



Team BFS member Maegan Snodgrass teaches the squat-style clean to Voinnie Pataialii from Hunter High School in Salt Lake City.

BFS POSITION PAPER

Strength Training for Women

Guidelines for helping women fulfill their athletic potential

With all the information available about strength and conditioning, it's amazing that there are still many myths being promoted about women and strength training. You'll hear Pilates instructors claim that their workouts are better for women because their techniques will make muscles longer, like a ballerina's. There are highly paid celebrity fitness trainers who preach that women

should only do light weights to tone. Some health care providers claim that heavy squats will damage a woman's knees, spine and possibly even their ability to bear children! And of course, there is the almost universal belief that all women athletes must do aerobic exercise to stay lean. All of these beliefs are nonsense, but the damage has been done.

The continual reinforcement of

such misinformation about training women athletes by these so-called experts has trickled down to our schools. The result is that young women are given programs that are vastly different from, and usually inferior to, those given to men. This paper will discuss 10 myths associated with training young women so that coaches, athletes and their parents can understand how young women can achieve their full physical potential.

MYTH 1: Weight Training Makes Women More Masculine. Many women have avoided weights because of the ill-fated sport of women's bodybuilding, which produced hundreds of Hulk-like females in the 1980s and still churns out a handful of new, chemically enhanced exhibitionists a year. The fact is the average woman cannot gain huge muscle without the assistance of muscle-building drugs.

Biologically speaking, most girls who train for strength or muscular gains will never acquire the degree of muscle mass associated with boys who lift weights simply because girls have much less of the muscle-building hormone testosterone compared to males. Women also possess only about 60 percent of the number of muscle-fiber nuclei that men have, which reduces women's capacity to build muscle.¹

It's true that strength gains are often associated with increased bodyweight, but this does not necessarily mean there is always an increase in size. Muscle tissue is denser than fat, so as a female athlete trains for strength, her bodyfat is likely to decrease while her muscle tissue increases, causing her overall bodyweight to increase or stay the same.² Also, many elite strength coaches have found that female athletes often experience their largest gains in muscle mass during the first year of training, with gains in strength in the following years coming primarily through neural adaptations.³

MYTH 2: Women Cannot Excel in Overhead Lifting, Chin-ups and Push-ups. The current world record in the clean and jerk for women is over 400 pounds, and now women are not only clean-and-jerking more than double bodyweight, but are snatching more than double bodyweight as well. In the squat, Becca Swanson holds the all-time best result in this lift, with 854 pounds while weighing 247 pounds. Such results prove

that women can achieve exceptionally high levels of strength in the lower body. But what about the upper body?

Scientific research and empirical evidence suggest that women can make significant improvements in upper body strength if they decide to work on it. Young girls will be seen in gymnastics facilities climbing thick ropes and performing multiple chin-ups and handstand push-ups. "As far as chin-ups are concerned, this is the exercise where women are actually closest to men when trained properly," says Charles Poliquin, a strength coach who has worked with numerous women who have won medals in the Olympics and have broken world records. "They can attain, on a pound-for-pound basis, 85 percent of a man's strength." Poliquin notes that a female trainee (assuming she is not overweight) who is trained by a competent strength coach should be able to perform 12 chin-ups in three months. He also notes that pressing strength is typically less efficient in a woman, with the lifts often being 66 percent or less than a man's in various pressing exercises.⁴ Incidentally, the world record for women in the bench press is 600 pounds.

One reason women generally do not excel in tests of upper body strength is that, historically, men, and boys as well, tend to perform more heavy labor than women do. Who climbs the tree to do the trimming, pulls down the broken fence, and wheelbarrows in the new sod? Girls and women do hard chores too, but much of the backbreaking stuff goes to the guys. So it may not be so much of a physiological issue as a cultural one.

