AMERICAN ORTHOPAEDIC FOOT & ANKLE SOCIETY

Foot & Ankle International®
2016, Vol. 37(7) 790–791

DOI: 10.1177/1071100716654966
fai.sagepub.com

Letter Regarding: Proximal Gastrocnemius Release in the Treatment of Mechanical Metatarsalgia

Dear Editor:

With great interest we read the article by Morales-Muñoz and colleagues.[10] The authors reported a prospective case series of 78 patients suffering mechanical metatarsalgia due to isolated M. gastrocnemius tightness (MGT). All patients were treated by a proximal release of the medial gastrocnemius.[3] At 6 months' follow-up, the mean AOFAS score was 84 points (preoperative: 47 points), with nearly 70% of patients being completely satisfied. No major complications were reported.

Morales-Muñoz et al[10] defined impaired ankle dorsiflexion (ADF) as ADF values ≤0° with the knee extended. Preoperative mean ADF values were −17.5° (range −30° to −5°). Previous studies defined impaired ADF between 0° and 12° with the knee extended.[4,6,12] In their keystone paper, DiGiovanni et al[4] conducted a prospective case-control study and reported average ADF values of 4.5° in their patient group (metatarsalgia or related midfoot/forefoot symptoms) and 13.1° in their healthy control group.

Despite similar patient cohorts, the mean ADF values reported by Morales-Muñoz et al[10] and DiGiovanni et al[4] differ by more than 20°. Although surprising at first glance, these pronounced differences are most likely due to the different testing protocols conducted to assess ADF. Although both authors applied nonweightbearing testing, Morales-Muñoz et al[10] conducted their measurements with the "subtalar joint supinated," the anatomic landmarks applied were the "shaft of the fibula and lateral border of the foot," and a goniometer was used. One investigator conducted the measurement, as indicated in Morales-Muñoz et al's Figure 1. DiGiovanni et al,[4] on the contrary, used an equinometer, locked the midfoot, and ensured neutral hindfood position, applied a constant torque of 10 Nm and used the fibula and plantar aspect of the foot as measurement landmarks. These are just 2 of numerous measurement techniques reported in literature. Testing protocols vary in almost every aspect, the general setup (nonweightbearing,[2] weightbearing,[11] and instrumented[5]), the measurement landmarks used (y-axis: fibula, tibia, or Achilles tendon,[1,13,14] x-axis: shaft of the fifth metatarsal bone, plantar aspect of the foot, or the floor[8,9,13]), and the measurement devices used (mobile apps, inclinometers, or goniometers[1,7,14]). Clearly, each single aspect has a pronounced influence on the ADF values measured. Moreover, some protocols appear more applicable than others. Morales-Muñoz et al,[10] for example, had one investigator controlling foot position, applying maximum ankle dorsiflexion and conducting the measurements. From our own clinical experience, we find it hard to conduct all of these maneuvers at once.

Despite the promising treatment approach to MGT reported by Morales-Muñoz et al,[10] the examination technique and equinus ADF values reported highlight the major shortcoming in current research on MGT. In order to identify patients suitable for gastrocnemius release and to interpret the results of different procedures in various pathologies, standard techniques to assess ADF should be applied. Currently, various tests are being used to assess ADF. Therefore, the informative value of the studies as well as the comparability between studies suffers considerably. We are convinced that it is essential to first agree on a standardized technique to quantify ADF. Further, using this standardized technique's physiological and pathological norm values should then be defined. These values build the prerequisite for any treatment study. Therefore, we would like to emphasize the need to agree on a standardized, evidence-based examination technique to assess ADF and MGT.

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