

## Online Supplementary Material 7. Exercise prescription of the eligible studies.

Study	Exercise prescription	Type	Volume	Duration of contraction	Rest	Progression	Frequency Supervised (provider)	Frequency of HEP (info)	Duration of intervention	Adherence (rate%)
<b>Coombes 2013</b>  <b>Info: from registered protocol (Coombes et al, 2009) and Vicenzino et al, 2003</b>	Sensorimotor gripping and forearm retraining	Pain-free gripping and isolated wrist extension	NI	Slow manner	Sufficient rest	NI	1 sessions/w total 8/30min sessions (11 post-graduate PTs)	2/day	8 weeks	Exercise diaries (70%)
	Progressive strengthening of wrist extensors	Combined concentric and eccentric (elastic bands of varied resistance levels)	3 sets 8-12 reps	6-10 s	Sufficient rest	Patients' capabilities				
	Forearm muscle groups exercises	Flexion, supination and pronation, radial and ulnar deviation (elastic bands of varied resistance levels)	3 sets 8-12 reps	6-10 s	Sufficient rest					
	Proximal arm strengthening	Free weights or weight bearing anti-gravity exercise	3 sets 8-12 reps	6-10 s	Sufficient rest	Patients' capabilities & later work or sport-specific exercises				
	Stretching for each muscle group	Stretching	3-5 reps of 20-30 s holds	-	-	-				

	Sensorimotor gripping tasks	Pain-free gripping and isolated wrist extension	NI	NI	NI	NI				
	Progressive strengthening of wrist extensors	Concentric-Eccentric, or isometric contractions. (free weights, rubber bands, manual resistance)	3 sets 8-12 reps	6-10 s	Sufficient rest	Patients' capabilities with PT consultation				
	Forearm muscle groups exercises	Flexion, supination and pronation, radial and ulnar deviation (elastic bands of varied resistance levels)	3 sets 8-12 reps	6-10 s	Sufficient rest	Patients' capabilities with PT consultation				
<b>Bisset 2006</b>	Proximal arm strengthening	Free weights or weight bearing anti-gravity exercise	3 sets 8-12 reps	6-10 s	Sufficient rest	Patients' capabilities	8 treatments in 6 w (30 min) (6 post-graduate PTs)	2/day (exercise booklet provided)	6 weeks	NI
	Stretching for each muscle group	Stretching	3-5 reps of 20-30 s holds	-	-	-				

Cherry 2012	Progressive strengthening of wrist extensors and supinators	resisted forearm supination and extension in sitting with the elbow flexed to 90° using the resistance band	3 sets of 10 reps	NI	NI	Patients' capabilities adjusted with the help of a therapist	At least 4/week	2/day	6 weeks	Daily log forms (NI)
	Stretching of wrist extensors	straight arm wrist extensor (no resistance)	3 times held for 20 s	NI	NI	NI				
Dale 2016	Progressive strengthening of wrist extensors	eccentric exercises (free weights)	when pain <3/10 scale 10 reps	NI	NI	increase by 1 pound each week to reach maximum of 4-5 pounds resistance.	Twice weekly (3 occupational therapists with 26 years of experience)	3 times daily	NI	exercise logs to track daily performance (5-6 times per week)
	Pain-free tissue lengthening	Stretching wrist and digit extensors	3 reps x 10s	-	NI	NI		2 times daily		

	Pilates based exercises	Phase 1 (Pain >3 on 0–10 scale): breathing techniques, scapular retraction sitting with back supported in chair, and scapular retraction sitting on edge of chair  Phase 2 (Pain <3 on 0–10 scale): scapular retraction using resistive band, stretch with one arm behind back and one hand on head, and leg lifts	Phase 1: Breathing (3 sets x 20reps), scapular retraction (1 set x 10reps)  Phase 2: scapular retraction 2 sets x 5 reps, stretch 5 reps x 20sec. Leg lifts: 3 sets x 10reps	1 minute	NI		1-3 times daily			
<b>Drechsler 1997</b>	Neural tension	Upper limb neurodynamic exercise (radial nerve)	10 reps	NI	Not to increase the exercise set more than twice/day.	NI	Twice a week	twice a day	6 weeks	NI

