

How to Perfect the High-Bar Back Squat

Posted on [March 18, 2016](#) by [Dr. Aaron Horschig](#)



The high-bar back squat is typically one of the first barbell exercises young athletes are taught today. By perfecting technique an athlete has the potential to lift bigger weights with less risk for injury.

It doesn't matter how hard you push. It doesn't matter how well the training plan is written. Any flaws in their technique will limit their maximum potential.

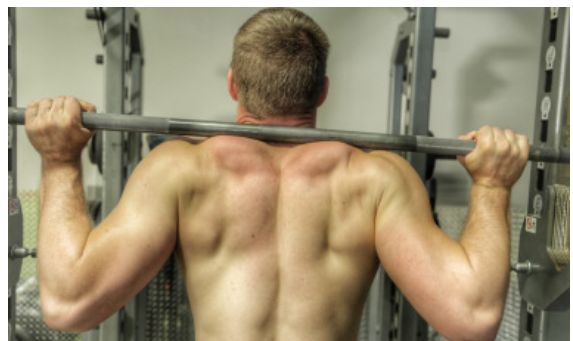
The Lift Off

The first part of successful barbell squats at the rack. The bar should be set around chest height. Setting the bar too high or too low can force a lifter to put themselves in a dangerous position in order to un-rack and re-rack the weighted barbell.

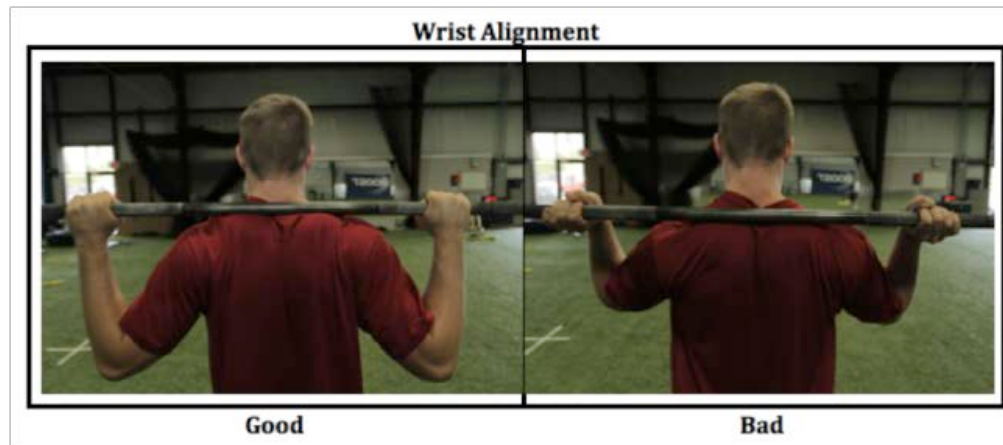


The next step is to get the bar into the correct position on your back. Pull yourself under the bar and trap it tight against your tops of your shoulders and back of your neck. By pulling your shoulder blades together a 'shelf' will appear through the contraction of the upper back muscles. The bar should be positioned on top of this shelf.

The type of grip taken on the bar will be a personal choice. Some will hook their thumb under the bar while others will keep it on top of the bar (monkey grip). Regardless of the way you decide to grip the



bar, a neutral wrist alignment is ideal. The straightforward wrist allows the weight of the bar to be safely secured on the back without placing too much pressure on the elbows.



It's now time to un-rack the bar. Position yourself under the bar with your feet evenly spaced around shoulder width. Take a big breath while bracing your core. Extend your hips and knees at the same time (with even pressure between both legs) and stand up with the bar.

Often athletes try to un-rack the bar with their feet staggered. With lighter weight on the barbell it is easy to get away with this move. However, as soon as the weight increases to high levels, un-racking the barbell in this manner can be dangerous.

It is also common to see athletes try un-rack the bar without a braced core. Without bracing your core, it's difficult to organize and create appropriate stability needed to complete the lift. Case in point, you don't see many 900 lb squats where the athlete un-racks the weight in a casual manner. The tremendous weight of the bar would instantly crush the athlete.

The Descent

The descent of the barbell squat follows the same principles of the [bodyweight squat](#) with two small changes: foot placement and breathing mechanics. Now that an athlete is squatting with a barbell they may turn their toes out slightly. This allows the athlete to squat deeper while maintaining stability.

Barbell squatting also requires proper [breathing mechanics](#). By harnessing the power of the breath an athlete will lock their lower back into a good stable position. This allows for more weight to be lifted without risk of injury to the spine. After un-racking the bar properly, take three slow steps backwards and establish your squat stance. The width of this stance should be comfortable and allow for full range of motion. For this reason, every athlete will have a slight difference in stance width.

