Growth Protocol Application of the Posterior Thigh: A Phase Strategy Covering 8 Sessions

Researched and Composed by Jacob Wilson, BSc. (Hons), MSc. CSCS, and Adam "Old School" Knowlden

Abstract

The information presented in the "Analysis of the Muscles Which Act At the Hip" and "Knee Joints and the Analysis of the Posterior Thigh" will be combined to create a hypertrophic/hyperplastic precise protocol. A span of 8 sessions will be prescribed with the specified goals characteristic of the sport of body building (mass, symmetry, detail) in mind.

This prioritization program (See:) will incorporate arduous use of knee flexion and hip extension as a targeted goal-assessment for achieving growth in the hamstring muscle complex.

Recommended Readings:

Active Recovery - A Threefold Break down

Mobility Training and the Application of Proper Warm-Up for Bodybuilders

Pressurization as Applied To Spinal Stability

The Window of Opportunity

The Ultimate Anatomical Guide to Freaky Big Calves Part I

24 Weeks to Battering Ram Pushing Strength Part V (Triceps Guideline)

Recommended Split Prioritization for Hamstrings:

3 to 5 Day Split	**Train Hamstrings First in Leg Routine**
6 Day Split	**Train Hamstrings on a Day of Their Own**
AM/PM Split	**Train Hamstrings in the AM**

Session One:

Hamstring Raises- 4 sets

The primary exercise of Session one will incorporate the use of a Hyper/back extension machine as shown in figure one. Hamstring raises are a power exercise that has the incredible capacity to make use of the hamstrings' essential, eccentric needs.

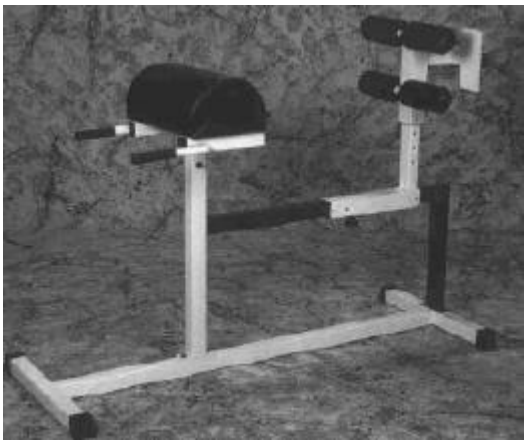


Figure One. Hyper Extension Machine

Begin by adjusting the cushioned supports and kneel upright in the back extension apparatus. Position the knees on the near-upper side of the padded hump, keeping the ankles between the padded supports, and feet on the platform. Make sure the body is tight into the machine for maximal tension on the hamstrings.

As an option for more advanced athletes, place a barbell on the back of the shoulders and grasp the bar at the sides.

From this starting position, lower down until the body is completely horizontal.

Continue lowering until the knees are straight. Raise the body back up along the concentric plane of motion, by flexing the knees and only allowing the hips to slightly bend.

This exercise will test the athlete's flexibility and strength. A proper warm-up prior to this exercise is highly recommended. (See: Mobility Training and the Application of Proper Warm-Up for Bodybuilders.)

Focus on a strong eccentric lowering. The handrails on the front of the machine can be used to take the set further into fatigue, by pressing the body off of the bottom portion of the movement, effectively cheating on the positive portion of the exercise. -

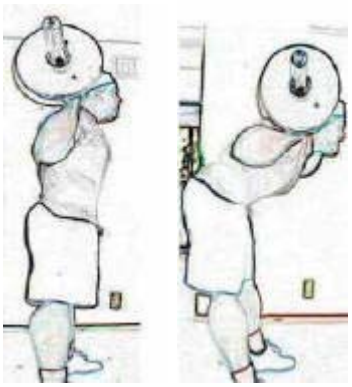
Barbell Good Mornings - 3 sets

The Good Morning has been well documented as a renowned lower-body posterior mass-builder. Utilizing heavy stabilization of the erector spinae, this movement is a staple exercise of the hypertrophic athlete.

By exploiting different knee positions, the Good Morning can effectively target either the hamstrings or the lower back region.

Begin either form of the Good Morning by situating the barbell on the back of shoulders and grasp the bar at the sides.

The difference between targeting the lower back and hamstrings is knee situation.