	Tissue lengthening	stretching with wrist flexion, maximal forearm pronation, and ulnar deviation	5-10 reps	30s	NI	NI				
	Progressive strengthening program	Concentric- eccentric (Dumbbells)	3 sets x 15 reps	NI	NI	NI				
<b>Koch 2015</b>	Progressive strengthening of wrist extensors	Eccentric exercises for wrist extensors (free weights) in sitting with elbow in full extension, forearm in pronation and wrist in maximum extension	3 sets x 10 reps	30-45s,	1 min	The load was increased using free weights based on patients 10 RM.	3 times per week	NI	4 weeks	NI
	Soft tissue lengthening of wrist extensors	Static stretching of Extensor Carpi Radialis Brevis	3 times before and 3 times after eccentric exercises (30-45s)	NI	NI	Patients' tolerance				
<b>Luginbóhl 2008</b>	Progressive Strengthening of wrist extensors	Isometric grip strength exercise (tennis ball).	20 reps	20s	NI	performed gently, and not cause	3 times during 3 months	twice a day (an instruction sheet was	3 months for grip strength	The compliance

		Isometric resisted wrist extension.			relevant pain		handed out)	2,5 months for wrist extension	noted for each follow-up period (60%)
<b>Martinez-Silvestrini 2005</b>	Progressive Strengthening of wrist extensors	Eccentric and Concentric exercises -resistance band (light, medium, or heavy)- determined by a 10-repetition trial.	3 sets x 10 reps easily and without a notable increase in pain	NI	2–5 min break	Shortening the band in 1-inch increments from the initial length mark	Once daily (written instructions with pictorial illustration)		exercise log (99%)
	Soft tissue lengthening	Static stretching of wrist extensors	3 reps x 30s.	-	NI	NI	Twice a day (written instructions with pictorial illustration)	6 weeks	

<b>Murtezani 2015</b> <b>Info: from Pienimaki et al. (1996)</b>	Progressive exercise strengthening programme	Step 1: Clenching fist strongly, resisted wrist extension, resisted wrist flexion, Wrist rotation with a stick, Toward the little finger, Toward the thumb	2 or 3 sets x 10 reps	8s	NI	Progressively from Step 1 to 4	3 times per weeks (50min)	two times daily on three days a week	6 weeks	NI
		Step 2: Exercises against an elastic band for Wrist extension, Wrist flexion, Wrist radial deviation, Wrist ulnar deviation								
		Step 3: Combined wrist rotary movements using, for example, a table top as a support, upward resisted from below, toward the little finger, Toward the thumb, Downward resisted from above, toward the little finger,								

		Toward the thumb, Pressing hand against a wall, plus phase 2 exercises								
		Step 4: occupational training program including Softball compressing exercises Transferring buttons from 1 cup into another, Twisting a towel into a roll, Rotating hand on a table in both directions, plus phase 3 exercises								
	Soft tissue lengthening	Stretching of wrist flexors and extensors	1time x 30s	-				Several times per day		
<b>Nargale 2009</b>	Progressive Strengthening of wrist extensors	Eccentric exercise using dumbbells	3 sets x 10 reps	30s	1 min	when pain or discomfort was minimum, the load	3 times per week	NI	4 weeks	NI



	Soft tissue lengthening	Static stretching of the extensor carpi radialis brevis	3 times before and 3 times after eccentric exercises (30-45s)	-		was increased, based on the top bearable load of each subject.				
<b>Ollausen 2015</b>	Progressive Strengthening of wrist extensors	eccentric exercise (500 ml bottle filled of water)	3 sets X 30 reps	NI	NI	within tolerable pain level filling with sand as patients improved.	Twice weekly (physiotherapist)	Daily (written instructions)	6 weeks	NI
	Soft tissue lengthening	Stretching of radial wrist extensors	3 reps x 40s							
<b>Park 2010</b>	Progressive Strengthening of wrist extensors	Isometric muscle strengthening	4 sets X 50 reps	NI	NI	performed gently without pain	Once (doctor)	Daily	1 month	Keeping records in a calendar (51- 75%)
<b>Peterson 2011</b>	Progressive Strengthening of wrist extensors	Concentric – Eccentric Exercises (with a plastic water container)	1 kg (1 litre of water) for women and 2 kg for me 3 sets x 15 reps	NI	NI	The load was increased weekly by one-tenth of a kilogram (1 decilitre, of water)	NI (By an observer)	Frequency per week: 7 (1 time/day)	3-month	Adherence to exercises were monitored (NI)

<b>Peterson 2014</b>	Progressive Strengthening of wrist extensors	Concentric – Eccentric Exercises (with a plastic water container) Or Eccentric exercise alone	1 kg (1 litre of water) for women and 2 kg for me. 3 sets x 15 reps	NI	NI	The load was increased weekly by one-tenth of a kilogram (1 decilitre, of water)	NI	Frequency per week: 7 (1 time/day)	3-month	NI
<b>Pienimaki 1996</b>	Progressive exercise strengthening programme	Step 1: Clenching fist strongly, resisted wrist extension, resisted wrist flexion, Wrist rotation with a stick, Toward the little finger, Toward the thumb  Step 2: Exercises against an elastic band for Wrist extension, Wrist flexion, Wrist radial deviation, Wrist ulnar deviation	2 or 3 sets x 10 reps	8s	Progressiv ely from step 1 to 4	Patients' capabilities	Once every other week (physiother apist)	4 to 6 times daily	6 weeks	NI

