

Suppl. Table I: Influence of Ligament Resection on MCS Measurements (Full-Weightbearing, Difference between Each Condition in Millimeters [mm])

MCS (DRR)		No Torque					External Torque				
		Mean (SD; mm)	Estimate (95% CI)				Mean (SD; mm)	Estimate (95% CI)			
			Native	Condition 1A	Condition 1B	Condition 2		Native	Condition 1A	Condition 1B	Condition 2
AP View	Native	2.31 (0.47)	-	-	-	-	2.36 (0.37)	-	-	-	-
	Condition 1A	2.54 (0.65)	0.23 (-0.15, 0.61)	-	-	-	2.49 (0.32)	0.13 (-0.69, 0.95)	-	-	-
	Condition 1B	2.14 (0.34)	-0.17 (-0.55, 0.21)	-0.40 (-0.84, 0.04)	-	-	2.83 (0.63)	0.47 (-0.35, 1.29)	0.34 (-0.60, 1.29)	-	-
	Condition 2	2.48 (0.45)	0.16 (-0.15, 0.47)	-0.06 (-0.44, 0.32)	0.34 (-0.04, 0.72)	-	3.19 (0.66)	0.83* (0.16, 1.50)	0.70 (-0.12, 1.52)	0.36 (-0.46, 1.18)	-
	Condition 3	2.67 (0.39)	0.36* (0.05, 0.67)	0.13 (-0.25, 0.51)	0.53* (0.15, 0.91)	0.19 (-0.12, 0.50)	3.94 (1.12)	1.58* (0.91, 2.25)	1.45* (0.63, 2.27)	1.11* (0.29, 1.93)	0.75* (0.08, 1.42)
Mortise View	Native	2.18 (0.37)	-	-	-	-	2.14 (0.24)	-	-	-	-
	Condition 1A	2.14 (0.28)	-0.04 (-0.45, 0.37)	-	-	-	2.36 (0.37)	0.22 (-0.57, 1.01)	-	-	-
	Condition 1B	2.36 (0.41)	0.18 (-0.23, 0.59)	0.21 (-0.26, 0.69)	-	-	2.74 (0.94)	0.61 (-0.19, 1.40)	0.39 (-0.53, 1.30)	-	-
	Condition 2	2.40 (0.45)	0.22 (-0.11, 0.56)	0.26 (-0.15, 0.67)	0.04 (-0.37, 0.45)	-	3.06 (1.04)	0.92* (0.27, 1.57)	0.70 (-0.09, 1.49)	0.31 (-0.48, 1.11)	-
	Condition 3	2.55 (0.39)	0.37* (0.04, 0.71)	0.41 (0.00, 0.82)	0.19 (-0.22, 0.60)	0.15 (-0.19, 0.49)	3.64 (1.22)	1.51* (0.86, 2.15)	1.29* (0.49, 2.08)	0.90* (0.11, 1.69)	0.59 (-0.06, 1.23)

*Significant Difference (P -Value <0.05)

DRR, Digitally Reconstructed Radiographs

SD, Standard Deviation

CI, Confidence Interval

MCS, Medial Clear Space

AP, Antero-Posterior

Suppl. Table II: Influence of Ligament Resection on TFCS Measurements (Full-Weightbearing, Difference between Each Condition in Millimeters [mm])

