Fig. E-1

Axial CT scan, made 10 mm proximal to the tibiotalar joint, demonstrating placement of screw markers for forceps tip placement. The forceps configurations tested were B2, C1, and A3.
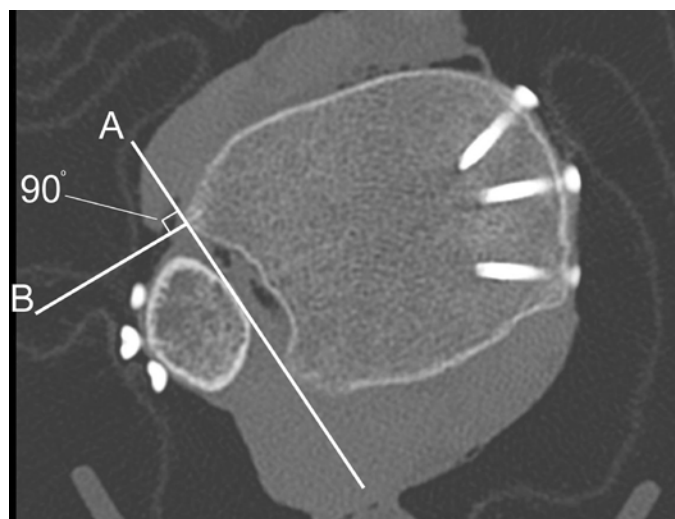

Fig. E-2

Axial CT scan showing the reference lines for the syndesmosis measurement. Line A is a tangential line touching the most lateral aspect of anterior and posterior tubercles of the incisura fibularis. Line B is perpendicular to line A, starting at the anterior tubercle.
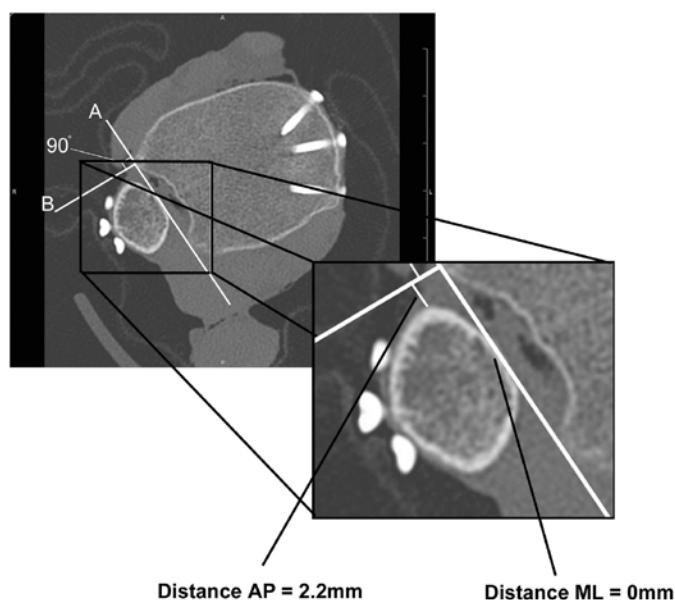
Distance AP = 2.2mm   Distance ML = 0mm

Fig. E-3

Axial CT scan showing anteroposterior and mediolateral displacement. Two measurements were made on the basis of reference lines A and B. Anteroposterior displacement (Distance AP) was measured as the distance from the anteriormost point of the fibula to the closest point on line B. When the fibula was posterior to line B this measurement was recorded as a positive value, and when the fibula was anterior to line B this measurement was recorded as a negative value. Mediolateral displacement (Distance ML) was the distance from the medialmost point of the fibula to the closest point on reference line A. When the fibula was medial to line A this measurement was recorded as a negative value, and when the fibula was lateral to line A this measurement was recorded as a positive value.
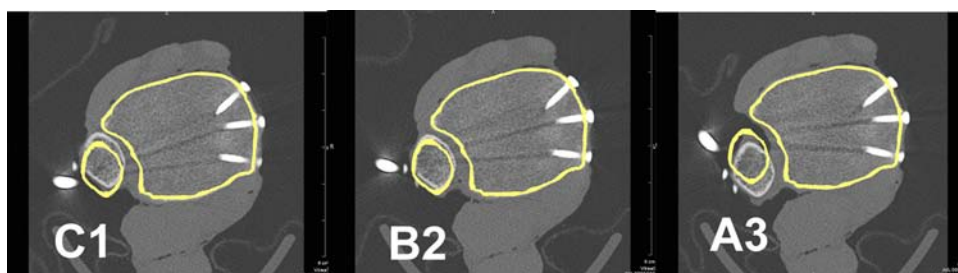