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Step 3: Combined wrist rotary movements using, for example, a table top as a support, upward resisted from below, toward the little finger, Toward the thumb, Downward resisted from above, toward the little finger, Toward the thumb, Pressing hand against a wall, plus phase 2 exercises

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Step 4: occupational training program including Softball compressing exercises Transferring buttons from 1 cup into another, Twisting a towel into a roll, Rotating hand on a table in both directions, plus phase 3 exercises

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Soft tissue lengthening

Stretching of wrist flexors and extensors

3 x10

30s secs-

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<b>Pienimaki, 1998</b>	Progressive exercise strengthening programme (steps 1 to 4)	Step 1: Clenching fist strongly, resisted wrist extension, resisted wrist flexion, Wrist rotation with a stick, Toward the little finger, Toward the thumb	2 or 3 sets x 10 reps	8s	NI	Patients' capabilities Steps 1- 4	Once every other week (physiotherapist)	4 to 6 times daily	6-8 weeks	NI
		Step 2: Exercises against an elastic band for Wrist extension, Wrist flexion, Wrist radial deviation, Wrist ulnar deviation								
<b>Info: from Pienimaki et al., (1996)</b>		Step 3: Combined wrist rotary movements using, for example, a table top as a support, upward resisted from below, toward the little finger, Toward the thumb, Downward resisted from above, toward								

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the little finger,  
Toward the thumb,  
Pressing hand  
against a wall, plus  
phase 2 exercises

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Step 4: occupational  
training program  
including Softball  
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exercises  
Transferring buttons  
from 1 cup into  
another, Twisting a  
towel into a roll,  
Rotating hand on a  
table in both  
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phase 3 exercises

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Soft tissue  
lengthening

Stretching of wrist  
flexors and extensors

1x 30s

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	Soft tissue lengthening	Stretching ECRB	30- 45 s hold, 6 reps	30s	NI	Patients' tolerance				
	Progressive Strengthening of wrist extensors	Eccentric exercise (Elastic band)	3sets x 10 reps	1 min	NI	Increasing resistance of the elastic band				
<b>Sethi 2018</b>	Scapula strengthening	Arm raise above the head with upper extremity in line with lower trapezius muscle fibers in prone position shoulder horizontal extension with external rotation in prone position Unilateral row Shoulder external rotation with the shoulder abducted 90° abd elbow flexed 90° in prone position with elbow supported on the table, shoulder abduction in plane of scapula above 120°	3 sets x 10 reps	NI	NI	Repetitions were increased until 3 sets of 10. Then elastic band from Yellow to red to green.	3 times per week (40-45 min) by two different therapists	NI	6 weeks	NI

		in standing position Diagonal exercise with a combination of shoulder flexion, horizontal flexion and external rotation in sitting position (elastic band)								
<b>Smidt 2002</b> <b>Info: from Pienimaki 1996</b>	Progressive exercise strengthening programme (steps 1 to 4)	Step 1: Clenching fist strongly, resisted wrist extension, resisted wrist flexion, Wrist rotation with a stick, Toward the little finger, Toward the thumb  Step 2: Exercises against an elastic band for Wrist extension, Wrist flexion, Wrist radial deviation, Wrist ulnar deviation	2 or 3 sets x 10 reps	8s	NI	Patients' capabilities Steps 1- 4	10 session in 6 weeks (72 physiotherapists)	4 to 6 times daily (instruction book)	6 weeks	NI

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Step 3: Combined wrist rotary movements using, for example, a table top as a support, upward resisted from below, toward the little finger, Toward the thumb, downward resisted from above, toward the little finger, Toward the thumb, Pressing hand against a wall, plus phase 2 exercises

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Step 4: occupational training program including Softball compressing exercises Transferring buttons from 1 cup into another, Twisting a towel into a roll, Rotating hand on a table in both directions, plus phase 3 exercises

