Opponesplasty

This protocol is intended to provide the clinician with a guideline for the postoperative rehabilitation course of a patient who has undergone ***Opponesplasties***. General time frames are given for reference to the average, but individual patients will progress at different rates depending on their age, comorbidities, pre-surgical range of motion, strength, health/ functional status, rehabilitation compliance, learning barriers and complications. Specific time frames, restrictions and precautions are given to protect healing tissues and surgical reconstruction.

Surgical Description:

Camitz Opponensplasty – This technique is often used with severe CTS with distinct thenar muscle atrophy and loss of thumb opposition. The Camitz procedure combined with CTR is a standard procedure using the palmaris longus tendon with a strip of palmar aponeurosis and transfers it to the insertion of the APB. Modified Camitz procedure is minimally invasive due to only thumb and palm incisions and by passing the transferred tendon under the APB fascia with no incision to either the wrist crease or forearm (which prevents bowstringing).

Ring Finger FDS Opponensplasty – This is often completed with a CTR. The ring finger FDS is incised at the site of CTR incision. A pulley can be made in the released flexor retinaculum to increase tendon tension. The FDS is passed volar to median nerve and attached to APB tendon.

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Phase I (7 -10 days to 3 weeks after surgery)

	Conservative	Early Active
Rehabilitation appointments	• 1x/week or as instructed by therapist	• 1-2x/week or as instructed by therapist
Rehabilitation goals and priorities	• Activities of daily living (ADLs) per restrictions • Edema management • Scar management	• Activities of daily living (ADLs) per restrictions • Consider use of electrical stimulation or biofeedback to increase AROM • Enhance muscle activation of transferred muscle: mirror visual feedback, therapeutic whirlpool, and/or vibration • Edema management • Scar management
Suggested therapeutic exercises	• Digit, forearm, elbow, and shoulder ROM as needed	**Week 1**: • Active opposition exercises 10 reps in gravity-eliminated plane (forearm in neutral), with wrist in neutral and then in 30 degrees of flexion • Measure resting and active abduction angle to detect any loss of tension in the transfer **Week 2**: • Integration exercises for thumb, pinch, and opposition for digits • With resting abduction angle at 40-50 degrees tripod pinch by index and middle fingers • If pain-free, progress to activities such as picking up small light objects (plastic balls, wooden pegs, etc) **Week 3**: • Strengthening coordination exercises and underwater exercises • ADLs trained within a limited range of thumb abduction (e.g. holding an empty glass)

Precautions	• Avoid simultaneous wrist, thumb, and finger extension • Avoid thumb adduction until 3 weeks after surgery • No lifting, pushing, or pulling more than 2 pounds with involved upper extremity • No weightbearing of involved upper extremity	• Avoid simultaneous wrist, thumb, and finger extension • Avoid thumb adduction until 3 weeks after surgery • No lifting, pushing, or pulling more than 2 pounds with involved upper extremity • No weightbearing of involved upper extremity
Orthotic management	• Fit with custom dorsal thumb spica orthosis with wrist in 10-20 degrees of flexion, thumb in maximum palmar abduction/rotation • Orthosis is worn full time for 3-5 weeks post operatively (depending on integrity of transfer-check with surgeon).	• Fit with custom dorsal thumb spica orthosis with wrist in neutral, thumb in maximum palmar abduction/rotation. • Wear orthosis all the time except for bathing and exercises **<u>Week 3:</u>** • Begin to wean from orthosis during light functional seated tasks at home
Progression criteria		• After full gravity eliminated AROM of the thumb achieved, progress to gravity-resisted motion, and lightly resisted motion

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Phase II (4-7 weeks after surgery)

	Conservative	Early Active
Rehabilitation appointments	• 1-2x/week or as instructed by therapist	• 1-2x/week or as instructed by therapist
Rehabilitation goals and priorities	• Activities of daily living (ADLs) per restrictions • Facilitate activation of donor muscle/tendon while attempting to oppose the thumb • Consider use of electrical stimulation or biofeedback to increase AROM • Enhance muscle activation of transferred muscle: mirror visual feedback, therapeutic whirlpool, and/or vibration • Edema management • Scar management	• Activities of daily living (ADLs) per restrictions • Facilitate activation of donor muscle/tendon while attempting to oppose the thumb with functional activities • Consider use of electrical stimulation or biofeedback to increase AROM • Enhance muscle activation of transferred muscle: mirror visual feedback, therapeutic whirlpool, and/or vibration • Edema management • Scar management
Suggested therapeutic exercises	• Initiate AROM/AAROM of thumb and wrist as well as place and holds. • Gentle pain free PROM of wrist and thumb. • Perform ROM with non-involved hand with involved hand • Move slowly and perform short sessions of exercise to prevent fatigue of transferred muscle (ex. 10 reps, then rest while completing scar massage, edema control, and PROM, repeat 3x in session) • Consider A/AAROM of the thumb in water for buoyancy/gravity-eliminated plane.	• Continue to increase thumb AROM activation of muscle transfer • Perform functional activities and progressive strengthening as tolerated
Precautions	• Avoid simultaneous wrist, thumb, and finger extension	• No lifting, pushing, or pulling more than 2 pounds with involved upper extremity

	• No lifting, pushing, or pulling more than 2 pounds with involved upper extremity • No weightbearing of involved upper extremity	• No weightbearing of involved upper extremity
Orthotic management	• Wean from orthosis as thumb AROM improves. Continue to wear for sleeping and heavy activities	• Wear orthosis at night and for heavy activities • **Functional orthoses as needed**
Progression criteria	• After full gravity eliminated AROM of the thumb achieved, progress to gravity-resisted motion, and lightly resisted motion	• Per ability and pain tolerance

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Phase III (8-10 weeks after surgery)

	Conservative	Early Active
Rehabilitation appointments	• As needed	• As needed
Rehabilitation goals and priorities	• Full participation on all daily activities/occupations • Return to heavy work and leisure at 12 weeks after surgery	• Full participation on all daily activities/occupations • Return to heavy work and leisure at 12 weeks after surgery
Suggested therapeutic exercises	• Progressive strengthening • Perform functional activities and progressive strengthening as tolerated	• Progressive strengthening • Progressive weightbearing
Precautions	• No restrictions	• No restrictions
Orthotic management	• Night-time use of orthosis may continue for positioning only as well as functional orthosis, however, can discontinue	• Night-time use of orthosis may continue for positioning only as well as functional orthosis, however, can discontinue
Progression criteria	• Per ability and pain tolerance	• Per ability and pain tolerance

Additional Notes

- ROM is achieved, then therapy frequency can be decreased as appropriate.
- Facilitate activation of donor muscle/tendon while attempting to oppose the thumb.

If FDS was donor tendon, block flexion of ring finger MPJ with contralateral hand while actively flexing PIPJ and opposing thumb to each fingertip.

If Palmaris Longus was donor tendon, actively flex wrist while opposing thumb to each fingertip.

If EDM was donor tendon, actively extend small finger MPJ while actively opposing thumb to index, middle and ring fingertips.

Special Considerations

If surgeon used an autologous graft or allograft (to bridge gap between donor tendon and first metacarpal)– default to the conservative protocol.

Communication with surgeon to clarify rehab progression is mandatory.