

Starting Strength

Powerlifting, Year One, Part I:

An Experiment in Belted Low-Bar Back Squat Specialization

by

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I recently competed in my third powerlifting meet, exactly one year to the day after my very first meet. I thought the one year mark of my nascent competitive career would be a grand time to look back and give serious thought to what I'd been doing. The great thing about powerlifting is that it is so easy to measure progress. You can't lie to yourself because the numbers are right there to keep you honest. Do I weigh more this year than last? Is my total higher in the same amount and kind of gear? Simple.

These past couple of years I've had satisfying increases in everything and I've been able to put a couple of my cherished notions about training to the test, particularly the effectiveness and importance of low-bar squatting, especially in regards to carryover to other squats and pulls, and the use of the belt in training. I talk a lot of smack and I'm very happy when I'm able to back things up with actual results. And I'm thrilled to be able to do that right now with regards to the low-bar squat and the use of the belt, two things I've defended vigorously in print and in person. Turns out that low-bar squats with a belt really do make you better at a lot of other things besides low-bar squatting with a belt.

The Squats

An Awful Lot of Squatting

Roughly 80% of what I do in the gym is squatting. This is because the squat is the linchpin of lifts, the *sine qua non* of training for size, strength and speed (and the bench press is the upper body squat, but we'll get to that later). If you want to be bigger, stronger and faster, you really ought to squat. The squat drives the deadlift, the clean, the jerk and the snatch. The ability to turn on a lot of strength quickly – and hence the ability to leap high and far or run quickly – is unfortunately genetically determined primarily, but getting stronger in the squat is the best way to improve these things insofar as they can be improved by strength.

If you're going to do something with a barbell, squatting is the by far the best single thing you can do. I take this notion to the extreme and end up squatting an awful lot. Ol' Rip taught me the mechanics

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of squatting, but it was the volume and frequency associated with Russian programming I fell in love with: Smolov Base Phase and the Russian Squat Routine form the bulk of my training, and each protocol has delivered exactly as promised at least twice: 50 lbs and 40 lbs from each Smolov Base Phase and 25 lbs each time I've tried the Russian Squat Routine (The SBP calls for around 36 squat reps each session while the RSR only asks for 36 only on the peak volume day). I also do lots of volume when it's time to put on weight via *Pins Into Pillars* as popularized by Pavel Tsatsouline about a decade ago: Ten sets of five, starting with 50% of 1RM and adding around 10 lbs each day for twelve sessions over four weeks. Keep in mind, however, that the Smolov Base Phase cannot possibly be done successfully that often, especially as one gets stronger and has less capacity for enormous improvements in the short term; about once a year or so seems right. The Russian Squat Routine is a little more user friendly with about half the gains in twice the time, and can be used a bit more frequently. (Also keep in mind that plain old linear progression – first each session, then each week – is the smartest way to get strong at the outset.)

My favorite prescription is *Pins Into Pillars*. It starts with very light weights – making it perfect for the first sessions after a big peak – and lots and lots of practice (a total of 50 reps per day, three times per week). That practice comes from the sheer volume which means appreciable mass gains as the weight used slowly ramp up (starting with 50% 1RM and moving up to around 80%; back off weeks after peaks and starting out light have become much more important to me as I've gotten stronger. I am continually amazed at just how much strength drops after a peak). Pavel Tsatsouline was once asked what the best formula for mass and strength was. His answer: *Pins Into Pillars* followed by the daily practice of the *Power To The People* protocol of a couple sets of five with a heavy-ish weight, five days per week. The idea is to get bigger and stronger with the volume and then really focus on perfecting and refining the strength in the competition lifts by dropping the volume and upping the frequency. Makes an awful lot of sense. But you probably wonder how well it actually works.

