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Implementation of a Protocol for Conservative Treatment of Thumb Carpometacarpal Osteoarthritis

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Purpose

To create and implement a comprehensive conservative treatment protocol for thumb CMC joint OA with functional activity included.

Introduction

- OA is the most common type of arthritis for those 60 years and older
- Thumb CMC joint is the most affected site for OA
- Ligamentous failure to stabilize the joint leads to synovitis, joint degeneration, and deformity
- Conservative treatment to stabilize the thumb has proven successful in reducing pain and stiffness
- Techniques include manual therapy, joint mobilization, splinting, education, activity modification, stretches, and exercises
- OT can contribute uniquely to existing protocols by including functional activity in conservative treatment

Methods

- Case series, program implementation
- 14 weeks
- Clinical outcomes and patient perspectives N=3; subjective reporting N=5
- Inclusion criteria: prescription for hand therapy to conservatively treat thumb CMC OA in one or both hands
- Patient data collected was all included as standard of care
- Participants between 53 and 82 years old
- Measures: AROM goniometry, Kapandji index, grip and pinch strength, visual analog scale for pain, quick DASH

Theoretical Framework

- Biomechanical FOR: focus on basis of anatomy and physiology, kinesiology and musculoskeletal system to explain movement and dysfunction
- Transtheoretical Model of Change: decision-making potential of patients to make intentional changes to habits and behaviors

Clinical Outcomes

Patient A

Outcome Measure		Initial	Discharge
Goniometry (degrees)	R thumb radial abduction	30	35*
	R thumb palmar abduction	35	40*
	R Kapandji index	8	9*
Grip and pinch strength (pounds)	R tripod pinch	12	15*
	L tripod pinch	8	17*
VAS for pain	At rest	4/10	1/10*
	With activity	8/10	7/10
Quick DASH		43	48

Patient B

Outcome Measure		Initial	Discharge
Goniometry (degrees)	L thumb radial abduction	27	32*
	L Kapandji index	8	9*
Grip and pinch strength (pounds)	L grip	30	27
	L tripod pinch	7	7
VAS for pain	At rest	3/10	1/10*
	With activity	5/10	1/10*
Quick DASH		38.6	34.1

