



Accent On Female Strength Training

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Not too long ago, it seemed as if female strength training was on trial and had to be defended before and after every workout.

Currently, we would all like to believe that it is a well-known and widely-accepted fact that tough,

aggressive, progressive, and year-round strength training is a staple for female athletes.

Since the advent of Title IX, the positive results from tons of research dating back to at least the '60's, and the welcomed proliferation of organized female athletics at every level, women are now privy to the very

best in strength and conditioning applications, facilities, instruction, and supervision.

Or, at least, they should be.

For those of you who are nodding your heads in agreement and accusing me of stating the obvious, I applaud you.

However, judging from some of the correspondence I receive from coaches, trainers, athletic directors, and some female athletes themselves, there are apparently many ridiculous myths still being accepted as doctrine in the female athletic community.

Bulky muscles, loss of flexibility, and mysterious masculinization are but three of the unfounded excuses that continue to encumber the advancement of female strength training.

Based upon many of the fairy tales that continue to haunt this area of athletics, you would be led to believe that there are quite a few Shrek-looking creatures on the loose, former misguided female athletes interested in starting a strength training program.

Instead, you will find thousands of strength-trained females competing in championships at every level of play, in every team and individual sport, and doing so in fine female form.

Let's embark on a myth-debunking journey regarding female strength training, while at the same time shedding some light on its importance in the training paradigm.

WEIGHING-IN ON FEMALE STRENGTH TRAINING

Females engaged in an organized, supervised, and properly administered strength training program will experience some positive body composition changes involving notable decreases in body fat with slight concomitant increases in muscle size.

These can prove to be critical components of improved athletic performance and a heightened resistance

to injury.

In terms of total scale weight, there may be some slight fluctuations, but it is often offset or unaffected with a resultant firmer, trimmer physique.

The slight degree of muscle hypertrophy will put more punch into the athlete's skill execution, while also amping-up her thermoregulatory system for more efficient calorie utilization – just as it does in males.

Since the majority of females do not produce a large amount of the male hormone, testosterone (usually only about one-tenth of what males produce), there is an extremely minimal prospect of developing an unfeminine layer of muscle tissue.

Females also have to take into account their overall genetically smaller anatomical stature (again, for the most part), along with their concurrently shorter muscle bellies and less muscle tissue as a whole when compared to their male counterparts.

Sure, there are some rare instances of female athletes who are genetically predisposed to greater gains in muscle hypertrophy than their peers as a result of strength training. However, even in those instances, the increased muscle size usually entails the host of benefits previously mentioned.

And the firming and trimming can work wonders in improving a female teenager's self-image. Some research has even indicated that strength training can be a deterrent to some of the symptoms of depression by instilling more confidence and a higher self-esteem.

THE CASE FOR GETTING STRONG

I recently received an e-mail from the coach of a girl's high school basketball program who wasn't sure that it was worthwhile for his team to spend precious time in the weight room. His question illustrates the information abyss that still exists: "Will we truly get some return on

our time investment?" In other words, can his girls actually get something out of doing this?

A key point here is that it is unfair to compare male athletes to female athletes in terms of absolute strength (i.e., the total amount of weight able to be lifted in a given strength movement). For reasons previously mentioned, some females are capable of possessing up to approximately two-thirds of the absolute strength of males, but it is true that many of them would have difficulty reaching that level.

However, when you take relative strength capabilities into account – which are based upon identical cross-sectional areas of muscle tissue – studies have shown that strength gain potential is nearly identical between males and females. This is due to the fact that female and male muscle tissue is uniform and, in turn, validates the precept that the ability to gain strength and power is independent of gender.

While it is true that females tend to be significantly weaker than males in the chest, shoulders, and arms, there is some evidence that relative leg/hip strength is very close between females and males.

The bottom line is crystal clear: Based upon lean body mass, many females are capable of becoming as proportionally strong as males.

Even so, there has been quite a bit of speculation in both the scientific and popular press concerning the more pronounced pelvic width and inward femur angle (upper leg bone), or what is known as the "Q-angle," in females and its possible contribution to knee injuries. There has also been some postulation that females have more lax muscles and joint areas than males, with at least one theory suggesting a tendency for hyper-flexibility and/or a lack of stability.