MYTH 3: Aerobics Is the Best Way to Help Women Stay Lean. Women carry more fat and store it more efficiently than men, making it harder for them to maintain a lean, athletic body. By increasing muscle mass and stimulating the release of natural

biochemicals such as growth hormone, anaerobic activities such as weight training will raise a woman's metabolism (the rate at which a body burns calories) and will help her burn fat and stay lean, perhaps even more effectively than aerobics will. Further, aerobics produces cortisol, which has the effect of decreasing muscle mass and consequently her metabolism.⁵

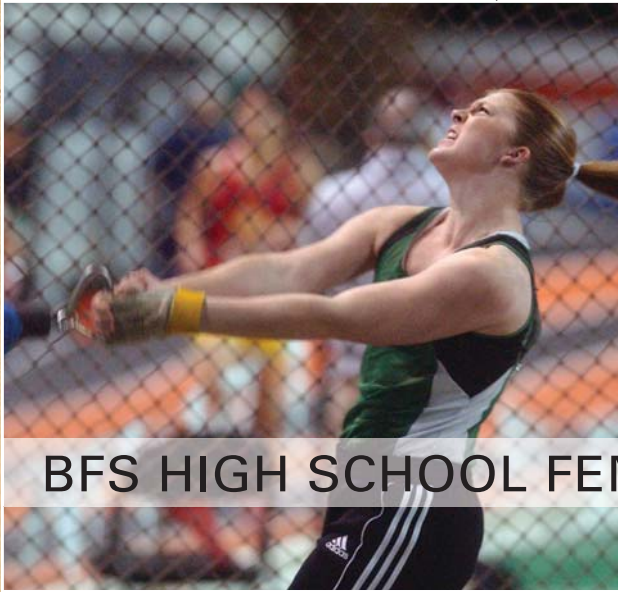
Many women believe that in order to stay lean they must perform aerobics. The fact is weight training appears to be more effective than aerobic training in reducing fat. In fact, it's possible to overtrain so much with aerobics that the body actually gains fat. One study found that the aerobic instructors who taught the most classes had the highest bodyfat levels! Further, some types of aerobic training, such as spinning, can increase the storage of intramuscular and subcutaneous fat in the hip and thigh areas.⁶

MYTH 4: Weight Training Can Stunt a Girl's Growth. One reason this myth has survived may be traced to the decreasing height of women gymnasts. In her fascinating book about female gymnasts and figure skaters, *Little Girls in Pretty Boxes*, Joan Ryan writes that the average height of the gymnasts on the 1976 US Olympic Team was 5 feet 3½ inches, whereas the average height of the 1992 US Olympic team was 4 feet 9 inches.⁷ An uneducated assumption might be that the difference could be attributed to the ever-increasing intensity of the workouts these athletes perform. If you carried that argument to the next step, you'd expect that young girls who lift weights would experience the same reduction in height.

The fact is the average height of our top gymnasts has declined because of *selection*: Shorter athletes tend to be stronger, pound for pound, than taller athletes. This "relative strength" difference makes it more likely that shorter athletes will excel. Likewise, most figure

Photo: Bill Schaefer, Idaho State Journal

Photo: Dean Hendrickson



BFS HIGH SCHOOL FEMALE ATHLETES OF THE YEAR

2004: Sarah Cardinal
Blackfoot High School
Blackfoot, Idaho

2005: Valerie Davis
Wood Memorial High School
Oakland City, Indiana

2006: Jennifer Walter
Huntley Project High School
Worland, Montana

skaters tend to be relatively short, even the men. A faulty analogy would be to say that if a child is short, they should take up basketball because most professional basketball players are tall.

As discussed in detail in articles published in *BFS* magazine, there is very little risk that weight training will stunt growth, either by prematurely closing growth plates or by some other means.⁸ Further, weight training increases bone density, thereby decreasing the risk of women developing osteoporosis in later years.

MYTH 5: Women Cannot Train Like Men. One of the biggest challenges in designing strength training programs for girls at the high school level is that many girls have little or no weight training experience. It can be an intimidating experience for girls to be put in a coed class with boys who have had several years of weight training or, as stated earlier, more of a background in manual labor.

