

Ankle Arthrodesis

Surgical Technique

More than 30 techniques and countless modifications have been described for arthrodesis of the ankle joint (fusion of the tibia and talus). Basically, these can be divided by approach— anterior, transmalleolar (transfibular), posterior, mini-arthrotomy, or even arthroscopic. Common to all approaches is the use of internal fixation for fusion stabilization.

General principles applicable to all techniques include placement of incision to avoid injury to the sensory nerves of the dorsum of the foot; creation of broad, flat, cancellous surfaces that can be apposed to allow solid fusion; rigid stabilization with internal fixation to compress these surfaces together until fusion occurs; and proper alignment of the hindfoot (3 to 5 degrees of heel valgus).

The joint surfaces are prepared by removing the remaining articular cartilage and “fish-scaling” the subchondral bone with a small osteotome or a gouge. The ankle joint is then placed in neutral dorsiflexion and proper axial and coronal orientation to allow the large cancellous surfaces to be in excellent apposition. Care is taken to preserve the normal saddlelike shape of the joint surfaces.

Fixation is best obtained with 2 or 3 headless CompressX cancellous screws. Adding bone graft may improve the fusion rate and speed healing. Depending on the technique and the stability of fixation, a cast or boot is worn for up to 3 months, with protected walking allowed after about 6 weeks if healing is progressing; fusion usually occurs within 3 to 4 months.

Post-op x-rays(12 weeks)

Mortise View



Anterior Posterior View



Joints completely fused at 12 weeks

Lateral View



Joints completely fused at 12 weeks