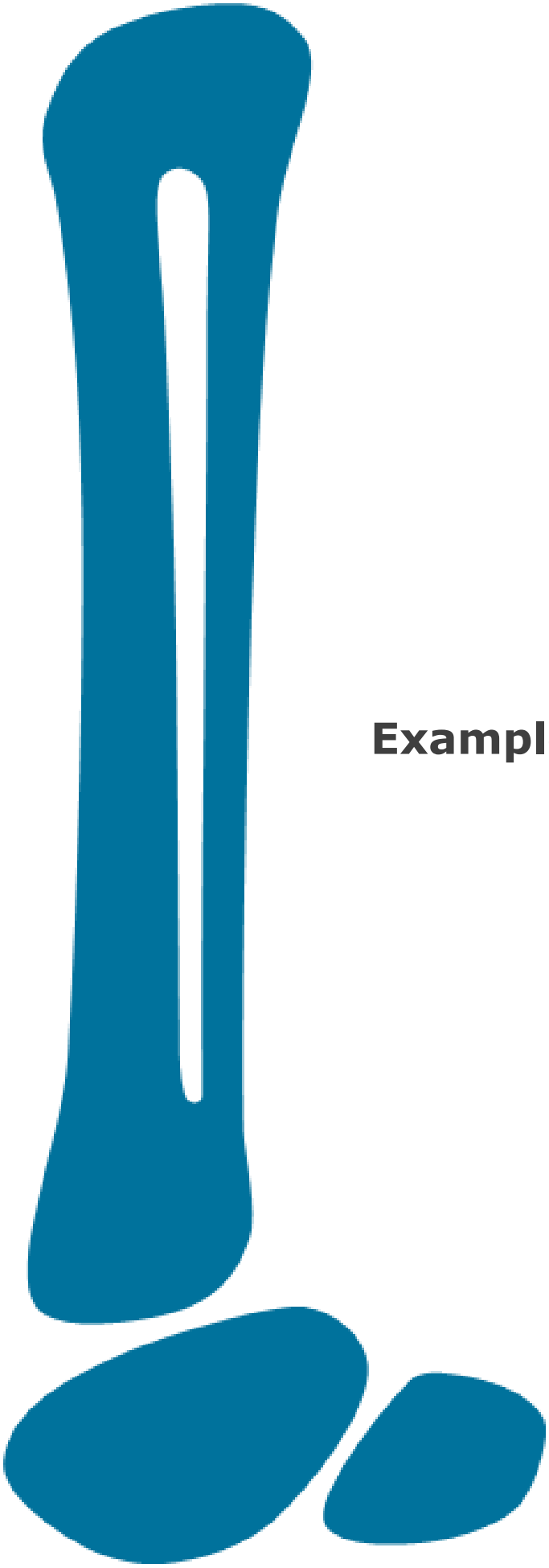

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Deformity Correction
Powered by Real Intelligence

Examples of TSF◇ Ally Reports

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Deformity Correction
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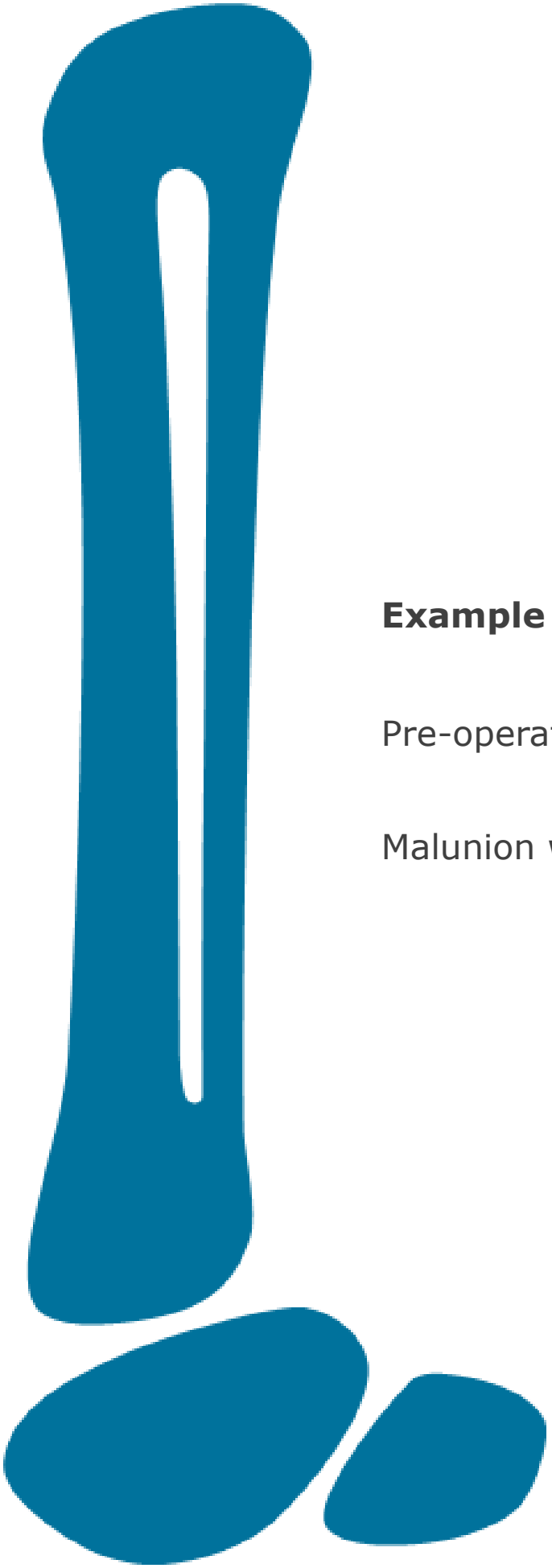
Through the collaboration of surgeon and expert engineer, TSF◇ Ally serves to optimize TSF treatment for your patient and practice, by using dedicated software to conduct the x-ray analysis and accurately plan the hardware assembly

TSF Ally is hosted at www.TSFALLY.com



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Example of TSF◇ Ally Report

Pre-operative Planning Report

Malunion with Knee Arthroplasty

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Clinical Details	
Surgery Date	XX/XX/XXXX
Length Discrepancy	—
Axial Rotation Deformity	None
Preferred Proximal Ring Size and Type	155 mm
Preferred Distal Ring Size and Type	155 mm
Preferred Reference Ring	Proximal
Preferred Strut Type	Fast FX
Additional Notes	Proximal ring block, with middle ring being the reference ring

Initial Frontal Plane Radiograph	Initial Sagittal Plane Radiograph
	

Images courtesy of Jeffrey Holmes MD

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Analysis: Frontal Plane

Pre-Correction Joint Angle Measurements

Angle/ Length	Measured	Normal Range[1]
mLPFA	—	**85°-95°**
mLDFA	—	**85°-90°**
mMPTA	**85°**	**85°-90°**
mLDTA	**99°**	**86°-92°**
JLCA	**0°**	**0°+/-2°**
MAD	—	**+/- 3 mm**

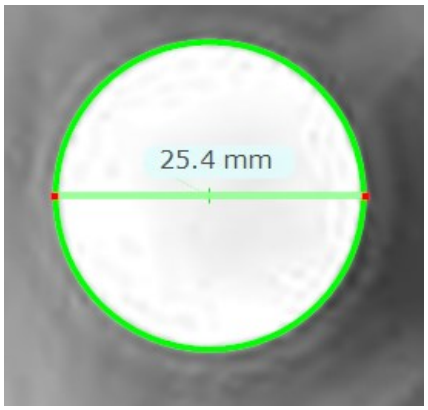
Pre-Correction Length Measurements

Length	Measured	Discrepancy†
Femur	—	—
Tibia	**360 mm**	—
Total Length	—	—

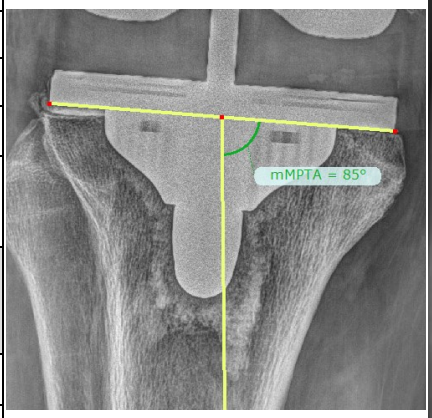
†Discrepancies measured from bilateral radiograph.

Scaling method:

25.4 mm Calibration Sphere



Joint Line Placement



Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Analysis: Sagittal Plane

Pre-Correction Joint Angle Measurements

Angle	Measured	Normal Range[1]
PDFA	—	**79°-87°**
PPTA	**89°***	**77°-84°**
ADTA	**78°**	**78°-82°**
ACL	—	**Within 5° of total bony deformity**

***Please note: Knee implant and rotation of lateral image may lead to inaccurate joint measurements.**

Soft-tissue Contribution†

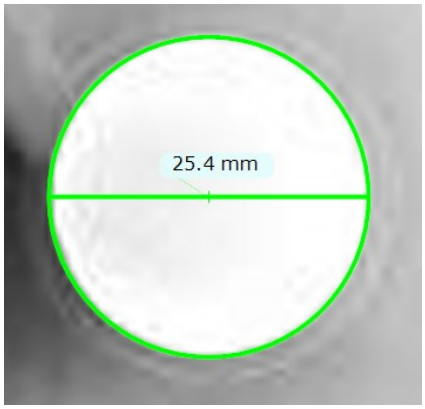
STC= ACL—PDFA—PPTA

N/A

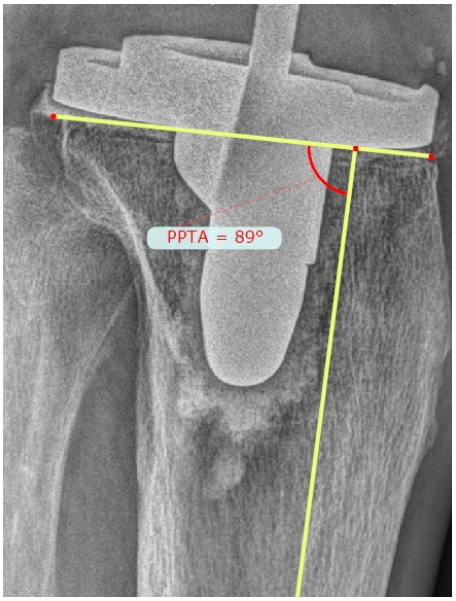
†Please note that only bony deformity is corrected within this report. Soft-tissue contribution is provided for reference only.

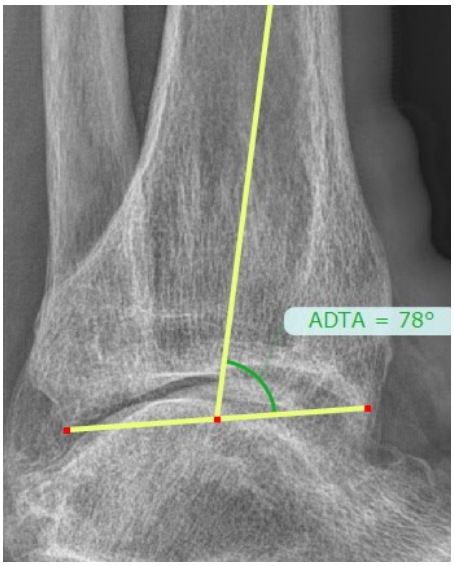
Scaling method:

25.4 mm Calibration Sphere



Joint Line Placement





Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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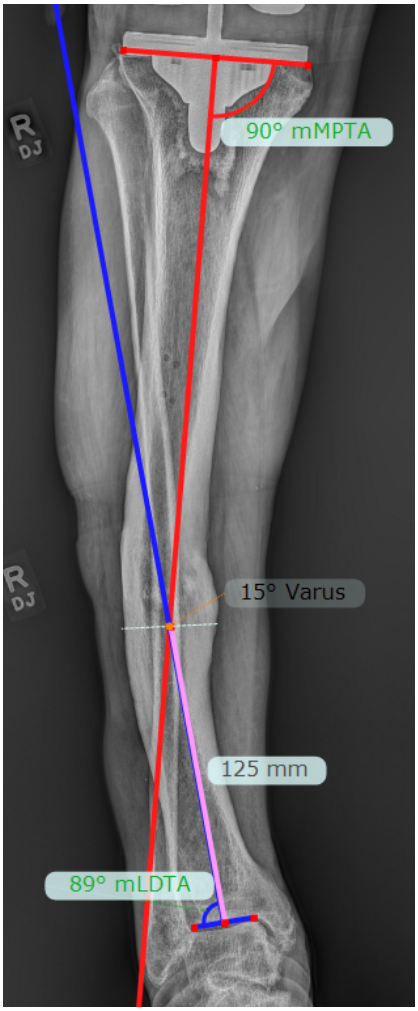
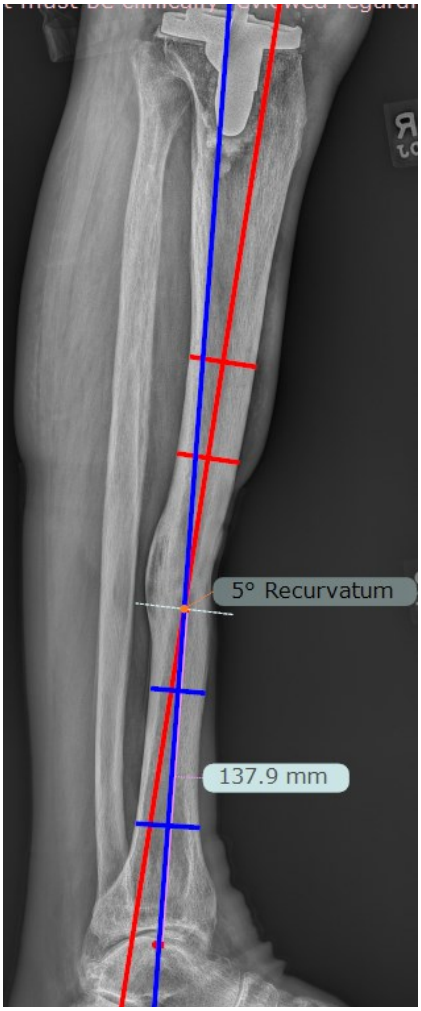
Deformity Analysis: Apex

Frontal Plane		Sagittal Plane	
Proximal Axis	Normal mMPTA of 90°	**Proximal Axis**	Mid-diaphyseal line
Distal Axis	Normal mLDTA of 89°	**Distal Axis**	Mid-diaphyseal line
Apex Angulation	15° Varus	**Apex Angulation**	4.7° Recurvatum
Apex Location (to respective joint line)	125 mm proximal to tibiotalar joint line	**Apex Location** (to respective joint line)	137.9 mm proximal to tibiotalar joint line