For these girls, it's best to start with a program of higher repetitions to help them learn and perfect proper lifting technique. This also makes sense from

a biological perspective, as even with an equal level of weight training experience, women tend to be less "neurologically efficient" than men.⁹ What this means is that girls can enjoy good progress for a longer period of time on higher repetitions than boys because it is more difficult for girls and women to recruit the most powerful fast-twitch muscle fibers. Also, at the highest levels of training, such as the programs of Chinese weightlifters, women tend to respond best to more frequent, but shorter, workouts than men.¹⁰

Science aside, from a practical standpoint a female athlete may be able to make better progress on the BFS program for an even longer period of time than a male athlete. So, whereas in college a male athlete who trains for one sport may do better on a sophisticated periodization model, a female athlete may do better on a workout program such as the Bigger Faster Stronger Total Program for Athletes.

MYTH 6: Women Are Not As Disciplined in the Weightroom As Men. Many high school coaches find that they get much better results when

girls train by themselves instead of in a coed environment. Perhaps this reflects a lingering social taboo that it isn't OK for girls to be strong or that there is something unfeminine about a girl training to be fit. However, many coaches today find that there is no issue with girls training with boys, and often the girls will even help with the spotting. Whatever the reason, it's expected that as these social stereotypes break down, more young women will become increasingly comfortable in coed weight training environments.

MYTH 7: Women Should Not Play Certain Sports Because of the Risk of ACL Injuries. In volleyball, basketball and soccer, it's been estimated that women can be as much as eight times as likely as men to injure the anterior cruciate ligament, or ACL, which helps stabilize the knee. According to the American Orthopedic Society for Sports Medicine, each year approximately 20,000 high school girls suffer serious knee injuries, most involving the ACL.¹¹ Several theories have been proposed to determine why women are at such a high risk, including the idea that women have



• 2004-2009

2007: Kiley Allosso
Frank Cox High School
Virginia Beach, Virginia



2008: DeAnn Pertz
Titusville High School
Titusville, Pennsylvania



2009: Hannah Donnerberg
Lakeside High School
Plummer, Idaho

less strength than men and therefore rely more on their ligaments than on their muscles for support, and a women's wider pelvis causes a woman's thighs to angle inward and make her knees more vulnerable to injury.¹² What is commonly overlooked is that often women do not receive the same strength training programs as men, and as such may not be as prepared to handle the stress of high-level sports.

MYTH 8: Women Can't Train During Their Menstrual Cycle.

Contrary to this archaic notion, women can train anytime, just as men can, provided their health is uncompromised. There are some studies suggesting that athletic performance may be inclined to rise at particular times during a woman's cycle, but research has produced no absolute conclusions. Training performance is always individual, and of course any medical concerns should be taken up with the appropriate medical providers available to the athlete.¹³

MYTH 9: Women Should Not Squat Because It Widens the Hips.

This myth can be traced to Vince Gironda, a legendary bodybuilding guru

who trained physique champions and movie stars. Gironda said that squats would widen the hips and detract from the aesthetic V-taper that bodybuilders like. According to Poliquin, there is no scientific or empirical evidence to corroborate the belief that squats widen the hips: "When the gluteus maximus develops, it grows back, not out, because neither the insertion nor the origin is at the hip. If squats did widen the hips, Olympic lifters, who devote as much as 25 percent of their training volume to squats, would be built like mailboxes."¹⁴

MYTH 10: America Has the Best Strength Training Programs for Women Athletes. For a number of reasons American women have been slow to begin programs designed to develop their optimal strength. This lack of serious strength training becomes most apparent when you look at the performance of our international-level female athletes in events such as the discus, shot put and javelin throw – sports that all require superior upper torso strength coupled with power from the hips, buttocks and thighs.

The fact that European and Eastern

Bloc women dominate these power sports does not imply that they are made of tougher stuff, but it does mean that they use better training methods. American coaches are well aware of the benefits of long-term strength training programs: Progressive weight training programs and improved training facilities have been upping the poundages and increasing the strength of our male athletes for quite some time. But American athletic coaches have been reluctant to apply these same training techniques to our women athletes, and many of these women have themselves been reluctant to undertake a serious program for building muscular strength.

As social and cultural attitudes about strength training for women continue to become more positive, greater numbers of women will begin to pursue serious power training programs. Then we can look forward to a new influx of athletic talent who will continue to shatter the existing records for women strength athletes. **BFS**

Note: A PDF of the complete position paper is available for free download at www.biggerfasterstronger.com

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