Next, the ['tripod'](#) foot needs to be engaged. All three points of the foot need to be in equal contact with the ground. If done properly, the foot will move into a full arched position. This allows the foot to remain stable and support the rest of our body just like the base layer for a 'house of cards.'

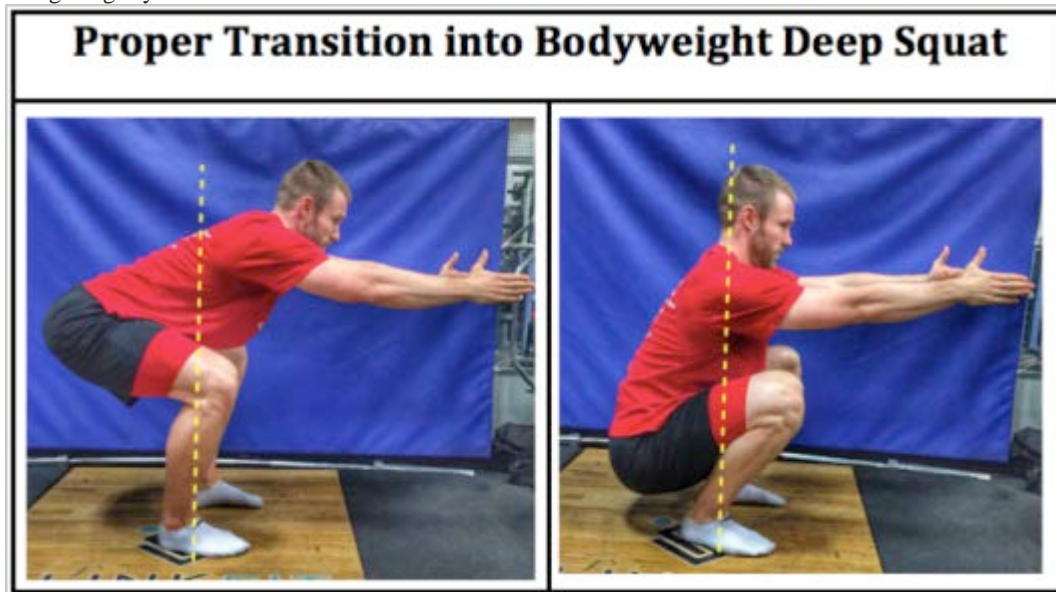


The next step is to create external rotation torque at the hips. By squeezing your glutes, torque is generated at the hip joint and the knees are brought into correct alignment with the toes. Next, take another big breath 'into your stomach' and brace your core like Mike Tyson is going to punch you.

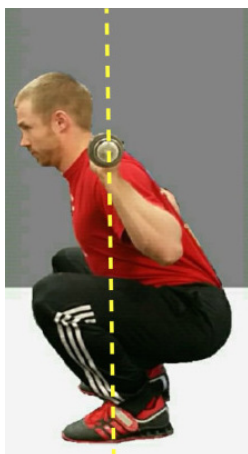
The last step is to engage the posterior chain (glutes & hamstrings). This happens with a proper hip hinge. Push your hips backwards slightly and bring your chest forward. Once the hips are engaged, start your squat. Don't think about going to a certain depth. Just squat.

The Bottom Position

In order to produce efficient strength and power during the squat we must remain balanced. This requires our center of gravity to stay directly over the middle of our foot. During the [bodyweight squat](#) our center of gravity was located near the middle of our stomach. Depending on the physical make-up of an athlete (height, weight, leg length, etc) this location may change slightly.



In order to stay balanced during the bodyweight squat the torso has to be inclined over the knees. During the barbell squat however, the bar now becomes our center of gravity. Due to the position of the weight during the high-bar back squat, a more upright torso position will be used.