TFCS (DRR)		No Torque					External Torque				
		Mean (SD; mm)	Estimate (95% CI)				Mean (SD; mm)	Estimate (95% CI)			
			Native	Condition 1A	Condition 1B	Condition 2		Native	Condition 1A	Condition 1B	Condition 2
AP View	Native	3.44 (0.97)	-	-	-	-	2.71 (0.64)	-	-	-	-
	Condition 1A	3.14 (0.87)	-0.30 (-1.02, 0.42)	-	-	-	2.60 (0.48)	-0.11 (-0.77, 0.55)	-	-	-
	Condition 1B	3.70 (0.75)	0.26 (-0.47, 0.98)	0.56 (-0.28, 1.39)	-	-	3.03 (1.09)	0.32 (-0.34, 0.98)	0.43 (-0.33, 1.19)	-	-
	Condition 2	3.24 (0.87)	-0.20 (-0.79, 0.39)	0.10 (-0.62, 0.82)	-0.46 (-1.18, 0.27)	-	2.83 (0.87)	0.12 (-0.42, 0.66)	0.23 (-0.43, 0.89)	-0.20 (-0.86, 0.46)	-
	Condition 3	3.35 (0.83)	-0.09 (-0.68, 0.50)	0.21 (-0.52, 0.93)	-0.35 (-1.07, 0.37)	0.11 (-0.48, 0.70)	3.39 (0.88)	0.68* (0.14, 1.22)	0.79* (0.12, 1.45)	0.36 (-0.30, 1.02)	0.56* (0.02, 1.10)
Mortise View	Native	3.40 (0.81)	-	-	-	-	2.82 (0.72)	-	-	-	-
	Condition 1A	2.96 (0.57)	-0.44 (-0.97, 0.08)	-	-	-	2.79 (0.65)	-0.04 (-0.69, 0.62)	-	-	-
	Condition 1B	3.36 (0.78)	-0.04 (-0.57, 0.48)	0.40 (-0.20, 1.00)	-	-	2.64 (0.83)	-0.18 (-0.84, 0.48)	-0.14 (-0.90, 0.62)	-	-
	Condition 2	3.19 (0.69)	-0.21 (-0.64, 0.21)	0.23 (-0.29, 0.75)	-0.17 (-0.69, 0.35)	-	3.02 (0.71)	0.20 (-0.34, 0.74)	0.24 (-0.42, 0.89)	0.38 (-0.28, 1.04)	-
	Condition 3	3.36 (0.72)	-0.04 (-0.47, 0.38)	0.40 (-0.12, 0.92)	0.00 (-0.52, 0.52)	0.17 (-0.26, 0.60)	3.78 (0.74)	0.96* (0.42, 1.49)	0.99* (0.34, 1.65)	1.14* (0.48, 1.79)	0.76* (0.22, 1.29)

*Significant Difference (P -Value <0.05)
 DRR, Digitally Reconstructed Radiographs
 SD, Standard Deviation
 CI, Confidence Interval
 TFCS, Tibio-Fibular Clear Space
 AP, Antero-Posterior

Suppl. Table III: Influence of Torque on MCS Measurements (Full-Weightbearing, Difference between Torque/ Non-Torque Application in Millimeters [mm])

MCS (DRR)		No Torque Mean (SD; mm)	External Torque Mean (SD; mm)	Estimate (95% CI)
AP View	Native	2.31 (0.47)	2.36 (0.37)	0.04 (-0.23, 0.31)
	Condition 1A	2.54 (0.65)	2.49 (0.32)	-0.06 (-0.53, 0.42)
	Condition 1B	2.14 (0.34)	2.83 (0.63)	0.69* (0.22, 1.15)
	Condition 2	2.48 (0.45)	3.19 (0.66)	0.71* (0.36, 1.05)
	Condition 3	2.67 (0.39)	3.94 (1.12)	1.26* (0.70, 1.82)
Mortise View	Native	2.18 (0.37)	2.14 (0.24)	-0.04 (-0.26, 0.18)
	Condition 1A	2.14 (0.28)	2.36 (0.37)	0.21 (-0.13, 0.56)
	Condition 1B	2.36 (0.41)	2.74 (0.94)	0.39 (-0.37, 1.14)
	Condition 2	2.40 (0.45)	3.06 (1.04)	0.66* (0.12, 1.20)
	Condition 3	2.55 (0.39)	3.64 (1.22)	1.09* (0.49, 1.70)

*Significant Difference (P -Value <0.05)

DRR, Digitally Reconstructed Radiographs

SD, Standard Deviation

CI, Confidence Interval

MCS, Medial Clear Space

AP, Antero-Posterior

Suppl. Table IV: Influence of Torque on TFCS Measurements (Full-Weightbearing, Difference between Torque/ Non-Torque Application in Millimeters [mm])

