

The Top Five Glute Exercises

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The information in this book is offered for educational purposes only; the reader should be cautioned that there is an inherent risk assumed by the participant with any form of physical activity. With that in mind, those participating in strength and conditioning programs should check with their physician prior to initiating such activities. Anyone participating in these activities should understand that such training initiatives may be dangerous if performed incorrectly, and may not be appropriate for everyone. The author assumes no liability for injury; this is purely an educational manual to guide those already proficient with the demands of such programming.

It has been said that the gluteus maximus is the largest, most powerful, and most "athletic" muscle in the human body. The gluteus maximus is heavily involved in hip extension, hip external rotation, and hip abduction, making it one of the most important muscles in sports. Electromyographical (EMG) analysis has shown that the upper and lower gluteus maximus fibers function differently from one another. While all fibers are involved in hip extension, hip hyperextension, and hip external rotation, only the upper fibers are involved in hip abduction and single leg support (8,19,21,44).

According to these actions, the gluteus maximus is highly active in squatting, deadlifting, running, jumping, climbing, cutting, throwing, and swinging. The faster you run and farther you jump, the harder the gluteus maximus contracts (20,23-25,28,30). Furthermore, peak joint power in the hip increases in greater proportion than the knees or ankles as running speed increases (2,29). Hip extension angular velocity increases with speed (22). Finally, hip strength appears to be more important than knee or ankle strength as far as sprinting is concerned, and the hip extensors are likely the most important muscles for forward propulsion (2,10,14,25,29,36,46). As you can see, it's very important to optimize your training program to ensure you're not leaving any room on the table as far as glute strength and power are concerned.

Six Separate Strength Qualities

Many strength coaches and researchers believe that there are six separate strength qualities that need to be optimized in athletic preparation (34). These qualities are maximum strength, strength-speed, speed-strength, rate of force development, reactive strength, and skill. Skill requires the athlete to blend the other five strength qualities together to formulate the best motor program depending on the task at hand.

Hip strength has been shown to be related to sprint speed especially at higher speeds (3,14). If we hone in on the strength aspect of athleticism, we realize that strength is based on directional vectors and ranges of motion. It is quite possible to be strong in one direction and weak in another. It is also quite possible to be strong at a certain range in a given motion but weak at another range within that same motion. This is especially evident at the hip joint as the moment arms of the hip

musculature change dramatically throughout various ranges of motion and some of the muscles actually reverse roles depending on their positioning (11). For example, certain adductors can be flexors or extensors depending on the level of hip flexion.

Traditional strength training methods have done a relatively good job of training the gluteus maximus. Standing free-weight hip extension exercises such as squats, deadlifts, and lunges do a great job of targeting the gluteus maximus in hips-flexed positions. These exercises strengthen the gluteus maximus from a vertical standpoint as they have you moving weight upward and downward while standing. Most standing hip extension exercises stress the gluteus maximus down low while the hips are bent forward significantly.

However, as the movement progresses, tension on the gluteus maximus diminishes. By the time the hips reach neutral position, the stress on the gluteus maximus has all but vanished. This phenomenon is an inherent flaw in the nature of standing free-weight hip extension exercises which can be verified through biomechanical analysis including electromyography, moment arm analysis, and inverse modeling. There are certainly exceptions; for example the power clean is an example of a standing exercise that works the gluteus maximus through a fuller range of motion due to the bar acceleration into end-range hip extension.

Since strength and power are dependent on the range of motion and direction of resistance, it is wise to take an analytical approach to exercise selection and make sure that the various muscle groups and movement patterns are properly strengthened through their entire ranges of motions. In the case of the gluteus maximus, it has been well documented that the moment arm for the gluteus maximus increases as the hip extends from a flexed position toward anatomical position (5,11,16,32,35,38,45).

Horizontal Loading

While there are many different types of glute exercises (hip extension, hip abduction, hip external rotation) and many types of hip extension patterns (standing quad dominant, standing hip dominant, prone

hip dominant, supine hip dominant, etc.), a strong case can be made for the inclusion of supine and prone bent leg hip dominant exercises.

