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# Single?

Bill Starr explains how to sensibly integrate limit lifts into a strength program.

**By Bill Starr** **November 2011**

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There are definitely two schools of thought in terms of doing singles in a strength routine. Some coaches believe that athletes shouldn't do them at all because they pose a much higher risk of injury than higher reps. This group emerged during the '80s, when becoming a strength coach entailed taking certification tests, and most of them knew very little about actually lifting heavy weights. The majority were more concerned about not getting any of their athletes hurt in the weight room than they were about getting their charges extremely strong.





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What emerged were a number of extrapolating charts, from which a coach or athlete could determine how much he could do for a single simply by figuring upward from a certain number of reps. So if an athlete could back-squat 300 for 10 reps, his best single for that lift would be 390, if 10 lb. per rep was used, or 345 if 5 lb. per rep was used. This, according to the coach, was much safer, and the end results were the same.

But, of course, everyone who has ever handled any amount of weight knew this to be utter nonsense. It's the same as saying that if an athlete can run a 50-yard-dash in 4.6 seconds, his time for 100-yard-dash will be under 10 seconds. It would be nice if this were true, but in reality it isn't. If a strength athlete wants to say that he can bench 350 lb., he has to handle that amount of weight and not refer to any chart.

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This idea prospered primarily because the strength coaches and personal trainers didn't know how to incorporate singles into their athletes' routines. The extrapolations were an easy way out. When I was at Johns Hopkins, I can't tell you how many recruits came to the weight room with high-school records that were truly amazing. Five-hundred-pound squats, 400-plus benches, with corresponding numbers in a host of other exercises. When I found out these numbers were determined by charts and not by actually lifting those numbers, I knew they were bogus. And they always were. The 400-lb. benchers usually managed 315 at best. Most much less than that. And those 500-lb. squatters? Well, they were lucky to break 300 when they had to go below parallel.

As far as the risk factor of doing max singles, I was never concerned about that. I came out of an Olympic-lifting background where everyone in the sport, out of necessity, did lots and lots of singles. We had to. Contests required it. There were no competitions that utilized high reps to determine the winner. However, that is currently happening a great deal in testing at the end of off-season strength programs. This started in the NFL and filtered down to colleges and high schools, again for safety reasons. One lacrosse coach at Hopkins wanted to do the all-the-reps-you-can-do-idea for his final testing. I agreed, but only if the athletes would also do a max single at a separate testing session. I bet him that the one who had the highest single would also be the one who did the most reps. I always won the bet.

And as for safety, I am convinced that there is a higher risk factor when maxing out on reps with a given weight, usually body weight, or 225, than there is when testing a max single. Here's why: with a limit single, the athlete either makes the lift or he doesn't. Period. Yet with the higher reps, he will resort to every ploy in the book to add another rep. On the bench press, he will rebound the bar off his chest, bridge until he's standing on his head, and squirm and twist his body like a contortionist, putting a huge amount of stress on his elbows, wrists, shoulders and back. In addition, it's much more rewarding to be able to say that you benched 335 than it is to say you did 225 for 20 reps.

***If you want to say you lifted it, you have to lift it. No chart can do the work for you.***





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So I'm very much in favor of utilizing singles in any strength program, and this includes programs for females and young athletes. Older athletes would, for the most part, be better off avoiding singles, with the exceptions being those who are still competing in Olympic and power meets. However, there are a few exercises where it's smarter to stick with higher reps regardless of age and reason for lifting weights. Those exercises are primarily the ones that hit the lower back specifically: good mornings and straight-legged deadlifts. Ditto for back hyperextensions and reverse back hypers. The reason being that one false move or attempting a poundage you're not quite ready for can result in an injury, and any sort of harm done to the lower back can be extremely painful and troublesome to rehabilitate.

But apart from those exercises specifically for the lumbars, everything else is game, even movements for the smaller groups like the calves and biceps.

## Why Lift to Limit?

There are several reasons why I use singles in all my athletes' programs. First and foremost, they allow the lifter to move past the number barriers. Weightlifting is all about numbers, and there are some that pose more trouble than others. The century numbers are tougher to overcome than any others: 300, 400 and 500 on any exercise. These become mental obstacles for each and every athlete who touches a barbell. Three hundred is always a test of mental fortitude more so than pure physical strength. I've seen lifters do three reps with 290 and fail with 300. The strength was certainly adequate, yet the mind wasn't quite ready for than additional 10 lb. It's only human nature to fail at 300 lb. the first time you attempt it. Knowing how to use singles is very beneficial in overcoming those numerical barriers.