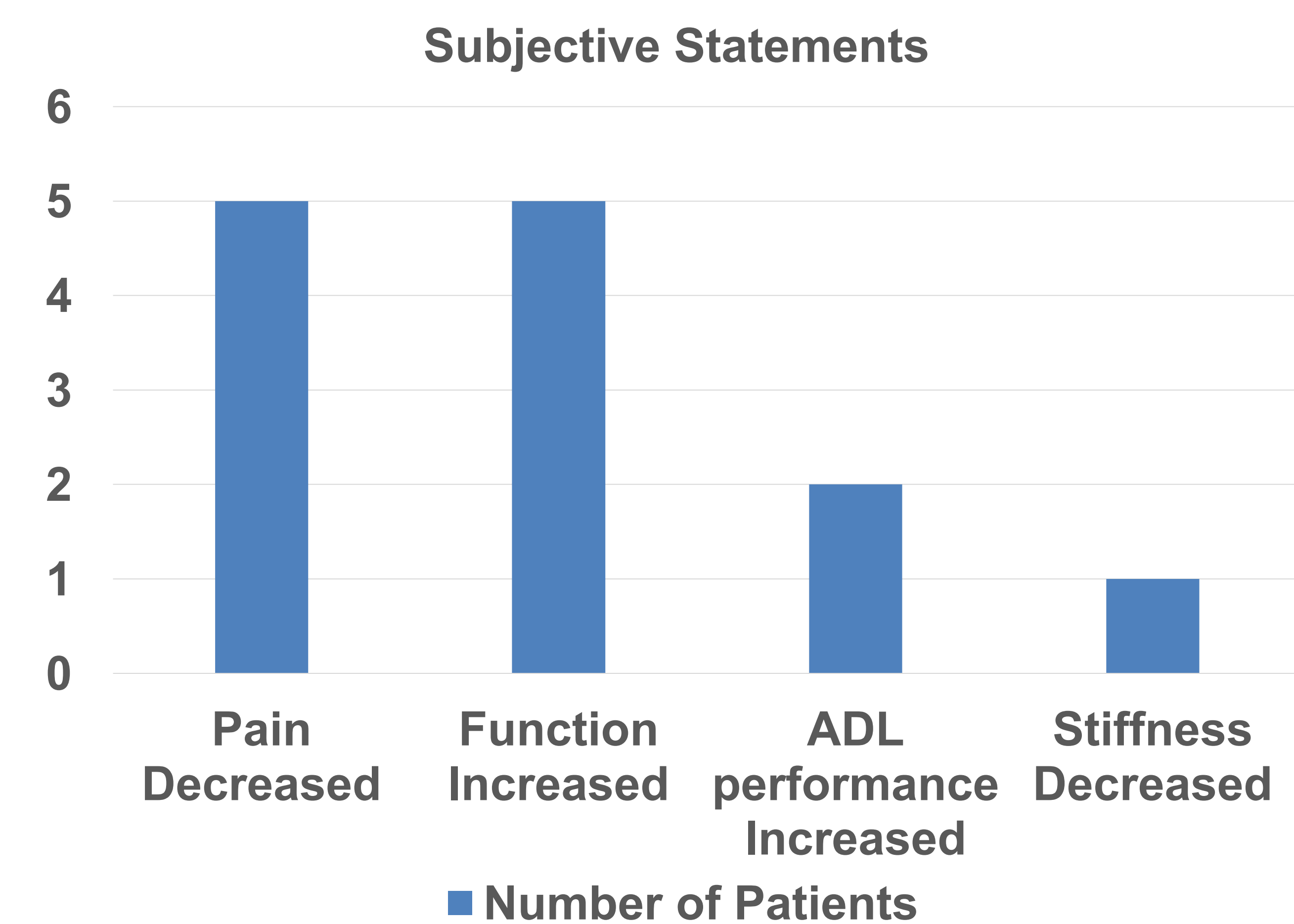
Patient C

Outcome Measure		Initial	Discharge
Goniometry (degrees)	R thumb IP flexion	45	62*
	R wrist extension	50	60*
	R wrist ulnar deviation	25	30*
	R Kapandji index	5	10*
	L thumb MCP flexion	54	60*
	L thumb IP flexion	25	38*
	L wrist flexion	45	65*
	L wrist ulnar deviation	15	30*
Grip and pinch strength (pounds)	R grip	55	75*
	L grip	30	50*
	R tripod pinch	6	17*
	L tripod pinch	5	15*
	R lateral pinch	15	18*
VAS for pain	At rest	0/10	0/10
	With activity	6/10	0/10*
	Quick DASH		25

*Changes that met the minimum clinically important difference (MCID) are noted.

Patient Perspectives

Question	Answers	n	%
Which exercises do you feel were most helpful?	AROM stretches	3	100
	Functional pinch	1	33
	Exercises	1	33
	Everything	1	33
Which exercises do you feel were least helpful?	Functional pinch (pegboard, nuts and bolts)	2	67
Which exercises were easiest to complete as prescribed?	Ultrasound	1	33
	AROM stretches	1	33
	Exercises	1	33
	Splinting	1	33
Which exercises were more difficult to complete as prescribed?	AROM stretches	2	67
	Exercises	1	33
Why?	Pain	1	33
	Mental block	1	33
	Consistency	1	33
What parts of the protocol did you feel were most difficult to perform consistently?	AROM stretches	2	67
	Slowing down	1	33



Discussion

- Clinically important differences for AROM, opposition, grip and pinch strength, and pain; consistent with literature
- All patients increased thumb opposition, which is functionally beneficial for grasping
- Maintenance of motion is desirable with OA, and all patients demonstrated increased or maintained AROM
- Grip strength results were inconsistent: one increased (met MCID), one decreased
- Pinch strength increased or remained constant
- All patients pain at rest decreased to 1/10 or less
- Quick DASH scores for all patients did not reach MCID
- Patients felt better equipped to handle their symptoms after one treatment session
- All patients found that pain decreased, and self-reported function increased, consistent with previous research
- Patients found AROM stretches most helpful

Limitations

- Small sample size
- Short timeframe
- Wording of survey questions

Implications

- Guide treatment
- Consider patient perceptions of protocol components
- Consider inclusion of functional activity
- Use results to further investigate patient compliance and ways to improve it

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References

See provided reference list