



# INTRODUCTION TO ORTHOPAEDIC SPLINTS

UPPER EXTREMITY VERSION

UNM ORTHOPAEDICS

APRIL 26, 2017

# OUTLINE

- SPLINT FUNDAMENTALS
- COMMON UPPER EXTREMITY SPLINTS
- GUIDE TO
  - LONG ARM SUGAR TONG SPLINT
  - POSTERIOR SLAB SPLINT
- SPLINT WORKSHOP !

# PURPOSES OF A SPLINT

- PROVIDE TEMPORARY IMMOBILIZATION
- FACILITATE SOFT TISSUE REST
- PERMIT SWELLING
- DO NO HARM !




SPLINT  
OR  
CAST?



SPLINT  
OR  
CAST?



- Fiberglass
- Circumferential
- Subacute
- More Permanent



Plaster OR  
Fiberglass OR  
etc...


Non-circumferential

Acute

Temporary

SPLINT  
OR  
CAST?





Fiberglass  
or  
Plaster?

It's what's available...

Fiberglass  
or  
Plaster?

Easy to mold –  
ideal for  
reductions

Thickness varies  
for adults/ peds

Messy !

Quick Drying

More challenging  
to mold

Easy Clean-Up





SO, DOC... IS IT  
FRACTURED OR  
BROKEN??

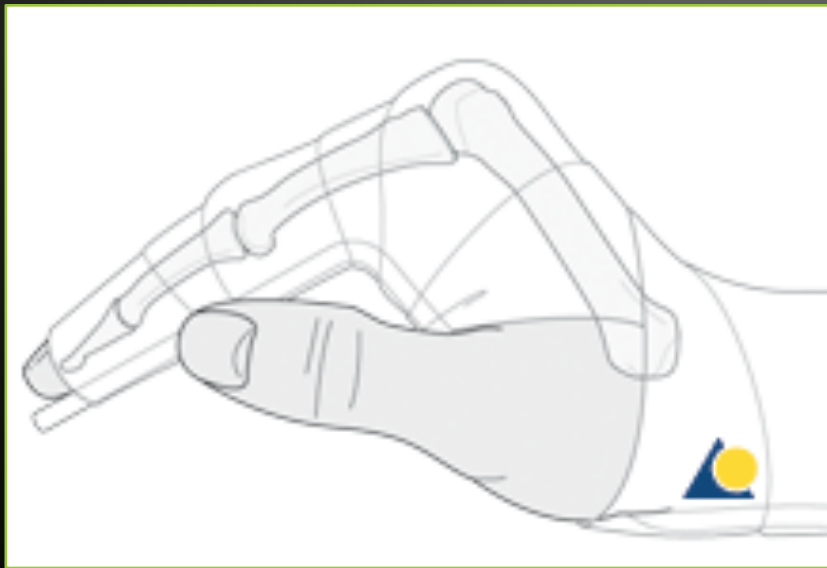
# THUMB SPICA



Great For :

- Thumb fracture
- Scaphoid fracture
- Nondisplaced 1<sup>st</sup> metacarpal fx

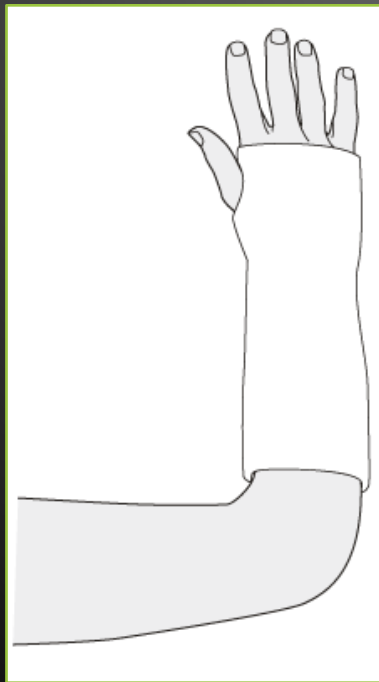
# SAFETY (INTRINSIC PLUS)



Great For :

