

Active Weight Bearing Tibio-talar Motion and Meniscal Translation in the S.T.A.R Prosthesis-A Radiographic Comparative Study of the S.T.A.R. Toward the Opposite Normal Ankle Joint

Hakon Kofoed*

The Orthopaedic Clinic, Frederiksberg University Hospital, Capital Region of Denmark

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Radiographic measurements of flexion-extension of the ankle joint have shown clinical measurements to be unreliable [1,2]. The true motion in the tibio-talar junction is therefore best judged by radiography. Modern ankle replacements with mobile bearings have been claimed to give better mobility than the previous two-component Fixed Bearing (FB) designs [3,4]. The meniscus-bearing principle allows for gliding as well as rotation of the meniscus during the arc of motion. In a previous study we investigated the radiographic passive mobility of a Meniscal-Bearing (MB) ankle replacement preoperatively and at 12 months follow-up. The gain in motion was 80% [5]. Only one other study has examined the active weight-bearing motion of ankle replacements [2]. That study did not take into consideration that the rotation of the meniscus would influence the measured anterior-posterior gliding of the meniscus. Clinical measurements of ankle joint motion are biased by the mobility of the neighboring joints. In the normal ankle joint the clinically measured active weight-bearing mobility in the ankle exceeds that of the passive motion [6]. We therefore compared radiographic measurements of active weight-bearing motion in unilateral ankle replacements with active weight-bearing measurements of the opposite normal ankle.

Fifteen consecutive cases with unilateral osteoarthritis of the ankle joint secondary to trauma were treated with a MB ankle joint replacement, Scandinavian Total Ankle Replacement (S.T.A.R., Waldemar Link, Germany).

*Corresponding author: Hakon Kofoed, 30 Norasvej, Charlottenlund, Denmark,

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