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	Soft tissue lengthening	Stretching wrist extensors and flexors	1 x 30s	-	NI	-				
	Progressive Strengthening of wrist extensors	Eccentric Exercises (bucket with water)	First week: 2 sets 8–12 reps.	3s	NI	After third week: 3 sets of 8–12 reps twice/day	2 visits (baseline and 3 weeks)	Frequency per week: 7 (1 time/day)	6 weeks	
<b>Stasinopoulos 2017</b>	Progressive Strengthening of wrist extensors	Concentric – Eccentric exercises (free weights) Or eccentric alone	3 sets x 15 reps	30s	1 min	Patients' capabilities	NI	5 times a week	4 weeks	NI
	Soft tissue lengthening	Stretching	3 pre and 3 post exercises	30- 45s	30s					

	Strengthening of wrist extensors	Isometric exercise (in addition to concentric-eccentric)	Once	45s	NI					
<b>Struijs, 2003 (Retrieved from Smidt 2002 with reference to Pienimaki 1996)</b>	Progressive exercise strengthening programme (steps 1 to 4)	<p>Step 1: Clenching fist strongly, resisted wrist extension, resisted wrist flexion, Wrist rotation with a stick, Toward the little finger, Toward the thumb</p> <p>Step 2: Exercises against an elastic band for Wrist extension, Wrist flexion, Wrist radial deviation, Wrist ulnar deviation</p> <p>Step 3: Combined wrist rotary movements using, for example, a table top as a support,</p>	2 or 3 sets x 10 reps	8s	NI	Patients' capabilities Steps 1- 4	3, 2, 1, 1, 1, and 1 session(s) per week (physiotherapist)	4 to 6 times daily (instruction book) based on ref Smidt (2002)	6 weeks	NI

		<p>upward resisted from below, toward the little finger, Toward the thumb, downward resisted from above, toward the little finger, Toward the thumb, Pressing hand against a wall, plus phase 2 exercises</p> <hr/> <p>Step 4: occupational training program including Softball compressing exercises</p> <p>Transferring buttons from 1 cup into another, Twisting a towel into a roll, Rotating hand on a table in both directions, plus phase 3 exercises</p>								
	Soft tissue lengthening	Stretching wrist extensors and flexors	1 x 30s	-						
<b>Struijs, 2004</b>	Progressive exercise strengthening programme	Step 1: Clenching fist strongly, resisted wrist extension, resisted wrist	2 or 3 sets x 10 reps	8s	NI	Patients' capabilities Steps 1- 4	3, 2, 1, 1, 1, and 1 session(s) per week	4 to 6 times daily (instruction book)	6 weeks	exercise diary (NI)

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flexion, Wrist  
rotation with a stick,  
Toward the little  
finger, Toward the  
thumb

(physiothe  
apist)

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Step 2: Exercises  
against an elastic  
band for Wrist  
extension, Wrist  
flexion, Wrist radial  
deviation, Wrist  
ulnar deviation

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Step 3: Combined  
wrist rotary  
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against a wall, plus  
phase 2 exercises

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Step 4: occupational  
training program

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		including Softball compressing exercises Transferring buttons from 1 cup into another, Twisting a towel into a roll, Rotating hand on a table in both directions, plus phase 3 exercises								
	Soft tissue lengthening	Stretching wrist extensors and flexors	1 x 30s	-	-					
<b>Svernlöv 2001</b>	Progressive exercise strengthening programme	Warm-up of the forearm extensors and flexors with wrist movements without any load. Eccentric exercises of the forearm extensors muscles (dumbbell)	3 sets x 15 reps	Warm-up: 2–3 min Eccentric exercise: 10s	NI	Initial weight: 1 kg (men), 0.5 kg (women). 10% weight increase weekly	4 sessions (physiotherapist)	once daily	12 weeks	Exercise diary (NI)
	Soft tissue lengthening.	Static stretching	3-5 reps x 15–30 secs							
	Soft tissue lengthening	PNF exercises of wrist extensors	3-5reps	10 s	Relaxation 2s Stretching 15-20s	NI		Twice daily		

<b>Tonks 2006 Info from Pienimani et al, (1996)</b>	Progressive exercise strengthening programme	Step 1: Clenching fist strongly, resisted wrist extension, resisted wrist flexion, Wrist rotation with a stick, Toward the little finger, Toward the thumb	2 or 3 sets x 10 reps	8s	NI	Patients' capabilities Steps 1- 4	NI	4 to 6 times daily	6 weeks	NI
		Step 2: Exercises against an elastic band for Wrist extension, Wrist flexion, Wrist radial deviation, Wrist ulnar deviation								
		Step 3: Combined wrist rotary movements using, for example, a table top as a support, upward resisted from below, toward the little finger, Toward the thumb, downward resisted from above, toward the little finger,								

