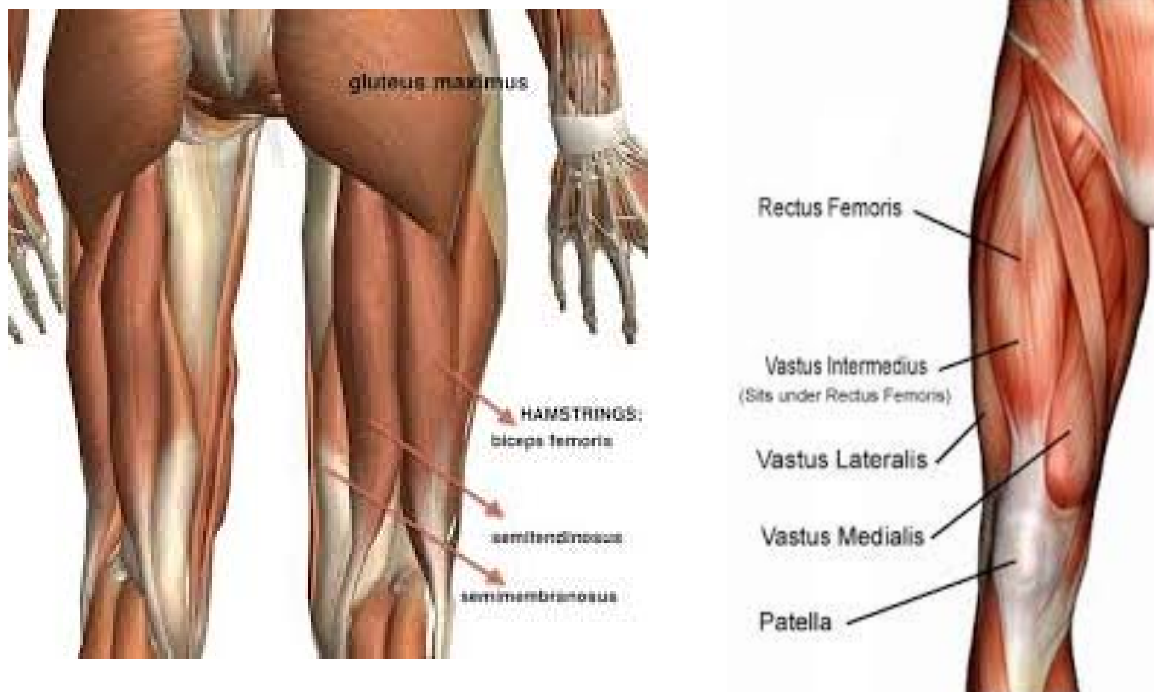


Why cyclists need to stretch these muscle groups:

Joints are controlled by opposing muscle groups on each side of the joint. As one muscle group contracts (shortens) the opposing muscle group relaxes (allowing it to lengthen) to accommodate the contraction, this is called Reciprocal Inhibition. Quadriceps (Quads) and Hamstrings (Hams) are good examples of Reciprocal Inhibition and are the main muscle groups powering the bicycle. Together these muscles along with the Gluteus Maximus and Hip Flexors control hip and knee action.

When Quads and Hams are not in balance (one group is tighter than the other), a number of bio-mechanical problems can occur, including chronic back pain, changes in pelvic alignment affecting posture, and joint imbalance affecting Range of Motion (ROM). All of these problems affect comfort and performance on a bike. Stretching can mitigate tight quads and hamstrings and increase ROM, helping performance.