Proximal Segment
Distal Segment
Ruler
Transverse Bisector

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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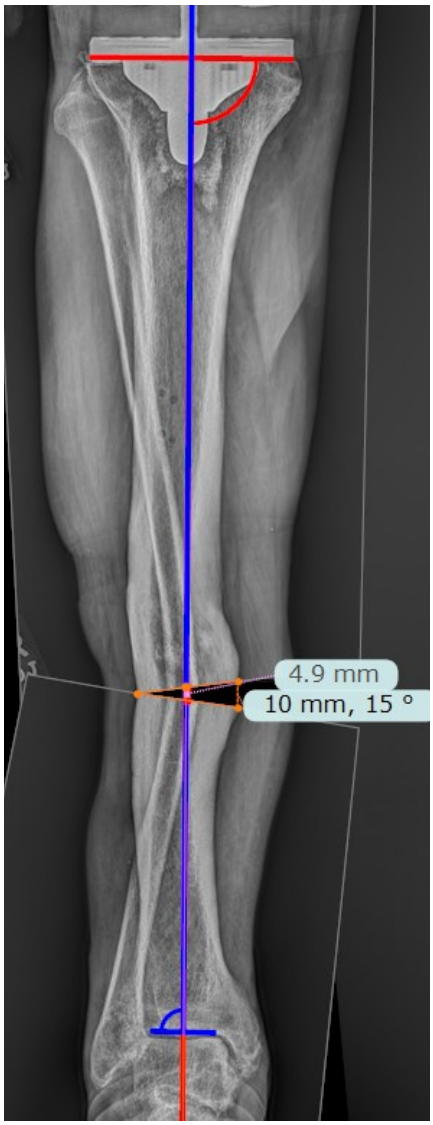
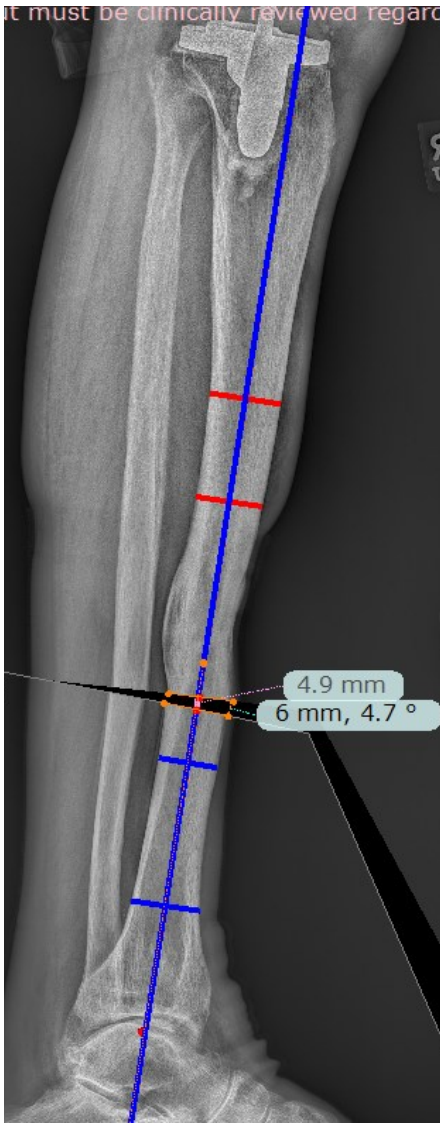
Correction Analysis	
Planned Osteotomy Level	125 mm proximal to tibiotalar joint line
Frontal Plane Angulation Correction	15° Varus
Sagittal Plane Angulation Correction	4.7° Recurvatum
Length Correction (along the axis)	4.9 mm
Anticipated Post-Correction Bony Translation	The distal segment will translate 1 mm posterior to the proximal segment.

Frontal Plane Correction	Sagittal Plane Correction
	

Proximal Segment
Distal Segment
Ruler
Transverse Bisector

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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Correction Analysis

Post-Correction Frontal Joint Angle Measurements

Angle/ Length	Measured	Normal
mLPFA	—	85°-95°
mLDFA	—	85°-90°
mMPTA	90°	85°-90°
mLDTA	89°	86°-92°
JLCA	0°	0°+/-2°
MAD	—	+/- 3mm

Post-Correction Sagittal Joint Angle Measurements

Angle	Measured	Normal Range[1]
PDFA	—	79°-87°
PPTA	87°*	77°-84°
ADTA	81°	78°-82°

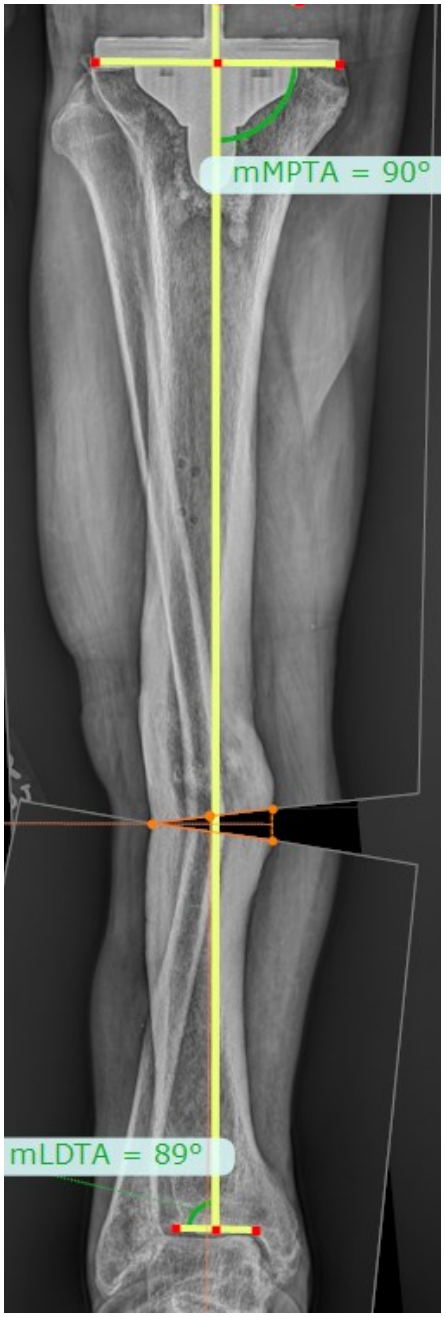
***Please note: Knee implant and rotation of lateral image may lead to inaccurate joint measurements.**

Post-Correction Length Measurements

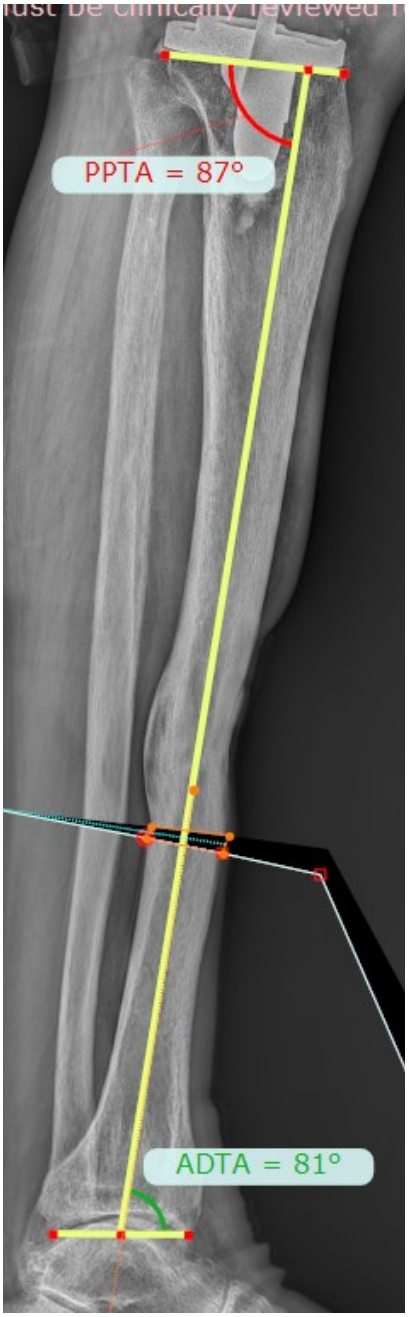
Length	Measured	Residual Discrepancy†
Femur	—	—
Tibia	367 mm	—
Total Length	—	—

†Discrepancies measured from bilateral radiograph.

Frontal Plane



Sagittal Plane



Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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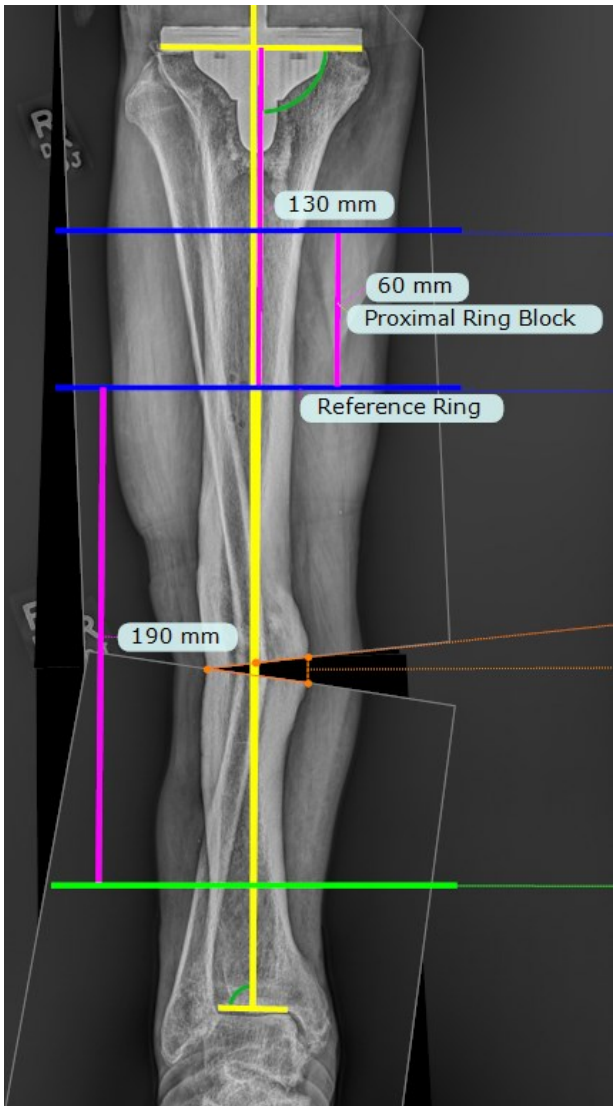
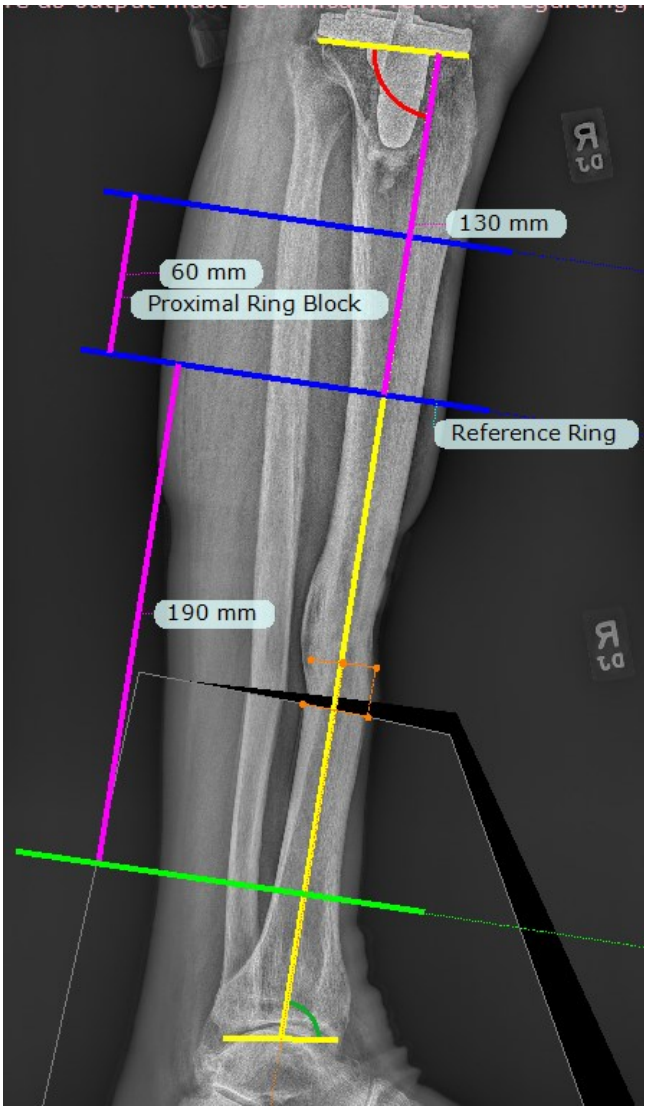
TSF Planning	
Length Correction (along the axis)	4.9 mm
Osteotomy Level (to respective joint line)	125 mm proximal to tibiotalar joint line
Reference Ring Placement	130 mm distal to knee joint line
Neutral Frame Height	190 mm
Neutral Strut Length	175 mm
Ring Sizes	155 mm Full (both proximal), 155 mm Full

Frontal Plane Correction	Sagittal Plane Correction





Reference Ring(s)
Moving Ring(s)
Joint Lines
Ruler
Osteotomy
Center of Ring

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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TSF Planning

Deformity Parameters
(Method of Planning: Apex = Corresponding Point)

AP View Angulation	AP View Translation	Lateral View Angulation	Lateral View Translation	Axial View Angulation	Axial Translation
15° Varus	0 mm	4.7° Apex Posterior	1.3 mm Anterior	0°	4.9 mm Short

Mounting Parameters

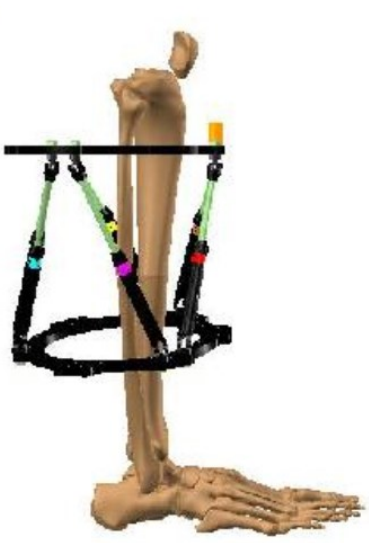
Referencing	Proximal
AP View Frame Offset	0 mm
Lateral View Frame Offset	35 mm posterior to origin
Rotary Frame Angle	0°
Axial Frame Offset The distance from the reference ring to the origin is increased when extrinsic length is added.	119.7 mm proximal to (extrinsic) origin