TFCS (DRR)		No Torque Mean (SD; mm)	External Torque Mean (SD; mm)	Estimate (95% CI)
AP View	Native	3.44 (0.97)	2.71 (0.64)	-0.74* (-1.12, -0.35)
	Condition 1A	3.14 (0.87)	2.60 (0.48)	-0.54* (-1.03, -0.06)
	Condition 1B	3.70 (0.75)	3.03 (1.09)	-0.67* (-1.34, 0.00)
	Condition 2	3.24 (0.87)	2.83 (0.87)	-0.41* (-0.82, -0.01)
	Condition 3	3.35 (0.83)	3.39 (0.88)	0.04 (-0.49, 0.56)
Mortise View	Native	3.40 (0.81)	2.82 (0.72)	-0.58* (-0.94, -0.22)
	Condition 1A	2.96 (0.57)	2.79 (0.65)	-0.17 (-0.65, 0.31)
	Condition 1B	3.36 (0.78)	2.64 (0.83)	-0.71* (-1.20, -0.23)
	Condition 2	3.19 (0.69)	3.02 (0.71)	-0.16 (-0.53, 0.20)
	Condition 3	3.36 (0.72)	3.78 (0.74)	0.42 (-0.02, 0.87)

*Significant Difference (*P*-Value <0.05)

DRR, Digitally Reconstructed Radiographs

SD, Standard Deviation

CI, Confidence Interval

MCS, Medial Clear Space

AP, Antero-Posterior

Suppl. Table V: Influence of Ligament Resection on TFO Measurements (Full-Weightbearing, Difference between Each Condition in Millimeters [mm])

TFO (Mortise View; DRR)		Mean (SD; mm)	Estimate (95% CI)			
			Native	Condition 1A	Condition 1D	Condition 2
No Torque	Native	4.64 (1.12)	-	-	-	-
	Condition 1A	3.64 (0.81)	-1.00 (-2.02, 0.02)	-	-	-
	Condition 1B	4.27 (1.02)	-0.37 (-1.39, 0.65)	0.63 (-0.55, 1.80)	-	-
	Condition 2	3.83 (0.90)	-0.81 (-1.65, 0.02)	0.19 (-0.83, 1.20)	-0.44 (-1.46, 0.58)	-
	Condition 3	3.24 (1.17)	-1.41* (-2.24, -0.58)	-0.41 (-1.43, 0.61)	-1.04* (-2.05, -0.02)	-0.59 (-1.42, 0.24)
External Torque	Native	2.65 (0.60)	-	-	-	-
	Condition 1A	1.53 (1.05)	-1.12* (-1.91, -0.33)	-	-	-
	Condition 1B	2.16 (0.86)	-0.49 (-1.28, 0.30)	0.63 (-0.29, 1.54)	-	-
	Condition 2	0.93 (1.08)	-1.72* (-2.37, -1.07)	-0.60 (-1.39, 0.19)	-1.23* (-2.02, -0.44)	-
	Condition 3	0.61 (1.08)	-2.04* (-2.68, -1.39)	-0.91* (-1.71, -0.12)	-1.54* (-2.33, -0.75)	-0.31 (-0.96, 0.33)

*Significant Difference (*P*-Value <0.05)

DRR, Digitally Reconstructed Radiographs

SD, Standard Deviation

CI, Confidence Interval

TFO, Tibio-Fibular Overlap

Suppl. Table VI: Influence of Torque on TFO Measurements (Full-Weightbearing, Difference between Torque/ Non-Torque Application in Millimeters [mm])

TFO (DRR)		No Torque Mean (SD; mm)	External Torque Mean (SD; mm)	Estimate (95% CI)
Mortise View	Native	4.64 (1.12)	2.65 (0.60)	-1.99* (-2.56, -1.42)
	Condition 1A	3.64 (0.81)	1.53 (1.05)	-2.11* (-2.95, -1.28)
	Condition 1B	4.27 (1.02)	2.16 (0.86)	-2.11* (-2.56, -1.67)
	Condition 2	3.83 (0.90)	0.93 (1.08)	-2.90* (-3.58, -2.22)
	Condition 3	3.24 (1.17)	0.61 (1.08)	-2.62* (-3.40, -1.84)

*Significant Difference (P -Value <0.05)

DRR, Digitally Reconstructed Radiographs

SD, Standard Deviation

CI, Confidence Interval

TFO, Tibio-Fibular Overlap

Suppl. Table VII: Influence of Torque on all CT Measurements (Full-Weightbearing; Difference between Torque/ Non-Torque Application in Millimeters [mm])