QUADRICEP, HAMSTRING AND CALF STRETCHES

BY COACH JOHN HALL
& JOHN A. ANDREW DPT

QUADRICEP AND HAMSTRING STRETCH SERIES

Quad Group: Rectus Femoris, Vastus lateralis, Vastus Medialis, Vastus Intermedius

Note: These muscles along with hip flexors are primarily responsible in lifting the knee up and forward and then straightening the knee during the pedal stroke. Cyclists are notorious for having tight quads from high volumes of pedaling motion and movement in a single plane of motion. The Quads are attached to your hipbone, femur (upper leg bone) and knee. Excessively tight quad muscles pull on the hip bone, which in turn pulls the pelvis down and forward. This anterior tilt of the pelvis tends to increase the tilt of the spine increasing the arch in your lower back. All of which can cause tight and sometimes painful back muscles. Additionally, tight Quads may result in weak or overstretched Hamstring muscles.

Hamstring Group: Biceps Femoris, Semitendinosus, Semimembranosus

Note: Hamstrings contribute in straightening your hip on the down stroke and bending the knee on the upstroke. They are attached at three locations, the base of the pelvis on the sit bones, the back of the femur and around the knee. The pelvis end of the Hamstring attachment is constantly being stretched as you bend forward to reach your bar, while the knee attachment is rarely stretched because your knee is always bent while pedaling. This causes short, tight attachments at the knee, which pulls your pelvis down and rounding your back out. This can create neck pain, sore back muscles, along with reach problems.

QUADRICEP AND HAMSTRING STRETCHES

Each stretch should last at least 30 seconds, with the goal of holding for 60 seconds total per set. Allow 5 seconds rest in between stretches. Complete a minimum of 3 sets. Breathe normally throughout stretch. There are several stretches for each muscle group so you can choose the ones that are most comfortable or feel most effective for you.



1. Sitting Quad Stretch

Get into a kneeling position on the floor. Have a pillow or something you can sit on if necessary nearby. Gently lean back until you feel a stretch along your Quads, with the goal of sitting on your ankles. If necessary sit on a pillow that will raise your hips off your feet, and lean back as tolerated.



2. Standing Quad Stretch

Stand an arm's length away from a wall. Raise your right hand and place against the wall for support. Raise and bend your right leg while grasping your ankle with left hand. Gently pull until you feel slight pain in Quads. Tighten stomach muscles to prevent stomach from sagging outward and keep knees close together. After completing sets switch legs.



3. Lying Quad Stretch

Lying face down on floor and legs together, swing your left arm back while raising your left leg up. Grasp your left foot with your left hand and gently pull foot forward until you feel slight pain along your Quad. Release foot in between sets. When complete switch to the right leg. If you are unable to reach your foot, wrap a towel around ankle and pull on the towel.



4. Lying Hamstring pull-leg bent

Lying on your back, arms by your side and legs together, lift your right knee up towards your chest. Grasp right below knee with both hands and pull straight back. This pulls on the hamstring muscles attached at the pelvis. Complete 3 sets, then change to your left side. If you do not feel much of a pull or modest pain with this stretch, you may have an over lengthened muscle attachment and should skip this stretch. This may also indicate a weak muscle due to excessive lengthening.

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5. Lying Hamstring pull-leg up

Lying on your back, arms by your side and legs together, lift your right leg up and grasp the back side with both hands. Gently pull until you feel the stretch along the back of your knee. Try keeping the stretched leg as straight as possible. After completing required sets move to your left leg.