To hone in on the lower back, incorporate a slight bend in the knee throughout the lowering portion of the movement (the quadriceps can be kept bent throughout the exercise). From this position, bend at the hips to lower the upper-body until it is parallel to the floor.

Once at the bottom of the movement, the quadriceps should be angled close to 45 degrees. From the bottom of the range of motion, raise back up until the hips are extended.

For isolating the hamstrings, do not bend the knees during the execution of the movement. Keep the legs straight and unbent (the unlocked knee position may be slightly compromised by a minute curve). Doing so will effectively mimic better hip extension, concentrating effort on the hamstrings.

Throughout both types of movements, the back should be kept straight.

Incorporate rest-pause to achieve additional reps beyond failure.

Multi-foot Position Machine Kneeling Leg Curls - 3 sets

All three muscles that make up the hamstrings extend the hip joint and flex the knee.

MacConaill and Basmajian (1) demonstrated that the entire hamstring group contracts, regardless of whether hip extension or knee flexion takes place. The isolated effectiveness of the semimembranosus, semitendinosus, and long head of the biceps femoris as extensors of the hip are related to knee joint action (3).

By utilizing eversion and inversion, the various heads of the hamstrings can be effectively targeted.

The standing leg curl can also be used to identify muscular imbalance in the hamstrings.

As muscular fatigue is attained, the feet will rotate in one direction if there is an imbalance between the two heads of the hamstrings. If they medially rotate, the semi-tendinosus and semi-membranosus are too strong for the biceps femoris. If they laterally rotate, the biceps femoris is too strong for the semitendinosus and semimembranosus.

In general, perform 2 sets with a neutral foot positioning, 1 set with feet inverted, and 1 set with feet everted. For added intensity, integrate double or triple drop sets.

However, upon performing the test for muscular imbalance, if one head of the hamstring grossly overcompensated for the other, perform the correct foot positioning to more directly train the weaker head.

Session 2:

Dumbbell Straight-legged Deadlift- 4 sets

Research has shown the superiority of the stiff-legged deadlifts and leg curl in stimulating the hamstrings.

Scientists used integrated electromyography (EMG) and peak EMG to analyze the biceps femoris and semitendinosus independently during the concentric (CON) and eccentric (ECC) phase of each exercise.

The results were as follows: CON-LC and CON-SLDL elicited the greatest integrated EMG activity (5).

By emphasizing different methodologies of this compound lift, such as cables, dumbbells, and machines, maximal hypertrophy can be attained. Dumbbells offer the advantage of even distribution of weight, forcing both sides of the body to work more evenly than typical barbell work. This alternative works well for identifying strength disproportions.

Safety with any form of dead-lifting movement is fundamental, and is especially vital with the Straight (or stiff)-Legged Deadlift. Proper execution of the exercise can be viewed here: Stiff Legg Deadlift

"Again, on the SLD, your gripping and leg *spacing are similar to the RLD, but, the exercise is performed stiff-legged. The key here is to get as full a range of motion as possible without rounding the back. The rounding of the back places undue strain on the ligamentous structures of the back. The forces on the lumbar spine are tripled when this occurs.*
Note: These are called stiff-legged, but I would recommend keeping the knees "soft," meaning that you will not have them completely locked, but just shy of lockout throughout. The main difference between the stiff-legged dead lift and the bent-legged persuasion is that the former eliminates the knee extensors from entering the movement. This provides much greater isolation of the posterior chain. However, the latter allows you to lift a greater load. Both are a must in the battle of the big boys!"- Jacob Wilson (4)

Begin the Dumbbell Stiff-legged Deadlift standing with a shoulder-width or narrower stance, grasping the dumbbells at the sides.

While keeping the knees straight, lower the dumbbells to the top or sides of feet by bending at the hips. Bend at the waist as the dumbbells are lowered. Return by extending the hips and waist until standing upright.

Keep the arms and knees straight throughout the lift. The lower back may bend slightly during full hip flexion.

Standing One-legged Curl- 3 sets

Here, each leg is isolated for even fatigue of the hamstring complex.

