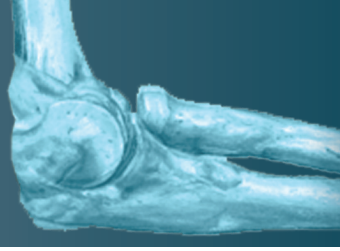


SURGICAL TECHNIQUE GUIDE

ALIGN®

radial head system

As described by:

Jorge L. Orbay, M.D.

Miami Hand & Upper Extremity Institute

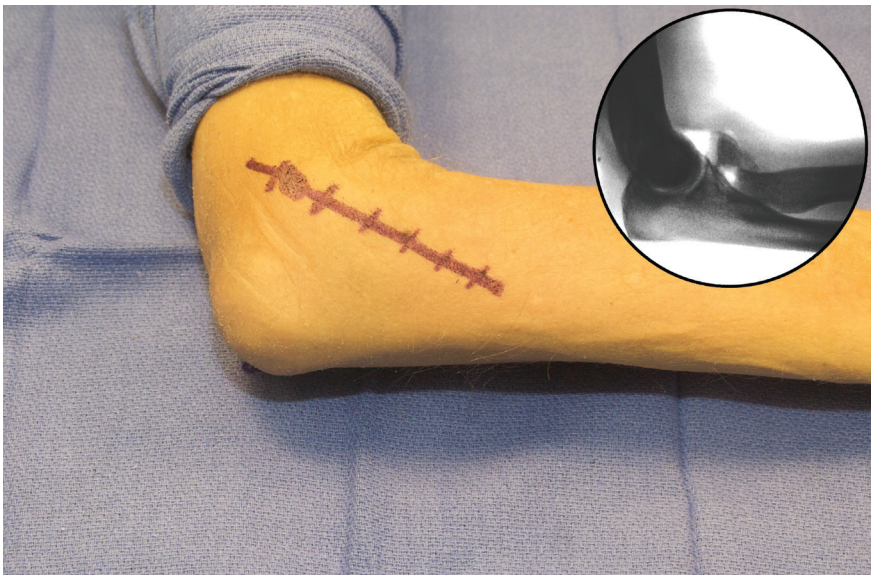
Miami, Florida.

skeletal dynamics®
Innovation Based on Science

1 ELBOW LANDMARKS

With the elbow flexed 90^0, palpate and mark the lateral epicondyle.

Make an 8 -10cm line through the marked point.

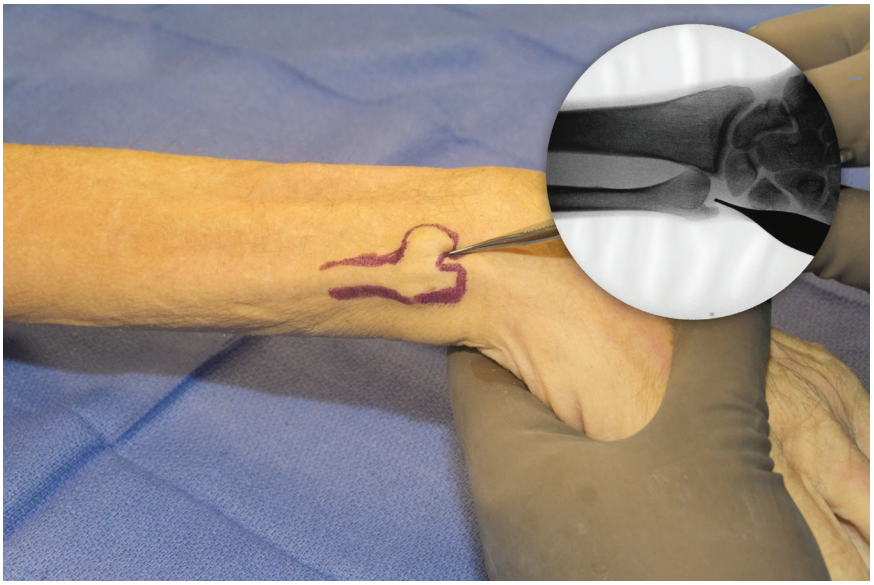


2 DISTAL ULNA LANDMARKS

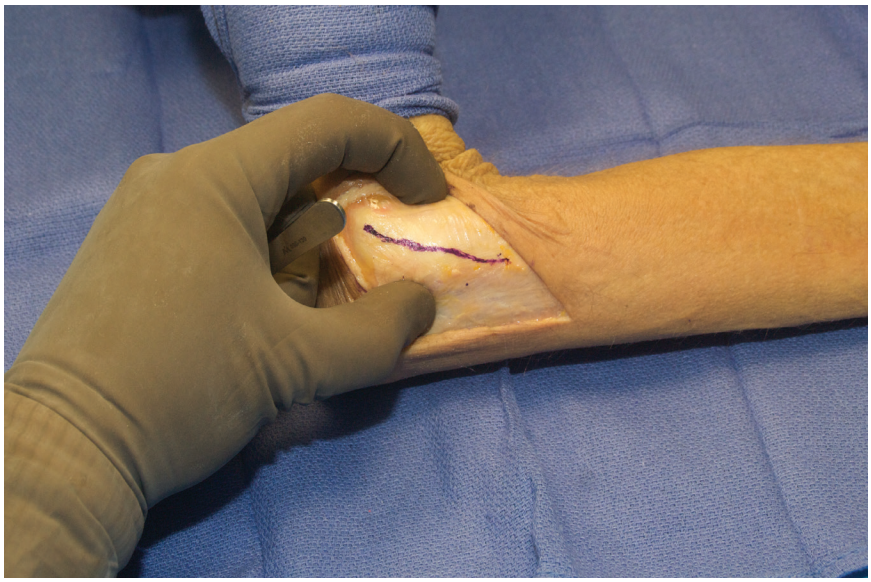
To identify the axis of forearm rotation, pronate the hand and flex the wrist.

Palpate and mark the ulnar styloid, ulnar head and the direction of the shaft.

Note:
Use fluoroscopic imaging to verify proper landmark placement.



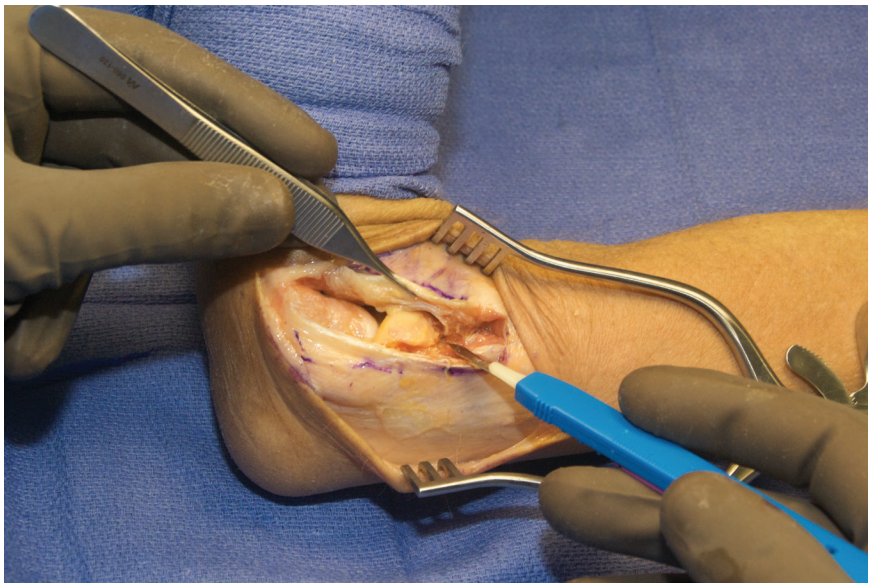
SUPERFICIAL EXPOSURE 3



Make your incision.