Well, I started December, 2009, at 164 with an estimated squat max around 360 (based on a hard triple with 325). I ended up at 188 lbs with a 430-lb squat about ten weeks later: almost 25 lbs of bodyweight (yes, half of it was fat and no, I don't care) and about 70 lbs on my squat. I got my calories largely from drinking a gallon of milk per day and just squatted an awful lot on *Pins Into Pillars* and then peaked with the *Russian Squat Routine*. I then cut to 179 for the meet and squatted 418. As a disclaimer, let me point out that I'd gotten to 176 lbs and my first four wheel squat (405) back in November, but had since regressed a bit by foolishly trying to stay in the 75 kg class.

Yes, this Russian shit is an awful lot of squatting. But the squat is a fine thing to do to distraction. If one must be an obsessive geek about something, you can find no better thing than the squat: not Dungeons and Dragons^R, Playstation, *American Idol*, cocaine, Jesus, or your own offspring. I would not fault you for finding more joy in the squat than in sex.

The Magic and the Science of the Low-bar Back Squat

The squat – particularly the proper low-bar kind of which I'm so fond – loads the musculoskeletal system like nothing else. It causes overall growth like nothing else. Maybe it's partly because the weight is borne atop the spine. It's surely largely because the squat – again particularly the low-

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bar version to below parallel, as we'll get to in a moment – allows the most weight to be moved through the most space in one continuous effort by the body's largest muscles which are also the ones used for the all important animal function of locomotion. The squat – particularly the proper low-bar kind that lets you use so damned much weight – is the real life equivalent of being bitten by a radioactive spider or getting caught in a gamma bomb explosion, by far the best way for you to become as close to superhuman as possible.

High-bar squats are hard. But *hard* does not always mean *optimal*, though hard is a good indication that you're moving in the right direction. The low-bar back squat lies almost exactly in the center of the continuum between a front squat and a good morning, while the high-bar is a bit closer to the front squat. The front squat by its nature removes a lot of stress from the hip extensors in order to focus on keeping the back vertical, and thus the quads, while the good morning leaves out the quads and focuses on the hip extensors. (These movements and their biases are both Useful Things depending on goals and context.) While the front squat and the good morning leave things out, the low-bar squat puts everything in, even more so than the high-bar, and it does so in as close to equal measure as you could hope. The low-bar squat is midway between the front squat and the good morning and uses as much muscle as the two combined, much the same way a bench press does more than flyes and tricep extensions separately, or a chinup does more than pullovers and arm curls separately. The low-bar squat is more of a blend, just about a perfect blend actually; it utilizes more muscle than the high-bar, which is largely why you can move about 30% more weight than you can with high-bar and for the same distance. It struck me just recently that the low-bar squat allows the use of almost as much weight as one can deadlift, but through a range of motion about as great as the much weaker high-bar squat. You will get very strong if you high-bar squat diligently, but you will probably get stronger faster if you low-bar squat with 30% more weight using even more muscle over a similar range of motion. It amazes me that I actually have to articulate this obvious fact.

Before this article is copied, pasted and disparaged all over the Internet, allow me to underscore this: I know that plenty of ungodly strong people have gotten that way on an exclusive diet of high-bar back squats. This does not mean that the low-bar squat isn't at least as effective and my assertion is that it is *at least slightly more* effective. The high-bar is *close enough*, and it has a very good track record. What I suspect, however, is that high-bar works much, much better for those whose anthropometry lends itself to a more vertical torso in the squat in the first place. My experience – and perhaps my individual anthropometry – has strongly biased me toward the low-bar version of the back squat as my variation of choice and the prescription for driving gains in every other athletic movement involving my lower body. Low-bar has been better to me than anything else.

The low-bar squat is often accused of carrying over to other squats and to pulls a lot less effectively than the high-bar squat. But my experience has been just the opposite. My high-bar squat (in which the belt helps far, far less) was maybe 275 lbs around this time last year. The 70+ lbs I put on my belted low-bar squat gave me about the same increase on my high-bar for a recent single of 345 lbs, without actually practicing the high-bar (tons of carryover without any specific practice is a sign that what you are focusing on is a very, very good investment of your time and efforts). My front squat improved quite a bit too. A year ago I couldn't even imagine getting a single with 225 and now my one-rep front squat max is 275. Again, the magnitude isn't meant to impress, but the improvement and its circumstances

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should help dispel some silly notions about the use of the belt and the low-bar back squat. For clarity's sake: my front beltless front squat max went up roughly 70 lbs because I improved my low-bar back squat with a belt by a little more than 70 lbs. The low-bar back squat (with a belt) built strength that showed up directly in a squat with a more upright torso and in which I did not use a belt.