Begin by attaching an ankle cuff to a low pulley station. Attach the ankle cuff to the working leg and grasp the support bar of the pulley station. Keep the elbows straight and locked to support the body as you lean forward, stepping far back with the non-working foot, similar to the diagram below:

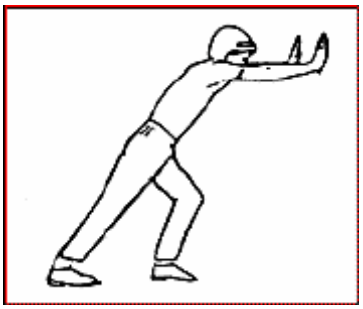


Fig 2 Non-working leg at the left, working leg to the right, from this point simply curl the working leg in until the ankle touches the gluteus.

Begin the movement by using the hamstring to pull the cable by flexing the knee, while also flexing the hip slightly (move hip up), until the knee is completely flexed.

Return by straightening the knee and lowering the knee slightly to the original position.

Barbell Hyper Extension - 3 sets

Adjust the padding on the extension machine, so that the thighs are firm against it. From this position raise the upper body until the hips and waist are at full extension. Lower the body by bending the hips and waist until fully flexed.

By extending the hips, pressure can be taken off the lower back and spinal erectors and more emphasis can be placed on the hamstrings.

Placing a loaded barbell on the back of shoulders and grasping the bar at the sides can aid in applying added resistance.

The pulling motion of the hyperextension, while targeting the hamstrings, will also synergistically use the Erectors Spinae, Gluteus Maximus, and Adductor Magnus, working to help strengthen the trunk.

Weak trunk muscles and reduced flexibility of the back and hamstrings have been identified as risk factors in the recurrence and persistence of low back trouble (3).

For this reason, emphasis should be placed on stretching between sets of this exercise.

Upon muscular fatigue, set the added weight down, and continue the set using just body weight.

Session 3:

Lying Leg Curls supersetted with Leg Presses - 4 sets

This arranged superset will make use of the P/S Principle.

By combining a stretch movement with a power exercise, a lethal hypertrophic combination is created, enforcing the Power/Stretch Principle.

The Hamstring curl will effectively create a peak contraction of the posterior thigh, aiding in stimulating maximal contraction of the muscle's heads.

Again, multi-foot variation is recommended for balanced exhaustion of the complex.

The Leg Press can also be utilized in such a location to place extra stress on the hamstrings.

By positioning the feet high and close together on the leg press's footplate, the posterior leg will achieve greater stimulation.

The leg curl should be aimed to achieve a repetition range of 8 to 10, while heavy weights that allow the body builder to achieve failure in the 4 to 6 rep range should be exploited on the leg press.

Smith Machine Straight-Legged Deadlift-3 sets

The execution used for this exercise is the same as was used with the dumbbell stiff-legged deadlift.

However, the beginning protocol is slightly different.

Perform this movement on an elevated platform. This will allow for maximum reach without compromising by allowing the plates to interfere with the range of motion.

Begin the Smith Machine Straight-legged Deadlift standing with a shoulder-width or narrower stance, grasping the bar. Recommended for this exercise is the use of wrist straps or a mixed grip to prevent the focus of this movement from going to the forearms.

While keeping the knees straight, lower the bar to the top of the feet by bending at the hips. Lift the bar by extending the hips and waist until standing upright.

Keep the arms and knees straight throughout the lift. The lower-back may bend slightly during full hip flexion.

Lying Leg Curls – 3 sets

In part three of session three, exploitation of Double Your Pain Double Your Gain will be applied.

Along with this shock implementation, the use of 21's will be employed for added distress.

While typically considered a shock method for the biceps, the 21 formula is an excellent practice for any muscle group.

Begin the movement, squeezing seven repetitions from the bottom of the range of motion, to the mid-point of the range of motion. From this point, resume the pain-searing pressure by the addition of seven repetitions from the mid-point of the range of motion to the peak of the exercise's scope.

This will fruitfully fatigue the entire multifarious hamstring muscle.

However, another segment remains. Seven full range of motion reps must now be completed. If the need arises, the weight can be dropped to complete the full 21 procedure. If a partner is available, maintain the same weight and have the partner assist in completing reps.

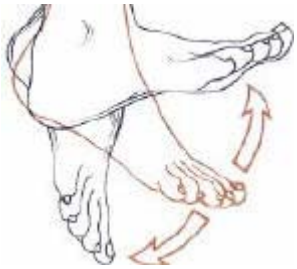
Session 4:

Dumbbell Super Leg Curls - 3 sets

Begin by positioning facedown on a flat bench so the knees are just above the bottom edge.