Make a longitudinal fascial incision over the center of the capitellum for the Kaplan approach.

DEEP EXPOSURE 4



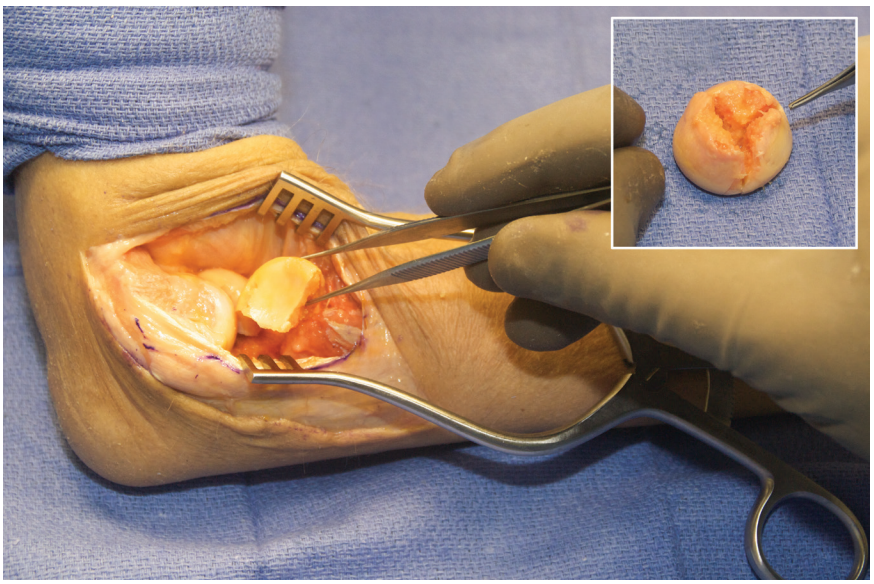
Open the joint and gain access to the radial head.

Limit distal dissection to protect the radial nerve.

5 HEAD SIZING

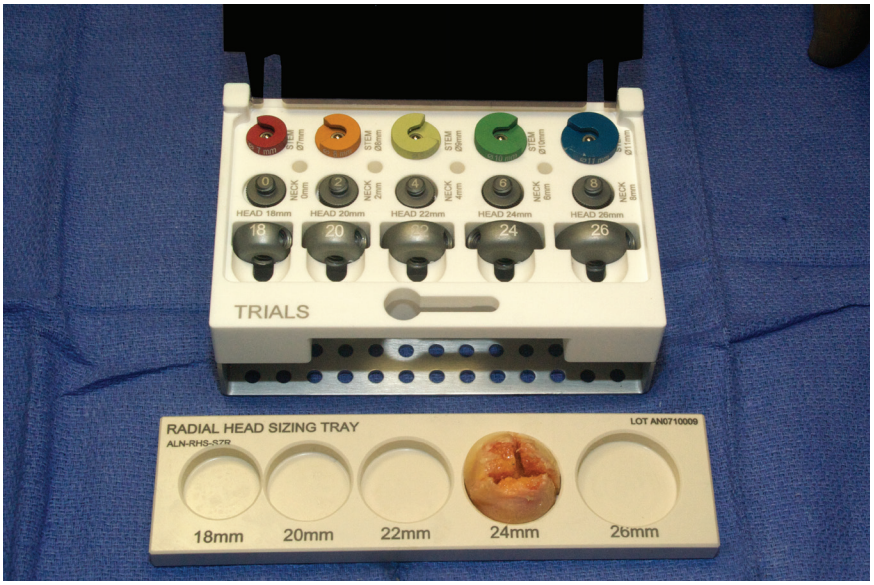
Remove the radial head fragments; assemble and measure them using the Radial Head Sizing Tray.

Note:
If between radial head sizes, select the smaller.

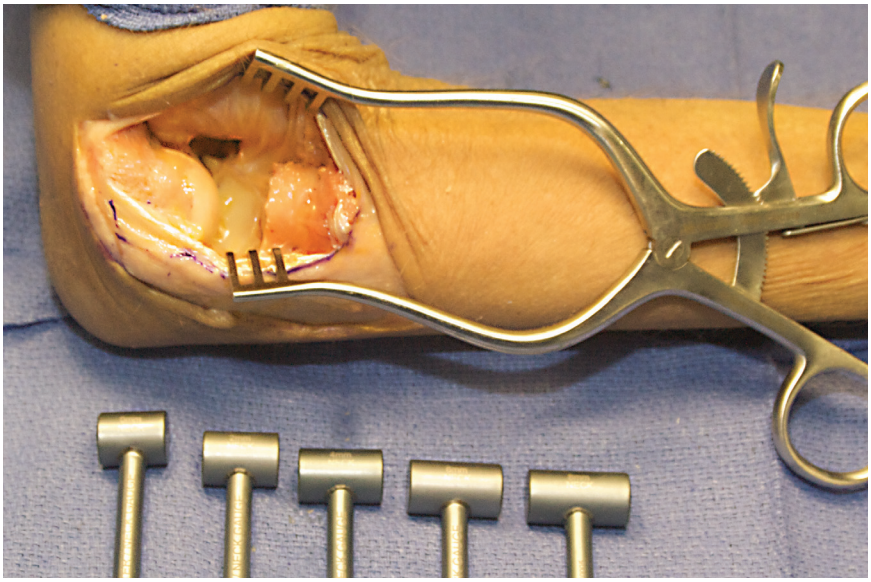


6 TRIAL HEAD SELECTION

Select the Trial Head that corresponds to the native head.



PROVISIONAL NECK SIZING 7

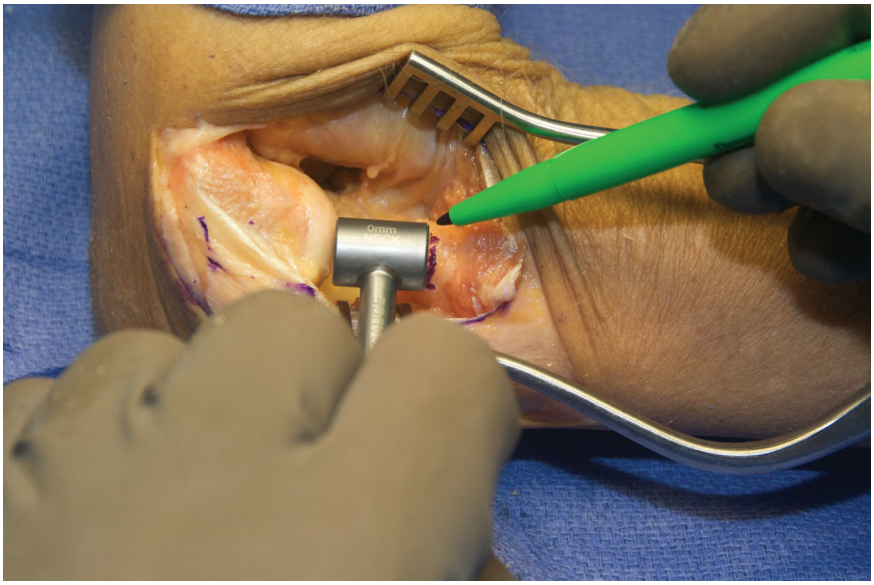


With the forearm pronated, select the radial neck length using the Neck Sizing Gauges.

Neck Sizing Options:
0 Offset - 15mm
2 Offset - 17mm
4 Offset - 19mm
6 Offset - 21mm
8 Offset - 23mm

Note:
If between two lengths, always select the shortest sizing option.