My point is that it's possible to get to a 405-lb strict high-bar squat by getting your low-bar squat up to 500 lbs (your front squat would probably be around 315 at that point too). I suspect it's just as likely that your high-bar squat will be hovering around 500 lbs if you push your low-bar over 600 lbs. My experience tells me that at least for long-limbed lifters like me for whom a forward lean in the squat is more natural, low-bar is the more efficient way to get strong. Fanatic devotion to high volume low-bar squatting raised my high-bar poundage as a spillover effect at least as fast as practicing the high-bar squat would have. I think it might actually have been faster, which is why I squat the way I do and why I'm telling you about it.

A couple of days after my last meet, my quads were fatigued and burning. This struck me as odd because I'm a low-bar squatter and a sumo deadlifter. According to the conventional wisdom, I use my quads a lot less than a high-bar squatter or conventional puller. But this underscores my point: the low-bar squat is hitting every muscle of the hips and knees at pretty damned near their fullest potential. Before you ask – no, I haven't hooked up any machines to a sample group of athletes to prove this. I have watched all the muscles of my own hips and knees develop equally while my other squats and pulls have increased, all based on my low-bar squatting heavily and frequently. (None of this applies if you cut your low-bar squat depth high. There seems to be an unfortunate assumption about stance width and depth in the low-bar back squat: people seem to assume that low-bar automatically means a multi-ply, monolift type of set up and depth, that is to say very wide and fairly shallow. It doesn't.)

And there seems to be a little confusion about which muscles are not up to task when heavy squats turn into goodmornings. The prevailing belief seems to be that it is the quads that are too weak and that the body shoots the hips up and then performs the goodmorning because the combined strength of those big movers in the posterior chain is much greater than the relatively small and weak quads. But this deserves a bit of further investigation.

Getting bent over means that one has failed to maintain the back angle – the angle the back forms with the flat surface upon which one is standing. But holding the back angle as one rises in the squat merely means that one is *opening up the hip angle*. And the hamstrings open up the hip angle. Yes, turning the squat into a goodmorning largely removes the quads from the movement, but it's not the fault of the quads. Rather hamstrings that are not up to the task of stabilizing the back angle create a condition that robs the quads of their chance to contribute to the movement. If the knees extend and the bar doesn't move up, the muscles that extend the knees have merely worked on the knee angle and not the load.

If you've performed the low-bar back squat, then you will also know that getting the hams to stay in the movement, open the hip angle while maintaining the back angle and thus allowing the quads to work on the bar, is the really hard part. When your hips shoot up while the bar doesn't, your quadriceps have worked but your hamstrings have failed to. Given the choice I'm sure your quads

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would have been happy to have the force they'd generated be transferred to the bar. But if your weak hamstrings fail to open the hips at the proper rate, that cannot happen. Being able to hold the back angle under increasingly heavy weight means your hamstrings are getting stronger. This will allow your quads to stay in the movement. So stop blaming your quads, keep your back angle constant and get your hamstrings strong.

Belts Are Still a Good Idea.

Just like I think a proper low-bar squat will get you stronger a bit more efficiently than a high-bar squat, I also believe that using a belt in the low-bar squat is much more efficient than not using a belt. I had a chance to put this assertion to the test this past year. A year ago I believed that it made more sense to train the squat primarily without a belt and then train with the belt as the meet approached. Those of you familiar with my sensational debut article know that I've changed that tune. It turns out that it is far more productive to train the heavy work sets of squats with the belt consistently. Who woulda' thunk it?

Again, lots of people stronger than you and I have gotten that strong without a belt. Millions of people have also managed to have a lot more novel sexual encounters with strangers and without contracting interesting diseases; but that is a poor argument for unprotected sex with lots of strangers.

