

Accessibility and Thickness of Medial and Lateral Talar Body Cartilage for Treatment of Ankle and Foot Osteochondral Lesions, Nott, Erik et al. *Foot & ankle international*, Volume 42, Issue 10: 1330-1339, 2021

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Level of Evidence: 4

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Osteochondral lesion of talus (OLT), or also known as osteochondritis dissecans (OCD) of talus is defined as an area of damaged cartilage and bone on top of the talus due to repeated ankle sprains or chronic overload from malalignment of the ankle joint. One of the surgical managements for OLT is Autologous Osteochondral Transplantation, which is to transplant cartilage and bone harvested from the ipsilateral knee to a defect site in the talus. This study examines whether cartilage on different anatomical regions of the talus (medial, lateral and talar dome) can be used as an acceptable substitute donor for talar OLTs instead of using donor cartilage from the knee.

Eight fresh-frozen cadaveric ankles (age, <65 years; 2 females, 6 males) were selected and used in this study. Ankle arthrotomy was performed to access the talar dome and subsequent talar cartilage surfaces. For measuring cartilage thickness, the talus was then explanted from the specimen and rigidly secured to a fixture. Thickness of the talar articular cartilage at the varied anatomical sites was determined using depth laser scanning.

Results showed the mean cartilage thickness of the lateral surface of talus, 0.96 +/- 0.31 mm, was higher than the mean cartilage thickness of medial surface of talus, 0.91 +/- 0.25 mm. The mean cartilage thickness of the talar dome was 0.93 +/- 0.19 mm.

The total surface area of available cartilage on the lateral side, 133 +/- 45 mm² was smaller compared to the medial side 152 ± 51 mm². Lastly, for talar dome access, the medial side (50%) had better access to the talar dome compared to the lateral side (43%).

Overall, there were several limitations to this study including small sample sizes and no analysis of cartilage curvature to determine suitability for transplantation between medial and lateral talar surfaces with the talar dome. However, this study demonstrated that the thickness of the medial and lateral talar cartilage surfaces was very similar to the thickness of the talar dome cartilage surface. Furthermore, the lateral talar surface was shown to be more suitable donor for AOT procedures as the results showed similarity in cartilage thickness between the lateral surface of talus and talar dome, and there was sufficient cartilage surface area available in the lateral surface compared to the medial surface of talus for common graft sizes.



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