Although this category isn't as "sport-specific" in terms of functional positioning, it does allow the exerciser to 1) train the hips in a horizontal fashion, 2) maximize the tension on the gluteus maximus in the hips-extended position, 3) possibly enter into hip hyperextension, 4) maximize gluteus maximus activation, and 5) maximize gluteus maximus hypertrophy.

Note that vertical loading is extremely important and forms the foundation of a well-designed strength training program. Horizontal loading balances strength and adds icing to the cake. Research indicates that horizontal plyometrics may correlate better to sprinting than vertical plyometrics (15). It is very important to have strong hip extensors through a full range of motion to prevent injuries at extreme ranges of motion (39).

An overwhelming amount of research now indicates that horizontal force production in maximum velocity sprint speed is more important than vertical force production (6,17,18,24,25,31,37,41). Horizontally-loaded hip extension exercises might transfer to sprinting quite well especially when coupled with vertically-loaded hip extension exercises. Note that vertical and horizontal power exercises including plyometrics, ballistics, and sprints should be incorporated as well if maximum speed is the goal.

Recent pilot data indicates that gluteus maximus activation is maximized by horizontally-loaded, bent knee exercises (1,8,9). This notion is also supported in the literature (42,47). Preliminary experiments show the hip thrust exercise typically activating over three times as much gluteus maximus musculature than maximal squats (9). Research indicates that maximum hip extension torque occurs with the hip in a flexed position, however maximum gluteus maximus activation occurs at a neutral hip position (27,33,47).

In sprinting, peak torque and gluteus maximus activation appear to occur during ground contact at a more hips-neutral posture, which is more specific to horizontal hip strengthening exercises in this regard (20,26,36,40). Furthermore, increased gluteus maximus hypertrophy will

likely lead to increased propulsive rate of force development via increased cross-sectional area. As the late sprinting guru Charlie Francis liked to say, "Looks right, flies right" (13).

Researchers have suggested the supplementation of horizontal hip strengthening exercises to traditional vertical strength training methods (4,12). There have been several experts who were most likely quite "ahead of the research" in regards to understanding sprint biomechanics and training adaptations. Knowing what we know now about sprint biomechanics, one can better appreciate pioneers like Charlie Francis, Ralph Mann, and Yuri Verkhoshansky (7,13,43). As a matter of fact, Verkhoshansky developed various advanced bridging maneuvers several decades ago, which were "special exercises" for track and field athletes such as sprinters and jumpers.

An argument could be made that it is indeed possible to overload the hips in a horizontal fashion through standing hip extension training. For example, a cable pull-through or kettlebell swing could theoretically achieve the same effect as a supine hip extension exercise. However, the inherent flaw in a cable pull-through is its extreme instability with heavy loads and the inherent flaw with the kettlebell swing is that it acts mostly on speed-strength. Last, a similar argument could be made for the reverse leg press, a standing horizontally-loaded hip extension exercise popularized by Charlie Francis used in the training of Ben Johnson. However, the reverse leg press requires a Universal machine which is antiquated and isn't conducive to the training of taller athletes.

The Hip Thrust

Clearly, the strength & conditioning profession has been in need of a stable, convenient, and effective horizontally-loaded hip extension exercise that is conducive to heavy lifting. Enter the hip thrust.

The hip thrust exercise could be thought of as a "glute bridge on steroids." By increasing the range of motion around the hip joint and increasing the load on the hips, the gluteus maximus has to contract very hard through a full range of motion. The torque on the hips increases as the concentric movement progresses to a hips-neutral position. In this case, the movement doesn't possess the same inherent flaw as most

standing hip extension exercises, which is the flaw of requisite deceleration at the top portion of the movement. The hip thrust can be performed with low reps, medium reps, high reps, cluster reps, pause reps, explosive reps, and constant-tension reps depending on the situation. As alluded to earlier, the hip thrust lends itself very well to heavy lifting. Some strong powerlifters, Olympic lifters, and strongmen have built up to 600 lbs for 5 repetitions!