INITIAL NECK SIZING 8

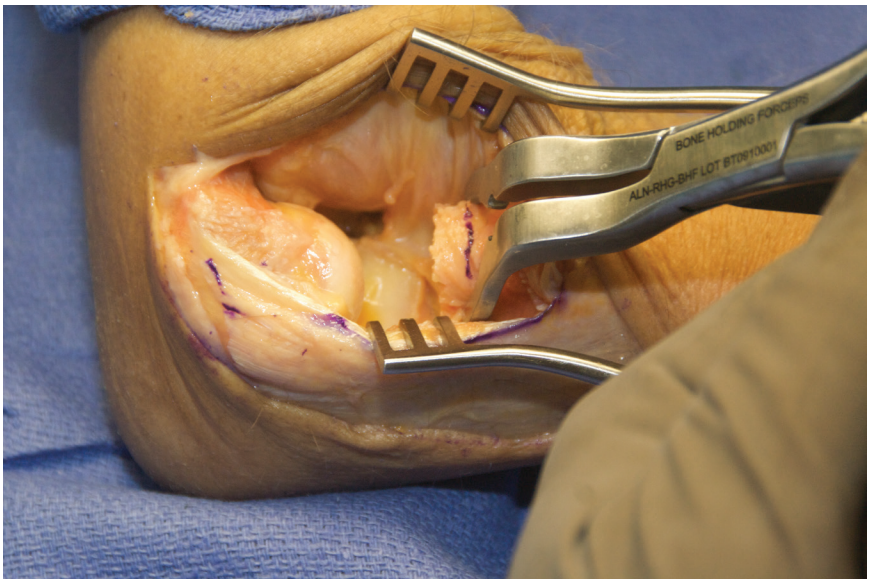


Use the Neck Sizing Gauge to select the level of the desired radial cut.

Mark the radial neck just distal to the Neck Sizing Gauge.

9 ATTACHING BONE FORCEPS

Secure the Bone Holding Forceps just distal to the marked radial neck.

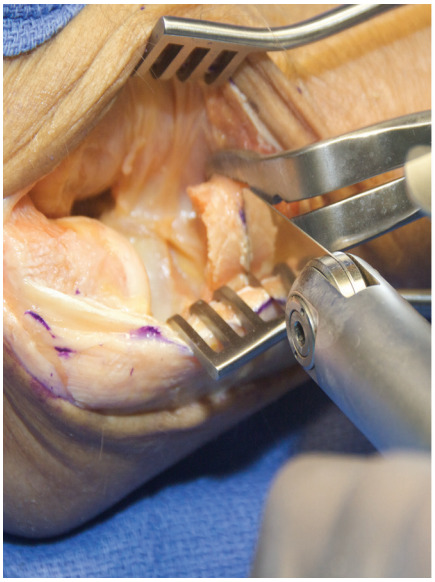


10 RESECTION

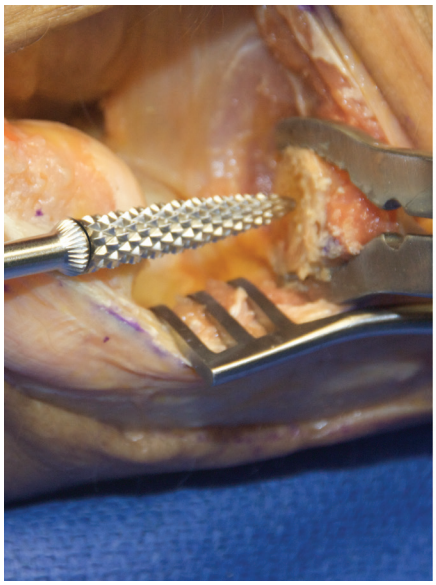
Lift the radius with the Bone Holding Forceps, then make the radial neck cut.

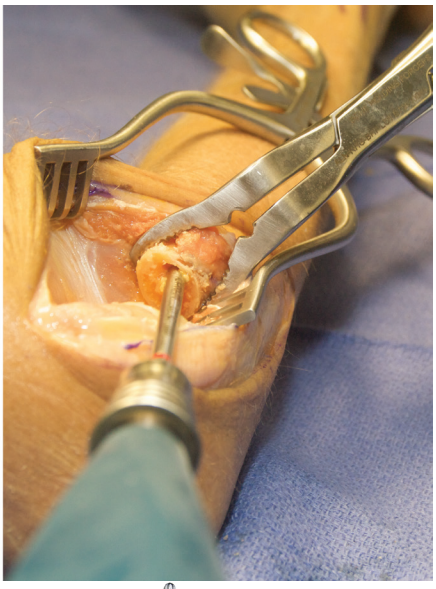
CAUTION:
Protect the radial nerve.

Note:
The maximum defect that can be corrected is 23mm.



OPENING RADIAL CANAL 11

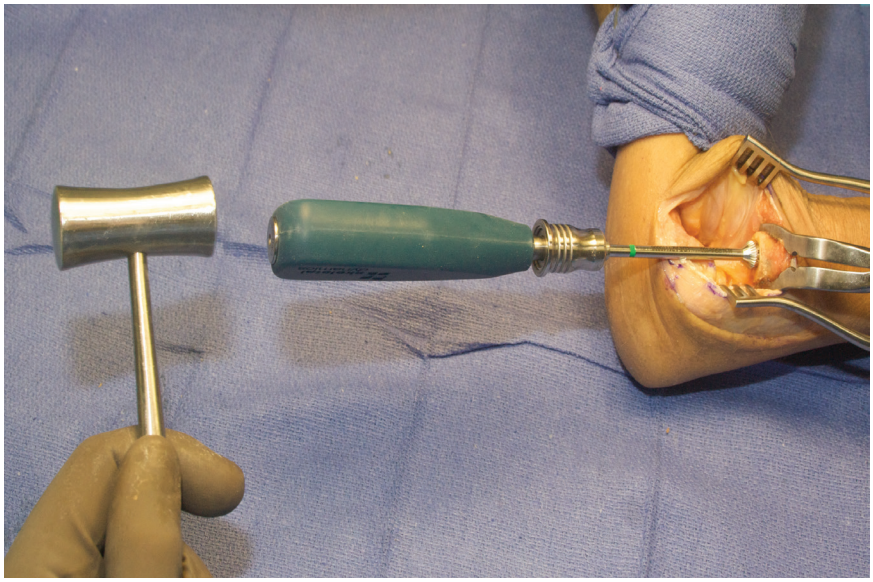




Starting with the smallest Rasp, position the hand in pronation and insert the Rasp past the tuberosity in the direction of the radial styloid.

Note:
This will establish the trajectory for all subsequent Rasps.

CANAL PREPARATION 12

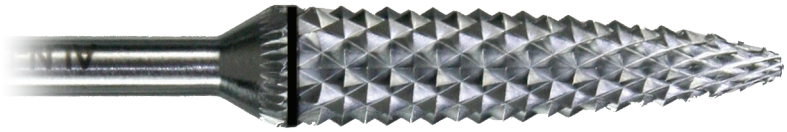


Insert each of the Rasps up to the etched depth mark.

Continue broaching until cortical bone is encountered.

Note:
Each Rasp should be used as a broach. If the final Rasp used does not fully seat to the depth mark, a twisting motion can be used to ream.