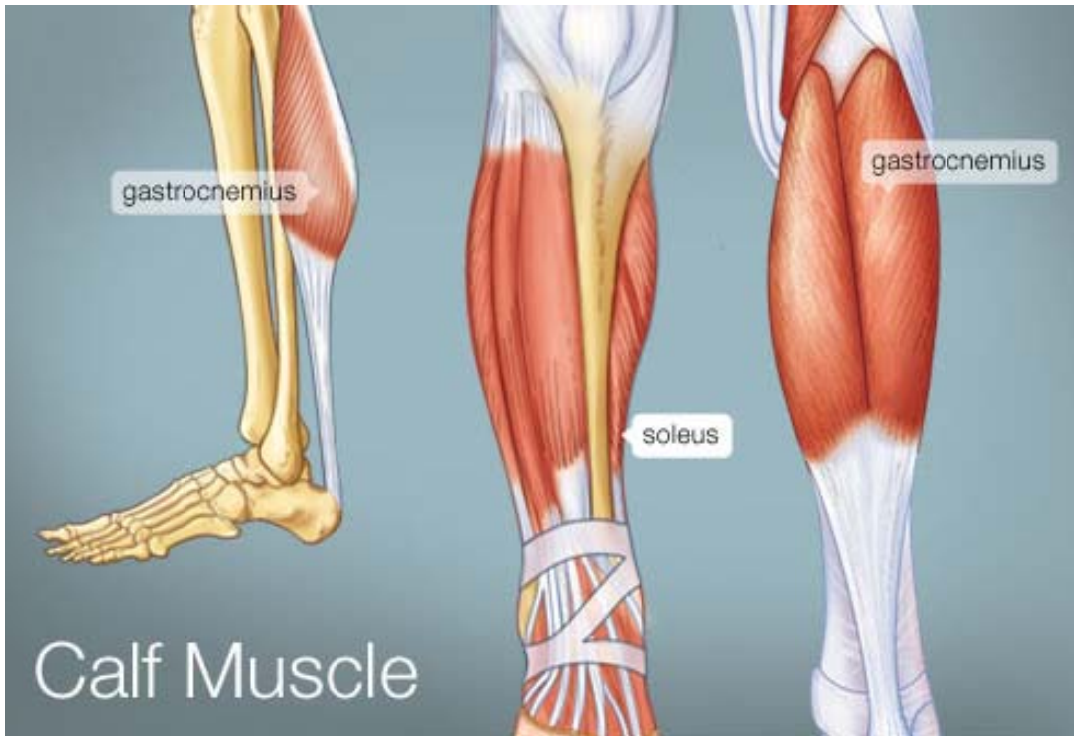
6. Standing Hamstring Stretch

Correct form for standing Hamstring stretch should not be bent over as we have been taught over the years, but should be done with the leg raised up, resting on a flat surface about 15"-18" high, while maintaining a straight back. The photo on the left shows the cyclist holding a stick behind his back with his leg on a chair and leaning forward towards his foot. The stick demonstrates keeping back straight, while chest and butt are out.

The lower photo shows a correct technique without a stick. The cyclist raised his left foot up on a chair, while leaning forward, back straight, chest forward and butt back. The pull will occur at the hamstring connection at the knee. If you need to place your hand on the stretch leg, place just above knee. This stretch should be done daily and especially after rides.



PRIMARY TARGET MUSCLE GROUP: CALF MUSCLE



LOWER LEG STRETCHES FOR THE GASTROCNEMIUS (GASTROX) AND SOLEUS

A number of muscles of the lower leg are involved in turning the cranks over. Studies have shown that the Gastrox and Soleus muscles are primarily involved in the rotation of the foot while pedaling, and aid the Hamstring in knee flexion. These muscles are what we generally call the Calf Muscles.



7. Gastrox Stretch

This stretch should be done without shoes. Standing approximately 1 foot away from a wall, place both hands on wall for support, and move your left leg back about 1 foot with heel flat on floor. Lean forward bending your right leg and keeping left leg straight. You will feel a pull in your left leg high near knee. Keep back straight, hips forward and parallel with wall. After completing set switch legs.



8. Soleus Stretch

Without shoes place feet approximately 6-9 inches away from wall. Place hands on wall for support and move left leg back about 1 foot. Bend your right leg (closest to wall) trying to move your knee past your toes while your heel is flat. Your left leg (away from wall) should bare very little weight, if any, and can even rise off floor placing more weight on right foot. Complete sets and repeat on other leg.

This stretching series was created by Coach John Hall and John A. Andrew DPT & Cert. MDT, CSCS with over 18 years of experience in strength and conditioning.

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Wenzel Coaching provides quality, affordable coaching services to cyclists and multisport athletes of all ages and abilities. The coaches of Wenzel Coaching can be reached at 503-233-4346 and www.wenzelcoaching.com.