Progressions

Prior to jumping right into heavy hip thrusts, it is very important that the exerciser starts at ground-level and works his or her way up to hip thrusting. Failing to do so will likely result in low back injury on account of "false-hip extension" which involves hyperextending (overarching) the lumbar spine due to poor gluteus maximus strength.

It is highly recommended that the exerciser spend time making sure that hip flexor length and tonicity and glute activation is up to par before putting a bar on the hips. Here are some recommended activities to be performed throughout the entire month prior to placing a bar on the hips:

1. Foam rolling and self myofascial release for the hip flexors
2. Static stretching, active stretching, and mobility drills for the hip flexors
3. Glute activation in the form of side lying clams, bodyweight glute bridges, bodyweight quadruped hip extensions, single leg glute bridges, and bird dogs

After getting acquainted with the aforementioned activities, it's time to start progressing. It is now recommended that you begin to load up the hip joint. However, you don't have to solely perform the hip thrust. There are several different amazing glute exercises that are horizontally-loaded.

Below are the five best glute-specific exercises. Pictures and suggestions will be included with each exercise. All of the following movements are best performed in the 5-10 rep ranges. Experienced lifters can go lower in reps; the author can get away with doing sets of 3 reps in the hip thrust, but beginners should start with sets of ten.

1. Barbell Glute Bridge



1. If you ever plan on getting strong, you must purchase a Hampton thick bar pad. This is non-negotiable. Otherwise you risk injury to the hip flexor and pubic regions.
2. Make sure the slit in the Hampton thick bar pad is facing upward when placed on the hips, otherwise it will fall through the slit.
3. If using heavy weight, simply start with the bar at the feet and roll the bar over the thighs until it settles at the hips.
4. The knees should be bent at around 90 degrees throughout the movement.
5. Make sure the knees track over the toes; don't let them shift around.
6. Rise as high as possible without extending at the lumbar spine by squeezing the glutes forcefully.
7. Push through the heels. It is okay to dorsiflex the ankles but certainly not required. Don't come up onto the toes via plantarflexion.
8. When learning the movement, brace the abs to help prevent lumbar hyperextension. Over time it won't be necessary to brace the abs as proper lumbopelvic and pelvifemoral movement will be automatic.
9. More weight can be used on the barbell glute bridge in comparison to the hip thrust due to the shortened range of motion. Quid pro quo. It is this author's belief that the hip thrust is the better of the two lifts but beginners should start with the barbell glute bridge and get the "feel" before progressing to the hip thrust.

10. It's okay if you feel it mostly working the hamstrings at first. Some even experience hamstring cramping. This goes away over time as the exerciser learns to use their glutes in a greater proportion which relieves the hamstrings from being the major contributors.

11. Start out with just the bar and progress gradually over time. Most men can move up in 40-50 lb increments, whereas women should move up in 10-20 lb increments.

2. Hip Thrust



1. The same tips that apply to the barbell glute bridge apply to the hip thrust.
2. Place the upper back against the bench at around the low-bar squat position used during heavy squatting.
3. The bench is an anchor point; there should be no sliding up and down the bench throughout the movement.
4. Make sure the bench is stabilized as it will slide backward when going heavy.
5. Keep the head and neck close to neutral.
6. It's okay if you feel it mostly working the quads at first. In time, you will feel working the glutes tremendously. Just keep plugging away and eventually you'll feel your glutes burning like crazy.
7. Some strong women have worked their way up to 245 lbs on this

exercise, and, as mentioned previously, some strong men have worked their way up to 600 lbs!

3. Single Leg Hip Thrust



1. Place two benches several feet apart. A box or step can be used as well.
2. Position the back against the bench and spread your arms for increased stability.
3. Begin with the weaker leg and match what you did with the stronger leg.
4. Place the middle of the foot against the bench, box, or step. As an alternative you can place the back of the heel up on the bench, box, or step as well.
5. Same rules; move at the hips, not the spine. Squeeze the glutes very hard up top.
6. Make sure to use a full range of motion; don't skimp! Touch your butt to the ground and rise up to parallel (or even slightly higher via hip hyperextension).