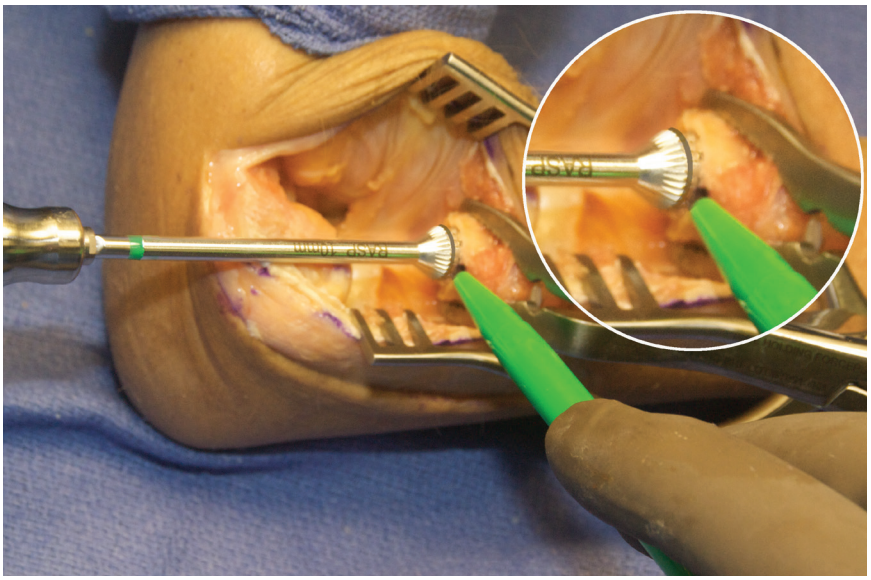
Note the size of the final Rasp used.



13 IDENTIFY PLANING LINE

With the final Rasp fully seated, mark the highest spot.

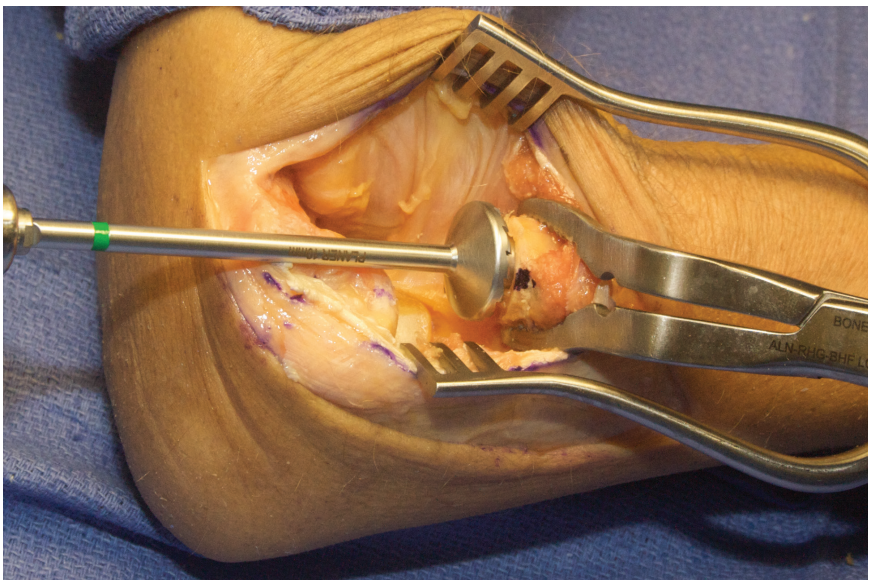
Note:
This is the area to plane to ensure proper seating of the prosthesis.



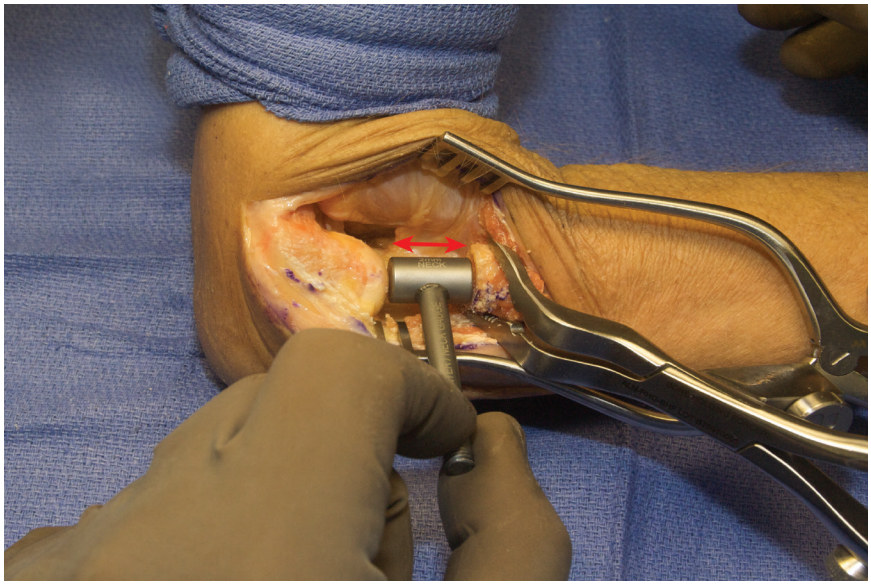
14 NECK PLANING

Prepare the resected end of the radius using the Planer.

Note:
Spin the Planer before contacting the bone surface, then advance it lightly.



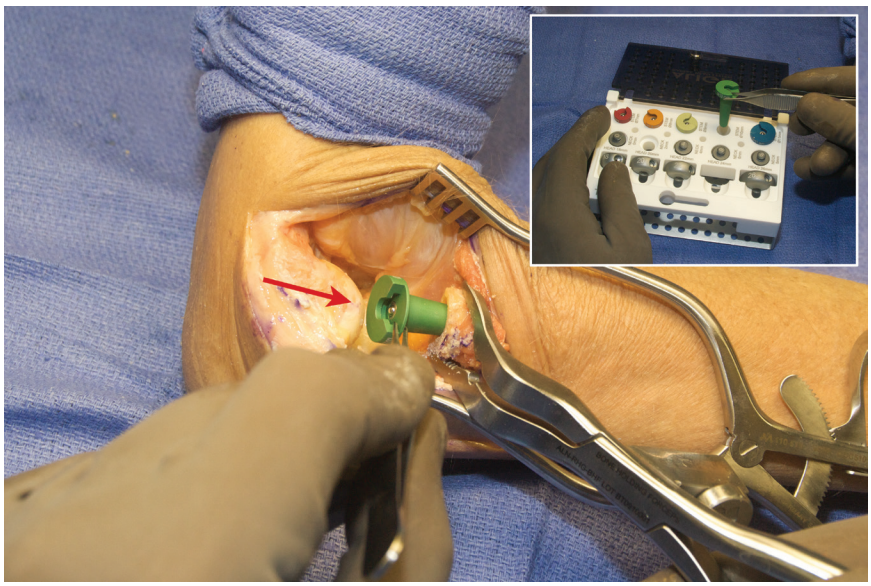
FINAL NECK SIZING 15



With the forearm pronated, confirm the final radial neck length using the Neck Sizing Gauges.

Note:
If between two lengths, always select the shortest sizing option.

TRIAL STEM SELECTION 16



Select the Trial Stem that corresponds to the final Rasp/Planer used and insert it into the prepared canal.

17 TRIAL HEAD & NECK ASSEMBLY

Assemble the Trial Head and Neck by threading the two components together.

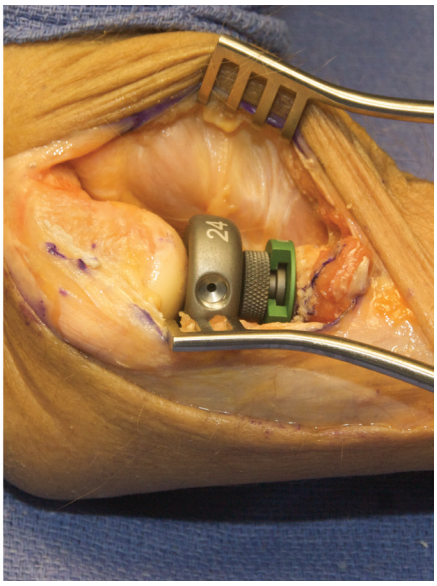
Thread the handle of the Neck Sizing Gauge into the Trial Head to facilitate loading onto the Trial Stem.