	No Torque Mean (SD; mm)	External Torque Mean (SD; mm)	Estimate (95% CI)
Angle 1	-13.78 (5.37)	-7.63 (6.80)	6.15* (4.26, 8.04)
Angle 2	11.07 (7.39)	16.39 (8.60)	5.32* (3.73, 6.91)
Measurement A	4.50 (1.00)	6.90 (2.36)	2.40* (1.74, 3.07)
Measurement D	9.71 (1.44)	7.36 (2.04)	-2.35* (-2.84, -1.86)
Measurement E	7.64 (1.10)	9.95 (1.78)	2.31* (1.83, 2.79)
Measurement F	1.98 (1.49)	4.36 (2.02)	2.38* (1.86, 2.90)
TFCS	4.66 (1.49)	3.82 (1.22)	-0.84* (-1.15, -0.53)
TFO	6.21 (1.39)	3.07 (1.80)	-3.14* (-3.70, -2.59)

*Significant Difference (P-Value <0.05)

CT, Computed Tomography

SD, Standard Deviation

CI, Confidence Interval

TFCS, Tibio-Fibular Clear Space

TFO, Tibio-Fibular Overlap

Suppl. Table VIII: Influence of Ligament Resection on TFCS Measurements (Full-Weightbearing, Difference between Each Condition in Millimeters [mm])

TFCS (CT)		Mean (SD; mm)	Estimate (95% CI)			
			Native	Condition 1A	Condition 1B	Condition 2
No Torque	Native	4.84 (1.36)	-	-	-	-
	Condition 1A	4.17 (1.19)	-0.66 (-1.72, 0.39)	-	-	-
	Condition 1B	4.66 (1.66)	-0.18 (-1.23, 0.88)	0.49 (-0.73, 1.70)	-	-
	Condition 2	4.65 (1.61)	-0.19 (-1.05, 0.68)	0.48 (-0.58, 1.53)	-0.01 (-1.06, 1.05)	-
	Condition 3	4.74 (1.69)	-0.10 (-0.96, 0.76)	0.56 (-0.49, 1.62)	0.08 (-0.98, 1.13)	0.09 (-0.78, 0.95)
External Torque	Native	3.64 (1.23)	-	-	-	-
	Condition 1A	3.53 (1.28)	-0.11 (-1.01, 0.79)	-	-	-
	Condition 1B	3.81 (1.02)	0.18 (-0.72, 1.08)	0.29 (-0.76, 1.33)	-	-
	Condition 2	3.54 (1.01)	-0.09 (-0.83, 0.64)	0.01 (-0.89, 0.92)	-0.27 (-1.17, 0.63)	-
	Condition 3	4.44 (1.39)	0.80* (0.06, 1.54)	0.91* (0.01, 1.81)	0.62 (-0.28, 1.52)	0.89* (0.16, 1.63)

*Significant Difference (*P*-Value <0.05)

CT, Computed Tomography

SD, Standard Deviation

CI, Confidence Interval

TFCS, Tibio-Fibular Clear Space

Suppl. Table IX: Influence of Torque on TFCS Measurements (Full-Weightbearing, Difference between Torque/ Non-Torque Application in Millimeters [mm])

TFCS (CT)	No Torque Mean (SD; mm)	External Torque Mean (SD; mm)	Estimate (95% CI)
Native	4.84 (1.36)	3.64 (1.23)	-1.20* (-1.74, -0.66)
Condition 1A	4.17 (1.19)	3.53 (1.28)	-0.64* (-1.08, -0.21)
Condition 1B	4.66 (1.66)	3.81 (1.02)	-0.84* (-1.62, -0.06)
Condition 2	4.65 (1.61)	3.54 (1.01)	-1.11* (-1.68, -0.53)
Condition 3	4.74 (1.69)	4.44 (1.39)	-0.30 (-1.08, 0.48)

*Significant Difference: *P*-Value <0.05

CT, Computed Tomography

SD, Standard Deviation

CI, Confidence Interval

TFCS, Tibio-Fibular Clear Space