Initial Strut Settings

Strut 1	Strut 2	Strut 3	Strut 4	Strut 5	Strut 6
178	154	151	170	186	193
Medium Fast Fx ® Strut	Medium Fast Fx ® Strut	Medium Fast Fx ® Strut	Medium Fast Fx ® Strut	Medium Fast Fx ® Strut	Medium Fast Fx ® Strut

Initial Frame in Frontal Plane

Initial Frame in Sagittal Plane



Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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Case Summary

Deformity Analysis

Frontal Plane Angulation	15° Varus
Sagittal Plane Angulation	4.7° Recurvatum
Leg Length Discrepancy Pre-Correction	—

Correction Analysis

Planned Osteotomy Level	125 mm proximal to tibiotalar joint line
Total Anticipated Length Correction	4.9 mm along the axis
Leg Length Discrepancy Post-Correction	—

TSF Planning

Ring Sizes/Types	Proximal: 155 mm Full (both proximal rings)
Reference Ring **(Must be placed orthogonal to bone segment.)**	2nd Ring of proximal ring block (Proximal referencing)
Reference Ring Placement	130 mm distal to knee joint line
Number of Strut Change-outs	0

Initial Strut Settings

Strut 1	**Strut 2**	**Strut 3**	**Strut 4**	**Strut 5**	**Strut 6**
178	154	151	170	186	193
Medium Fast Fx ® Strut	Medium Fast Fx ® Strut	Medium Fast Fx ® Strut	Medium Fast Fx ® Strut	Medium Fast Fx ® Strut	Medium Fast Fx ® Strut

Parts List

Part (Catalog Number)	**Quantity**
155mm Ring (7107-0114)	2
Fast Fx ® Identification Band Kit (7107-0340)	1
Medium Fast Fx ® Strut (7107-0720)	6

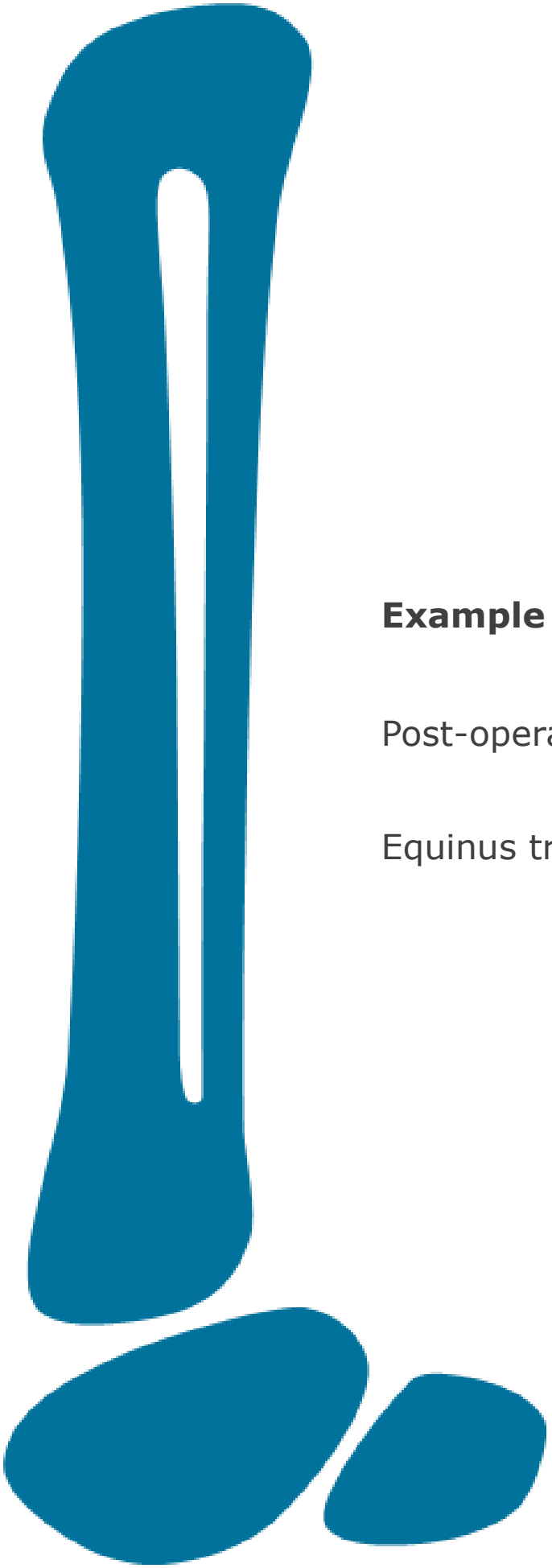
Notes

Knee implant and rotation of lateral image may lead to inaccurate joint measurements.

We selected a mid-diaphyseal line for the proximal axis in the sagittal view due to the implantation of the tibia baseplate and the rotation of the lateral x-ray. The remaining abnormal PPTA may be inaccurate based on these factors.

Planned TSF using a 60 mm proximal ring block, with 2nd ring of block as the reference ring (proximal referencing). 60 mm Threaded Sockets may be used to assemble the proximal ring block as shown.

Planned TSF using 155 mm distal ring based on preferences; however, a 130 mm ring would also fit based on soft-tissue measurements.



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Deformity Correction
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Example of TSF◇ Ally Report

Post-operative Planning Report

Equinus treated with TSF

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Left Foot

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Deformity Correction
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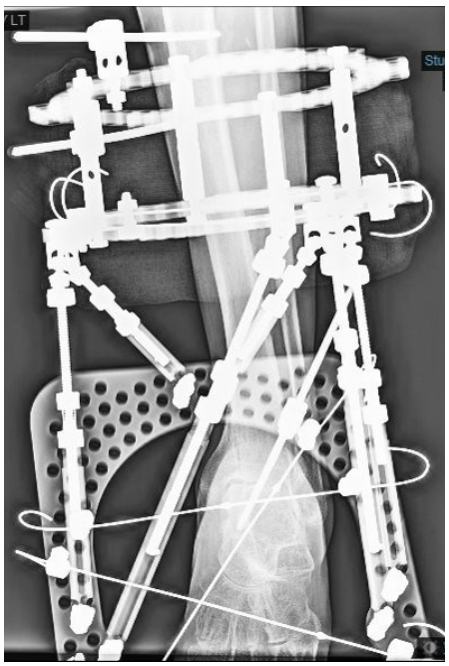
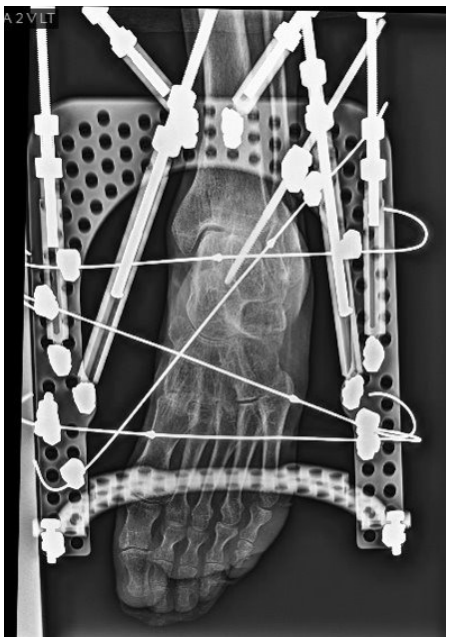
Post-Op Clinical Details

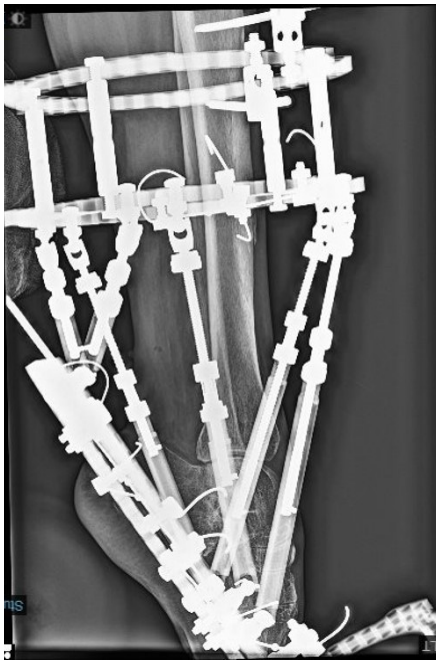
Surgery Date	XX/XX/XXXX
Prescription Start Date	XX/XX/XXXX
Length Discrepancy	Distract 5 mm
Axial Rotation Deformity	None
Proximal Ring Size and Type	155 mm Full
Distal Ring Size and Type	155 Foot Plate
Reference Ring	Distal (Foot Plate)
Structure at Risk (SAR)	Posterior Ankle Capsule
Maximum Safe Distraction Rate	1 mm/day
Additional Notes	Soft tissue correction

Initial Strut Settings

Strut 1	Strut 2	Strut 3	Strut 4	Strut 5	Strut 6
248	230	200	98	101	190
Long Fast FX	Long Fast FX	Medium Fast FX	XS Fast FX	XS Fast FX	Medium Fast FX







Images courtesy of Eugene Stautberg MD

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Left Foot

Smith+Nephew

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Deformity Correction
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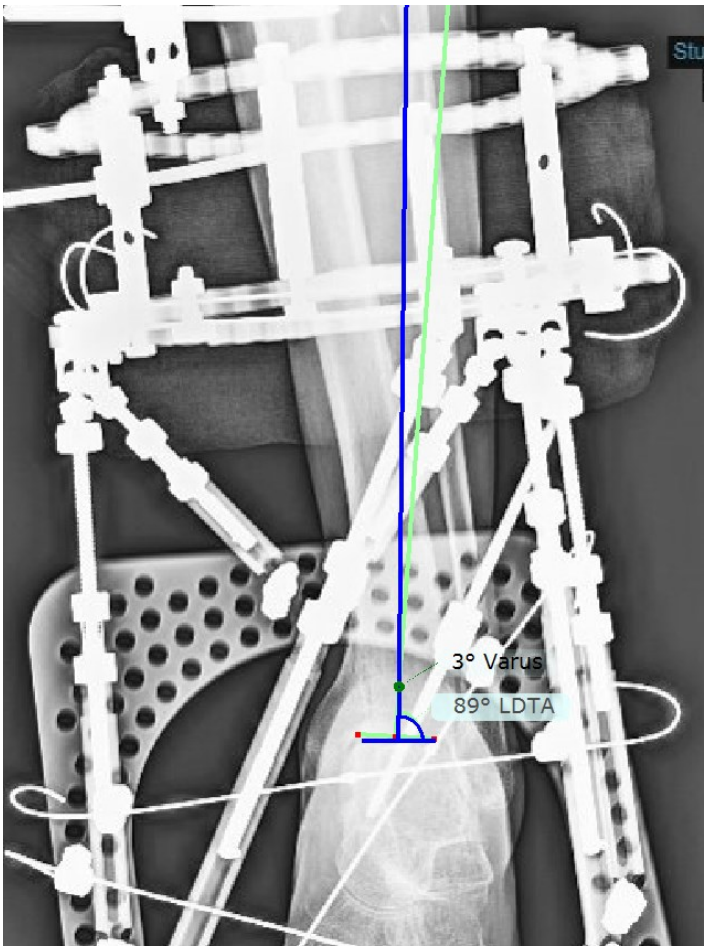
Deformity Analysis

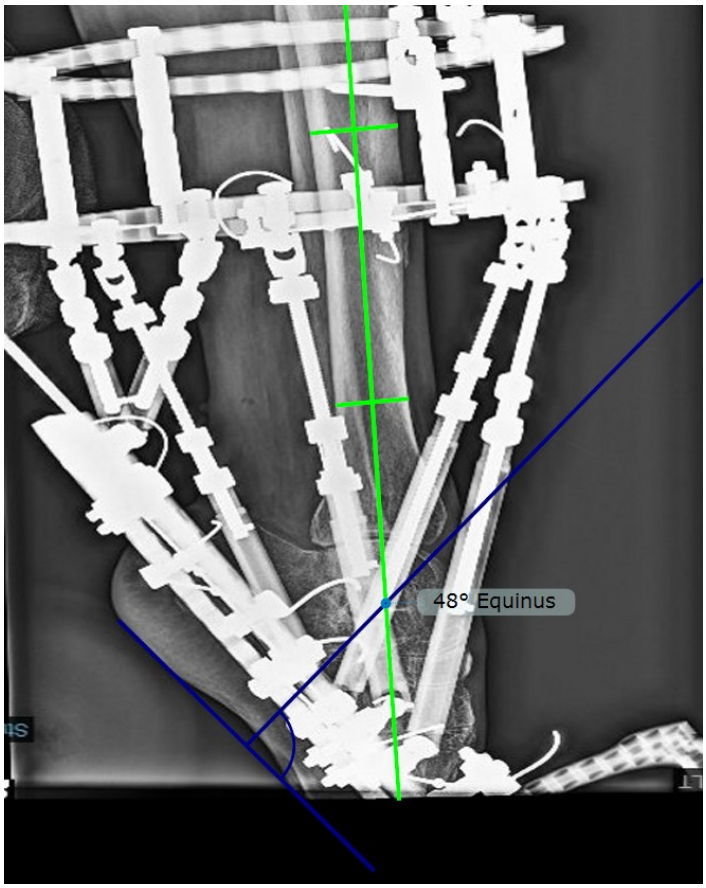
Method: TraumaCad

Proximal Axis	Normal mLDTA of 89°	Proximal Axis	Mid-diaphyseal line of tibia
Distal Axis	Center of talar dome	Distal Axis	Sagittal axis of foot
AP View Angulation	3° Varus	Lateral View Angulation	48° Equinus
AP View Translation	0 mm	Lateral View Translation	0 mm

