

## Repair of the Spring Ligament in the Flatfoot by a Synthetic, Resorbable Graft

### CASE STUDY

#### Background

Insufficiency or rupture of the posterior tibial tendon (PTT) is in many cases the cause of a flatfoot development. However in many instances this is combined also with a rupture of the spring ligament, necessitating repair also of this important structure. In some cases development of a flatfoot is caused solely by insufficiency of spring ligament. Degeneration of the ligamentous tissue itself and large defects in the spring ligament sometimes makes repair very difficult. Many different operative procedures for the repair or augmentation of the ligament have been proposed. These procedures generally mean that you have to sacrifice other more or less important structures of the foot. We instead are using a synthetic material (Artelon) that is strong enough to sustain the forces on the ligament for a long period of time as well as function as a scaffold for the ingrowths of new ligament fibrous tissue, enabling a long time functional repair.



#### Surgical Procedure

An incision is made from the tip of the medial malleolus to the lower medial part of the navicular. The tibialis posterior tendon sheath is opened and the PTT transected in a Z-fashion. The spring ligament (SL) can then be inspected.

The SL rupture is freshened up and sutured if possible.

Artelon tissue replacement (ATR) is then measured and secured to the plantar surface of the navicular by transosseous sutures. Before the final adaption of the ATR, the plantar surface of the navicular is opened and roughened. To bridge the defect the ATR is then sutured to the remaining insertion of the SL at the Sustentaculum Tali by vicryl sutures. Lastly a number of additional sutures are made between the ATR and the rest of the SL covered by the ATR.



The PTT is then shortened and the FDL is harvested and used as reinforcement for the PTT.

#### Postop Treatment

Initially a below knee plaster with reduced weight bearing was used for 6 weeks. After that an insole with a medial arc support was used for 6 month.



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## Patient Material

35 patients have been operated with a follow up of up to 9 years. No adverse effects have been seen and except 4 patients with RA and multiple joint and relapse of the flatfoot deformity (but no pain) the patients have a good functional end result.

## Conclusion

The use of a gastrocnemius graft, reinforced with Artelon® Tissue Reinforcement, was highly successful. The graft operation had created a tendon that was virtually normal at the second operation one year after the initial procedure.