Training with the belt allows your abs to work harder which means you can load more weight on your back for a given volume of work. The upshot is that you get stronger faster. There are still many people who refuse to believe this and some of them occasionally register on the Starting Strength forums to tell me I'm full of shit. One belt-hater insisted that I could not know that belt-less training wouldn't have gotten me stronger faster. But I'm not going to pursue a game of Internet oneupmanship. I can report any given rate of increase and someone says I would have gotten more than that if I'd used a belt. Fine. All I can do is present the numbers and allow you to draw your own conclusions.

In my case, I started 2009 with a belt-less squat max of 315-325 lbs and a max of about 345-355 with a belt. I got 355 with the belt in the training cycle leading up to my meet in the 75 kg class, then 347 lbs in the meet itself. That summer I decided that using the belt on all the heavy sets would be a good idea. One year after I hit that 347 squat in the meet, my max with the belt is a clean meet best of 418 lbs and a very, very hard and ugly goodmorning-ish best of 430 in the gym, both at around 180 lbs. So I added about 70 lbs to what I could squat with the belt. I don't max without the belt anymore because I think it's just a little foolish to bother trying, but I do warm up without the belt until the work sets. Those warm ups always include two or three very easy belt-less reps with 315, which used to be my absolute max sans belt.

In case that's not clear: **my very difficult belt-less max became my easy belt-less warm up for reps because of a year of getting stronger using a belt.** If I had to guess, I'd say that my belt-less max right now is around 385, which would represent a one-to-one increase in my belt-less strength with my belted strength: 70 lbs on my belted squat, and 70 lbs on my belt-less squat, and almost as much on my belt-less front squat at about 65 lbs.

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A lot of people will read this report and still insist that I would have done even better by concentrating on belt-less training. If I thought I'd get stronger more quickly by using less weight without a belt, trust me, I would do so. I'm more interested in getting stronger than satisfying other people's notions of 100% RAW-ness. The belt will remain part of my heavy squat and deadlift training. I will continue to train with the belt because it comports with my observations about the universe and the ironclad laws of physiology that say that muscles contract harder when they have an external resistance against which to push (which is why we use barbells in the first place instead of lying down and tensing really hard). Giving my abs something to push against allows them to support my spine better, put more weight on the bar and train my squat and all the relevant muscles harder. I'd like to think the result – the commensurate increases in the strength I can demonstrate without the belt – would speak for itself, but I'm still expecting to find creatively insulting dissent around the Internet after this article is published.

Pretty Good Year

USAPL defines “raw” as limited to a belt, knee sleeves (without Velcro fasteners to make them tighter) and wrist wraps. My first meet I competed raw as a 75-kg lifter and managed to squat 347, bench 209 and deadlift 440. Exactly one year later at my last meet I competed raw as a slightly less skinny 179 lbs in the 82.5 kilo class and managed to squat 418, bench a lackluster 231 (leaving a lot on the platform, as they say) and deadlift 506 lbs. I'm sorry these number don't impress; I'm 5'10" and won't be particularly big and strong till I weigh well over 200 lbs. The point really isn't how much I can lift, but how much I've improved in various ways by focusing on one particular kind of squatting. A lot of the assertions I keep making in print are going to be held up against what I'm able to do. That's fine. I currently can't do anything remarkable, but I like to think I'm moving in the right direction and that my experiences with squat obsession – especially the low-bar squat with a nice, thick belt – are taking me closer to that magical place where observation is validated by ability. So far, the low-bar back squat has been very, very good to me, healing my hurts and making me better at more things than I care to list just now.

I am in constant awe at how random, dangerous, and painful an animal existence is. In the midst of all of this, barbell training – especially the squat – is the one human activity that I know brings improvement. Everything else – sex, art, music, philosophy, religion, politics, etc. – is suspect.

We'll talk about the pulls and the presses in the next installment. Till then may the belted low-bar back squat bring the same joy and meaning to your life that it has to mine.

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