Frontal Plane Deformity Analysis



Sagittal Plane Deformity Analysis



Reference Ring/Segment

Moving Segment

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Left Foot

Smith+Nephew

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Deformity Correction
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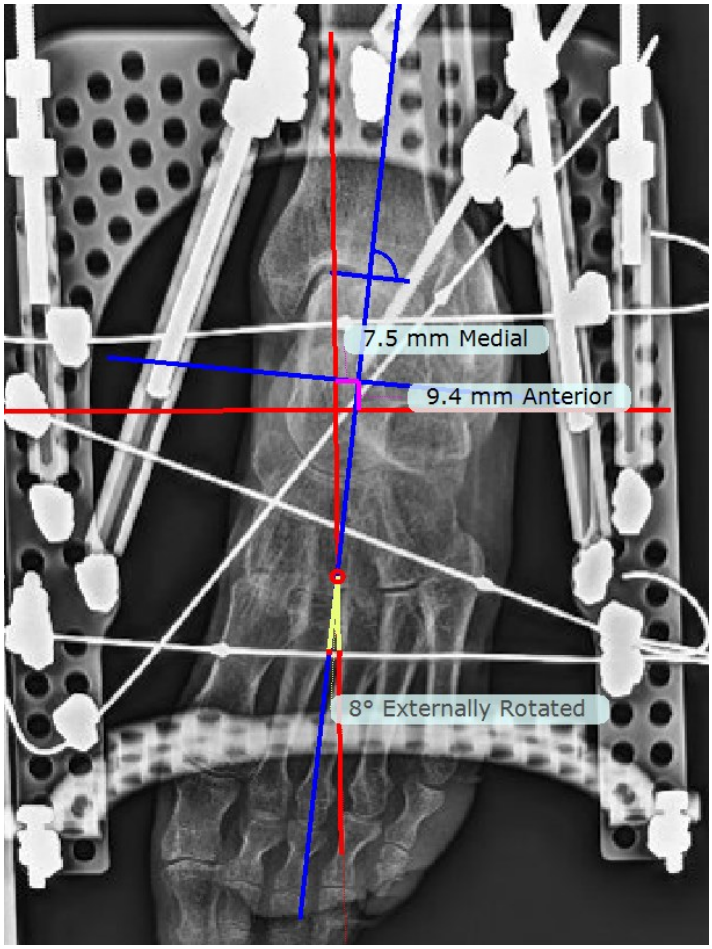
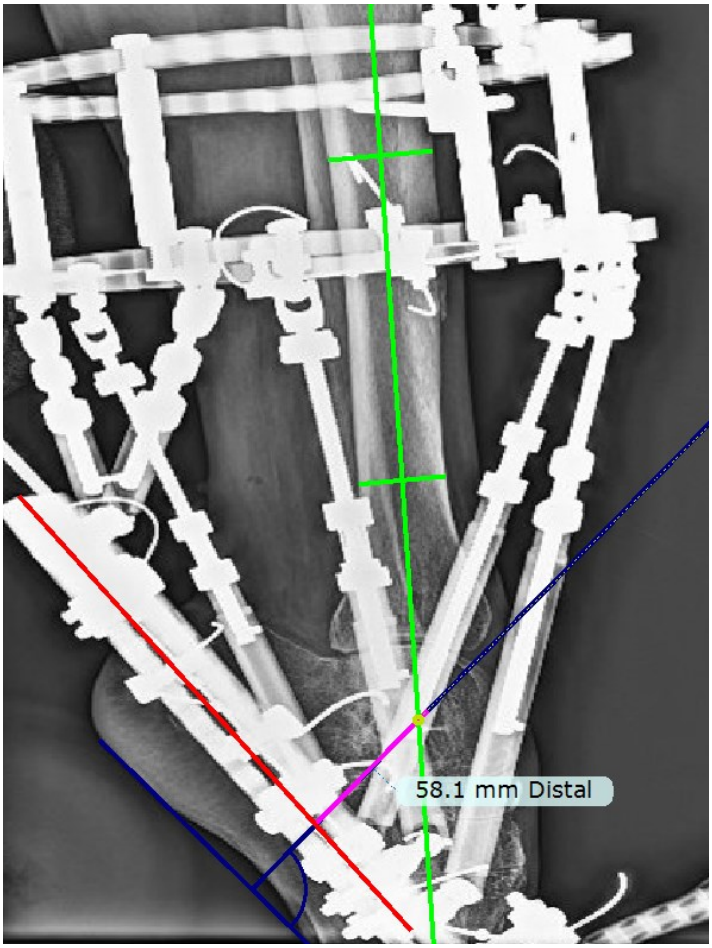
TSF Mounting Parameters	
AP View Frame Offset	7.5 mm Medial to Origin
Lateral View Frame Offset	9.4 mm Anterior to Origin
Axial Frame Offset	58.1 mm Distal to Origin (Extrinsic)
Rotary Frame Angle	8° Externally Rotated
Frontal Plane Reference Ring	**Sagittal Plane Reference Ring**





Ruler

Reference Axis (Center of Talus)

Center of Reference Ring

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Left Foot

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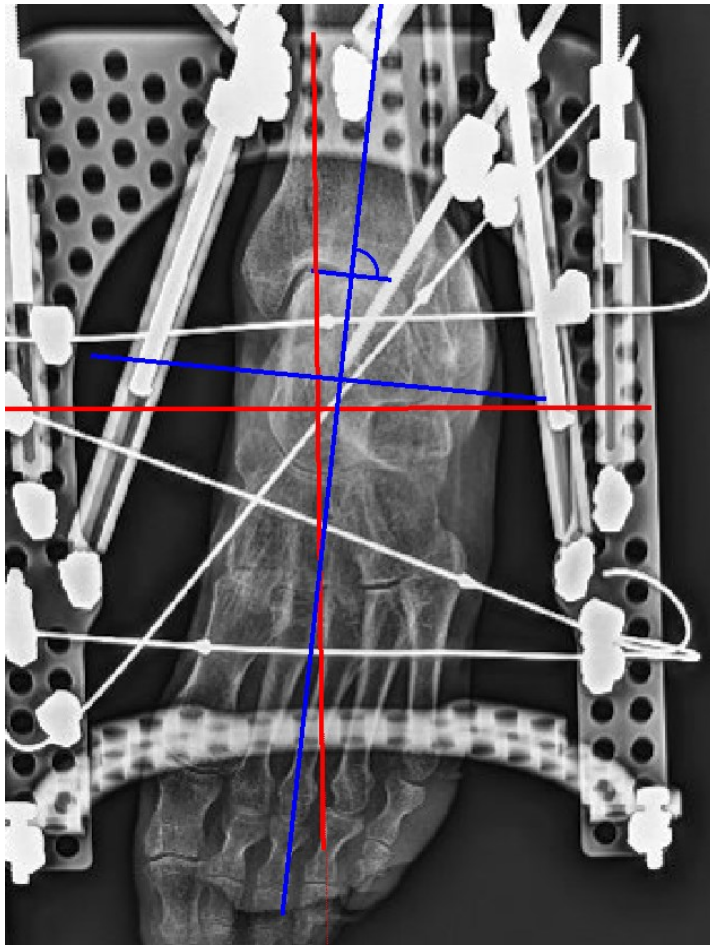
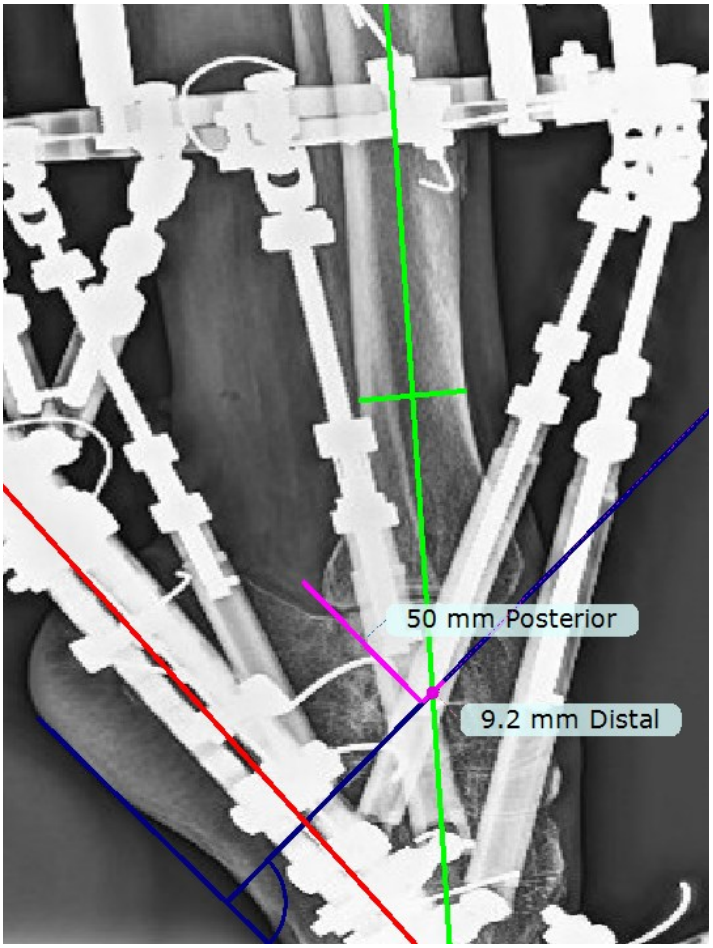
Structure at Risk Parameters

Structure at Risk	Posterior Ankle Capsule
AP View SAR Offset	0 mm
Lateral View SAR Offset	50 mm Posterior to Origin
Axial SAR Offset	9.2 mm Distal to Origin (Extrinsic)

Frontal Plane **Reference Ring and SAR Placement**	**Sagittal Plane** **Reference Ring and SAR Placement**
	

Structure at Risk
Ruler
Reference Axis (Center of Talus)
Center of Reference Ring

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Left Foot

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Case Summary

Deformity Parameters

AP View Angulation	3° Varus	**AP View Translation**	0 mm
LAT View Angulation	58° Plantar Flexion	**LAT View Translation**	0 mm
Axial View Angulation	0°	**Axial View Translation**	5 mm Short

Mounting Parameters

AP View Frame Offset	7.5 mm Medial to Origin
LAT View Frame Offset	9.4 mm Anterior to Origin
Axial View Frame Offset	58.1 mm Distal to Origin (Extrinsic)
Rotary Frame Angle	8° Externally Rotated

Structure at Risk Parameters

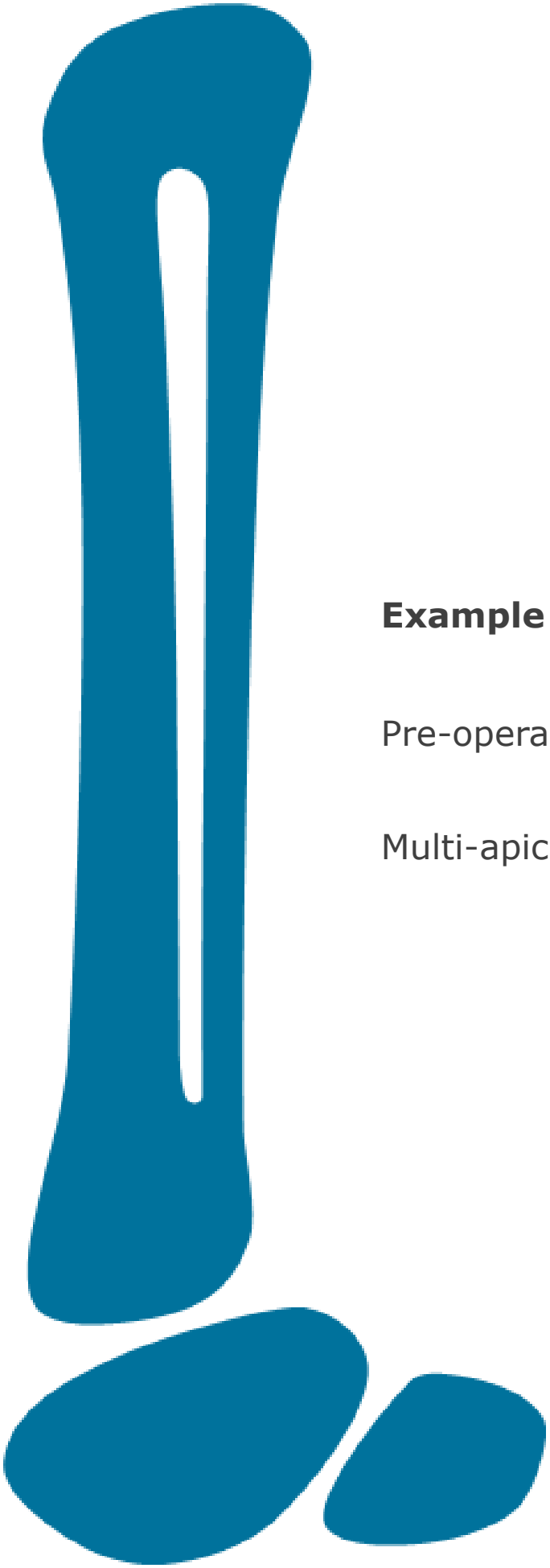
Structure at Risk	Posterior Ankle Capsule
AP View SAR Offset	0 mm
Lateral View SAR Offset	50 mm Posterior to Origin
Axial SAR Offset	9.2 mm Distal to Origin (Extrinsic)

Correction Analysis

Length Correction	5 mm along the axis
Anticipated Post-Correction Bony Translation	0 mm
Maximum Safe Distraction Rate	1 mm/day
Correction Time	54 days
Number of Strut Change-Outs	6

Strut Change-Outs

Change-Out	Strut	Overlap Start Date	Overlap End Date	Strut Change From	Strut Change To
a	2 (Orange)	38 (03/05/20)	50 (03/17/20)	7107-0730 Long FAST FX ®	7107-0720 Medium FAST FX ®
b	3 (Yellow)	0 (01/27/20)	25 (02/21/20)	7107-0720 Medium FAST FX ®	7107-0730 Long FAST FX ®
c	4 (Green)	14 (02/10/20)	17 (02/13/20)	7107-0705 Extra Short FAST FX ®	7107-0710 Short FAST FX ®
d	4 (Green)	29 (02/25/20)	34 (03/01/20)	7107-0710 Short FAST FX ®	7107-0720 Medium FAST FX ®
e	5 (Blue)	13 (02/09/20)	16 (02/12/20)	7107-0705 Extra Short FAST FX ®	7107-0710 Short FAST FX ®
f	5 (Blue)	30 (02/26/20)	36 (03/03/20)	7107-0710 Short FAST FX ®	7107-0720 Medium FAST FX ®



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Example of TSF◇ Ally Report

Pre-operative Planning Report

Multi-apical Tibial Deformity

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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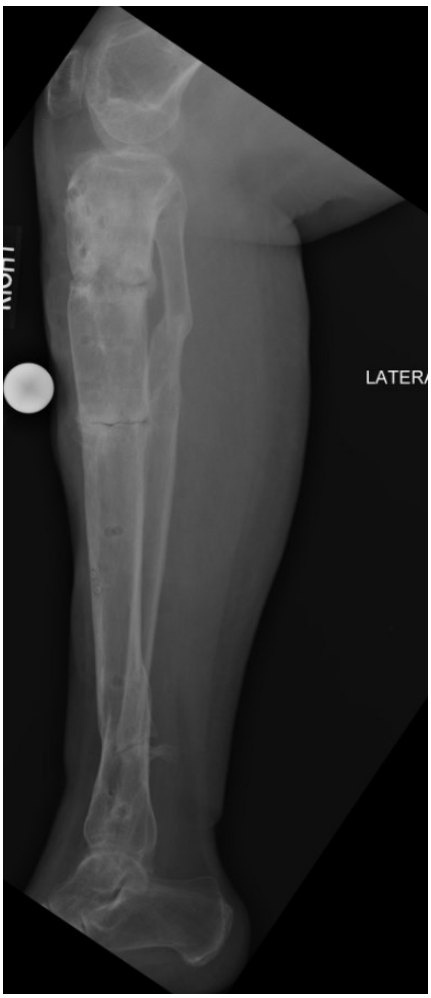
Clinical Details	
Surgery Date	XX/XX/XXXX
Length Discrepancy	Right Leg 5 cm shorter than left
Axial Rotation Deformity	0° Rotational Deformity
Preferred Proximal Ring Size and Type	180 mm Full Ring
Preferred Distal Ring Size and Type	180 mm Full Ring
Preferred Reference Ring	Middle Ring
Preferred Strut Type	Fast FX
Additional Notes	Patient has a tibia malunion and was treated with a previous frame.

