

The Gastrocnemius Recession, To Release or Not to Release?

Shahdad Kevin Saeedi*

Department of Foot and Ankle Surgery, University Foot and Ankle Institute, USA

***Corresponding Author:** Shahdad Kevin Saeedi, Department of Foot and Ankle Surgery, University Foot and Ankle Institute, USA.

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In treating ankle equinus, we must have a solid foundation of the anatomy involved. The gastrocnemius and plantaris can be termed three-joint muscles and the soleus a two-joint muscle. The relation and the attitude of the muscles to these joints during the gait cycle are of utmost importance. The gastrocnemius recession has gained much popularity in recent years without much discussion. It is a highly reproducible procedure and fairly quick to perform. For these reasons alone, this may be enough to allow widespread overuse of the procedure. Maintaining native anatomy should be the primary dedication to the patient when considering reconstructive surgery of the foot and ankle. One should consider the gamete of conservative options prior to opting to perform a gastrocnemius recession procedure on all patients. The gained interest in the procedure has led to a “knee-jerk” reaction as some surgeons believe when they are conducting a certain subset of surgeries, they must include this procedure without considering the patient’s proper indications. We must reserve this procedure for those who are in need of a release after exhausting all conservative measures such as, orthoses, padding, molded shoe gear, physical therapy and in younger patients serial casting or bracing. Physical therapy should consist of stretching the posterior muscle group and strengthening the anterior muscle group. The muscular balance of the lower extremity has great effect on the gait cycle and once a muscle is released, there will be supplementary load on adjacent joints as the foot and ankle must compensate for this artificial imbalance that can lead to but not limited to significant degenerative joint disease, stress on ligaments and tendons over a period of time. Root et al states that the gastrocnemius and soleus muscle normally begin to contract toward the end of the contact period of the stance phase of gait and continue to contract through the midstance period through the first portion of the propulsive period. Elftman was

the first to explain the effect of subtalar joint position on the range of motion at the midtarsal joint and described a congruity that develops between axes of the talonavicular and calcaneocuboid joints when the subtalar joint is pronated and an incongruity that develops when the subtalar joint is supinated.

In the wise words of McGlamry: “Before performing any surgical procedure, the surgeon must completely weigh its advantages and disadvantages. This contemplation should include thorough clinical evaluation to ensure correct procedural choice, as well as evaluation with regard to the psychological frame of mind, motivation, and age of the patient. We are relating to the most common etiologic type of ankle equinus being nonspastic gastrocnemius equinus. It is important to note that these recessions were all proposed initially for spastic equinus. It began with Vulpius and Stoffel in 1913 (Figure 1) to describe the first distal recession, followed by Strayer in 1950, Baker in 1956, and Fulp and McGlamry in 1974 being the first to advocate for the distal recession for nonspastic gastrocnemius equinus. Some could argue that anterior advancement of the Achilles tendon would be superior to a gastrocnemius recession, but if we were to go that far; are we really doing the right procedure when considering treatment options for mild ankle equinus?

Various complications have been reported in the literature such as infection, hematoma, nerve entrapment and there are an entire subset related to poor surgical judgment primarily including overcorrection. Calcaneal gait deformity has been reported in all patients regardless of the type of release performed (McGlamry). Several authors have discussed methods for pre-determining the amount of lengthening required with the most critical being assessing ankle joint motion intraoperatively and not allowing more than 10 degrees of ankle joint dorsiflexion.



Figure 1: Lengthening of the gastrocnemius complex.

The purpose of this article is to stimulate a new found appreciation for gastrocnemius recessions and to stimulate foot and ankle surgeons who are considering this for their patients to take one step back and contemplate the efficacy of the procedure with in relation to their individual patient.

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