	Toward the thumb, Pressing hand against a wall, plus phase 2 exercises									
	Step 4: occupational training program including Softball compressing exercises Transferring buttons from 1 cup into another, Twisting a towel into a roll, Rotating hand on a table in both directions, plus phase 3 exercises									
Soft tissue lengthening	Stretching wrist extensors and flexors	1 x 30s	-							
Progressive exercise strengthening programme	Step 1: Clenching fist strongly, resisted wrist extension, resisted wrist flexion, Wrist rotation with a stick, Toward the little finger, Toward the thumb	2 or 3 sets x 10 reps	8s	NI	Patients' capabilities Steps 1- 4	NI (Physiother apist)	4 to 6 times daily	6 weeks	Exercise diaries (NI)	
<b>Tonks 2012</b>										

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**Info: from  
Pienimani  
(1996)**

Step 2: Exercises  
against an elastic  
band for Wrist  
extension, Wrist  
flexion, Wrist radial  
deviation, Wrist  
ulnar deviation

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Step 3: Combined  
wrist rotary  
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for example, a table  
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the little finger,  
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downward resisted  
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the little finger,  
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Pressing hand  
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Step 4: occupational  
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including Softball  
compressing  
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Transferring buttons  
from 1 cup into  
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		Rotating hand on a table in both directions, plus phase 3 exercises								
	Soft tissue lengthening	Stretching wrist extensors and flexors	1x 30s	-						
<b>Tyler 2010</b>	Progressive exercise strengthening of wrist extensors	Concentric- Eccentric (elastic band) or Eccentric exercises (Rubber bar)	3 sets x 15 reps	4s	30s	If pain or discomfort was minimal during the exercise, the elastic band was changed for a thicker one	1.4 average/week (nine sessions in total)	NI	7 weeks	NI
	Soft tissue lengthening	Stretching	NI	NI	NI	NI				
<b>Viswas 2012</b>	Progressive exercise strengthening of wrist extensors	Eccentric Exercises (free weights)	3 sets 10 reps	30 s	1 min	If minor discomfort or pain, the load was increased using free weights based on the	Three times/week	NI	4 weeks	NI

										patients 10 RM
	Soft tissue lengthening of wrist extensors	Static stretching	3 times before and 3 times after the eccentric	30–45s	30s	According to the patient tolerance				
<b>Vuvan 2019</b>	Progressive Strengthening of wrist extensors	Isometric exercise of wrist extensors (with a water-filled container)	Week 1, 3, 5, 7: 4 reps Week 2, 4, 6, 8: 3 reps	4 x 30 s isometric holds and 3 x 45 s isometric holds	30s	Week 1-2: 20% MVC Week 3-4: 25% MVC Week 5-6: 30% MVC Week 7-8: 35% MVC	Once (physiotherapists with a Master's degree)	7 per week (written instructions)	8 weeks	paper-based daily exercise diary (87%)
<b>Wen 2011</b>	Progressive Strengthening of wrist extensors	Eccentric exercises of wrist extensors	3 sets x 15 reps	6–8 s	NI	Patients' tolerance (more force as pain tolerance improved)	2 times for the first 2 weeks and 1 for the rest 12 weeks (therapist)	Daily	14 weeks	Compliance with the exercises was assessed at follow-up time points using questionnaires (NI)

<b>Yelland 2019</b> <b>Info: from registered protocol (Coombes et al, 2009) and Vicenzino et al, 2003</b>	Sensorimotor gripping and forearm retraining	Pain-free gripping and isolated wrist extension	NI	Slow manner	Sufficient rest	NI				
	Progressive strengthening of wrist extensors	Combined concentric and eccentric (elastic bands of varied resistance levels)	3 sets 8-12 reps	6-10 secs	Sufficient rest	Patients' capabilities				
	Forearm muscle groups exercises	Flexion, supination and pronation, radial and ulnar deviation (elastic bands of varied resistance levels)	3 sets 8-12 reps	6-10 secs	Sufficient rest		Four sessions Once a week 30min (postgraduate trained musculoskeletal physiotherapist)	Twice a day (written material)	4 weeks	self-reported exercise diary weekly. (93%)
	Proximal arm strengthening	Free weights or weight bearing anti-gravity exercise	3 sets 8-12 reps	6-10 secs	Sufficient rest	Patients' capabilities & later work or sport-specific exercises				
	Stretching for each muscle group	Stretching	3-5 reps of 20-30 s holds	-	-	-				

**Abbreviations:** w, weeks; min, minutes; PTs, physiotherapists; reps, repetitions; s, seconds; NI, no information; RM, repetition maximum; kg, kilogram; ECRB, extensor carpi radialis brevis; PNF, Proprioceptive Neuromuscular Facilitation