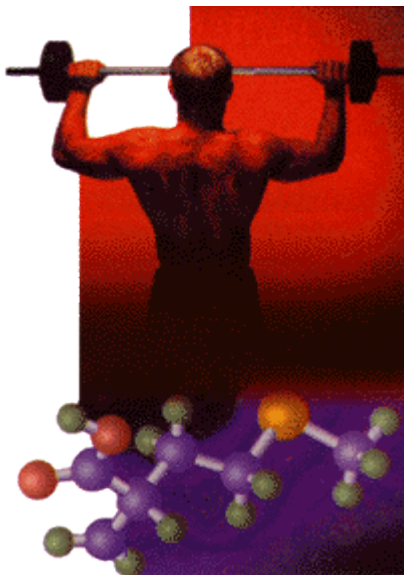


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## FITNESS

### Muscle Weights and Protein

By John Abdo



Many people want to gain the kind of useful, healthy weight that pumping iron and taking protein provides.

Human needs vary so widely that one part of our population spends billions of dollars every year attempting to lose weight, while the other spends big bucks attempting to gain weight—muscle weight, that is.

Excessive body fat is mainly a nutritional problem. Simply put, when someone gets fat, they've consumed more than their share of calories. Of course, activity, or the lack thereof, also plays a major role in the accumulation of excess fat because the body is unable to burn away those extra calories.

But how about weight gain? What can skinny, under-developed men and women do to bulk up, get stronger and look like well-conditioned athletes?

Weight training is the prime stimulus for functional weight gain, resulting in muscle, not fat. Weight or resistance training induces a biological condition known as anabolism, or tissue rebuilding. On the microscopic level, weight training actually tears down the muscle fibers.

A stage known as catabolism or tissue breakdown, then, with the body's recuperative abilities, repairs itself and stimulates another remarkable condition known as hypertrophy, or tissue enlargement.

To stimulate the best anabolic state, say the authorities, medium to heavy resistance must be used while weight training. This kind of resistance places the necessary load onto the tissues to 1) damage them with micro tears, and 2) force the body into a state of anabolism and hypertrophy by a series of nutritional and hormonal reactions.

Generally speaking, in order to gain lean body weight, weight training should comprise sets of six to 12 repetitions each. Less than six repetitions is considered too light, while more than 12 is considered too heavy. To isolate the actual load you need for training, simply select and handle weights that allow you to "fail" within the six- to 12-repetition range. If you fall short or go beyond this range, simply adjust the amount of weight up or down on subsequent sets or workouts and you'll stay within your muscle-building range.

It also is suggested that three to six nutritionally balanced meals be consumed daily for optimal muscle growth. It can be difficult for diehard bulk-seekers to actually consume this many meals on a daily basis, let alone high-quality, nutritious meals. But those who manage to discipline themselves so they eat the right number of meals find it easier to pack on added muscle.

Not only is eating this many quality meals tough, it can be impractical for most lifestyles. To compensate for this void in muscle-building nutrition, meal-replacement formulas have been designed. When searching for a meal-replacement formula, you must consider the protein sources and quality, the glycemic rating of the carbohydrates, the fiber to provide bulk and intestinal clearing, and the enzymes to assist in the breakdown and assimilation of nutrients. A product that contains all of these constituents makes for a complete meal replacement.

It is well-known that many athletes and fitness enthusiasts become nutrient-deficient. With the extreme demands of training, food alone is often inadequate to replenish one's nutritional needs. Some experts believe that if an athlete tries to obtain all of his or her nutrition from food alone, an excessively high amount of food would have to be ingested, which would disrupt digestion and lead to fat deposition.

My suggestions for gaining functional lean body weight are as follow. These are general guidelines that will have to be varied for certain individuals.

## ONE-HOUR WORKOUTS

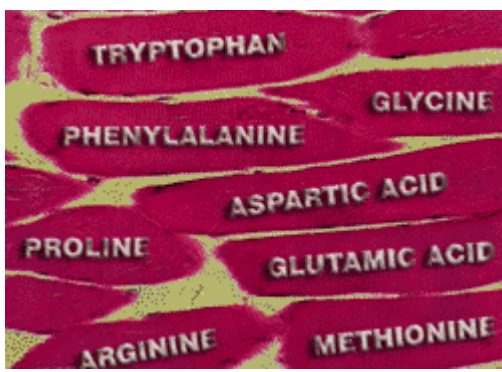
- Weight training should be performed three to five times weekly. Loads should be of moderate to heavy resistance, with between six and 12 repetitions for each set. Workout periods should last no more than one hour because longer exercise periods could cause your blood testosterone levels to become too depleted to assist in anabolism and hypertrophy.
- It is important to consume protein frequently throughout the day to maintain a state known as positive nitrogen balance. Nitrogen is connected to proteins to make them function properly. When protein, or nitrogen, is low, you lose muscle mass and begin to atrophy. The best way to maintain a positive nitrogen balance is by eating protein with every meal and supplementing your protein between meals. Protein can be consumed as often as every three to four hours. The constant influx of amino acids will raise the level of circulating blood proteins and nitrogen, which will be easily available to saturate the tissues throughout the day.
- Meal frequency is important. To gain lean body weight, you need to increase your total daily calories. The best way of doing so is to eat small, more-frequent nutritious meals. This will ensure a steady influx of nutrition, increase total daily calories, make way for better digestion and result in more muscle growth.
- Carbohydrates are needed to supply the spark plugs for the energy that makes anaerobic movement possible. Shortly after carbohydrates are eaten, sugar is released into the bloodstream. This rise in blood sugar sends a signal to the pancreas, which releases insulin. Insulin acts as a shuttling hormone, chaperoning the sugar to the muscle and liver where it ultimately is stored as glycogen. The more glycogen you can store the more energy you have, leading to better workouts, speedier recuperation and more dramatic tissue hypertrophy.
- Water is a major component of the human body. In fact, according to experts, more than 70 percent of muscle is water. With this in mind, it stands to reason that the more water your muscles can hold, the bigger and stronger they will become. Protein is hydrophilic, meaning it attracts and holds water. When you consume protein, muscle tissue, which is made of protein, will attract and hold more water. And this is exactly where you want the water to be held, in the intercellular spaces or inside the tissues of your muscles. You don't want water to be held in the subcutaneous spaces, which are over the muscle and under the skin; this causes a condition known as edema. So drink plenty of water and watch your muscles grow.

