CHAINED DOWN

Will adding chains to the bar add pounds, too?

In an effort to find new result-producing training methods, athletes and coaches will try anything that promises success. One of the latest products of this search is chain training, which may or may not add plates to the bar. Of course, we want to know for sure.

ORIGINS

The concept of squatting with chains probably originated from benching with chains. You see, the competitive powerlifter will often don a bench shirt, which is designed to artificially increase the lifter's poundage by a combination of supertight fit, sleeve position, and tough, springlike material. But the limitation is that the shirt will provide the most benefit for approximately the first third of the lift and decrease as the bar approaches lockout, meaning that locking out with all that weight is the new sticking point.

In an effort to overcome the limiting point of the bench shirt, it's important to increase your strength in the lockout. So many athletes have begun to add heavy chains to the end of the bar. As the bar moves upward, the number of chain links on the ground decreases and the bar becomes heavier the closer you get to lockout. The net result is increased strength for the lockout.

INQUIRING MINDS

Sound thinking, and it has innervated squat training as well. However, it takes no rocket scientist to know that benching in a bench shirt doesn't equal

squatting, even if you consider that competitive squatting allows for squat suits that are extremely tight, knee wraps, and a belt. So we turned to someone who has a strong background in researching the squat, biomechanics, muscle function, etc., etc., and who has also endured the feel of a heavy bar on his back—Rafael Escamilla, PhD, PT, CSCS.

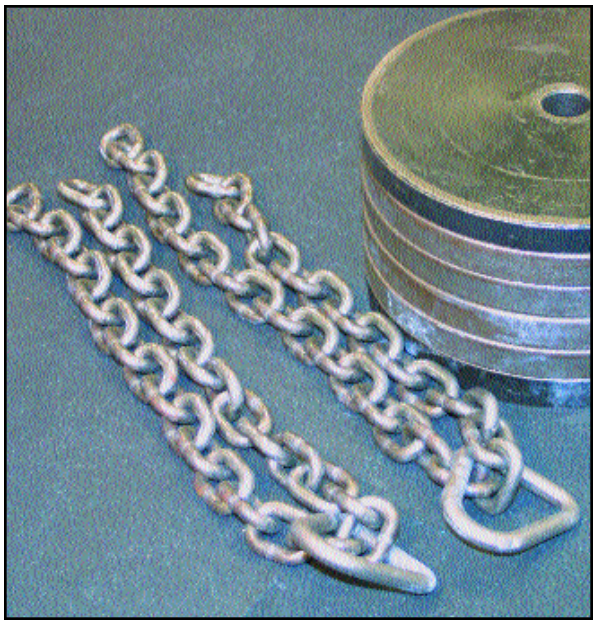
Up until the fall of 2002, Escamilla was an assistant research professor and the director of the Human Performance Laboratory at Duke University Medical Center, Durham, North Carolina. He has now accepted the position of associate professor of physical therapy at California State University, Sacramento. He has over 30 peer-reviewed scientific journal publications and has given approximately 100 professional presentations in the areas of knee biomechanics during rehabilitation exercises, baseball and football throwing biomechanics, the biomechanics of powerlifting and weight training exercises, and strength and conditioning. Between 1993 and 1995 he won three national and three international powerlifting championships (World Natural Powerlifting Federation).

● **Pure Power:** So what do you think about the concept of squatting with chains?

● **Escamilla:** The absolutely most important thing we need to get out of the way first is the parameter of the discussion. So tell me, what is the final goal of the athlete who squats with chains? You need to realize that if your goal is max strength or max power or if you're a wrestler, as an example, your training methods need to vary.

● **Pure Power:** Since max or absolute strength is such an important quality for most athletes, and since powerlifters and weightlifters are interested only in moving the most weight on the bar, let's consider that.

● **Escamilla:** OK. Another important consideration is that just about any training method and training modality will cause the body to adapt. For the most part the adaptation is positive, meaning that you



should experience some gains in strength, size, and power. That said, I feel that chain training will probably result in positive adaptations for the athlete. But you need to realize that there's no research on this issue and that I can only draw conclusions based upon related data.

● **Pure Power:** But what about max strength?

● **Escamilla:** It seems logical that as the resistance of the bar increases at the end of the range of motion, that portion of the lift will become stronger. But I'm not sure why that would be needed. You see, the way the body is set up, basically due to biomechanics, mechanical advantages, and length-tension relationships, for the most part the closer you get to the end of a lift the easier it becomes. This is particularly obvious in the squat. Have you ever seen a lifter make it through the first two-thirds of the lift only to fail in the last third? So I'm not sure that in the end being stronger toward the end of the lift will translate into squatting more weight. Getting out of the hole is the hard part, not locking out.

Pure Power: But many athletes will use knee wraps and powerlifters won't only use knee wraps but will also use a squat suit that helps them squat more.

● **Escamilla:** True. But even if you consider that the point of effect for the knee wraps and suit is mostly in the bottom of the lift, locking out is hardly ever a problem. Granted, it's sort of puzzling. On one hand you see guys being able to squat more due to the equipment, but on the other you don't see them failing toward the end of the lift. Of course, there are some exceptions.

● **Pure Power:** OK. Bottom line: chains good or bad?

● **Escamilla:** Hold on, not so fast. I think that there's another issue to consider—neural recruitment patterns. Let's continue on the track of the competitive lifter. Much research data indicates that the body responds to the specifics of the training stimulus, particularly from a neural perspective. What this means is that your nervous system learns to recruit the exact number of muscles, in a very exacting sequence, to produce a smooth and effective movement. When you look at a squat it doesn't look all that complicated, but from the perspective of the nervous system there are a lot of muscles involved and a lot going on to allow you to do it right.

Now, during the natural course of the movement, your body basically learns where the greatest part of resistance is and how to overcome that. It's therefore critical for the competitive lifter to practice precisely what he or she needs to do in competition. So if we consider that the lift becomes easier as you reach lockout, even with equipment, and now you squat with chains where the reverse occurs, I'm not sure that this would translate into an advantage. What I mean is, you might be confusing your nervous system and walking away with less than a competitive advantage.

When you're squatting heavy and you unrack the weight, is it better to train to use the same breath you took to unrack the weight or take some baby breaths before going down?
Mike Cirillo,Virginia

Consider the setup and the actual squat as two separate components. Take deep enough a breath to walk out and setup and just before you go down rebreathe; take as deep a breath as you can and hold it until you reach the sticking point, then vocally release the breath as you break through it.

● **Pure Power:** Sounds like chains could chain you down.

● **Escamilla:** Possibly. As I said earlier, the critical component is to understand what your goal is and what demands your sport has. That's what you want to train for. So although I'm not sure that I see much return for the time and energy expended in chain training for the competitive powerlifter, I wouldn't call it a waste of time for all athletes. There's a time and a place for almost everything. So why not give it a shot? There are certain assumptions that you should make. As an example, your training is done for one reason—gains. So ask yourself at the end of the cycle, did chain training increase your training gains above and beyond what you would've made anyway?

Editor's Note: We would like to express our gratitude to Dr. Escamilla for taking the time to talk to us during the time of his move from Duke University to California State University.