- Midshaft metacarpal fracture
- Metacarpal base fracture
- Metacarpal head/neck fracture with significant angulation
- Unstable phalanx fracture or dislocation

# SHORT ARM



Great For :

- Carpal fracture (excludes scaphoid)
- Nondisplaced distal radius/ distal ulna fracture
- Distal radius/ distal ulna buckle fracture

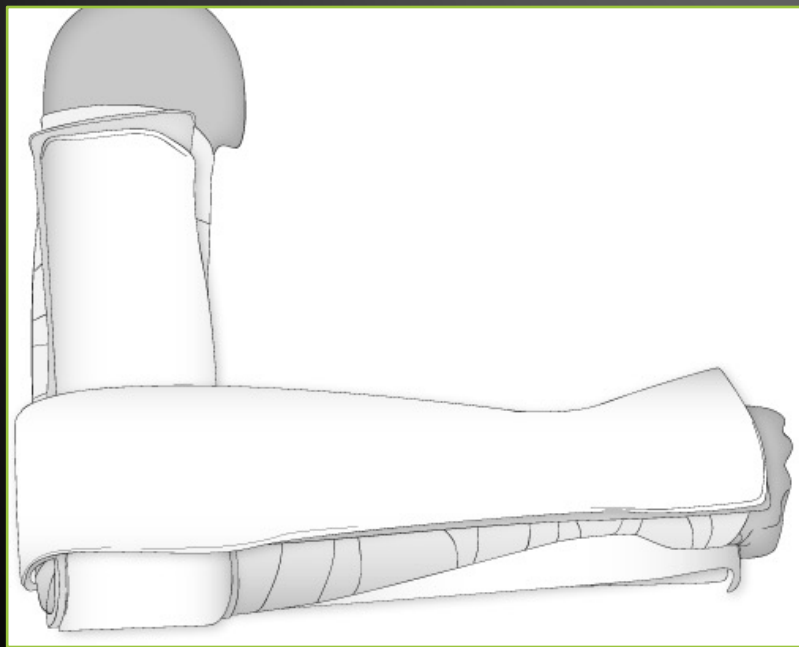
# ULNAR GUTTER



Great For :

- Nondisplaced ring finger/ small finger phalanx or metacarpal fracture
- Isolated distal ulna/ ulna shaft fracture

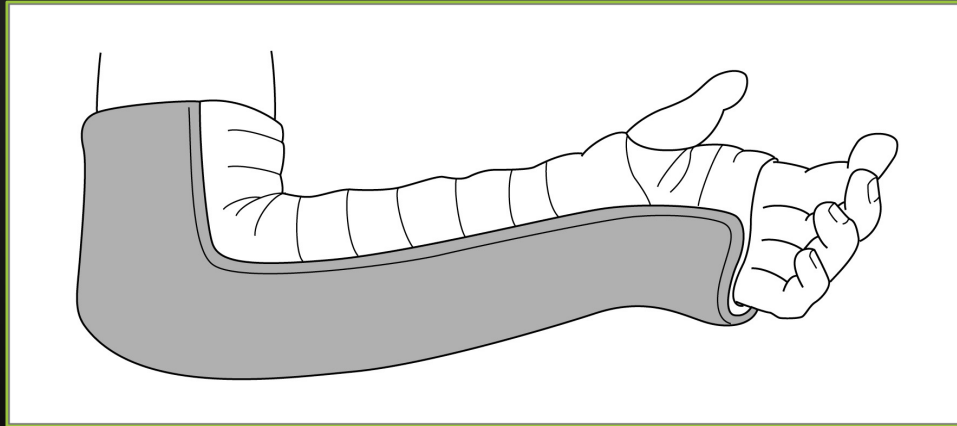
# LONG ARM – SUGAR TONG\*



Great For :

- Displaced distal radius/  
distal ulna fracture
- Radius/ ulna shaft  
fracture
- Unstable proximal radius/  
ulna fracture

