

Female's Guide to Building Muscle

Jill Coleman

Admittedly, not all women want to “bulk up.” This is understandable since it may be perceived as masculine or as my grandmother used to say, “just not right for a woman.” But, over the years, there has been a change, not only in the research showing why building muscle is more metabolically effective, but society's perception of women who exhibit a strong physical look. More and more, the look of tight, toned muscles is being seen as the height of femininity and attractiveness; think Jessica Biel or Jennifer Garner. Women who build muscle can not only guard their own safety, but also their health.

Why build muscle?

The amount of lean muscle mass that a woman possesses is directly related to the favorability of her body composition. For example, take two women who each weight 150-lbs. One woman is 20% body fat, while the other is 40% body fat. The woman who has the lower body fat possesses a relatively higher amount of lean muscle mass and is therefore the healthier and more fit. Possessing a body fat percentage above 30% is indicative of increased risk for development of diabetes, heart disease and hypertension, not to mention is considered “obese.” Increasing lean muscle mass is the perfect way to combat obesity. Furthermore, muscle tissue burns calories at rest; in other words, it is very metabolically active. Muscles use calories in order to maintain its existence, and burns even more calories when it is active, like during resistance training. Fat tissue, on the other hand, is fairly sedentary, burning a scant 2-5 calories/day/lb as opposed to muscle's 30-50 calories/day/lb at rest. With a significant amount of muscle tissue, a woman's basal metabolic rate can be significantly increased, not to mention sky-rocket during activity since more muscle is available to do work and therefore burn more fat and calories for fuel.

Why weight-train?

Many gym rats are naturally drawn toward the cardio equipment in the gym and will spend hours on the elliptical, treadmill or bike in last-ditch efforts to burn calories and lose weight. Cardiovascular activity can certainly be useful in calorie burning, but does not impart a metabolic boost, nor does it build muscle or tone. For example, cardio-centric activities like jogging and cycling have not only been shown to be inferior modes of weight loss, but they also act to maintain a person's former version of themselves, just now smaller rather than larger. In other words, without weight-training, a person's frame and shape will remain the same, with little muscle, definition or cut. Furthermore, the calories burned during cardiovascular exercise are absolute. That is, once you get off the machine, there is relatively little after-burn. On the other hand, weight training has been shown in research to be the best way to increase the amount of calories burned post-exercise. The metabolic effect (or excess post-exercise oxygen consumption: EPOC) earned through a single, intense weight-training bout has the potential to keep an individual burning fat and calories at an accelerated rate for up to 24 hours post-exercise! Following a weight-training workout, your body uses calories and fat to replace fuel stores lost

during exercise, shuttle blood and metabolites around for tissue repair, and bring your heart and breathing rates down, all of which is on-going post-workout.

Working out with weights not only boosts your metabolism through muscle building and generating EPOC, but improves bone mineral density. The act of lifting a weight forces the muscles to contract and pull on the muscle's insertion points which attach to bones, creating the joint movement. It is the pulling of these insertion points on bone that actually activates new bone growth. Study after study shows weight-training's ability to prevent bone loss and prevent osteoporosis. Thus, lean muscle mass is invaluable for women of all ages—it's metabolically efficient, it imparts a certain amount of prevention against disease, it builds bone and oh—it looks good too! Weight training, along with sound muscle-building nutrition, is the only way to build significant muscle mass. Follow these protocols to look, feel and be your strongest.

Your muscle-building workout

It is not enough to simply pick up some weights and lift them. There are certain protocols and programs that work best for women, simply because a woman's hormonal environment only allows her to build so much muscle. Testosterone and growth hormone are important metabolic messengers that when released during intense weight-training can have a significant effect on muscle building. By nature, women have much less of the anabolic hormone, testosterone than men. High testosterone production allows for significant increases in lean body mass, as is witnessed during adolescence when both girls and boys' testosterone surges, leading to growth spurts. Because women have less than men, they must do things, such as weight-train a certain way to increase it naturally and harness its power into muscle-building. Growth hormone (GH) is also an anabolic hormone that is released in response to intense weight-training and not only contributes to muscle building, but also to fat-burning, mineralization of bone and immune system function.

The act of building muscle size, or *hypertrophy*, is a science that requires two types of exercise protocols, as well as progressive resistance. The first exercise protocol, called *myofibrillar hypertrophy* involves using relatively heavy weight and performing sets of 2 to 8 repetitions to increase the quantity and size of the muscle's contractile apparatuses, revealing a larger limb. A person should reach close to the point of mechanical failure by the 7th or 8th repetition; in other words, the weight should be too heavy to lift. This induction of failure serves to increase testosterone release and increase microtrauma to the muscle fibers. Microtrauma is the generation of small muscle tears during weight training and is the basis for hypertrophy. When this occurs, the muscle repair process effectively replaces the damaged muscle with stronger and larger tissue so that the tissue can withstand that same stress load in the future. Progressive resistance, or increasing resistance as the workouts progress, allows for the muscles to handle increased workloads and continually create micro tears to the muscles to increase muscle mass. To perform a myofibrillar hypertrophy protocol, perform 4-6 sets (2-8 reps each) and rest 1-2 minutes in between sets. Here is an example upper-body workout for an intermediate female exerciser:

Exercise	Weight	Repetitions
Flat Bench Barbell Press	75lbs	6
Barbell Bent-over Row	85lbs	8
Seated Dumbbell Shoulder Press	25lbs	6
Dips	Bodyweight	As many as possible up to 8
Dumbbell Biceps Curl	20lbs	6 ea side
Hanging Leg Raise	Bodyweight	8

