

## Low-level laser therapy versus extracorporeal shock wave therapy in calcaneal spur

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We read the article by Badil Güloğlu and Yalçın<sup>[1]</sup> published in your journal with pleasure, and congratulate the authors for conducting and reporting this research. However, we would like to offer the following commentary to contribute to the interpretation of the findings and to be taken into consideration in future studies on this topic.

In this study, patients with calcaneal spur were randomized into low-level laser therapy (LLLT) and extracorporeal shock wave therapy (ESWT) groups, and both groups received cold-pack and plantar fascia stretching exercises in addition to the investigated modalities. Although the authors have explained the application methods of LLLT and ESWT in detail, there is lack of information about the application of cold-pack and stretching of the plantar fascia and calf muscles. The readers have no idea why cold-pack was preferred instead of a hot agent before stretching, although acute inflammation was an exclusion criterion for the study; where the cold-pack was applied (on the plantar region of the foot, on calf muscles or both, etc.); and what was the detailed protocol for stretching exercises (types of, positions and durations/repetitions for stretching, etc.).

Furthermore, the lack of a third group which only received cold-pack and plantar fascia stretching exercises makes it difficult to ascertain that the improvements in outcome measures were only due to

the effects of LLLT and ESWT, and not to the effects of cold-pack and stretching.

The World Association for Laser Therapy (WALT) recommends LLLT to be used for two weeks daily or every other day for three to four weeks in heel pain disorders, including calcaneal spur.<sup>[2]</sup> Despite citing the same guideline as a reference for LLLT application, a different and uncertain expression such as “a total of 5 min for three weeks” was used by the researchers. The readers cannot understand, if the LLLT was applied daily or every other day for three weeks.

The outcome measures of this study were 100-mm Visual Analog Scale (VAS) scores for severity of pain, and Foot Function Index (FFI) scores for foot pain, disability and activity restriction. However, it is not clear why the researchers assessed the severity of pain by two different methods (VAS and FFI pain subscale). For the first method, the readers cannot understand, if the severity of pain was questioned for a resting condition or for during any activity such as walking, running, etc. In addition, since the FFI already questions pain by VAS separately for nine different conditions, what was the reason of using a different single VAS for pain severity? The authors lack to explain why there was an intergroup difference for FFI pain, but not for VAS scores. The uncertainty of any specific condition for the VAS scores may have led to a discrepancy between the FFI pain and VAS

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pain scores, which were actually supposed to confirm each other.

The authors stated that, unlike Ulusoy et al.'s<sup>[3]</sup> findings in patients with plantar fasciitis, LLLT caused more improvement in FFI scores than ESWT in this study, which was conducted in patients with calcaneal spur (no information if they had also plantar fasciitis)<sup>[1]</sup> This discrepancy was explained as being due to the “difference in patient selection”. However, except for the diagnosis, the characteristics of the patients in both studies (inclusion and exclusion criteria, age, body mass index, sex distribution, duration of symptoms, initial VAS scores) seem to be similar. Therefore, readers cannot be convinced that the discrepancy between the findings of these two studies was due to the “difference in patient selection”.

In addition to the aforementioned issues, when the lack of information about concealment of allocation, the exact method of randomization and calculation of the sample size, as well as lack of an outcome measure which could be assessed by a blind assessor are considered, it can be concluded that internal validity and interpretability of this study is limited; and the findings should be confirmed through further large-scale, well-designed studies in the future.

**Data Sharing Statement:** The data that support the findings of this study are available from the corresponding author upon reasonable request.

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**This letter was submitted to the authors of the manuscript; however, not responded.**