***In a limit lift, certain numbers present mental blocks: 135, 225, 300, 400 and 500. With training, you can learn to blow past them.***





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Another reason I like singles is that they help the athletes learn perfect technique. Form must be precise on a max single for it to be successful. When doing fives, threes, or even doubles, your form may be a bit off, but you might still be able to complete the lift. That's not the case in a PR single. Your groove has to be hairline, your coordination flawless, your exertion fully under control, and your mental preparation precise. Learning how to improve a single rep on any exercise has great carry-over value in sports. Learning how to focus completely on the task at hand is a discipline that can easily be carried over to any physical endeavor, such as settling your emotions and doing everything right when you're on the foul line for a chance to win the basketball game, or making the absolutely correct moves when lining up a shot in overtime to capture the national title in lacrosse.

As every competitive weightlifter knows so well, handling a max single is dependent on confidence, a mental surety that you are prepared for the task. And as the athlete learns to handle heavy singles over and over with success, he builds a greater belief in his powers and becomes very self-reliant. This is due in large part to the fact that once he learns how to deal with max singles, his lifts improve, which means he's getting stronger. I firmly believe that there is nothing in life quite as motivational as gaining strength.

***A heavy lift is as much mental as it is physical and will teach you how to set your mind.***

Performing a single rep on any exercise is useful in that it will reveal your weaker spot on the lift much more readily than by doing higher reps. For example, those who have a weak middle on the squat can often camouflage it if they have a very strong start out of the bottom. They can explode the bar upward with such force that they zip right through the middle so they don't really have to call upon those lagging muscle groups. They do fine as long as they're doing fives and even triples, but when they go after a heavy single, they can no longer blow right through the middle range, and beause the muscles responsible for that action are relatively weaker than the others, they're unable to finish the lift.

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The same thing occurs on the bench press. Because of a strong start, the bar climbs right through the middle range effortlessly—until the lifter is no longer able to provide such a powerful first move. The bar sticks and the weaker area reveals itself. Yet this is a good thing in a left-handed sort of way. For once you identify your weaker area on any exercise, you can then take steps to resolve the problem, and that will allow you to move to the next level. Getting stronger and stronger is really a matter of finding the weaker muscles and spending time doing specific exercises to bring them up to par. It's a never-ending process because as you grow older, your body is constantly changing, so you must learn to adapt in order to advance.

It is common knowledge that singles develop a different sort of strength than what you get from doing lower reps. Singles bring the attachments, tendons and ligaments into play to a much greater extent than any other numbers. Simply put, the lower the reps, the more the attachments are activated. Fives hit the attachments more than 8s or 10s, 3s more than 5s, and so on down the line. The secret to functional strength lies not in the muscles but rather the attachments, which should tell you how important it is to include some singles in your routine.





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Then there are the intangible benefits that come from setting a personal record on some exercise. A record boosts confidence like nothing else can, and once this snowball starts rolling, nothing can keep you out of the gym.

While many athletes shun singles for various reasons, others do them too frequently. Hitting a heavy single or a new PR is heady stuff, and some enjoy it so much that they want the high at every session. The basic thing to know about this is that the more advanced a strength athlete is, the more often he can do singles in training.

Jim Williams was the king of the bench press in the '60s. I saw him do 675 and barely miss 700 in 1969 in York. No suit, wraps, or any sort of aid from equipment, and he wasn't taking any steroids. I know this because Bob Bednarski asked him, and because 'roids were prevalent in the sport and not against the rules, he had no reason to lie.

Every time Jim trained the bench, which, by the way, was the only lift he trained regularly, he went to limit, and he trained four-to-five times a week. He was able to get away with it because he was very advanced and he was also well over 300 lb. Heavyweights can get away with lots of things that those lighter cannot.

And many of the foreign Olympic lifters hammer away at singles at multiple sessions in a day. Again, they can do this because they have, over many years of training, built a wide, solid foundation. But for average strength athletes, this will not work. What they must do is spend ample time building a firm base and perfect their form before moving on to a steady diet of singles.

On most exercises, there really isn't a whole lot to worry about in terms of getting injured by doing singles too soon because you usually won't be attempting that much weight. You will either make the attempt or miss it. No harm done. But that's not the case in the deadlift. If you try and pull on a weight that you're not ready for and end up using sloppy technique, you could seriously injure yourself.

### Ease Into It

One of the main problems of doing singles regularly and often on any exercise is that you are actually lowering your total workload. Compare doing a triple with 315 and a single with 335 on that same exercise. The 3s yield 945 lb. while the single only 315. The intensity is higher, but in the long haul, volume is ultimately more critical than intensity, especially in the formative stages of training.