18 TRIAL VALIDATION

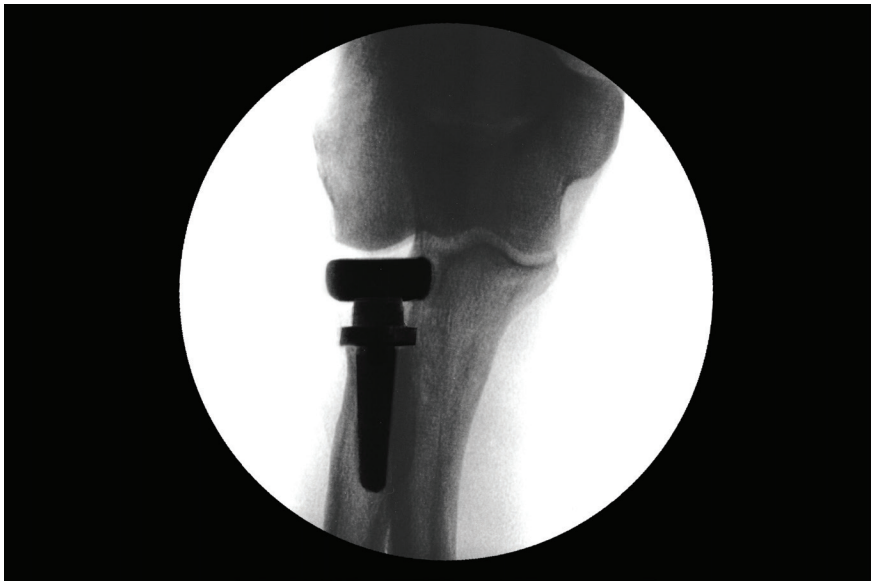
Assemble the Trial Head and Neck into the Trial Stem.

Reduce the joint and assess the sizing of the trial components by manipulating the elbow through its full range of motion.

Note:
Ensure that the joint has not been over-stuffed.

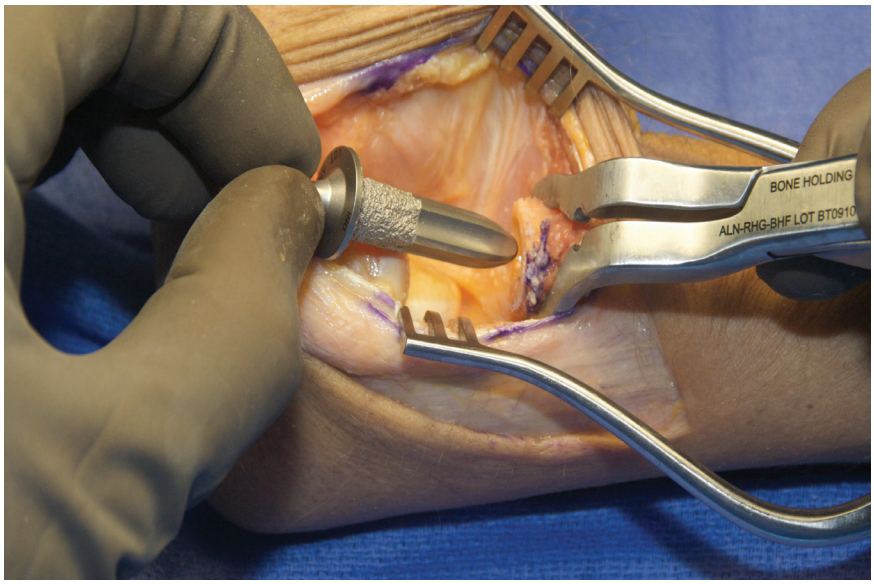


FLUOROSCOPIC CONFIRMATION 19



Confirm a proper fit using fluoroscopy, then remove the trial components.

PROSTHETIC STEM INSERTION 20



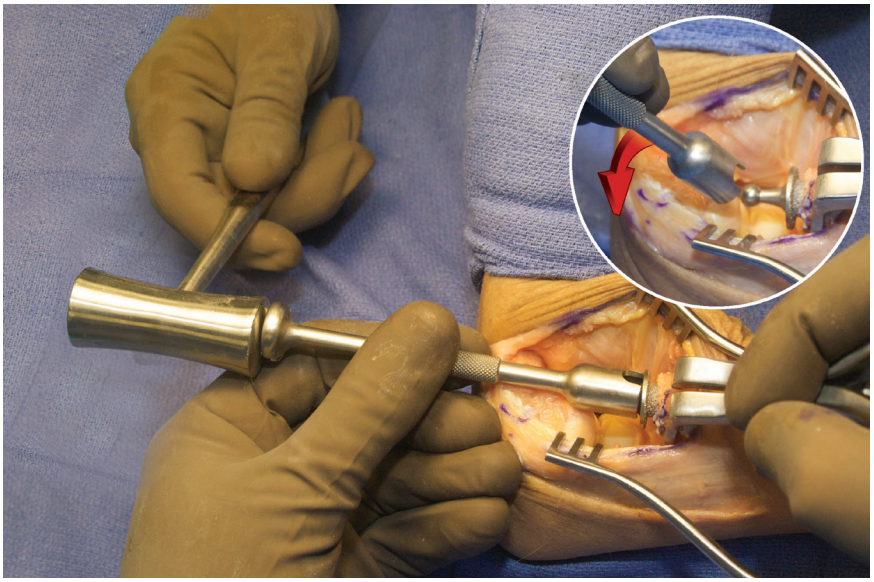
With the forearm in pronation, use the Bone Holding Forceps to lift the radius out of the wound, then insert the Radial Stem implant into the canal.

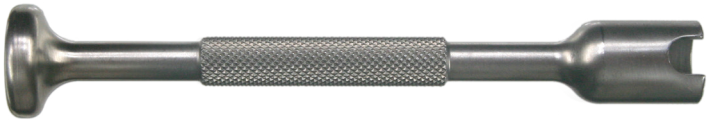
21 PROSTHETIC STEM IMPACTOR

Insert the Stem Impactor laterally, then lower the handle until in-line with the stem.

Impact the stem until the collar seats flush against the radius.

Note:
The notch on the Stem Impactor facilitates loading.