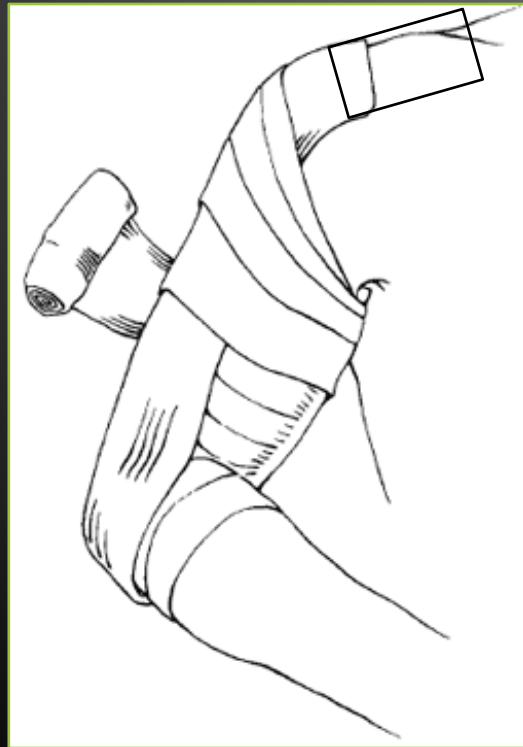
# POSTERIOR SLAB\*



Great For :

- Supracondylar/ distal humerus fracture
- Olecranon fracture
- Elbow dislocation

# COAPTATION



Great For :

- Humerus shaft fracture



# WHAT YOU NEED

- WEBRIL COTTON
  - 2", 3", 4" WIDTHS (UPPER EXTREMITY)
- FIBERGLASS / ORTHOGLASS
  - 2", 3", 4" WIDTHS (UPPER EXTREMITY)
- ACE WRAPS
  - 2", 3", 4" WIDTHS (UPPER EXTREMITY)
- SHEARS, TAPE (DISCARD CLIPS !), +/- WATER



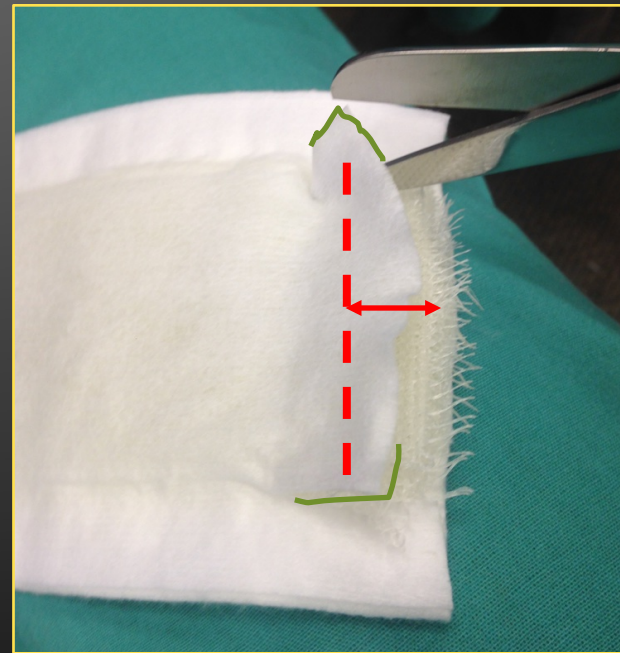
# GENERAL PRINCIPLES

- AMPLE PADDING, ZERO WRINKLES !
- EXTRA PADDING OVER BONY PROMINENCES
  - ELBOWS, KNEES, HEELS, IMPENDING OPEN FX
- IMMOBILIZE THE JOINT ABOVE AND BELOW INJURY
- PROTECT SKIN FROM DIRECT CONTACT WITH →
  - ACE WRAP, FIBERGLASS, PLASTER

# QUICK TIP !

TRIM BACK 1 CM  
FIBERGLASS AT  
EITHER END OF  
ORTHOGLASS

PREVENTS FIBERGLASS  
FROM CONTACTING  
SKIN DIRECTLY



# ANOTHER QUICK TIP !

ROLL OUT WEBRIL/  
ACE UNDERHAND

PREVENTS WRINKLES,  
EFFICIENCY OF  
MOVEMENT!



