

DR. BRIAN KLIKA & DR. ANDREW KIRKPATRICK
FOUR CORNER FUSION POST-OP THERAPY PROTOCOL

Four corner fusion of the wrist is a procedure used to correct pain in the wrist from arthritis, ligamentous damage, carpal bone non-union or necrosis. This procedure involves removal of the scaphoid and fusion of the capitate, lunate, hamate, and triquetrum bones of the wrist. Approximately 50% of pre-operative motion is expected to be lost after surgery. While this is not ideal, this procedure resolves most of the pain that patients experience from an unstable wrist.

Phase 1 – Early Protective Phase (0-6 weeks)

Goals for Phase 1	Precautions for Phase 1
• Immobilize wrist to ensure fusion is protected • Ensure patient is properly educated on importance of wound care and signs/symptoms of infection • Educate on importance of movement of the uninvolved joints • Educate on use of modalities to alleviate pain and swelling	• Educate patient to return to clinic at any time for adjustments of orthosis if it is not supporting fusion

Orthosis

- A forearm-based wrist control orthosis is fabricated to protect fusion at all times

Wound Care

- Keep incisions clean and dry
- Educate patient in sterile dressing changes as needed

Scar Management

- Begin scar massage no sooner than 2 days after suture removal after scar is fully closed with no scabbing present. Begin with light massage using lotion.
- Educate patient in scar management
- Apply scar remodeling products as needed

Edema Management

- Light compression with Coban or compression sleeves to digits, hand and forearm as needed
- Elevation
- Manual Edema Mobilization (MEM)

ROM

- A/PROM to digits, forearm, elbow, and shoulder with splint on as needed to prevent stiffness

Modalities

- Ice to reduce pain and inflammation as needed

DR. BRIAN KLIKA & DR. ANDREW KIRKPATRICK FOUR CORNER FUSION POST-OP THERAPY PROTOCOL

Phase 2 – Movement Phase (6-10 weeks)

Goals for Phase 2	Precautions for Phase 2
• Initiate movement within patient tolerance to achieve end-range motion • Reduce scar tissue presence and effect on structures • Reduce pain with use of modalities	• Close contact with surgeon is imperative to ensure fusion is stable enough for ROM initiation. Initiation of ROM is always dependent on quality of fusion. • Therapy approach should emphasize pain-free ROM and functional strength. Pushing through pain can be counterproductive. Educate patient in frequent pain-free stretching.

Orthosis

- **6 weeks:** continue wrist control orthosis at all times between exercises
- **8-10 weeks:** patient may begin to wean from orthosis depending on quality of fusion and comfort outside of splint. If pain increases, return to splint

ROM

- Initiate A/AA/PROM in all planes for the forearm, wrist, and thumb within patient tolerance
- ROM exercises to be done for 10-minute sessions every 2 hours, or 4-5 times daily
- Patient should return to splint between exercise sessions
- Total end-range motion recovery expected is 50% of pre-operative movement

Manual Therapy

- Continue phase 1 scar and edema management as needed

Modalities

- Use of ultrasound to reduce scar tissue and improve healing
- Use of fluidotherapy for heat application and desensitization if necessary
- Use of paraffin wax to apply deep heat, relax tissues, and improve blood flow and movement

**DR. BRIAN KLIKA & DR. ANDREW KIRKPATRICK
FOUR CORNER FUSION POST-OP THERAPY PROTOCOL**

Phase 3 – Strengthening Phase (10-12+ weeks)

Goals for Phase 3	Precautions for Phase 3
• Achieve end-range motion (50% of pre-operative motion) • Maximize strength of wrist, thumb, and digits • Resolve pain to tolerable level • Improve function of extremity and return to work if applicable	• All ROM and strengthening should be within pain-free range. Any motion or strengthening that increases pain should be decreased or eliminated entirely. • Fusion rates are variable and may require longer periods of time for some patients. Therefore, ROM and strength may take longer to return if fusion rates necessitate longer immobilization.

Orthosis

- Patient is usually weaned from splint by 10 weeks however they may continue to need it for heavier work and functional tasks

ROM

- Continue with active and passive ROM until end-range is achieved
- Dynamic splinting may be utilized to achieve end-range motion if significant stiffness is still experienced

Manual Therapy

- Continue with scar massage to reduce effects of scar tissue on motion if necessary
- Soft-tissue massage may be used to reduce pain and improve tissue healing

Strengthening

- Progressive strengthening may be initiated for the forearm, wrist, and hand
- Home exercise programs should be issued and may need to be continued after discharge to ensure maximal function returns

Modalities

- Continue with modalities from phase 2 to improve blood flow, scar mobility, and patient comfort as needed