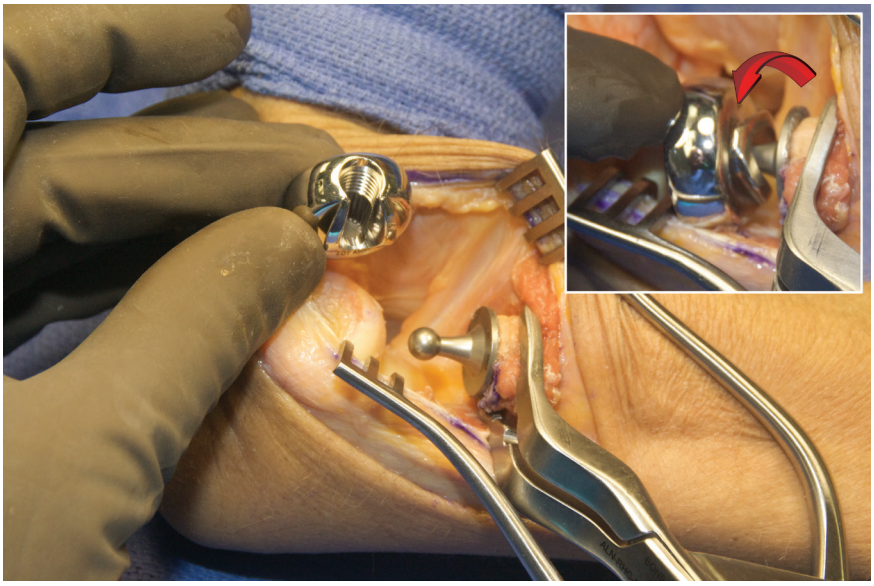




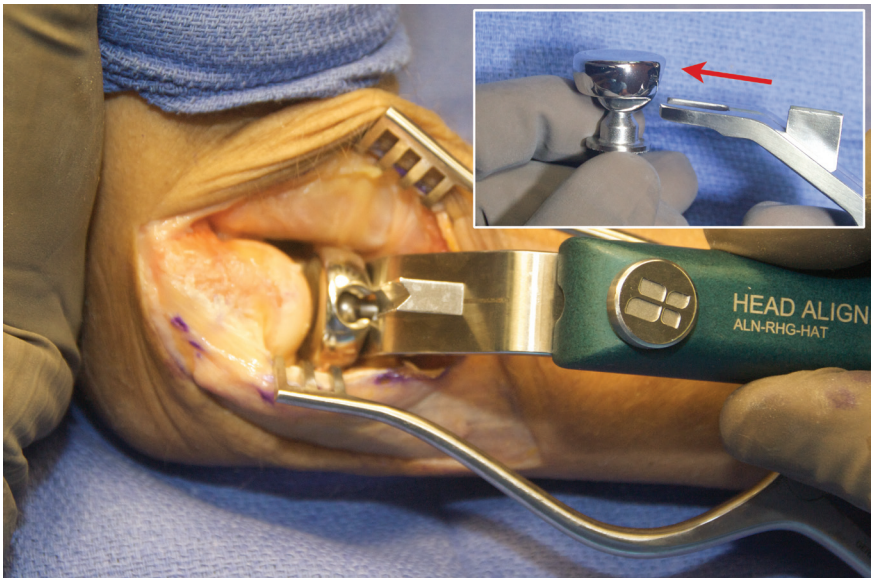
22 PROSTHETIC HEAD LOADING

Side load the Radial Head implant onto the stem, then rotate it until the threads are positioned laterally.

Note:
Each Radial Head implant is packaged with its respective Lock Screw.



HEAD ALIGNMENT TOOL ENGAGEMENT 23

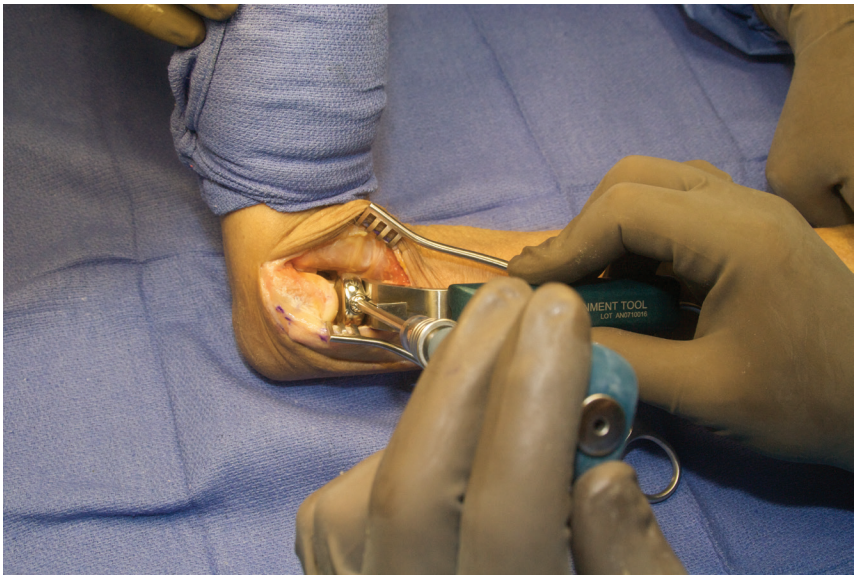


Remove the Bone Holding Forceps and secure the Head Alignment Tool to the Radial Head.

The two tines of the Head Alignment Tool should engage the grooves of the Radial Head.

Note:
The Head Alignment Tool is used to control the position of the Radial Head.

LOCK SCREW INSERTION 24

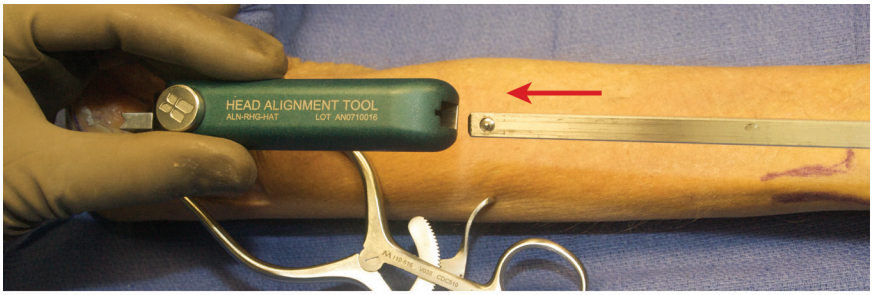


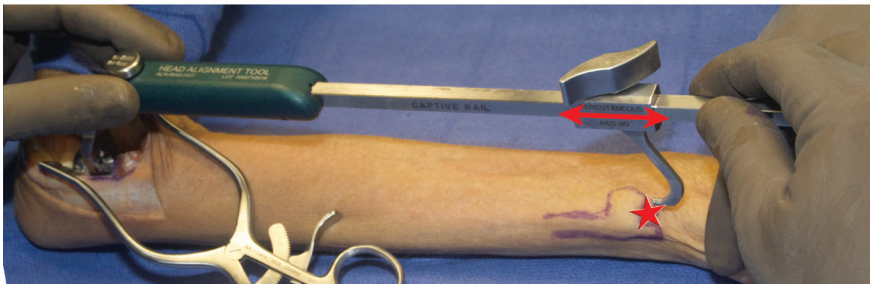
Loosely thread the Lock Screw into the Radial Head.

25 FOREARM GUIDE ASSEMBLY

Keeping the Head Alignment Tool connected to the Radial Head, slide the rail of the Forearm Axis Jig into the handle until it snaps securely.

With the elbow flexed and the forearm in neutral, adjust and lock the distal end of the Forearm Axis Jig to the marked fovea of the ulna.