Initial Frontal Plane Radiograph	Initial Sagittal Plane Radiograph
	

Images courtesy of Evgeny Dyskin MD

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

Smith+Nephew

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Deformity Correction
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Deformity Analysis: Frontal Plane

Pre-Correction Joint Angle Measurements

Angle/ Length	Measured	Normal Range[1]
mLPFA	85°	85°-95°
mLDFA	85°	85°-90°
mMPTA	64°	85°-90°
mLDTA	84°	86°-92°
JLCA	1°	0°+/-2°
MAD	69 mm	+/- 3 mm

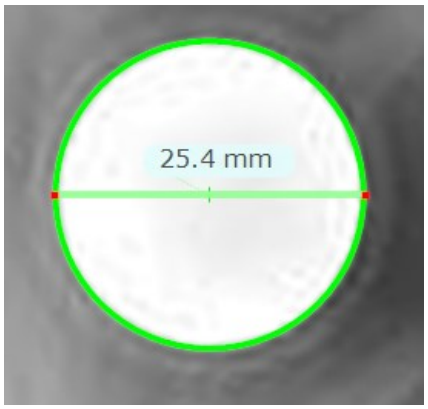
Pre-Correction Length Measurements

Length	Measured	Discrepancy†
Femur	484 mm	2 mm
Tibia	344 mm	32 mm
Total Length	819 mm	48 mm short

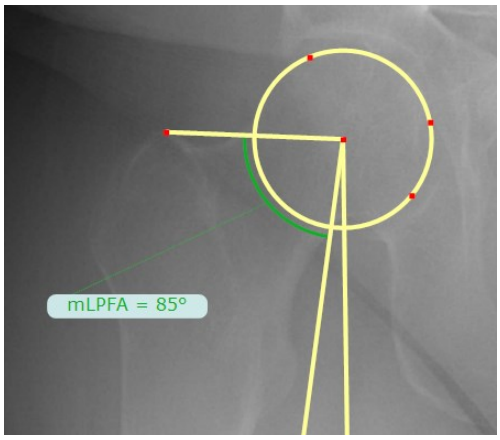
†Discrepancies measured from bilateral radiograph.

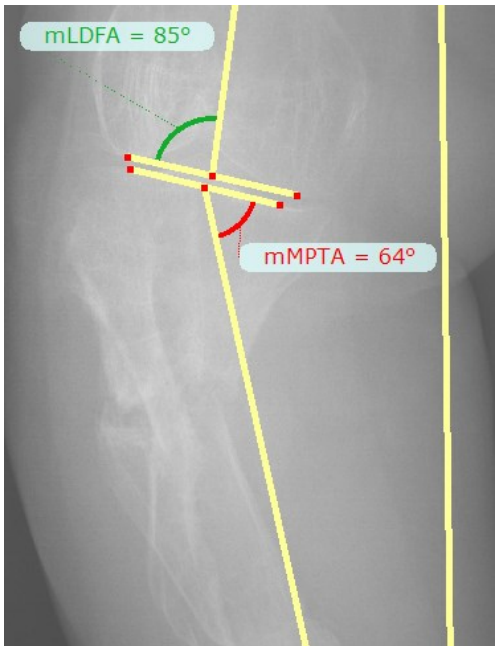
Scaling method:

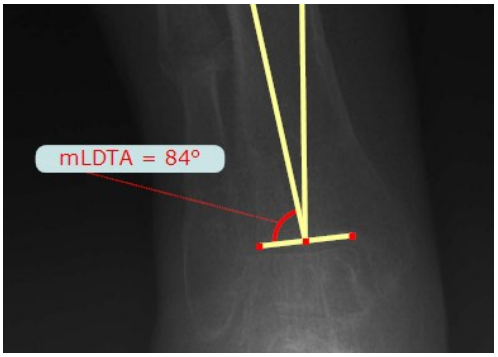
25.4 mm Calibration Sphere

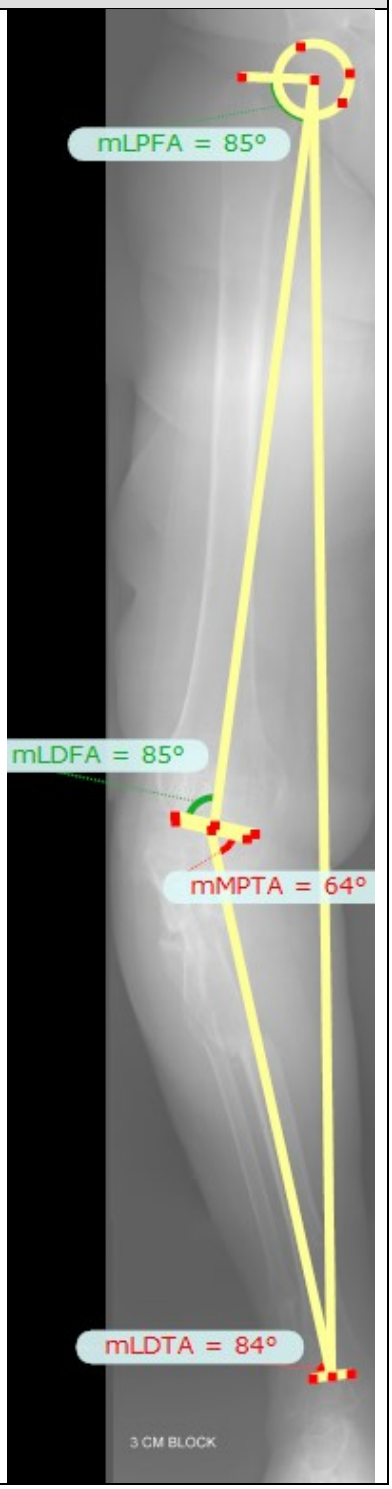


Joint Line Placement









Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

Smith+Nephew

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Deformity Correction
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Deformity Analysis: Sagittal Plane

Pre-Correction Joint Angle Measurements

Angle	Measured	Normal Range[1]
PDFA	—	**79°-87°**
PPTA	**82°**	**77°-84°**
ADTA	**80°**	**78°-82°**
ACL	—	**Within 5° of total bony**

Soft-tissue Contribution†

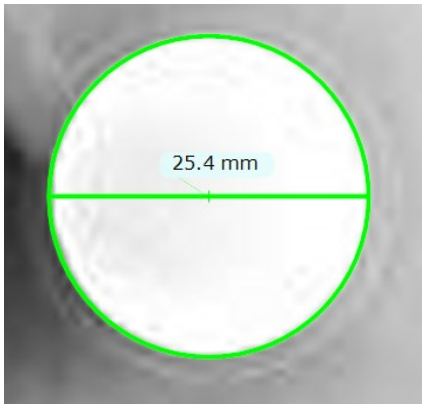
STC= ACL—PDFA—PPTA

N/A

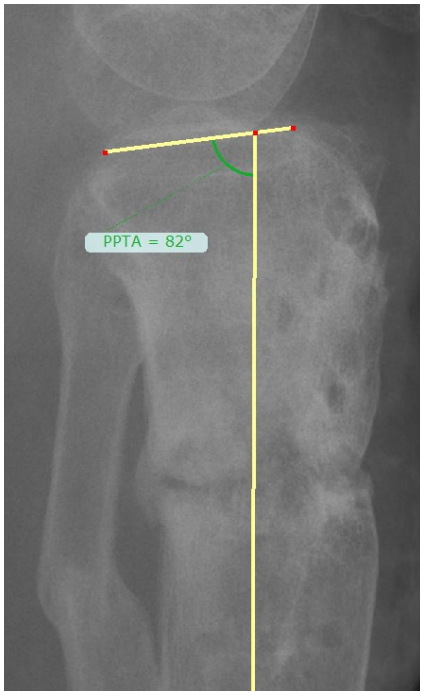
†Please note that only bony deformity is corrected within this report. Soft-tissue contribution is provided for reference only.

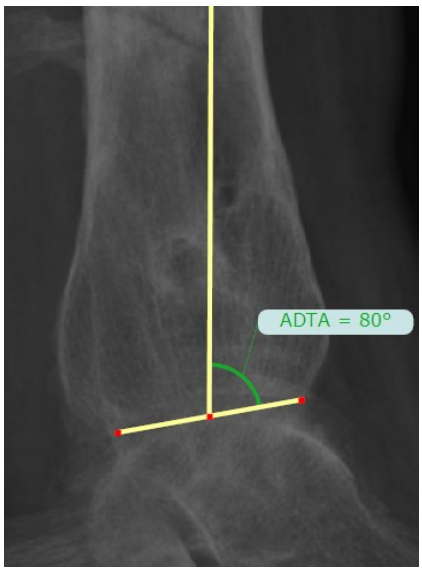
Scaling method:

25.4 mm Calibration Sphere



Joint Line Placement





Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

Smith+Nephew

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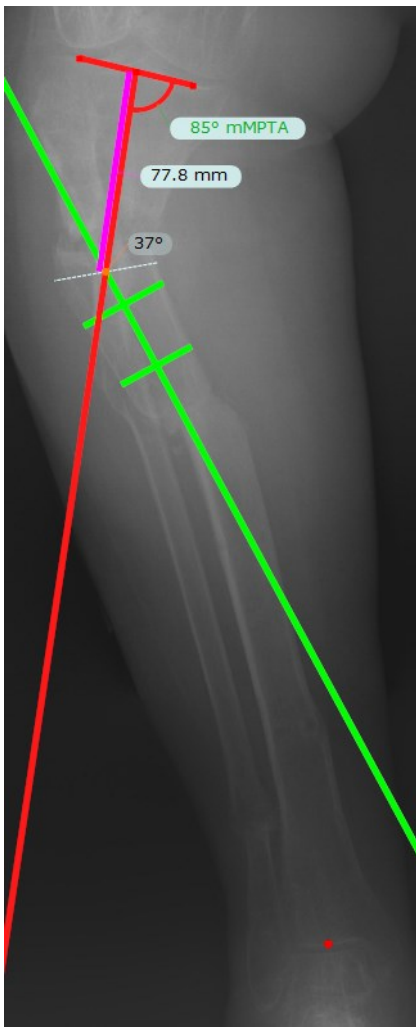
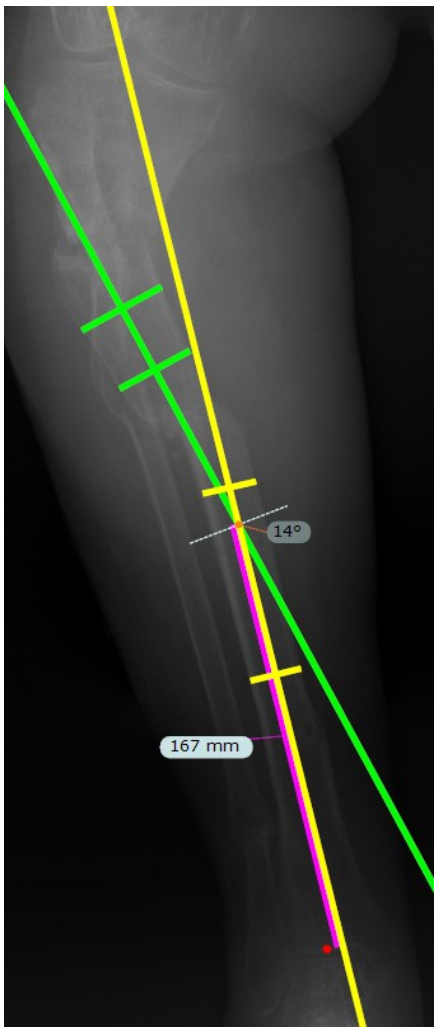
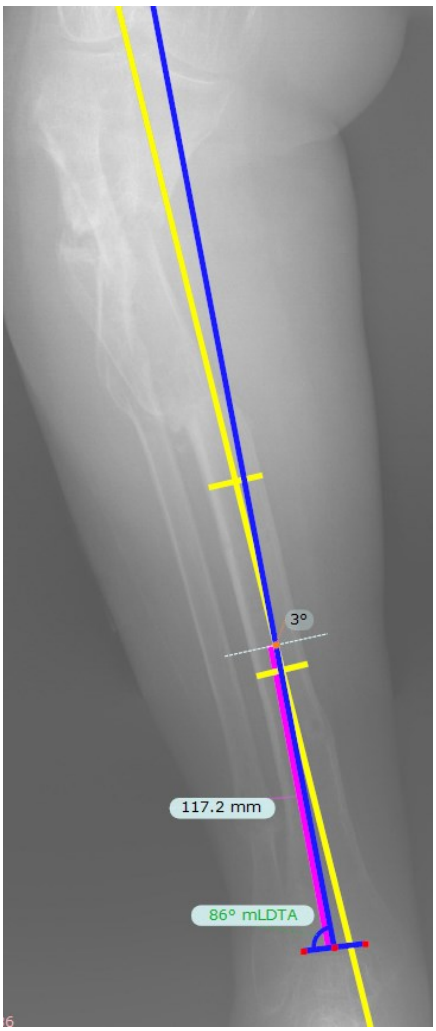
Deformity Analysis: Frontal Plane Apices

Proximal Axis	Match normal contralateral mMPTA of 85°
Middle Axes	Mid-diaphyseal lines
Distal Axis	Match normal contralateral mLDTA of 86°
Apex Angulations	Proximal: 37° Varus Middle: 14° Valgus Distal: 3° Valgus
Apex Locations **(to respective joint line)**	Proximal: 77.8 mm distal to proximal joint line Middle: 167 mm proximal to distal joint line

Proximal Apex	Middle Apex	Distal Apex
		

Proximal Segment
Proximal Middle Segment
Distal Middle Segment
Distal Segment
Ruler
Transverse Bisector