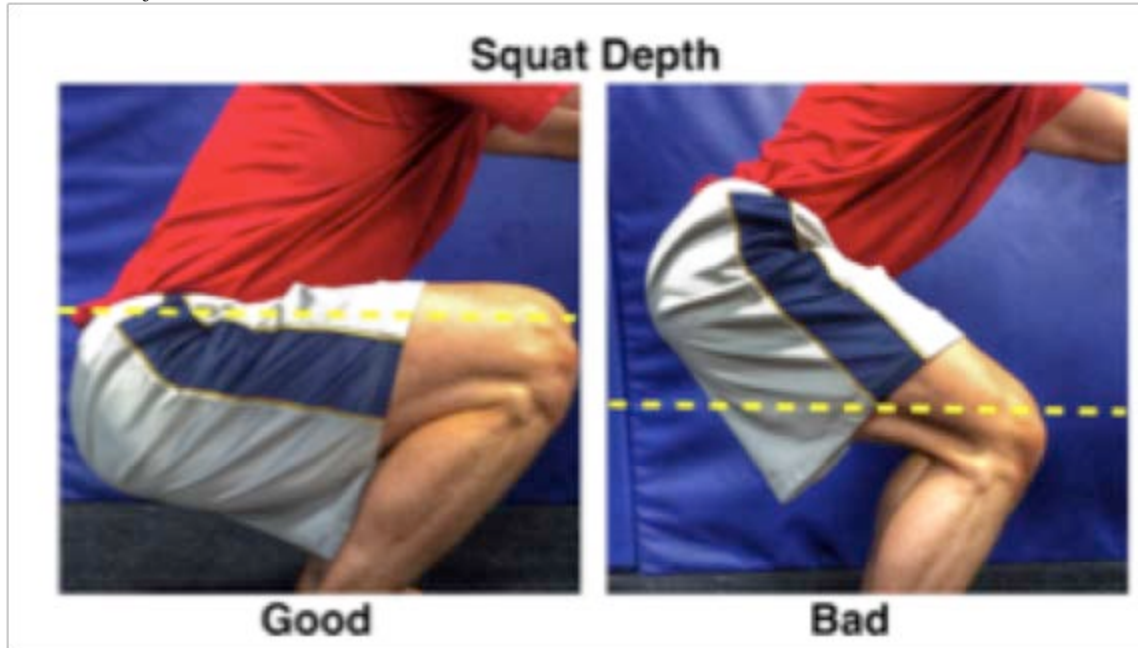


This technique change will cause the knees to eventually move [forward past the toes](#) in order to reach full depth. This shift balances the load between the quads and glutes. It also requires an athlete to have adequate [ankle mobility](#). For this reason, athletes with stiff ankles can often show perfect squat technique with no weight but will struggle during the high-bar variation.

The high-bar back squat is usually performed to a [greater depth](#) than the low-bar version (commonly used by powerlifters). In the competitive sport of weightlifting (i.e. snatch and clean

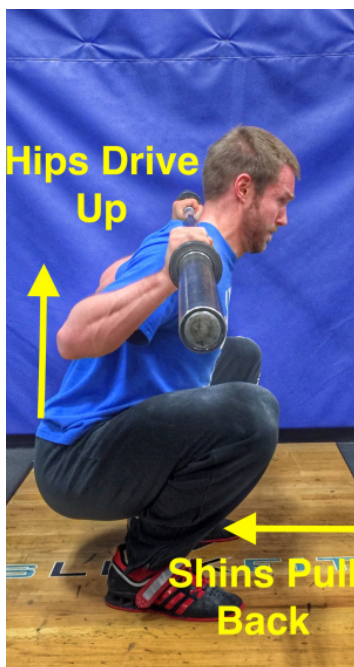
& jerk) the weight is often caught in a very deep squat. The high-bar technique therefore translates well into the sport of weightlifting and crossfit.

That being said, not all athletes are training to compete in the sport of weightlifting. For this reason, the barbell squat does not always need to be taken ass-to-grass. Depth of a barbell squat will be specific to the demands of the sport an athlete participates in. Every athlete should be able to hit at least parallel depth. This means the crease of the hip will be parallel with the knee joint.



The Ascent

The ascent of the squat is all about hip drive. From the bottom of the squat the hips should be driven up while the shins are pulled to a vertical position.



Elite weightlifters at times will use a forceful transition in their bottom position. This is a skilled maneuver that can allow an athlete to lift more weight. Technique is imperative if this powerful move is to be attempted. Alignment of the knees must be maintained. If performed correctly the rebound will feel like a spring releasing, propelling you upwards with tremendous power.

The torso must also be maintained in a stable position during this part of the lift. Often inexperienced athletes will let their back collapse and round forward. If an athlete tries to forcefully bounce out of the bottom position without proper control, they risk losing stability at the low back. When this happens harmful forces are instantly placed on the vulnerable structures of the back.

A forceful transition should always be learned under the direct supervision of an experienced coach. If performed incorrectly it can easily lead to technique breakdown and eventual injury.

High-Bar Sequence

- Pin the barbell tightly against the 'shelf' of your upper back.
- Establish a stable tripod foot.
- Generate external rotation torque at the hips (Verbal cue: squeeze your glutes)
- Create a rigid trunk by taking a big breath and holding it tight. (Verbal cue: big breath & core tight)
- Hip hinge to engage the posterior-chain. (Verbal cue: hips back)
- Remain balanced by keeping the bar over the mid-foot during the entire squat.
- Use hip drive to stand up from the bottom position. (Verbal cue: drive the hips up and pull the shins back to vertical).

Until next time,

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