***When you're starting out, it's best to avoid too many singles, even though a string of PRs can be addicting.***

So before you start trying any max singles, you need to slowly expand your workload with higher reps. The ideal strength formula has been found to be 4-6 sets of 4-6 reps. I use the median, 5s, because I am usually working with a large number of athletes and that makes the math easier. I also use 5s for individuals for much the same reason. It's simpler for them to do the math.

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Fives allow an athlete to slowly expand his workload while perfecting his form. On high-skill lifts, I use 5s for the warm-up sets, then triples for the higher work sets. On movements such as full snatches, full cleans, and jerks, few can handle much weight when they try to do fives but are able to handle 3s rather easily. On those dynamic exercises, form is most crucial, so lower reps are in order. To up the volume, I merely add in more sets. How many more is dependent on the condition of the athlete. If he has a solid background and good form, he may be able to knock out 5 or 6 heavy work sets at a session. Should he not be that far along, I limit the work sets to 3. Better to do each set precisely than to start building bad habits with sloppy technique.

And using good technique is essential because when form gets ugly, the athlete is not going to be successful with a limit single. So as the base strength is steadily improving, so must the form. If technique starts to get raggedy, back the numbers down until you are doing each lift perfectly, then slowly work back up the ladder again.

After the athlete shows that he can deal with heavy 5s, I insert triples into his routine for those same exercises. But I don't switch him to a steady diet of triples just yet, unless, as I mentioned, he's doing the Olympic lifts. Rather, I alternate the two programs: 5s one week, triples the next. Moving right to singles from 5s is too big of a jump, while the 3s serve as a nice stepping stone to the singles.

***Once athletes have hit lots of 5s and 3s, it's time to try some heavy singles.***

Triples require a very solid base and a close adherence to the small form points. The final rep in a set of 3 is very much like a max single and will give you a good idea how you will respond to doing a limit lift without actually performing one. And the slightly lower reps bring the attachments into play a bit more, again preparing you for the heavier single.

Many find, to their dismay, that the first time they attempt a heavy triple, they are only able to handle 5 or 10 lb. more than what they have been using for 5 reps. That's because they haven't as yet done enough work to strengthen their tendons and ligaments sufficiently to deal with the more taxing weight. It simply takes time and effort, and they will eventually be more proficient.

Then there is a small group of athletes who are able right away to convert from using 5s to 3s without any difficulty whatsoever. A large part of this is mental. Those athletes who have had success in an individual sport such as wrestling or boxing or the field events in track make this transition more readily than those who have only participated in team sports or no sports at all.

It is also dependent to a great deal of technique. The athlete who has consistently improved and honed his form on the 5s is much better prepared for the heavy triples than the athlete who has not. In addition, numbers have different effects on different athletes, and it has little to do with form or background of workload. It has to do with self-confidence. There were national-level Olympic lifters at York Barbell who could only make increases of 5 lb. on any exercise, including back squats. They just didn't have that much faith in themselves to try for a bigger increase. At the same time, I've had athletes in their first year of strength training be able to make increases of 40 lb. in a single week. Part of this is a stout belief in their own abilities, and also much of it has to do with mental preparation the night before a workout.

I usually have my athletes stay with a combination of 5s and 3s for at least a month before I graduate them to singles. Most are eager to try a max lift, but I tell them that they can pretty much figure out what they can handle from the triples. For most, it's 20 lb. over their best triple. I've had athletes come to me and ask, "Do you think I'm ready to squat 400 yet?" I ask in return, "What's your best triple?" "Three-seventy-five," he replies. "You have a good shot at it," I say. "The numbers indicate that 395 is your max, but if you get your mind ready for 400, you'll make it."





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***Having a specific plan of attack will help you prepare for a limit lift. Pick your warm-up sets carefully, and stick to the plan.***

This is the time I impress upon them the usefulness of mentally preparing for the upcoming workout. Hitting a max single is entirely different from doing a heavy set of 5s or 3s. Spending some time the night before a single session going over the numbers you plan to use, from the very first warm-up set to the final one greatly improves your chances of making a personal record.

### Go Big but Go Smart

There are a couple of ways of inserting singles into a weekly program, and which one you select depends on your personality. For most, and especially for those just starting in on doing singles, I flip-flop the singles on the various primary exercises in the routine. In other words, I have an athlete max out with a single on his bench one week, his back squat the next, and his power cleans on the third week. Or any variation of this. It really doesn't matter what order you choose. Same deal for Olympic lifters: one week the clean, next the snatch, and end up with a limit jerk. The same idea holds true for any grouping of exercises.

The other method which a few prefer is to go to a limit single on all three, or four, primary movements in the same week. Because this is what most scholastic and collegiate strength athletes are going to do during testing week, some athletes like this idea. And being able to make three or four PRs in a given week really stokes them.