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

Smith+Nephew

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Deformity Correction
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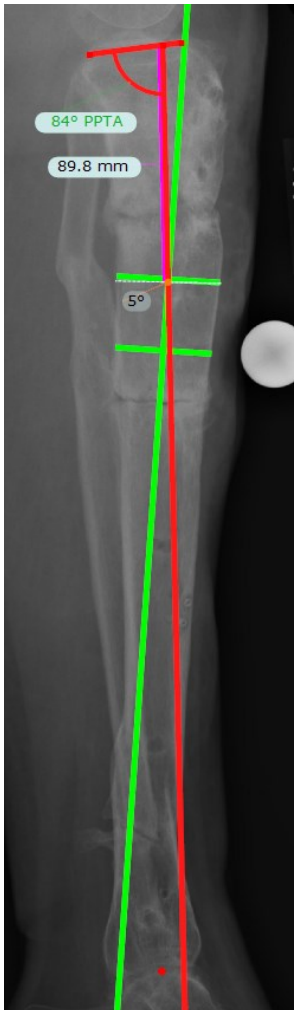
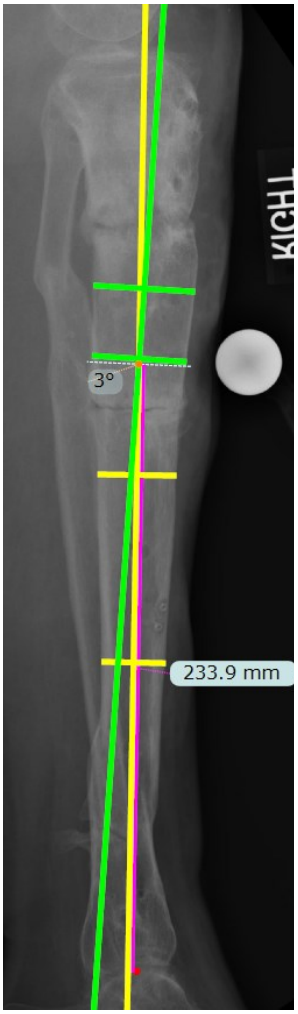
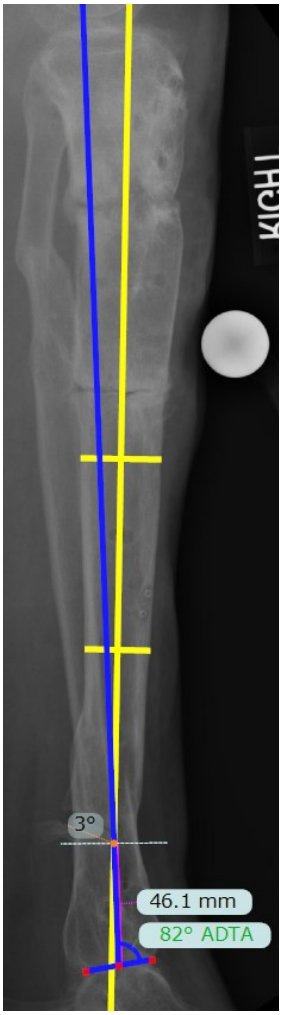
Deformity Analysis: Sagittal Plane Apices

Proximal Axis	Normal PPTA of 84°
Middle Axes	Mid-diaphyseal lines
Distal Axis	Normal ADTA of 82°
Apex Angulations	Proximal: 5° Procurvatum Middle: 3° Recurvatum Distal: 3° Recurvatum
Apex Locations **(to respective joint line)**	Proximal: 89.8 mm distal to proximal joint line Middle: 233.9 mm proximal to distal joint line

Proximal Apex	Middle Apex	Distal Apex
		

Proximal Segment
Proximal Middle Segment
Distal Middle Segment
Distal Segment
Ruler
Transverse Bisector

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

Smith+Nephew

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Deformity Correction
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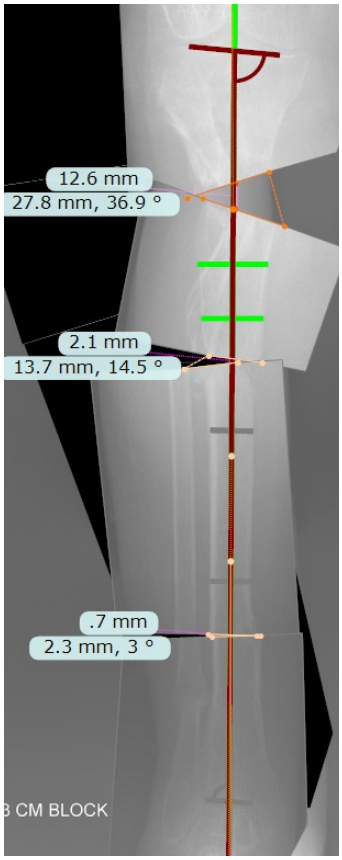
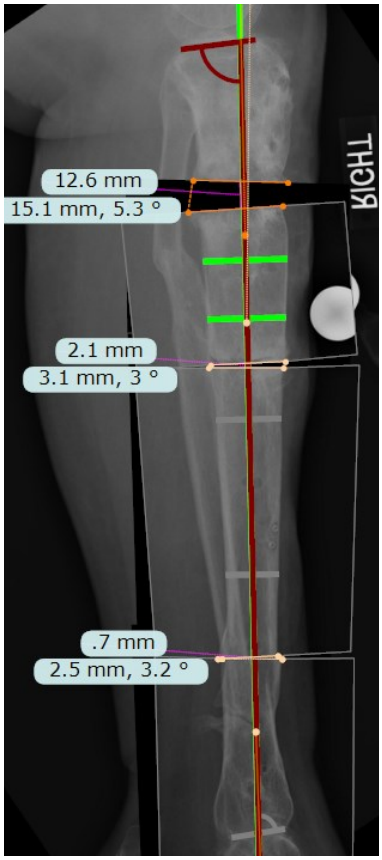
Correction Analysis

	Proximal Frame	Middle Frame	Distal Frame
Planned Osteotomy Level	65 mm distal to	215 mm proximal to tibiotalar joint line	81 mm proximal to tibiotalar joint line
Frontal Plane Angulation Correction	36.9° Varus	14.5° Valgus	3° Valgus
Sagittal Plane Angulation Correction	5.3° Procurvatum	3° Recurvatum	3.2° Recurvatum
Length Correction (along the axis)	12.6 mm	2.1 mm	0.7 mm
Anticipated Post-Correction Bony Translation	**Proximal Frame:** The proximal middle segment is 7.8 mm medial and 2.2 mm posterior to the proximal segment.		
	Middle Frame: The proximal middle segment is 12 mm medial and 1 mm anterior to the distal segment.		
	Distal Frame: The distal segment is 1.9 mm medial and 1.9 mm anterior to the distal middle segment.		

Frontal Plane Correction



Sagittal Plane Correction



Proximal Segment
Proximal Middle Segment
Distal Middle Segment
Distal Segment
Ruler
Osteotomy

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

Smith+Nephew

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Deformity Correction
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Correction Analysis

Post-Correction Frontal Joint Angle Measurements

Angle/ Length	Measured	Normal Range[1]
mLPFA	85°	85°-95°
mLDFA	85°	85°-90°
mMPTA	85°	85°-90°
mLDTA	86°	86°-92°
JLCA	1°	0°+/-2°
MAD	3 mm	+/- 3mm

Post-Correction Sagittal Joint Angle Measurements

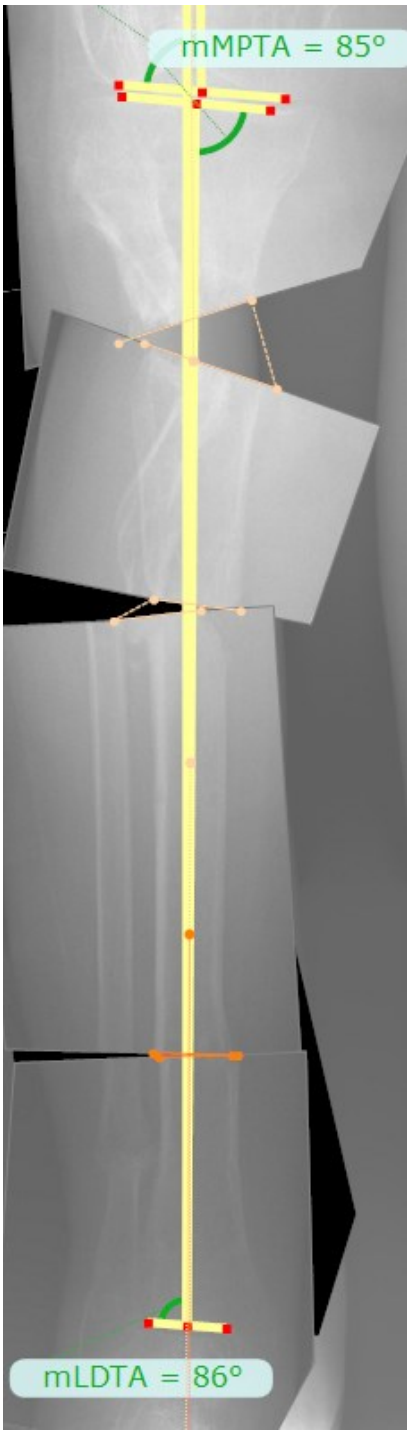
Angle	Measured	Normal Range[1]
PDFA	—	79°-87°
PPTA	84°	77°-84°
ADTA	82°	78°-82°

Post-Correction Length Measurements

Length	Measured	Residual Discrepancy†
Femur	484 mm	2 mm
Tibia	369 mm	7 mm
Total Length	856 mm	11 mm short

†Discrepancies measured from bilateral radiograph.

Frontal Plane



Sagittal Plane

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

Smith+Nephew

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Deformity Correction
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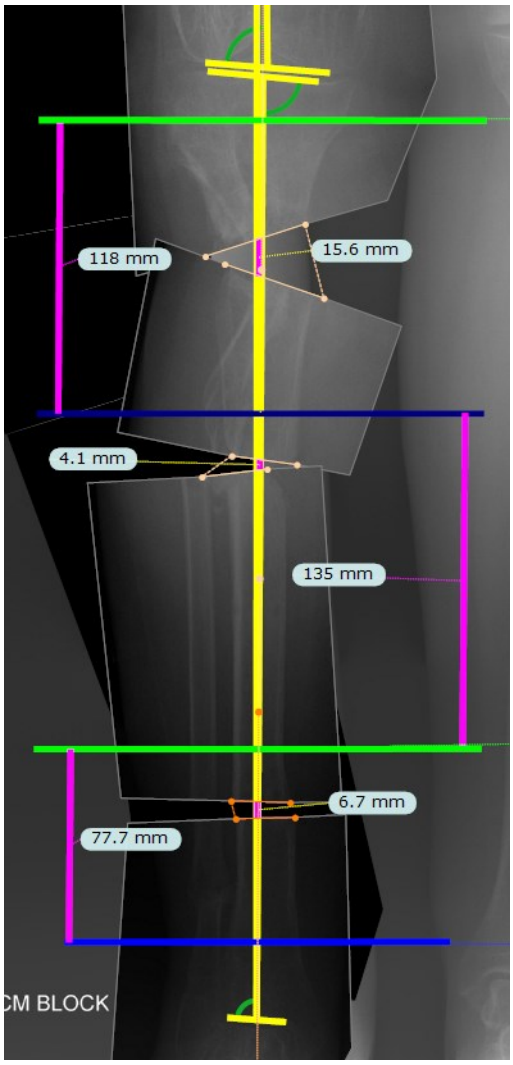
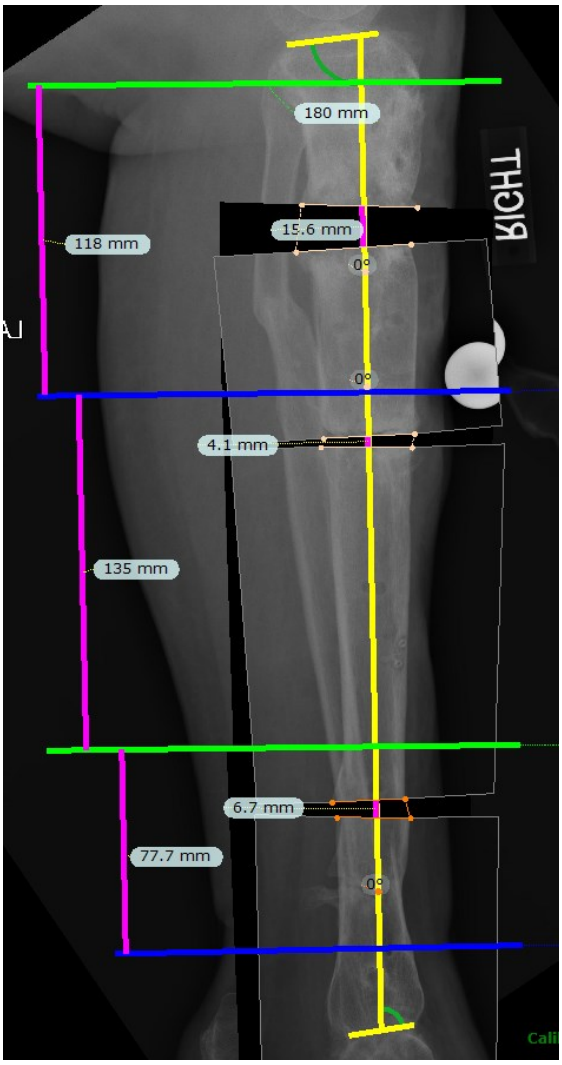
TSF Planning

	Proximal Frame	Middle Frame	Distal Frame
Length Correction (along the axis)	15.6 mm	4.1 mm	6.7 mm
Osteotomy Level (to respective joint line)	65 mm distal	215 mm proximal	81 mm proximal
Reference Ring Placement	135.5 mm distal		31.1 mm proximal
Neutral Frame Height	118 mm	135 mm	77.7 mm
Neutral Strut Length	122 mm	135 mm	98 mm
Ring Sizes	180 mm, 180 mm	180 mm, 180 mm	180 mm, 155 mm

Frontal Plane Correction



Sagittal Plane Correction



Reference Ring(s)
Moving Ring(s)
Joint Lines
Ruler
Osteotomy
Center of Ring

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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TSF Planning: Proximal Frame

Proximal Frame Deformity Parameters
(Method of Planning: Apex = Corresponding Point)

AP View Angulation	AP View Translation	Lateral View Angulation	Lateral View Translation	Axial View Angulation	Axial Translation
36.9° Varus	0 mm	5.3° Apex Anterior	1.1 mm Posterior	0°	15.6 mm short

