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Successful Static Splinting

Forearm Based Splint Fabrication, Part 2

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Disclosures

- Presenter Disclosure:
  - Financial: Kirsten Davin has received an honorarium for presenting this course.
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Learning Outcomes

After this course, participants will be able to:

- Describe a volar verses dorsal-based approach to splint fabrication, while considering sheet, pre-cut and pre-formed methods of application.
- List the steps involved in selecting, fabricating, and modifying the following splints: thumb spica, wrist cock-up, functional position, and intrinsic plus.
- Describe the benefits of a forearm-based splint as compared to a hand-based design.

CONTINUED

Materials Selection

Preformed Splints

- Previously molded and sized to client based on a size chart
- Easily adjustable and reshaped via heat if needed
- Various thermoplastics available

Q1

CONTINUED

Materials Selection

Precut Splint Blanks

- Increased efficiency with fabrication
  - Reduced time cutting, sizing and fitting
- Preselected materials appropriate for anatomy and splint type
- Helpful for beginners

Q2

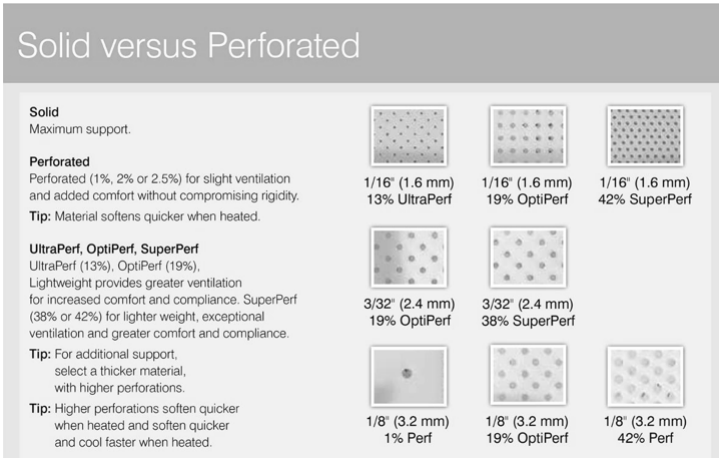
Materials Selection

Precut Splint Blanks with Perforation

- Increased airflow
- Reduced weight
- Beneficial for those with moisture/ dampness under the splint (ie. dressing drainage, etc.)
- Available in various thermoplastics

Thermoplastic Characteristics

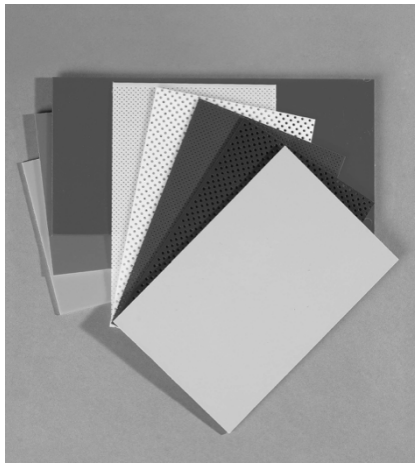
Perforation



Materials Selection

Sheet Fabrication

- Increased flexibility in design
  - Helpful for the fabrication of non-traditional or specific splinting designs
- Often more cost efficient than pre-cut splint blanks



Hand-based vs. Forearm-based

Selection Considerations

- Intrinsic vs extrinsic muscular involvement
- Objective of the splint: safety? Immobilization?
- Client preference, comfort, and/or compliance

Q3

Forearm Splint Design

Volar vs. Dorsal-based Design

Overview of Splint Fabrication

- Determine - splint and pattern
- Decide - material and how to select
- Prepare - material
- Apply - patient
- Finish - trimming, edge finishing, strapping
- Assess - fit, make necessary modifications
- Instruct - care and wearing schedule

Splint Fabrication Goals
Serial Static

- Maintain arches
- Contour to skin
- Maintain motion (if indicated)
- Permit balanced function of unaffected muscles
- Allow maximal mobility with optimal stability
- Allows for freedom of digits
- Minimal stretch for a longer period rather than quick correction
- Larger surface area to distribute pressure following the normal contours of the hand and arm

Q4/5

Case Study #1: Mrs. K
Thumb Spica

- 62 year-old female
- Recently started kayaking, 3-4 hrs./day, several times per week
- Diagnosis:
  - Thumb MP joint ligament strain
- Physician ordered a forearm-based thumb spica
- Actions:
  - Select thermoplastic and splint base design (ie. precut, preformed, etc.)

Q6/7

CONTINUED

Forearm-based Thumb Spica

Case Study #1: Mrs. K

CONTINUED

Forearm-based Thumb Spica

Case Study #1: Mrs. K

- Tips to Fabrication:
  - Use children's craft foam to create durable reusable patterns
  - Easy to test on the client's anatomy prior to cutting thermoplastics
  - May also use padding at the thumb IP or MP to protect skin integrity

Q8

Case Study #2: Mrs. Q

Volar or Dorsal Wrist Cock-Up

- 42 year-old female, legal assistant
- Typing at a computer/office work daily
- Diagnosis:
  - Numbness and tingling, productivity suffering due to need for frequent breaks due to discomfort
  - Increased discomfort upon waking, patient preferred more conservative treatment before considering surgery
- Physician ordered a wrist cock-up splint
- Actions:
  - Select thermoplastic and splint base design (ie. precut, preformed, etc)

Q9

Volar and/or Dorsal Wrist Cock-Up

Case Study #2: Mrs. Q

- Determine the approach to splint fabrication for this client
  - Which approach would you choose?
  - Why?

Thumb Hole Wrist Cock-Up

Case Study #2: Mrs. Q

Case Study #3: Mr. O

Functional Position Splint w/ Intrinsic Plus Modification

- 72 year-old male, retired, but very active
- Golfs, fishes, plays with grandchildren
- Diagnosis:
  - At dinner last night, the patient experienced facial droop, right sided UE weakness
  - Admitted to ICU following diagnosis of stroke
- Physician ordered a functional position splint for right hand/wrist
- Actions:
  - Select thermoplastic and splint base design (ie. precut, preformed, etc)

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Case Study #3: Mr. O

Functional Position Splint w/ Intrinsic Plus Modification

Q10

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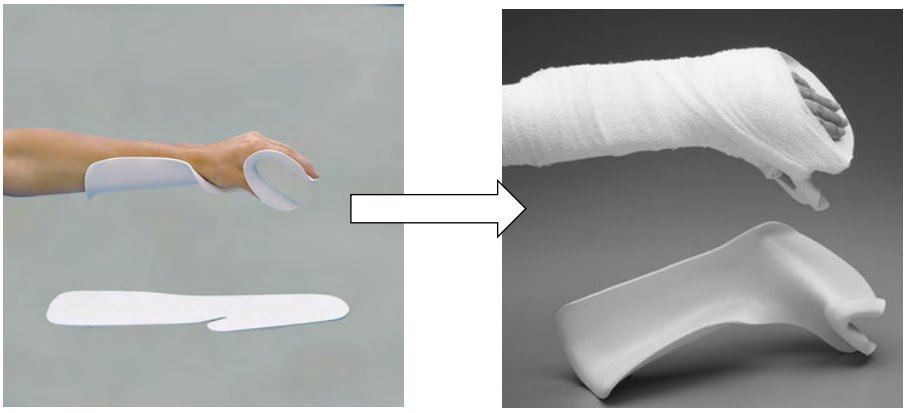
Intrinsic Plus Modification



Questions?
Thoughts or Feedback?
On-Site Course Requests?

Contact Dr. Kirsten Davin anytime!

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