But the question often arises, "What if I'm also doing inclines and overhead press and even weighted dips? Could I hit all those and my flat bench in the same week?" Sure, why not? If you've been training hard and have been making steady progress on those lifts, you'll be able to handle the max singles. Which are, by the way, less taxing in many ways that the 3s and 5s. What the singles tap into more than the higher reps is the nervous system, so whenever someone decides to have a full week of singles, I remind him to get extra rest, up his supplement intake and make sure he does his mental rehearsal religiously.

> As a rule of thumb, less is better than more when it comes to singles—although that rule doesn't apply to those doing full cleans and jerks and snatches.





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How often should you do singles? Unless you're doing the Olympic lifts, about once a month is sufficient. Of course, circumstances such as spring break, vacations at Christmas and Thanksgiving, and mid-terms and finals play a role in every scholastic and collegiate athlete's routine. As a rule of thumb, less is better than more when it comes to singles—although that rule doesn't apply to those doing full cleans and jerks and snatches. The more advanced a strength athlete is, the more often he can get away with singles.

The main reason you shouldn't do singles close together is that your workload is going to be much lower than when you do 5s or triples, and if you allow your workload to drop appreciably, it will have an adverse effect on your progress. For example, the difference between doing a back squat with 405 x 5 and hitting 435 for a single is right at 1600 lb., or more, depending on your warm-up sets for the limit lift.

So to make up that deficit, I have my athletes do 1 or 2 back-off sets of 8 or 10 reps to help preserve the workload to some degree. If the athlete misses his single attempt, I have him double up on the back-off sets. Except for the deadlift: once you're done or missed an attempted poundage, you're through for the day. A back-off set is merely an invitation to injury.

For my very advanced strength athletes, I utilize a modified version of Doug Hepburn's program, which he gave to me when I visited him in Vancouver, B.C., in 1969. His program consists of doing 5 sets of singles followed by 5 sets of 5. That's a bit much for anyone to start out with, but I've found that they can handle 3 singles then 3 sets of 5 without any difficulty. The beauty of this routine is it provides plenty of intensity with the singles and also some solid work for the volume side of the coin.

But this strategy only fits in the programs of advanced athletes. They must have a solid strength base, and they must also have mastered the art of full concentration. After the singles, most think they're over the hump, yet the most difficult part of this program is the sets of 5. Total focus is critical on these because the tendons and ligaments have already been tapped.

Start out conservatively with Hepburn's program. It's much tougher than it appears on paper. Let's say your best bench is 325. Start out using 305 for your singles, then drop back 50 lb. for your sets of 5. The key to making this bring results is that you have to make every rep on the singles and 5s before you can add more weight. The fly in the ointment is usually found on the final set of 5 because at that point you think you're home free. You aren't.

When you're successful on every set, add 5 lb. to both the singles and 5s, and you'll soon move right past your former best. I've had several competitive lifters who were able to elevate to the full Hepburn routine of 5 sets of singles followed by 5 sets of 5. And it's a good idea to only do Hepburns for about a month or 6 weeks in a row. Then switch to another program for a while.

Singles will make you stronger, but only if you use them sensibly.

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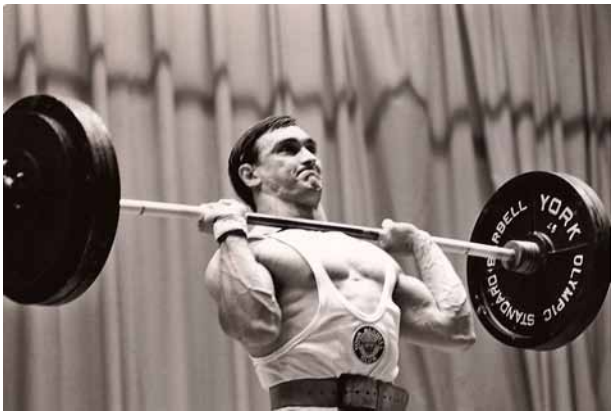


Jody Forster

**About the author**

*Bill Starr coached at the 1968 Olympics in Mexico City, the 1970 Olympic Weightlifting World Championship in Columbus, Ohio, and the 1975 World Powerlifting Championships in Birmingham, England. He was selected as head coach of the 1969 team that competed in the Tournament of Americas in Mayaguez, Puerto Rico, where the United States won the team title, making him the first active lifter to be head coach of an international Olympic weightlifting team. Starr is the author of the books* ***The Strongest Shall Survive: Strength Training for Football*** *and* ***Defying Gravity****, which can be found at The Aasgaard Company Bookstore.*





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