The second useful protocol is elicits *sarcoplasmic hypertrophy*, characterized by an increase in sarcoplasmic fluid within the muscle cells, allowing the muscles to grow and appear larger. This type of training yields the greatest strength gains in beginners and is used to prime one's neuromuscular system, leading to fast gains in strength within the first couple weeks of training. The sarcoplasmic hypertrophy protocol calls for 12-15 repetitions per exercise, 4 sets total, with 1 minute or less rest in between sets. This is an extremely voluminous workout that moves quickly and yields an aerobic component as a result. The best way to do this program is to circuit train. Choose 3-4 exercises and perform them back to back in circuit fashion, resting minimally in between sets. You may work synergistic muscle groups (increases workout difficulty) or opposing muscle groups. Here is an example of a typical circuit that yields a sarcoplasmic hypertrophic outcome for an intermediate female trainee:

Exercise	Weight	Repetitions
Incline Dumbbell Chest Press	20lb	15
Incline Dumbbell Chest Fly	20lbs	12
Bench Dips	Bodyweight	15
Dumbbell Side Raise	15lbs	12

This type of training does not induce mechanical failure as quickly, but instead elicits a muscular burning that signals a rise in lactic acid that needs clearance, eventually inducing failure that way. This type of failure (metabolic) releases more growth hormone, likewise necessary for muscle building.

The final aspect of the training section of muscle building is the *rest* needed to repair and build larger, stronger muscles. Many fitness experts advise 48 hours, however, for best results, allow at least 72 hours between these intense weight-training programs outlined here. Longer rest days between workouts will allow the muscles to fully recover, as well as help the trainee push even harder the next workout. Too many workouts in a row will ultimately lead to muscle overtraining, which inevitably leads to muscle catabolism!

Your muscle-building diet

Building lean muscle mass is impossible without correct nutrition. Interestingly, it is fairly easy to eat for muscle gain since both calories and carbohydrates are needed in large quantities. However, to prevent fat gain while only building lean muscle, a specific nutrition plan is needed: maximize muscle building and minimize fat storing. Pre workout (60-90 minutes prior), consume a small meal containing both carbohydrates and protein (close to a 50-50 ratio). This type of snack will make energy available to assure an intense workout, but will limit fat-storing potential. An example is a small bowl of natural oatmeal with a ½ scoop of whey protein powder and 1-2 tbsp of natural peanut butter.

The art of hypertrophy, however, lies mostly in an individual's post-exercise nutrition. Post exercise, carbohydrate intake is critical, ideally within the first 30 minutes after weight-training. During intense exercise, blood glucose and usually glycogen stores are depleted and need to be replenished. At the same time, however, muscle break-down occurs, which merits substantial protein intake also. The goal of a post-workout, muscle-building meal is to deliver protein to muscles for repair and reinforcement while also replenishing muscle glycogen. Exercise itself is a catabolic act, breaking down muscle and using up fuel reserves; however, consuming lean protein and high-quality carbs post-workout will allow the body to remain anabolic. Immediately following exercise, the body is in a depleted state and muscle tissue will devour anything that can be used for fuel: the muscles are sponge-like at this point and careful consideration should be given to food choices. Whey protein is one of the most quickly-absorbed types of protein and is convenient. Other options include egg whites, ground beef and even milk. A carbohydrate source should be insulinogenic since insulin accelerates protein uptake by the muscles and facilitates muscle growth. Good carbohydrate sources for after an intense weight-training session include simple sugar-containing foods like honey and bananas.

Other factors affecting muscle building

Many women claim that they bulk up quickly, but surprisingly, it is actually not all that easy for women to put on substantial muscle because of our hormonal make-up. However, in addition to exercise and nutrition, there are other tools and techniques that assist the body's ability to build lean muscle mass. Sleep, for example is powerful in releasing growth hormone. In fact, growth hormone levels cycle up and down throughout the day and one of the peak times of growth hormone release is within an hour of the onset of sleep. Be sure to get at least 8 hours of sleep each night to maximize GH's muscle-building potential. Consumption of dietary protein outside of pre- and post-workout meals is likewise beneficial in maintaining muscle mass. As long as dietary protein sufficiently maintains the body's amino acid pools, the body will not have to strip muscle for other protein use. Certain supplemental complexes

have been shown to increase muscle size and strength, including creatine, glutamine and arginine. Cribb et al. showed that a creatine, along with carbohydrate, supplement significantly increased muscle fiber size in participants performing resistance training, over a carbohydrate-only supplement (Medicine and Science in Sports and Exercise. 2007, vol 39). Along with stimulating the release of growth hormone, glutamine is an anabolic amino acid whose muscle stores limit the amount of muscle mass that can possibly be generated. Anyone trying to build muscle will need to make this amino acid available to the muscles (0.5mg of glutamine per kilogram of body weight is the recommended level to yield anabolism). Finally, the amino acid arginine has been shown to elicit the release of somatotropin upon supplementation. Somatotropin is an insulin-like growth factor, stimulating protein (i.e. muscle) synthesis. It likewise facilitates growth hormone release.

“Just RIGHT for a woman”

Weight-training and smart, sound nutrition form the cornerstone of a woman’s muscle building potential. No supplement, amount of sleep or endless cardio will do the trick if these measures are not in place. Once they are, however, liberal consumption of lean protein maintains healthy muscle tone and mass. Remember to train heavy, train to failure and use both exercise protocols outlined here to ultimately reap big, bulky benefits in building lean muscle tissue and in effect, a stronger, healthier, leaner you!