Proximal Frame Mounting Parameters

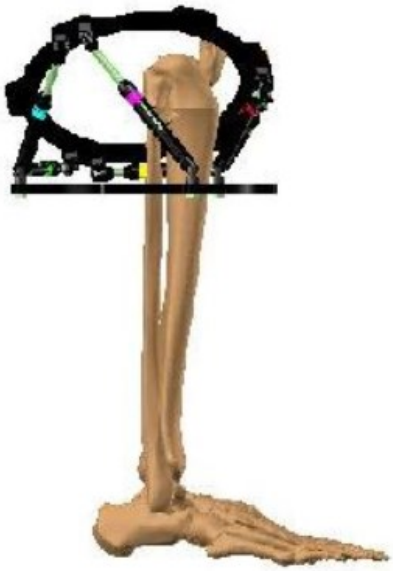
Referencing	Distal
AP View Frame Offset	0 mm
Lateral View Frame Offset	40 mm posterior to origin
Rotary Frame Angle	0°
Axial Frame Offset The distance from the reference ring to the origin is increased when extrinsic length is added.	70.6 mm proximal to (extrinsic) origin

Proximal Frame Initial Strut Settings

Strut 1	Strut 2	Strut 3	Strut 4	Strut 5	Strut 6
130	95	84	89	119	155
Medium Strut	Short Strut	Extra Short Strut	Extra Short Strut	Medium Strut	Medium Strut

Initial Frame in Frontal Plane

Initial Frame in Sagittal Plane



Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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TSF Planning: Middle Frame

Middle Frame Deformity Parameters
(Method of Planning: Apex = Corresponding Point)

AP View Angulation	AP View Translation	Lateral View Angulation	Lateral View Translation	Axial View Angulation	Axial Translation
14.5° Valgus	0 mm	3° Apex Posterior	3.6 mm Anterior	0°	4.1 mm Short

Middle Frame Mounting Parameters

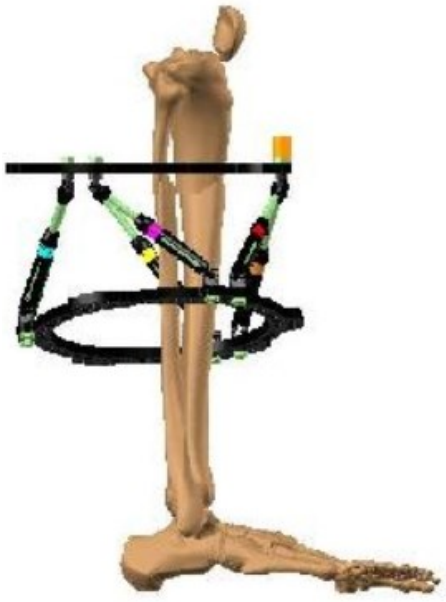
Referencing	Proximal
AP View Frame Offset	0 mm
Lateral View Frame Offset	40 mm posterior to origin
Rotary Frame Angle	0°
Axial Frame Offset The distance from the reference ring to the origin is increased when extrinsic length is added.	21 mm proximal to (extrinsic) origin

Middle Frame Initial Strut Settings

Strut 1	Strut 2	Strut 3	Strut 4	Strut 5	Strut 6
126	131	157	151	118	120
Short Fast Fx	Short Fast Fx	Medium Fast Fx	Medium Fast Fx	Short Fast Fx	Short Fast Fx

Initial Frame in Frontal Plane

Initial Frame in Sagittal Plane



Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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TSF Planning: Distal Frame

Distal Frame Deformity Parameters
(Method of Planning: Apex = Corresponding Point)

AP View Angulation	AP View Translation	Lateral View Angulation	Lateral View Translation	Axial View Angulation	Axial Translation
3° Valgus	0 mm	3.2° Apex Posterior	3.9 mm Anterior	0°	6.7 mm Short

Distal Frame Mounting Parameters

Referencing	Distal
AP View Frame Offset	0 mm
Lateral View Frame Offset	20 mm posterior to origin
Rotary Frame Angle	0°
Axial Frame Offset The distance from the reference ring to the origin is increased when extrinsic length is added.	56.7 mm distal to (extrinsic) origin

Distal Frame Initial Strut Settings

Strut 1	Strut 2	Strut 3	Strut 4	Strut 5	Strut 6
94	95	95	101	97	91
Extra Short Fast Fx	Extra Short Fast Fx	Extra Short Fast Fx	Extra Short Fast Fx	Extra Short Fast Fx	Extra Short Fast Fx

Initial Frame in Frontal Plane

Initial Frame in Sagittal Plane

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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Parts List

Part (Catalog Number)	Quantity
180 mm Ring (7107-0115)	3
155 mm Ring (7107-0114)	1
Standard Identification Band Kit (7107-0320)	1
Fast Fx Identification Band Kit (7107-0340)	2
Medium Strut (7107-0220)	3
Short Strut (7107-0210)	3
Extra Short Strut (7107-0205)	2
Medium Fast Fx Strut (7107-0720)	2
Short Fast Fx Strut (7107-0710)	6
Extra Short Fast Fx Strut (7107-0705)	6

Notes

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia

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Deformity Correction
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Case Summary

Deformity Analysis

Proximal Deformity Angulations	36.9° Varus, 5.3° Procurvatum
Middle Deformity Angulations	14.5° Valgus, 3° Recurvatum
Distal Deformity Angulations	3° Valgus, 3.2° Recurvatum
Leg Length Discrepancy Pre-Correction	Right Lower Limb is 48 mm shorter than Left

Correction Analysis

Planned Osteotomy Levels	Proximal: 65 mm distal to knee joint line Middle: 215 mm proximal to tibiotalar joint line Distal: 81 mm proximal to tibiotalar joint line
Total Anticipated Length Correction	26.4 mm along the axis
Leg Length Discrepancy Post-Correction	0 mm

TSF Planning

Ring Sizes/Types	Proximal: 180 mm Full Middle: 180 mm Full and 180 mm Full Distal: 155 mm Full
Reference Ring	Proximal Middle Ring and Distal
Reference Ring Placement	Proximal Middle: 135.5 mm distal to knee joint line

Proximal Frame Initial Strut Settings

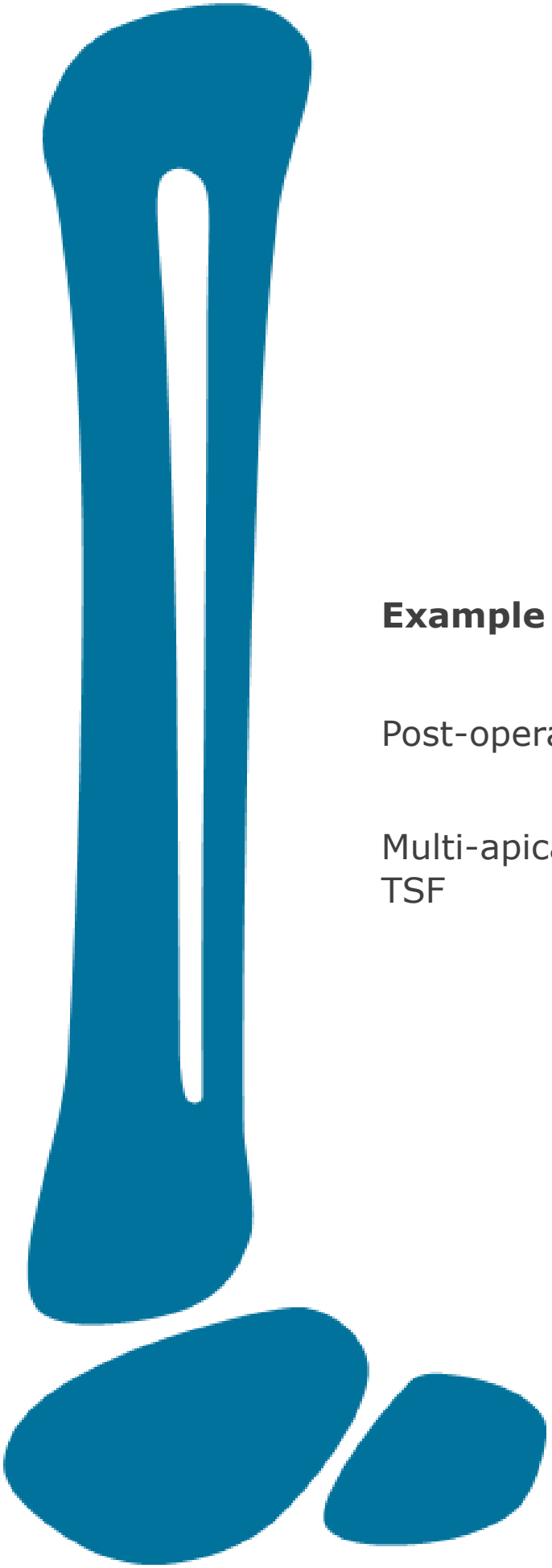
Strut 1	**Strut 2**	**Strut 3**	**Strut 4**	**Strut 5**	**Strut 6**
130	95	84	89	119	155
Medium Strut	Short Strut	Extra Short Strut	Extra Short Strut	Medium Strut	Medium Strut

Middle Frame Initial Strut Settings

Strut 1	**Strut 2**	**Strut 3**	**Strut 4**	**Strut 5**	**Strut 6**
126	131	157	151	118	120
Short Fast Fx	Short Fast Fx	Medium Fast Fx	Medium Fast Fx	Short Fast Fx	Short Fast Fx

Distal Frame Initial Strut Settings

Strut 1	**Strut 2**	**Strut 3**	**Strut 4**	**Strut 5**	**Strut 6**
94	95	95	101	97	91
Extra Short Fast Fx	Extra Short Fast Fx	Extra Short Fast Fx	Extra Short Fast Fx	Extra Short Fast Fx	Extra Short Fast Fx



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Example of TSF◇ Ally Report

Post-operative Planning Report

Multi-apical Tibial Deformity treated with TSF

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia (Proximal Frame)

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Deformity Correction
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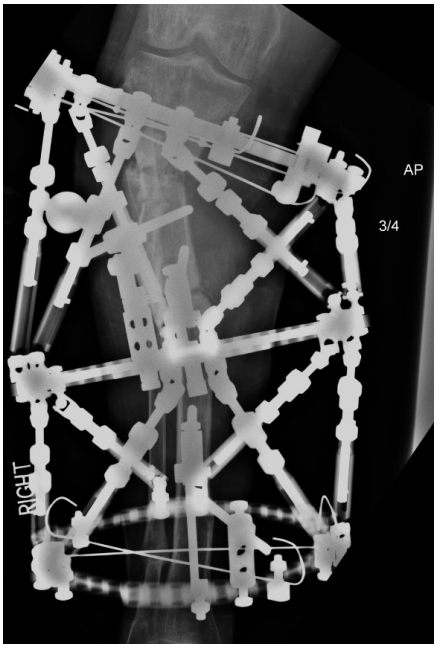
Post-Op Clinical Details

Surgery Date	XX/XX/XXXX
Prescription Start Date	XX/XX/XXXX
Length Discrepancy	Per pre-op planning
Axial Rotation Deformity	0°
Proximal Ring Size and Type	180 mm, 2/3rd (Open between Struts 4 & 5)
Distal Ring Size and Type	180mm Full
Reference Ring	Distal
Structure at Risk (SAR)	Concavity of the deformity
Maximum Safe Distraction Rate	1 mm/day
Additional Notes	

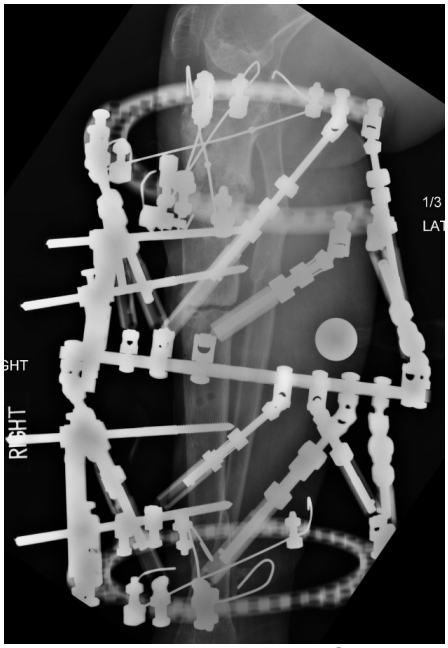
Initial Strut Settings

Strut 1	Strut 2	Strut 3	Strut 4	Strut 5	Strut 6
143	134	91	127	157	188
Short Fast FX (7107-0710)	Short Fast FX (7107-0710)	X-Short Fast FX (7107-0705)	Short Fast FX (7107-0710)	Medium Fast FX (7107-0720)	Medium Fast FX (7107-0720)

Initial Frontal Plane Radiograph



Initial Sagittal Plane Radiograph



Images courtesy of Evgeny Dyskin MD

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia (Proximal Frame)

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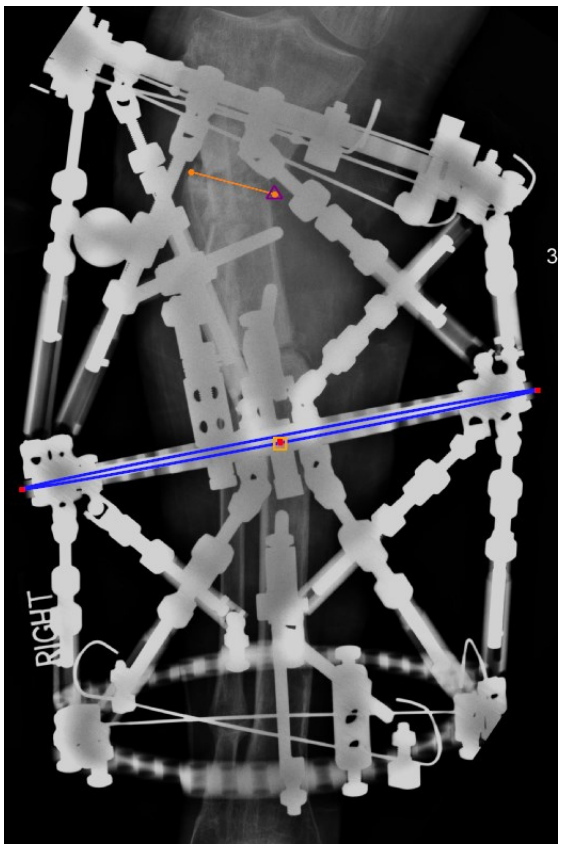
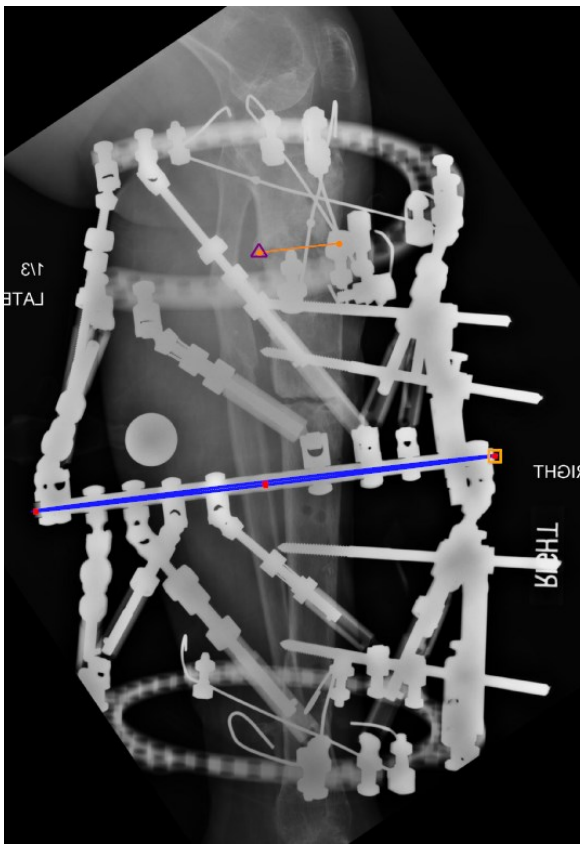
TSF Mounting Parameters	
AP View Frame Offset	4.8 mm Medial to Origin
Lateral View Frame Offset	32.9 mm Posterior to Origin
Axial Frame Offset	127.6 mm Distal to Origin (Extrinsic)
Rotary Frame Angle	0° - based on TraumaCad Measurements
Structure at Risk Parameters	
Structure at Risk	Concavity of the deformity
AP View SAR Offset	20.8 mm Medial to Origin
Lateral View SAR Offset	19.2 mm Posterior to Origin
Axial SAR Offset	0 mm Proximal to Origin