# LONG ARM SUGAR TONG

Great For :

- Displaced distal radius/  
distal ulna fracture
- Radius/ ulna shaft  
fracture
- Unstable proximal radius/  
ulna fracture

# STEP 1 WEBRIL

- 2-3 LAYERS THICK
- PAD BONY PROMINENCES  
→ ELBOW
- NO WRINKLES



3 Layers

2-3 Layers

# STEP 1 WEBRIL

- SPAN METACARPAL HEADS TO PROXIMAL HUMERUS

3 Layers

Metacarpal  
Heads



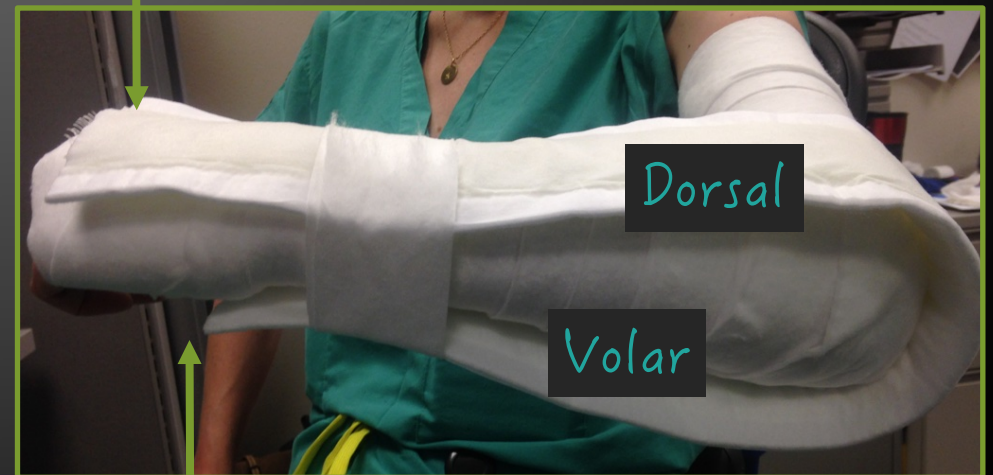
3 Layers

Extra  
Padding

## STEP 2 FIBERGLASS

- DORSAL – PAST METACARPAL HEADS
- VOLAR – TO PALMAR CREASE
- PREVENTS FOREARM PRONATION AND SUPINATION
- STIRRUPS FOR INCREASED STABILITY

Metacarpal  
Heads



Palmar Crease

NOTE

Padded side  
towards skin



# STEP 3 ACE WRAP

- MINIMAL TENSION
- NO ACE TOUCHING SKIN
- NO METAL CLIPS



# POSTERIOR SLAB

Great For :

- Supracondylar/  
distal humerus  
fracture
- Olecranon fracture
- Elbow dislocation

# STEP 1 WEBRIL

- 2-3 LAYERS THICK
- PAD BONY PROMINENCES  
→ ELBOW
- NO WRINKLES



3 Layers

2-3 Layers

# STEP 1 WEBRIL

- SPAN METACARPAL HEADS TO PROXIMAL HUMERUS

3 Layers

Metacarpal  
Heads



3 Layers

Extra  
Padding

## STEP 2 FIBERGLASS

- SPAN WRIST / ELBOW JOINTS
- ULNAR BORDER OF HAND, WRIST, FOREARM
- POSTERIOR ASPECT ELBOW
- ELBOW ANGLE MAY VARY DEPENDING ON INJURY



Wrist

Ulnar

Elbow

# STEP 3 ACE WRAP

- MINIMAL TENSION
- NO ACE TOUCHING SKIN
- NO METAL CLIPS



# FINAL THOUGHTS...

- SPLINT SAFETY → DO NO HARM !
- PROTECT SOFT TISSUES, REDUCE WHEN INDICATED
- MONITOR NEUROVASCULAR STATUS BEFORE & AFTER
- ENSURE TIMELY FOLLOW UP CARE

LET'S  
SPLINT!