

# CARESTREAM 3D Weight-Bearing CT Case Studies

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## Case Study 1

A 31-year-old presented with chronic pain in the left foot. The patient had previously seen multiple specialists and had multiple treatments, which had not provided any relief of symptoms.

Traditional AP and lateral radiographs (Figures 1A-lateral and 1B-AP) showed joint space narrowing in the second and third tarsometatarsal joint as well as the navicular cuneiform and intercuneiform joint.

However, on clinical exam, tenderness was present on range of motion of the subtalar joint. Images obtained from our CARESTREAM OnSight 3D Extremity System weight-bearing CT (Figures 2A-coronal, 2B-axial, 2C-sagittal) showed narrowing of the middle facet of the subtalar joint, which is consistent with fibrous coalition. As a result of ordering a weight-bearing CT, while the midfoot arthritis was confirmed, the underlying etiology was able to be diagnosed and treated. The limited range of motion of the subtalar joint secondary to the fibrous tarsal coalition contributed to his symptoms of midfoot arthritis.



*Figure 1A Lateral*



*Figure 1B AP*

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Figure 2A Coronal



Figure 2B Axial



Figure 2C Sagittal

**Case Study 2**

A 40-year-old patient continued to have pain and swelling after a surgical procedure of navicular cuneiform arthrodesis.

The two-dimensional radiographs (Figures 1A-AP and 1B-lateral) showed hardware fixation across the arthrodesis site.



Figure 1A AP



Figure 1B Lateral

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A CARESTREAM OnSight 3D Extremity System weight-bearing CT (Figures 2A-axial, 2B-sagittal) was ordered and the areas of delayed union were able to be identified along with the bone alignment during weight-bearing. As a result of the findings, we were able to determine the area of treatment, with ultrasound bone stimulation, of the delayed union of the arthrodesis site.



Figure 2A Axial



Figure 2B Sagittal

### Case Study 3

A 69-year-old patient presented with chronic pain following bilateral foot surgery. While the left foot healed uneventfully, the patient continued to have pain with the right foot.

Two-dimensional radiographs (Figures 1A-AP and 1B-lateral) show arthrodesis at the talonavicular, subtalar, along with medial cuneiform osteotomy, and joint space narrowing of the ankle joint.



Figure 1A AP

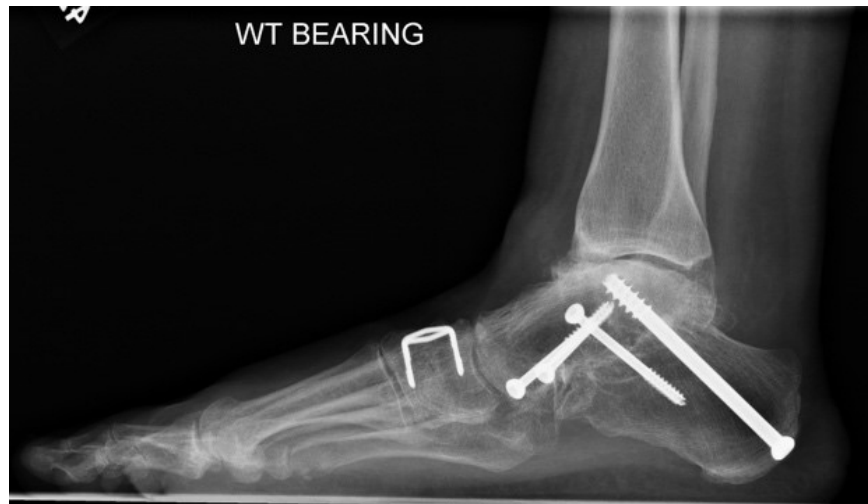


Figure 1B Lateral

A CARESTREAM OnSight 3D Extremity System weight-bearing CT was ordered and showed some talar head uncovering on the axial view (Figure 2A) and increased valgus tilt of the ankle joint on the coronal view (Figure 2B).

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While the fusion site was healed, the weight-bearing CT was able to determine the bone alignment during weight-bearing of the foot that was causing increased stress on the deltoid ligament during gait which was leading to patient's chronic pain along with the degenerative joint disease that was present on the two-dimensional radiographs.



Figure 2A



Figure 2B

### Case Study 4

A 60-year-old patient with history of diabetes presented with pain after a fall. While the patient continued to walk with minimal discomfort, the radiographs (Figure 1A and Figure 1B) displayed a fracture of the medial malleolus as well as joint space narrowing of the ankle joint.

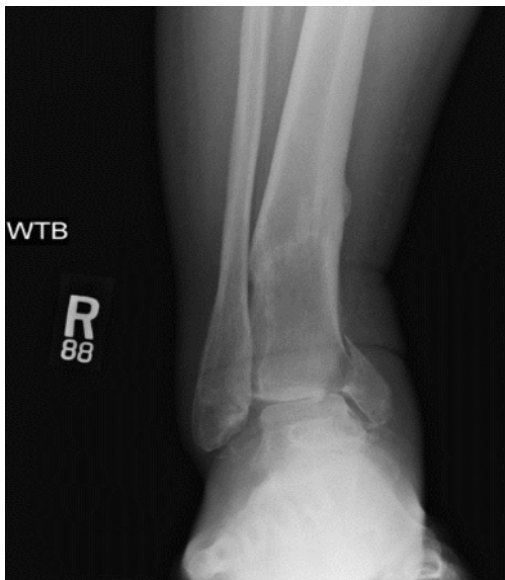


Figure 1A



Figure 1B

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A CARESTREAM OnSight 3D Extremity System weight-bearing CT was ordered to display the detailed bony anatomy of the fracture that was not able to be determined with traditional radiographs. The Axial view (Figure 2A) shows multiple fracture fragments of the tibial plafond stimulated during weight-bearing.

The Coronal view (Figure 2B) provides greater detail of multiple fracture fragments of the medial malleolus.

The Sagittal view (Figure 2C) was able to display a posterior malleolus fracture along with the medial malleolus fracture from previous views.



Figure 2A Axial

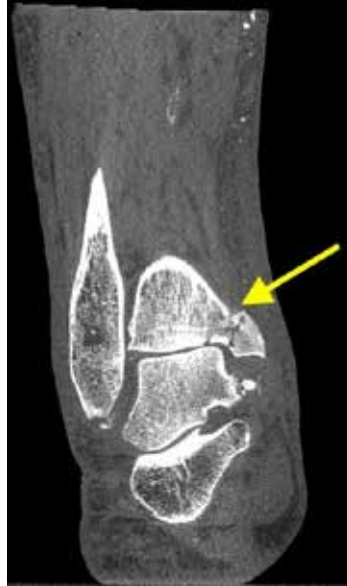


Figure 2B Coronal



Figure 2C Sagittal

The CARESTREAM OnSight 3D Extremity System is able to provide precise identification of the fractures and injuries with bone alignment during weight-bearing.

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