Frontal Plane Reference Ring and SAR Placement	Sagittal Plane Reference Ring and SAR Placement
	

Structure at Risk Master Tab Reference Ring Osteotomy

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia (Proximal Frame)

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Deformity Correction
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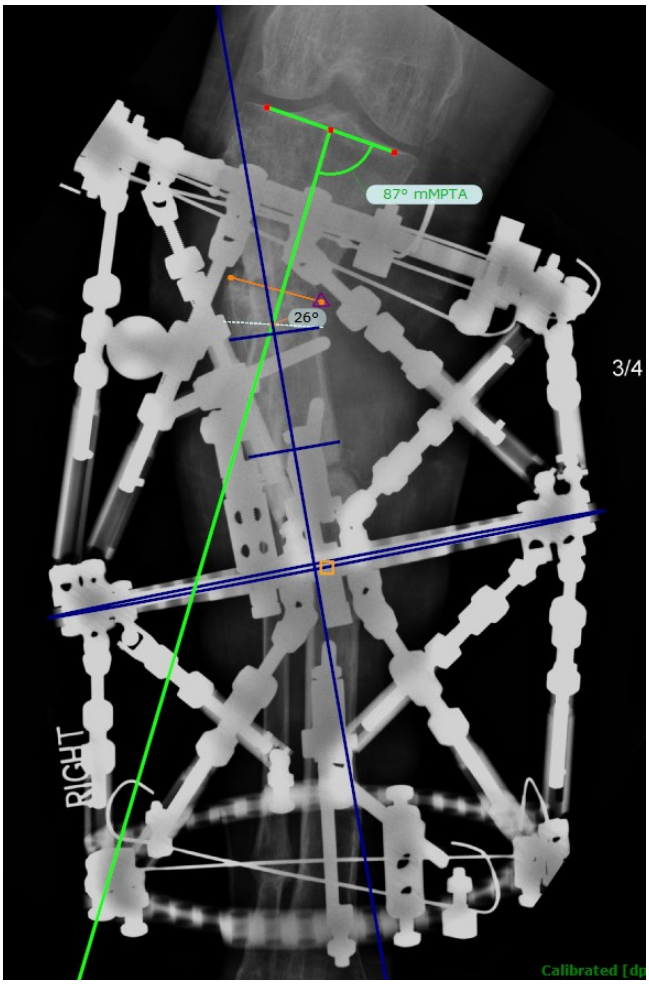
Deformity Analysis

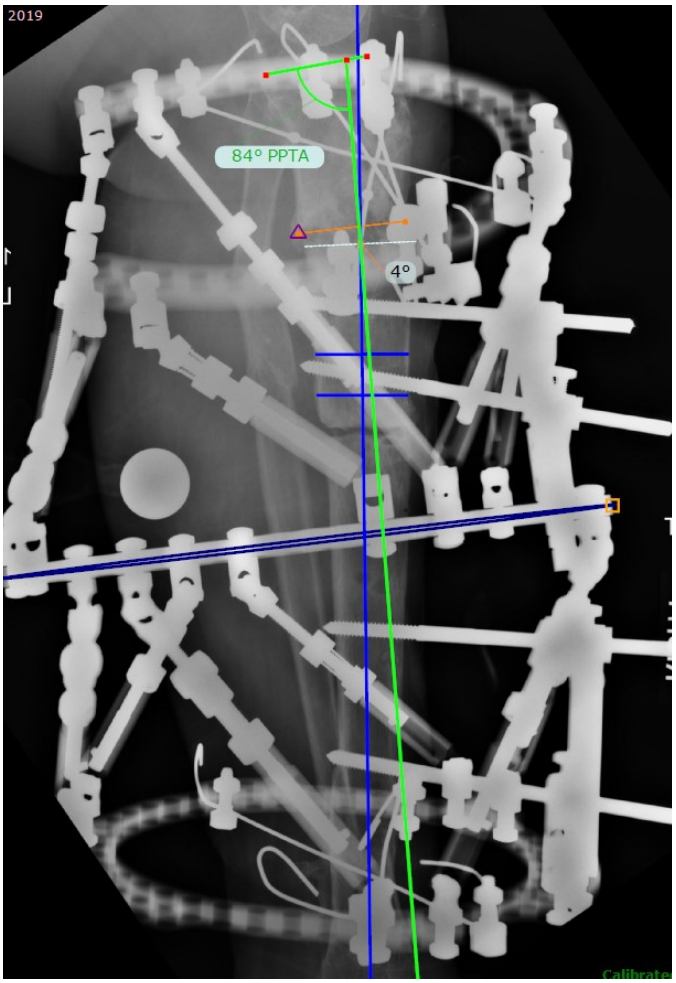
Method: TraumaCad

Proximal Axis	Normal mMPTA of 87°	Proximal Axis	Normal PPTA of 84°
Distal Axis	Mid-diaphyseal line	Distal Axis	Mid-diaphyseal line
AP View Angulation	26.3° Varus	Lateral View Angulation	3.7° Apex Anterior
AP View Translation	0 mm	Lateral View Translation	0.6 mm Posterior

Frontal Plane Deformity Analysis



Sagittal Plane Deformity Analysis



Structure at Risk Master Tab Reference Ring/Segment Moving Segment Osteotomy Transverse Bisector

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia (Proximal Frame)

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Deformity Correction
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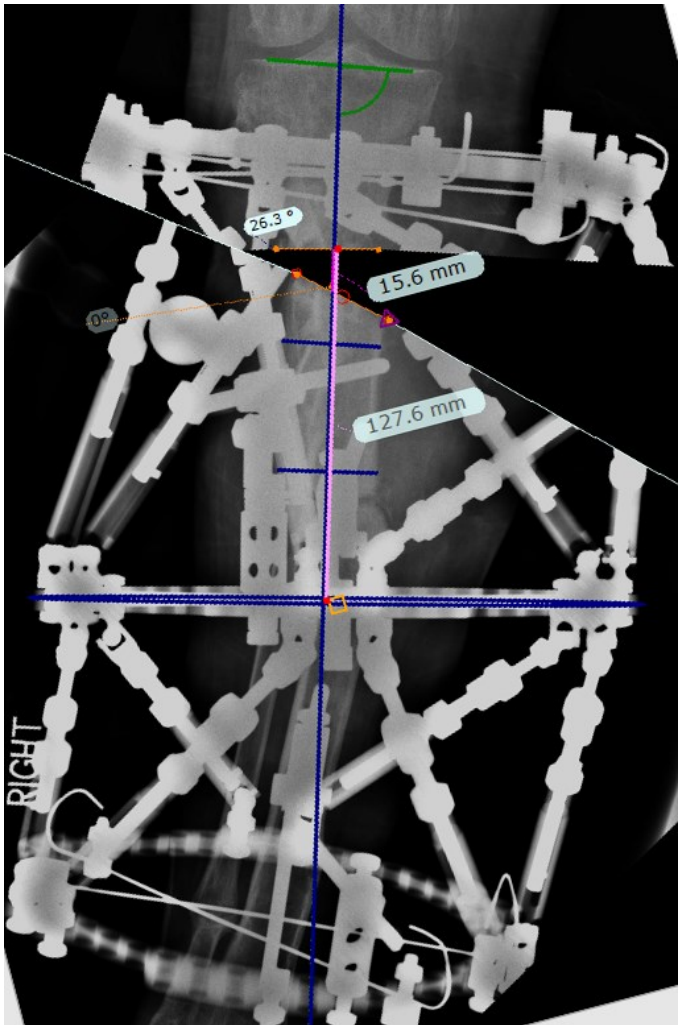
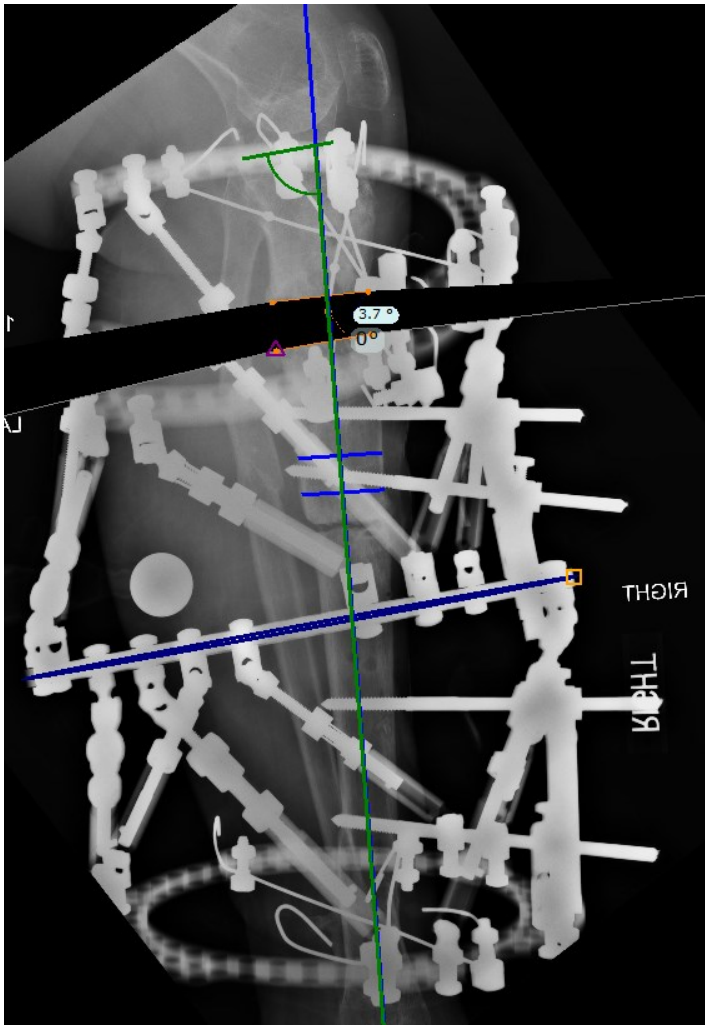
TSF Correction Analysis

Frontal Plane Angulation Correction	26.3° Varus
Sagittal Plane Angulation Correction	3.7° Procurvatum
Length Correction	15.6 mm about the axis
Anticipated Post-Correction Bony Translation	The proximal segment will translate 9.5 mm lateral to the distal segment.

Frontal Plane Correction Analysis



Sagittal Plane Correction Analysis



Structure at Risk
Master Tab
Reference Ring/Segment
Moving Segment
Osteotomy
Transverse Bisector

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia (Proximal Frame)

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Case Summary

Deformity Parameters

AP View Angulation	26.3° Varus	**AP View Translation**	0 mm
LAT View Angulation	3.7° Apex Anterior	**LAT View Translation**	0.6 mm Posterior
Axial View Angulation	0°	**Axial View Translation**	15.6 mm Short

Mounting Parameters

AP View Frame Offset	4.8 mm Medial to Origin
LAT View Frame Offset	32.9 mm Posterior to Origin
Axial View Frame Offset	127.6 mm Distal to Origin
Rotary Frame Angle	0

Structure at Risk Parameters

Structure at Risk	Concavity of Deformity
AP View SAR Offset	20.8 mm Medial to Origin
Lateral View SAR Offset	19.2 mm Posterior to Origin
Axial SAR Offset (to Extrinsic Origin)	0

Correction Analysis

Length Correction	15.6 mm about the axis
Anticipated Post-Correction Bony Translation	The proximal segment will translate 9.5 mm medial to the distal segment.
Maximum Safe Distraction Rate	1 mm/day
Correction Time	27 Days
Number of Strut Change-Outs	2

Strut Change-Outs

Change-Out	Strut	Overlap Start Date	Overlap End Date	Strut Change From	Strut Change To
a	3 (Yellow)	12 (01/10/20)	13 (01/11/20)	7107-0705 Extra Short FAST FX ®	7107-0710 Short FAST FX ®
b	4 (Green)	9 (01/07/20)	14 (01/12/20)	7107-0710 Short FAST FX ®	7107-0720 Medium FAST FX ®

Notes

Case will be sent via spatialframe.com once plan is approved.

Patient ID	XXXXXXXX
Patient	Patient Name
Surgeon	Dr. Smith
Planning Date	XX/XX/XXXX
Anatomy	Right Tibia (Proximal Frame)

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References

1. Standard SC, Herzenberg JE, Conway JD, Siddiqui NA, McClure PK. The Art of Limb Alignment. 8th ed. Baltimore: Rubin Institute for Advanced Orthopedics, Sinai Hospital of Baltimore, 2019.

Glossary

Joint Angle Names

Angle (°)	Complete Name of Joint Angle
mLPFA	mechanical Lateral Proximal Femoral Angle
mLDFA	mechanical Lateral Distal Femoral Angle
mMPTA	mechanical Medial Proximal Tibial Angle
mLDTA	mechanical Lateral Distal Tibial Angle
JLCA	Joint Line Convergence Angle
MAD	Mechanical Axis Deviation
PDFA	Posterior Distal Femoral Angle
PPTA	Posterior Proximal Tibial Angle
ADTA	Anterior Distal Tibial Angle
ACL	Anterior Cortical Lines

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