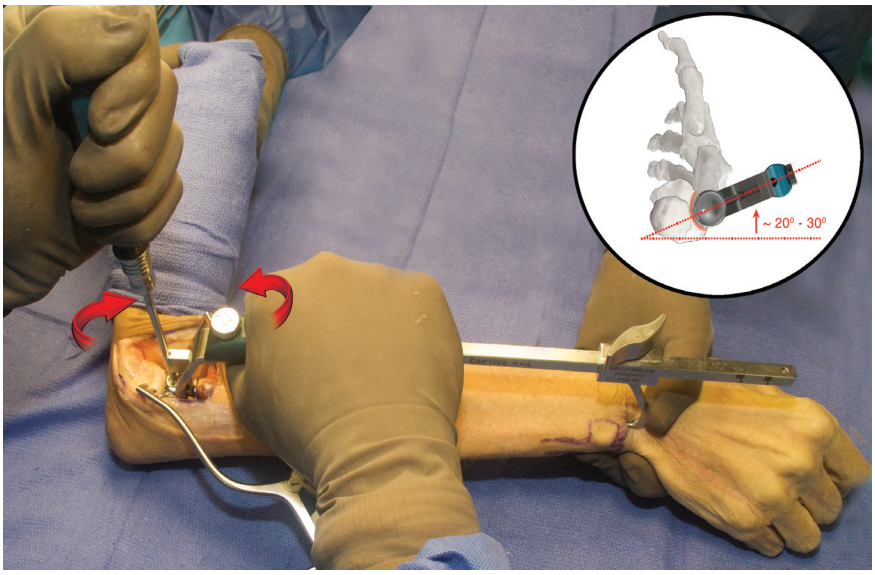


26 INITIAL IMPLANT LOCKING

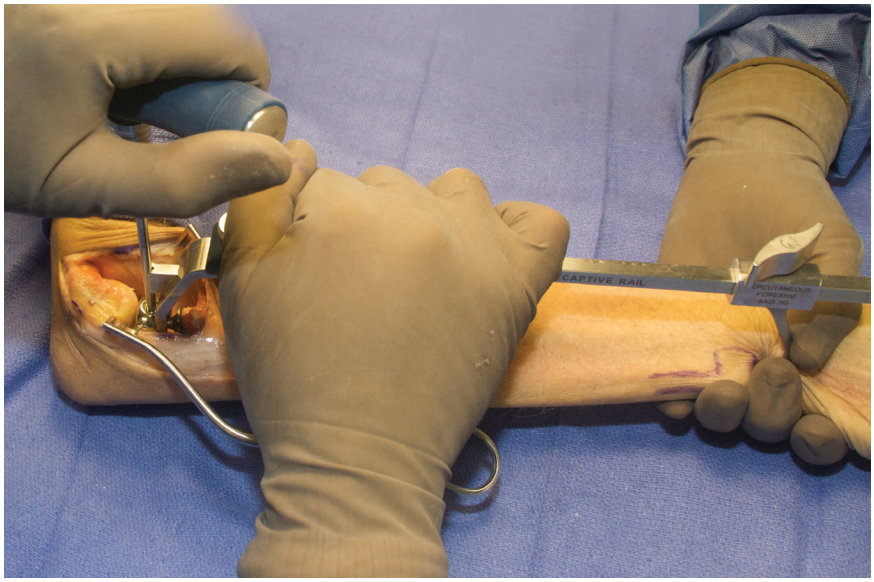
Pronate the Head Alignment Tool ~20^0 - 30^0 from the neutral forearm position, then tighten the Lock Screw while providing counter-torque.

Warning:
The Head Alignment Tool must be used when tightening the Lock Screw to provide the necessary counter-torque.

Note:
Positioning the Head Alignment Tool in 20^0 - 30^0 of pronation ensures the Lock Screw is at the center of the "safe zone".



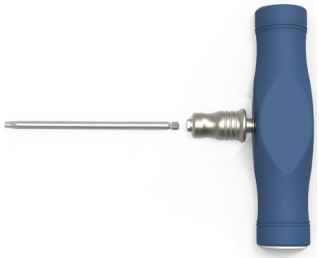
FINAL IMPLANT LOCKING 27



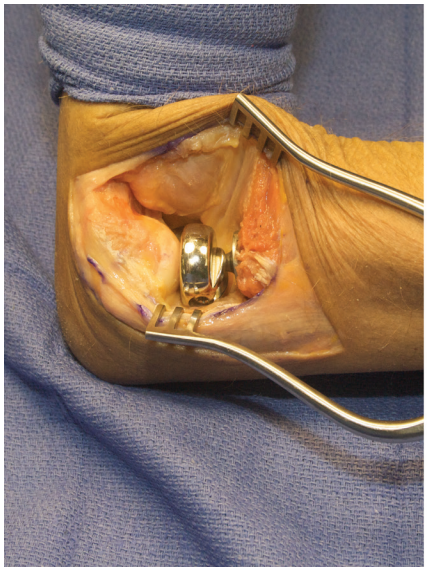
Use the torque indicating T-Handle Driver to ensure the minimal torque has been achieved.

If desired, additional torque can be gained using the Universal Driver Handle.

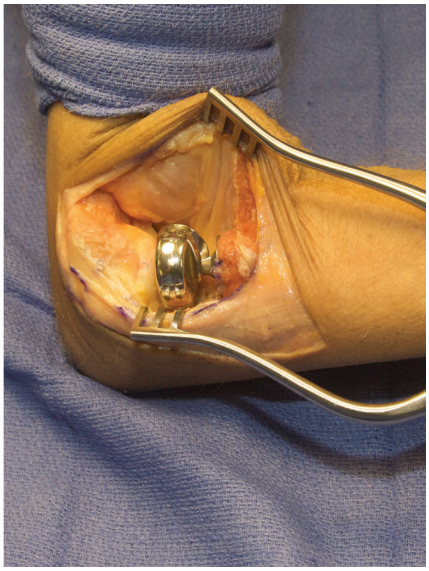
Warning:
The Head Alignment Tool must be used when tightening the Lock Screw to provide the necessary counter-torque.



IMPLANT VALIDATION 28



Supination



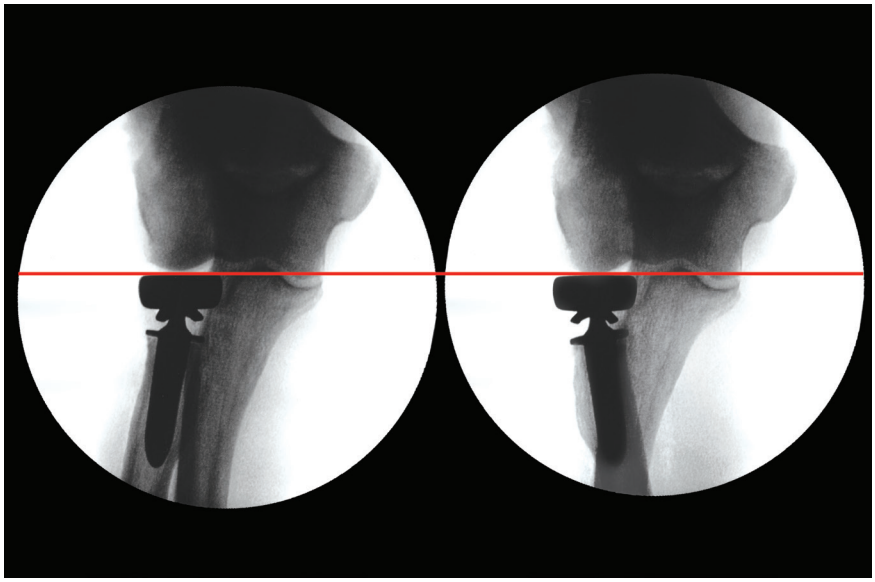
Pronation

Remove the Forearm Axis Guide assembly.

Manipulate the elbow through its full range of motion to confirm final implant alignment.

29 FLUOROSCOPIC CONFIRMATION

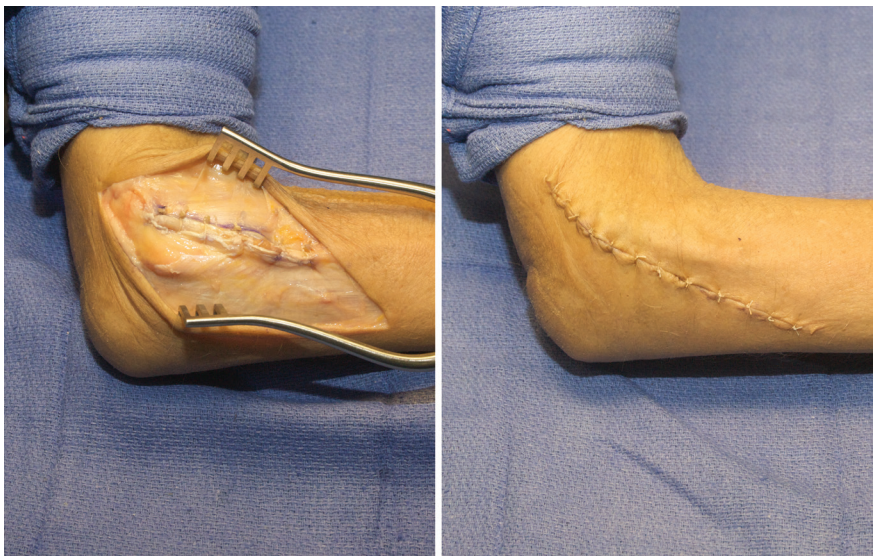
Confirm final implant alignment using fluoroscopic imaging.



