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Strength Training Q & A #1

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I'm a female athlete. Won't lifting weights make me less flexible and bulk me up?

A properly conducted strength training program will not reduce your flexibility — provided that you exercise throughout a full range of movement. If you still have fears about losing flexibility, then you should perform a comprehensive stretching routine both before and after your strength program. These stretches can be the same ones that you do before a practice or game. If you prefer, you can also stretch your muscles immediately following each exercise.

Gains in muscular strength are usually accompanied by an increase in the size of muscles. However, numerous studies have shown that the degree of muscular hypertrophy is much less pronounced in females. In fact, one estimate is that the number of women who have the genetic potential to significantly increase the size of her muscles is about one in a million!

There are several physiological reasons that prevent or minimize the possibility of a woman increasing the size of her muscles to a significant degree. First of all, most women are genetically bound by an unfavorable — and unchangeable — ratio of muscle to tendon (i.e. short muscle bellies coupled with long tendinous attachments).

In addition, compared to men most women have low levels of plasma testosterone. The low level of this growth-promoting hormone restricts the degree of muscular hypertrophy in women.

Another physiological factor is the fact that females tend to inherit higher percentages of body fat than males. For example, the average 18 to 22 year old female is about 22-26

percent body fat, whereas the average male of similar age is about 12-16 percent. This extra body fat tends to soften or mask the effects of weight training.

In short, it is physiologically improbable that a woman will develop large muscles that are unsightly or unfeminine. If you're wondering about female bodybuilders, they inherit a greater potential for muscular hypertrophy than the average woman. In addition, they often appear to be more muscular on stage than they actually are. Prior to a competition, they've restricted their caloric intake — often severely — thereby reducing their body fat and water. They've also "pumped up" their muscles backstage immediately before the competition. Finally, the stage lighting, their clothing and the oil rubbed on their bodies all contribute to the illusion.

What's the earliest age that someone can begin a strength training program?

Weight training exercises are usually inappropriate for children younger than the age of 13 or 14. In the case of prepubescents, calisthenic-type movements that involve their bodyweight as resistance (such as pushups and situps) are quite effective for building strength without placing an inordinate amount of stress on their bones and joints. When weight training is used by adolescents, the exercises should be throughout a full range of motion in a controlled manner. The repetitions should be relatively high — such as 15-20 for the lower body and 10-15 for the upper body. The movements should be performed 2-3 times per week on nonconsecutive days and involve their major muscle groups (hips, legs and upper torso).

Is it true that barbells will increase size and strength faster than machines?

You won't develop one way with machines and another way with barbells — assuming that your levels of intensity are similar with both modalities. A muscle must be fatigued with a workload in order to increase in size and strength. Since your muscles don't have a brain, eyeballs or cognitive ability, they can't possible "know" the source of the workload. So, it doesn't matter whether you fatigue your muscles with a resistance that comes from a machine, a barbell, a cinder block or a human being. The sole factors in determining your response from strength training are your inherited characteristics and your level of intensity — not the equipment that you use.

Food for thought: The next time you watch an athletic contest, see if you can tell which players lift with free weights, which players lift with machines and which players didn't lift themselves out of bed when it was time to strength train!

How often should I max out?

Never! It's dangerous when you try to see how much weight you can lift for a one repetition maximum (1-RM). Attempting a 1-RM with heavy weights places an inordinate and unreasonable amount of stress on your muscles, bones and connective tissue. You'll get injured when this stress exceeds the structural integrity of those components. A 1-RM attempt also tends to increase blood pressure beyond that which is normally encountered when using submaximal weights. These concerns are magnified if you are a younger adolescent. Finally, a 1-RM lift is a highly specialized skill that requires a great deal of technique and practice.

Coach Brzycki will answer question about strength training and conditioning in this column. If you have questions, you can write to him at the following address:

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