First, the Johns Hopkins researchers used a strong, almost druglike myostatin binder in the animals. Second, there is little research on how myostatin works in healthy humans, particularly in association with exercise.

Despite the challenges, several companies are manufacturing products that contain active ingredients, such as CSP-3, or "Fraction-C," a nutrient derived from a particular type of marine algae that's a purported natural myostatin binder. While there is currently no published human research showing that CSP-3 binds to the myostatin protein and causes muscle growth in humans, researchers are pursuing the initial steps toward gathering that information.

A study is being conducted at Eastern Michigan University, Ypsilanti, Mich., to provide preliminary data on the effects of CSP-3 on mouse skeletal muscle.

Such research will help determine the effect of the substance in animals and humans and will provide insight into the ideal dosage required for maximum gains in human muscle mass. After several years of animal research, human research can be undertaken.

In theory, myostatin binders could be the ultimate muscle-building agents. ■

The editors at *GreatLife* regret to announce that our longtime contributor Edmund Burke, Ph.D., has passed away. We send our deepest condolences to his family and many friends.

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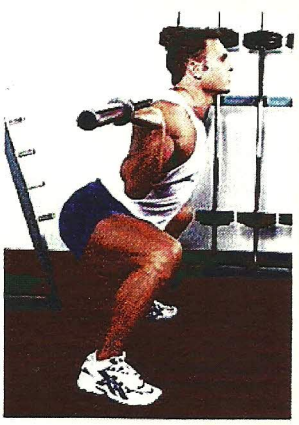
trainertips

Squats are one of the few exercises that can strengthen the whole body while delivering a cardiovascular workout. For those new to squats, Chris Cosich, a New York-based certified fitness trainer, demonstrates how to maximize the benefits of this all-around exercise:

Master the Motion. Before using weights, practice the basic squat motion: At home or at work, stand and place the feet more than shoulder-width apart with the toes pointed slightly outward. Keep your chin up, shoulders and glutes (the large muscles in the buttocks) back, chest high and your head facing straight. This position is easier to maintain if your arms are bent and your hands are skyward (see photo). Using the knees as a hinge and the heels as your main power source, descend until your quads are parallel to the floor. Push your heels into the floor as you stand up to the starting position. You should feel the motion in your glutes, hips, quads and thighs, and you will probably feel a cardiovascular effect after a few sets. Using the wide, upright, aligned position will protect your joints and spine and keep you balanced.

Go Slowly. Start with several sets of 15 reps each. You should feel the burn during the last three reps of every set. Work up to four or five sets of 15 reps each, alternating every other day to allow for muscle recovery. "Most people will easily respond to that, and within three weeks, they will need to add weights or go to a gym," says Cosich. When you are ready for weights, seek instruction from a certified fitness professional to ensure that you are still performing the motion correctly, and opt for free weights over machines, since they help you develop balance in addition to strength and work more of the muscles involved in the exercise.



Don't Worry About Bulk. Unless you're training with extremely heavy weights, basic squats performed without weights or with light weights will not turn you into the Incredible Hulk. Rather, if you perform these squats regularly, you will lose existing fat as you develop lean muscle, and you will feel stronger and more powerful.

Combine With Other Exercises. For maximum impact, combine your squat routine with other strength-training exercises and regular, aerobic exercise throughout the week. Those who have knee or back problems may need to obtain the guidance of a fitness professional before starting a squat routine. "If you've had no major surgeries or anything debilitating, the squat will only make you better and stronger," notes Cosich.

Eat Healthy. Cosich recommends eating small, frequent meals of lean protein and carbohydrates from unprocessed sources, such as sweet potatoes, oatmeal and whole-grain rice, to keep glycemic levels steady. Eat three to four daily servings of fibrous vegetables as well.

bottomline The basic squat, when incorporated into an overall fitness/nutrition plan, is a great way to develop stronger leg and back muscles. When performed with free weights, it may even help protect you against related muscular or skeletal problems down the road, because you're strengthening connective tissues and muscles that are used for balance and coordination.

CHRIS COSICH, C.F.T., is a former NCAA athlete, national-level bodybuilder and power lifter, whose company, New Image Fitness, is based in New York City and the Hamptons.