Supination **Pronation**

30 WOUND CLOSURE

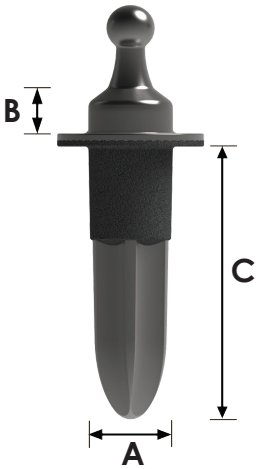
Repair soft tissues as needed, then close the incision.

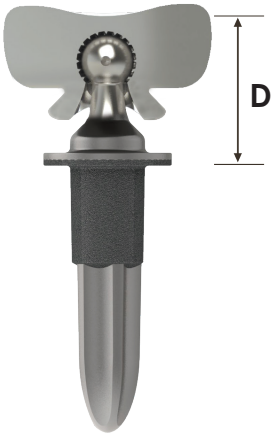


ALIGN® - Radial Head System - Cat.# ALN-RHA-SYS

(Lock Screw Included)

Catalog Number	Radial Heads (CoCr)
ALN-RHI-180	∅ 18mm
ALN-RHI-200	∅ 20mm
ALN-RHI-220	∅ 22mm
ALN-RHI-240	∅ 24mm
ALN-RHI-260	∅ 26mm



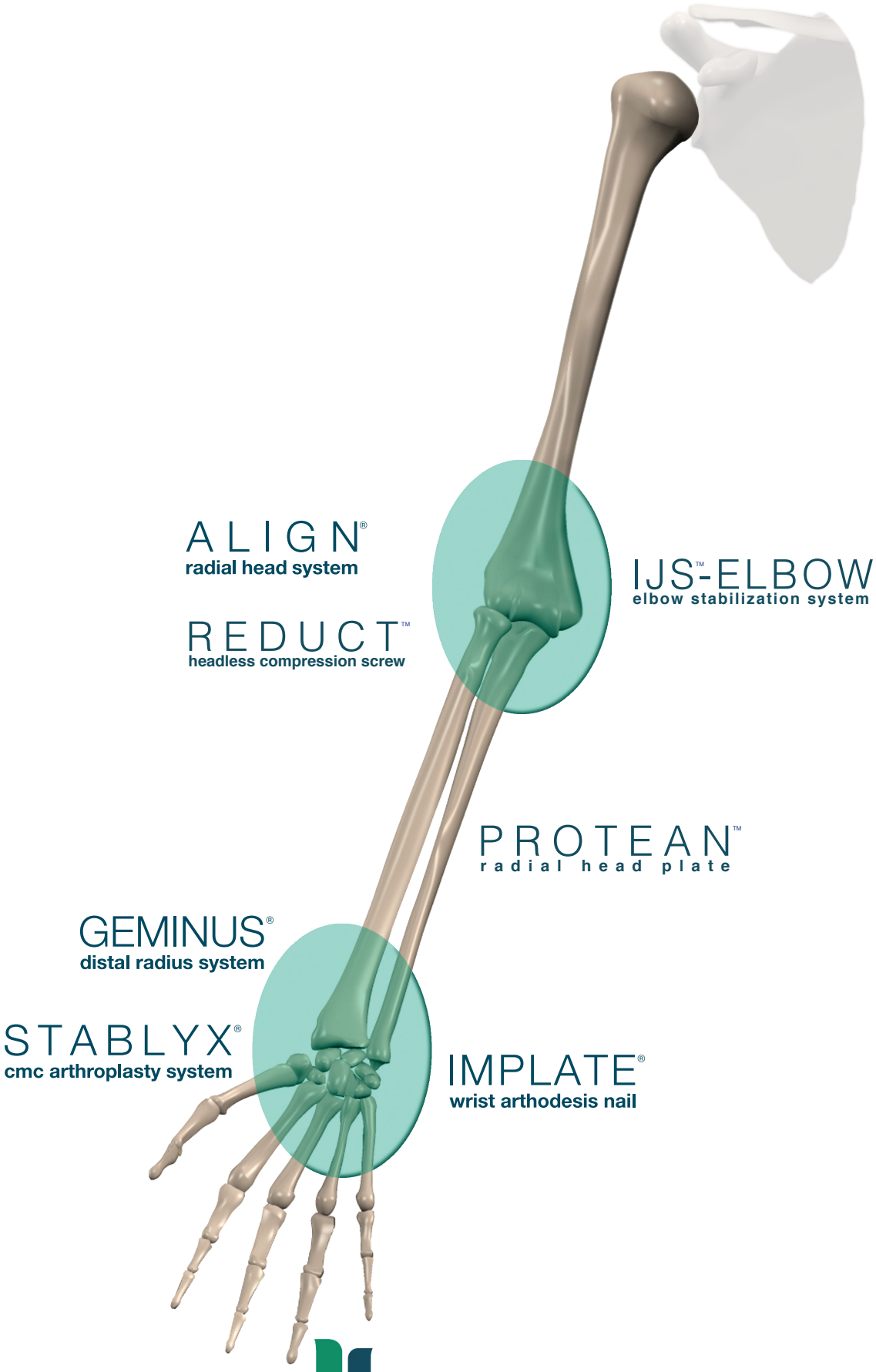


Catalog Number	Radial Stems (Ti)			
	A	B	C	D
ALN-RST-0700	7mm	0mm	29mm	15mm
ALN-RST-0702	7mm	2mm	29mm	17mm
ALN-RST-0704	7mm	4mm	29mm	19mm
ALN-RST-0706*	7mm	6mm	29mm	21mm
ALN-RST-0708*	7mm	8mm	29mm	23mm
ALN-RST-0800	8mm	0mm	30mm	15mm
ALN-RST-0802	8mm	2mm	30mm	17mm
ALN-RST-0804	8mm	4mm	30mm	19mm
ALN-RST-0806*	8mm	6mm	30mm	21mm
ALN-RST-0808*	8mm	8mm	30mm	23mm
ALN-RST-0900	9mm	0mm	33mm	15mm
ALN-RST-0902	9mm	2mm	33mm	17mm
ALN-RST-0904	9mm	4mm	33mm	19mm
ALN-RST-0906*	9mm	6mm	33mm	21mm
ALN-RST-0908*	9mm	8mm	33mm	23mm
ALN-RST-1000	10mm	0mm	35mm	15mm
ALN-RST-1002	10mm	2mm	35mm	17mm
ALN-RST-1004	10mm	4mm	35mm	19mm
ALN-RST-1006*	10mm	6mm	35mm	21mm
ALN-RST-1008*	10mm	8mm	35mm	23mm
ALN-RST-1100	11mm	0mm	37mm	15mm
ALN-RST-1102	11mm	2mm	37mm	17mm
ALN-RST-1104	11mm	4mm	37mm	19mm
ALN-RST-1106*	11mm	6mm	37mm	21mm
ALN-RST-1108*	11mm	8mm	37mm	23mm

* Radial Stem sizes with 6mm and 8mm neck off-sets will be made available upon request

Notes

Notes



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April 2016

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