Fig. E-4

Axial CT cuts of one of the cadaveric specimens, made after destabilization of the anterior inferior tibiofibular ligament, syndesmosis, and deltoid ligament. The outline of the control CT of the same specimen is demonstrated in yellow. The clamp position is shown in the bottom left corner of each figure. All sections were taken 10 mm proximal the ankle joint. Note the gross anterior movement of the fibula with the clamp in position C1, the gross posterior movement with the clamp in position A3, and the subtle medial displacement of the fibula with all three clamp positions (C1, B2, and A3).

TABLE E-1 Average Displacement of Syndesmosis in Varying Clamp Orientations Over Ten Specimens*

	B2	C1	A3
Anteroposterior displacement *(mm)*			
Average	−0.1	0.7	−2.1
Standard deviation	0.77	0.86	1.32
Maximum	1.7	2.8	0.7
Minimum	−2	1.5	−4.9
Mediolateral displacement *(mm)*			
Average	−1	−1.2	−0.6
Standard deviation	0.63	0.69	0.74
Maximum	0.5	0.2	1.1
Minimum	−2.2	−2.6	−2.5

*Negative values indicate posterior displacement of the fibula (for anteroposterior measurements) or medial displacement of the fibula (for mediolateral measurements).

TABLE E-2 Repeated-Measures ANCOVA Summary: Mediolateral Displacement as a Function of Clamp Position, Instability, and Interaction Between Clamp Position and Instability*

Variable	df	Type III Sum of Squares	Mean Square	F Value	P Value
Clamp position	2	9.09	4.54	6.49	0.0075
Level of instability	4	1.36	0.34	1.25	0.3061
Interaction between clamp position and level of instability	8	2.07	0.30	3.89	0.0007

*ANCOVA = analysis of covariance, and df = degrees of freedom.

TABLE E-3 Follow-up Tests: Mediolateral Displacement as a Function of Clamp Position at Each Level of Instability

Instability Level	df*	Sum of Squares	Mean Square	F value	P value
1	2	0.08	0.04	0.59	0.5697
2	2	2.45	1.22	18.37	0.0001
3	2	2.75	1.37	20.62	0.0001
4	2	4.53	2.26	33.97	0.0001
5	2	1.36	0.68	10.21	0.0001

*df = degrees of freedom.

TABLE E-4 Repeated-Measures ANCOVA Summary: Anteroposterior Displacement as a Function of Clamp Position, Instability, and Interaction Between Clamp Position and Instability*

Variable	df	Type III Sum of Squares	Mean Square	F Value	P Value
Clamp position	2	209.24	104.62	41.63	0.0001
Level of instability	4	4.57	1.14	2.47	0.0619
Interaction between clamp position and level of instability	8	24.56	3.07	10.09	0.0001

*ANCOVA = analysis of covariance, and df = degrees of freedom.

TABLE E-5 Follow-up Tests: Anteroposterior Displacement as a Function of Clamp Position at Each Level of Instability

Instability Level	df*	Sum of Squares	Mean Square	F Value	P Value
1	2	7.74	3.87	12.72	0.0001
2	2	36.73	18.36	60.38	0.0001
3	2	42.00	21.00	69.06	0.0001
4	2	60.43	30.21	99.34	0.0001
5	2	86.91	43.45	142.87	0.0001

*df = degrees of freedom.