However, we have not found any firm, definitive scientific data to vali-

date these suppositions.

Nevertheless, coaches must be aware of the high incidence of anterior cruciate (ACL) injuries in female athletes. Over the years, we have seen data from the Big Ten, PAC Ten, and the ACC conferences indicating that females were much more likely to sustain an ACL tear than males in the sport of basketball.

Similar data reported in medical journals have indicated that female soccer players were sustaining ACL injuries at a rate of two to five times more frequently than males.

Whether these findings are due to structural or hormonal anomalies, they certainly raise the red flag of concern and must be addressed.

Special attention should be given to multi-joint strength training movements (e.g., lunges, squats, leg presses, etc.), as well as single-joint movements (e.g., leg curls, abduction, adduction, hip flexion, hip extension, and calf raises) in order to comprehensively address all of the major supportive muscle compartments in that area. This systematic approach will not only strengthen the muscles and connective tissue of the all-important knee complex itself, but also the proximal (above) and distal (below) structures that lend support to it.

Another prominent role that strength training plays, especially for females, is its positive effect on bone mineral density. Bone "modeling," as it's known, increases bone strength and serves as a preventative measure against osteoporosis.

While young females may feel that there is little need to be concerned with osteoporosis until much later in life, the pro-active steps they take now and continue, as they get older will assist in staving-off this serious medical condition.

Stronger muscles, ligaments, tendons, and bones are the verified benefits of a sound strength-training



program – all of which should manifest themselves in more durable female athletes.

Relatively recent studies have shown modest improvements in blood lipid profiles (i.e., the lowering of the LDL, known as the “bad” cholesterol, and increasing the HDL, the so-called “good” cholesterol), in addition to an increase in glucose utilization, which may reduce the incidence of diabetes.

JUMPING INTO ACTION

Many of the knee problems associated with female athletes are directly related to jumping, cutting, and abrupt stops at the end of sprinting activities. In light of this, females should also engage in a variety of movement drills performed in the “athletic position.”

The athletic position necessitates good bend at what are called the “power angles,” which encompasses the ankles, knees, and hips. The upper and lower back regions should be kept relatively flat throughout.

Sport-specific and/or position-specific agility drills from this position should be enacted on a regular basis.

Throughout the training period, appropriate teaching cues (visual, verbal, or both) should be included to initiate the applicable sensory and neural responses.

During running, cutting, and stopping, female athletes should accentuate short, choppy steps, and be instructed to keep their feet under their hips as much as possible when contacting the playing surface.

The hope is that the athletes can avert two of the identified causes of ACL injuries – externally rotated legs and hyperextended knees.

We’ve also picked-up some crucial jumping points from the good people at Sportsmetrics (www.sportsmetrics.net):

- Keep the chest aligned over the knees and the knees over the balls of the feet.
- When landing, keep the knees slightly flexed and in alignment between the first and second toes.
- There should be a ball-of-the-foot to heel “soft-rocker” foot placement when landing, as opposed to a hard, flat-footed landing.

FINAL REP

A glaring problem we encounter with incoming female freshmen athletes is the lack of attention many of them received in high school with regard to strength training. Very few of them –for whatever reasons — were given the opportunity to participate in an organized, structured, year-round strength training program.

For those of you who coach females at the high school level, I implore you to offer your athletes the very best strength training program that your facilities and resources allow.

It is their right, and your duty, to do so.

TIP FROM THE TRENCHES

Counseling female athletes on menses irregularities: Someone on your school’s Sport’s Medicine/Medical Staff should teach and counsel female athletes on the possibilities and consequences of menstrual cycle disruptions. Irregular menstrual cycles (oligomenorrhea), or the cessation of menses (amenorrhea), can lead to more pronounced problems. Amenorrheic athletes seem to be more prone to musculoskeletal injuries (e.g., stress fractures) due to reduced estrogen (female hormone) levels, which can weaken bones.

It should be noted that there are no significant scientific data indicating that the onset of a normal menstrual period negatively affects training or sports-related activities. However, if an athlete feels any adverse physical effects during her pre-menstrual of menstrual cycles, she should seek medical counsel from her gynecologist. ■

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