4. Pendulum Quadruped Hip Extension



1. The last two movements require a reverse hyper machine.
2. Place a mat underneath the machine to reduce pressure on the knees.
3. Position the body directly underneath the machine.
4. Brace the side rails as hard as possible to allow for irradiation and transfer through the core.
5. Keep the head and neck close to neutral.
6. Keep the low back in neutral. This will be extremely challenging under load. For some reason, this is one of the hardest core exercises you'll ever do. Brace the abs when learning the movement to control the core and prevent lumbar extension.
7. Use a full hip range of motion but make sure you don't enter into lumbar flexion at the bottom of the movement or lumbar extension at the middle or top of the movement. Feel the glutes pushing straight up.
8. Prevent lateral or rotational shifting of the core. Again, this is very challenging.
9. Start out light with around 10 lbs on the pendulum and work your way up gradually over time. Some strong women have worked their way up to 75 pounds on this exercise over time. Some strong men have used 125 lbs. But these strength levels take time to develop.

5. Pendulum Quadruped Donkey Kick



1. Most of the tips that apply to the pendulum quadruped hip extension apply to the pendulum donkey kick.
2. Position the body underneath and out in front of the machine. Note the forward shift in comparison to the pendulum quadruped donkey kick.
3. While extending the hip, simultaneously extend the knee joint. Make sure you use a full range of motion in both joints.
4. It is possible to use slightly more loading in the pendulum donkey kick than the pendulum quadruped donkey kick.

Simple Programming Suggestions

As previously mentioned, time should be taken up front to familiarize one's self with the newer exercises. Simple bodyweight low load glute activation drills can be performed prior to adding load. It is this author's belief that the hip thrust exercise variations and pendulum variations should be performed year-round. I suggest performing only one of the five exercises per workout. Squatting and deadlifting variations should always be performed prior to bridging or pendulum movements, as should any explosive movements like cleans, snatches, jump squats, jerks, sprints, or plyos. A typical strength workout that I like to perform is 5 sets of full squats, 3 sets of deadlifts, and 3 sets of hip thrusts. That's it. Rotate the exercises over time. After getting accustomed to horizontally-loaded hip extension exercises, you'll likely be hooked, as your glutes just won't get the same workout from vertically-loaded hip extension exercises.

Here's an example week (just the lower body portion) for an advanced lifter training for strength and hypertrophy:

Monday:

Full Squats: 5x3
Deadlifts: 3x3
Hip Thrusts: 3x5

Wednesday:

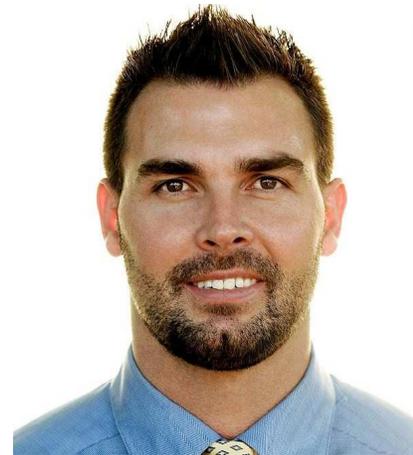
Bulgarian Split Squats: 2x10/side
Single-leg RDLs: 2x8/side
Single-leg Hip Thrusts: 2x10/side

Friday:

Front Squats: 4x6
Rack Pulls: 3x1
Pendulum Donkey Kicks: 2x10/side

About the Author

Bret Contreras received his master's degree from Arizona State University, graduating Summa Cum Laude. In addition to receiving a Certified Strength & Conditioning Specialist certificate from the National Strength & Conditioning Association, Bret has owned his own personal training studio named *Lifts*, invented a piece of fitness equipment called *The Skorcher*, and intends to pursue his PhD in the very near future. You can find Bret on Facebook, Twitter, Youtube, and his blog at www.BretContreras.Wordpress.com.



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