## DIGESTIVE SYSTEM INTEGRITY

- Enzymes and fiber are two very important nutritional components, not only for weight gain, but for great health in general. Enzymes are protein molecules that enable the food you eat to be broken down and properly assimilated. Simply put, without enzymes the food you eat cannot become a functional part of your body.
- Fiber is a component of plants that helps to maintain the integrity of the digestive system. If your digestive system becomes disturbed, the nutrition available from food cannot effectively permeate your intestinal walls, leading to poor absorption. This creates an ill state known as auto-intoxication, an intestinal condition in which the body poisons itself from undigested foods. No matter how much food you eat, you won't benefit properly if the foods cannot be utilized by your body.
- Rest and a positive mental attitude enables you to maintain a physiological state that keeps your body in harmony with your desired aspirations. When you increase your training, especially to the intensities needed to gain lean weight, you also need to increase your nutrition and sleep.

My three-part formula involves a) nutrition, b) training, and c) rest and sleep. If that balance is off, you either will become overtrained, acquire some sort of ailment, or simply never reach your maximum potential.

Protein is important for everybody, whether you're a hard-training athlete, or someone who just wants to live a normal healthy life. Protein is needed for proper growth, maintenance and repair of body cells. It is made up of smaller compounds called amino acids. When a protein food or supplement contains all of the essential amino acids, it is regarded as a complete protein. Essential amino acids are those that the body cannot synthesize, so they must be obtained from food or supplementation on daily basis. There are many foods that contain protein but are incomplete because they lack one or more of the essential amino acids. Combining incomplete protein foods is a good way of making sure you get all the amino acids you need for growth and repair. This is especially important for vegetarians, who have to be careful to eat the right combination of protein foods from various sources.



There are roughly 22 amino acids needed for optimum human health. All 22 amino acids must be available to the body on a daily basis if one is to live a healthy productive life. Of these 22 amino acids, eight (or nine, depending on the source) are considered essential for human health. The term essential refers to the fact that it is essential that one must eat or ingest these amino acids on a daily basis from foods or supplements. The remaining amino acids can be produced or synthesized by the body in the event they are not obtained from the diet.

### POSITIVE NITROGEN BALANCE

Most nutrients contain carbon, oxygen and hydrogen. Protein contains all three but also includes a backbone of nitrogen. The more nitrogen our bodies can retain the

stronger and healthier we become.

When protein intake is adequate to meet our normal daily requirements and no more, a condition known as nitrogen equilibrium is experienced. When one is deprived of adequate protein, negative nitrogen balance occurs. Of course, equilibrium is the better of these two conditions, but those who maintain nitrogen equilibrium often remain at the same strength and size despite changes in training intensity.

Negative nitrogen balance is bad news. When you're sick, injured or being deprived of food, your body tries to fill its nutritional void by cannibalizing itself, a process also known as catabolism. The body actually eats its own muscle tissue (heart and lungs included) to extract the amino acids it needs to operate. This is why I endorse the daily use of high-protein foods and supplements. The ideal condition for health enthusiasts and athletes is to attain a condition known as positive nitrogen balance. Positive nitrogen balance simply means your tissues are getting more protein, and retaining more nitrogen than is being excreted daily. When you see a true health enthusiast, someone who eats correctly all the time and exercises regularly, or an athlete who trains hard and smart year-round, you see an individual with a symmetrical tone to his physique and high levels of energy that come from proper eating and regular exercise.

Most experts believe the U.S. Recommended Daily Allowance (RDA) for protein is too low. Whether you're a casual fitness participant or a world-class athlete, try eating RDA-recommended doses of protein for any length of time, and see if you grow in stamina, strength and muscle tone. Chances are you won't. Experts claim that 1 to 1.5 grams of complete protein should be consumed for every pound of body weight on a daily basis.

For example, if a man weighs 170 pounds, he might opt to eat 170 to 255 grams of protein every day. Of course, eating that much from food might seem impossible, especially when you consider that a single egg white contains only 4 grams of protein—that's a lot of eggs to swallow. And eating this much protein should be spread out throughout the day in four to eight separate feedings rather than trying to eat the entire amount in one sitting. Protein needs vary according to the individual and lifestyle. Some folks can get by on the low side of the above recommendation and maintain a positive nitrogen balance, while others need to increase their protein intake to the higher figure. In either case, it is useful and practical to take supplements to increase your intake of protein to optimal value, without overeating.

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