End stage ankle and hindfoot arthritis can often be accompanied by considerable deformity and structural bone loss. These patients present challenges for the orthopaedic surgeon faced with the need to provide reconstructive options for these difficult to treat problems. In addition, bone loss in many of these cases leads to a limb length discrepancy following an otherwise successful tibiotalocalcaneal (TTC) fusion. For these reasons, a novel technique is demonstrated in which TTC fusion is accomplished with the aide of femoral head and acetabular reamers with insertion of a femoral head allograft to avoid significant shortening of the limb, restore structural integrity to the ankle and hindfoot, and allow for significant deformity correction. This technique is most useful in severe fixed deformity and in those patients with considerable bone loss around the talus as seen in cases of AVN or failed total ankle replacement.

Technique Summary:

1. Lateral approach with fibular osteotomy
2. Soft tissue release if necessary to correct deformity (TAL, etc)
3. Ankle/hindfoot brought into neutral dorsiflexion
4. Acetabular reamer utilized to establish cup for femoral head implantation (save reamings for graft)
5. Femoral head preparation using femoral head reamers (Depuy)
6. Ream same size with acetabular and femoral head reamers to create press fit (usually 38-42mm)
7. Further prepare femoral head allograft with fenestrations and feathering
8. Place femoral head into reamed defect and impact with mallet
9. Remove excess bone from the neck in line with tibia
10. Bone graft using reamings around femoral head implant
11. Fix entire construct with blade plate or retrograde nail with compression.