If assistance is available, have a partner grab a dumbbell, and holding it vertically, place it between the feet so that the bottom side of the top plates is resting on the soles of the feet.

Next simply accomplish leg curls in the typical fashion, holding the feet together so the dumbbell does not slip out. The concept is two-fold. As the athlete is forced to plantar flex the foot in order to keep the dumbbell in place, this exercise has a texture nothing like that of a standard leg curl on a machine.



This movement is a super leg curl and also works the calves due to this action.

If a partner is not available, place the dumbbell on the ground, and perform the movement lying on the ground. This will allow a solo worker to grasp the dumbbell unaided.

Straight-Legged Cable Deadlifts – 4 sets

Having pre-exhausted the posterior thighs with the Dumbbell Super Leg Curl, the constant tension of the Straight-Legged Cable Dead lift will complete the task of maximum stimulation of the hamstring.

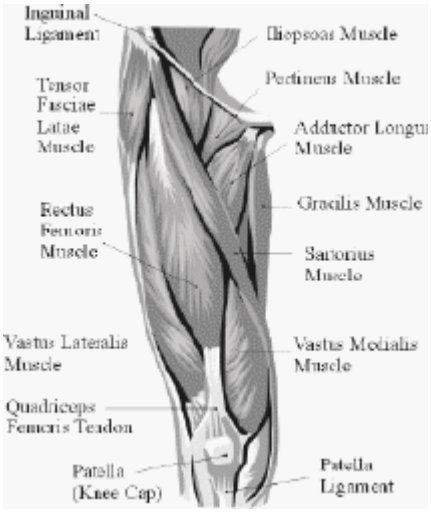
The technique is the same as with a standard Stiff-Legged Dead lift, however, the use of the pulley apparatus will provide an alternative impetus.

Adjust the footplates so that the full extension the Stiff-Legged Dead lift requires can be applied. Again, use straps or a sumo mixed grip to avoid forearm fatigue.

Perform four sets of cable straight-legged deadlifts, strongly accenting the negative.

Upon muscular fatigue, strip sets can be applied for further intensity.

Sartorius Curls – 4 sets



One of the few bodybuilders whose sartorius is clearly visible is the sultan of symmetry, Kenneth “Flex” Wheeler. Sartorius is translated “*Tailors Muscle.*" Careful anatomical examination reveals why. It is due to how tailors used to bring their ankle up to the knee -- a process that will rotate the hip as well as flex the knee.

To activate the sartorius and the hamstrings at the same time, stand sideways next to a low cable pulley and attach the cuff around the ankle. Curl the leg inwards and across the body. Then lower to the starting position.

Session 5- Repeat Session 1

Session 6- Repeat Session 2

Session 7- Repeat Session 3

Session 8- Repeat Session 4

Discussion

Functional relevance of the HYPERplasia journal entries, "Analysis of the Muscles Which Act at the Hip" and "Knee Joints and the Analysis of the Posterior Thigh", were applied to an eight session phase procedure designed for the explicit purposes of conjuring hypertrophy/hyperplasia in the regional posterior thigh muscularity.

As shown, the knee and hip occupy an impeccable anatomical role in hamstring motion. More specifically *hip extension* and *knee flexion* have demonstrated their roles as the strategic players in this task.

The knee has demonstrated itself to have both physical and eternal spiritual properties:

Isaiah 45:18 For thus saith the LORD that created the heavens; God himself that formed the earth and made it; he hath established it, he created it not in vain, he formed it to be inhabited: I am the LORD; and there is none else.

I have sworn by myself, the word is gone out of my mouth in righteousness, and shall not return, **That unto me every knee shall bow**, every tongue shall swear.

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2. Biering-Sorensen, F. Physical measurements as risk indicators for low-back trouble over a one-year period. *Spine.* 9:106–119. 1984.

3. Luttgens, K., and K.F Wells. *Kinesiology: Scientific Basis of Human Motion.* (7th ed.). Philadelphia: Saunders College Publishing, 1982.

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5. Wright, G.A., T.H. Delong, and G. Gehlsen. Electromyographic activity of the hamstrings during performance of the leg curl, stiff leg deadlift and back squat movements. *J. Strength Cond. Res.* 13:168–174. 1999.