

## Patient Information



# Upper limb Unit: Hand therapy Wrist strengthening

## Introduction

Following any injury or surgery to your hand, your wrist will become weaker due to pain, swelling and disuse or from being in a plaster cast or a splint. This will affect many functional activities of daily living. Your grip will be weak and you will be unable to lift or carry the usual items/weights that you did before your injury. The following exercises should begin once a good active range of movement has been achieved and pain is under control, or when directed by your therapist. The exercises will involve the use of a variety of resistances such as:

- Therapeutic putty
- Free weights
- Items found around your home

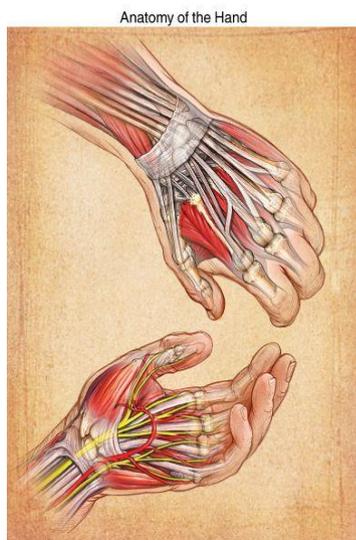
Regaining muscle strength requires regular commitment to the resistance exercises as directed by your therapist. They should be performed with minimal discomfort and this should disappear within 15 minutes of stopping the exercises. You should feel effort during the process and on stopping the exercises you should feel that the area is a little tired from being worked hard. Over the period of several weeks of regular exercises you should notice a definite improvement in your functional ability for example: lifting a kettle or saucepan or using a screw driver or hammer will feel easier.

The strength and stability of the wrist depends on not just the muscles that move the wrist but also the muscles that cross the wrist line and finish in the finger tips. Consequently exercises keeping the wrist still and moving the fingers will develop good wrist stability and strength.



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### Image of muscles that act over the wrist:

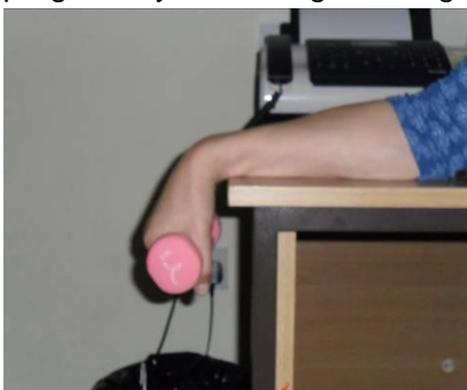


### Exercises to strengthen the wrist

The following exercises can be done using a dumbbell weight or any item that can be held in the hand comfortably such as a small water bottle containing water, sand, pebbles, or dried peas to give it increasing weight.

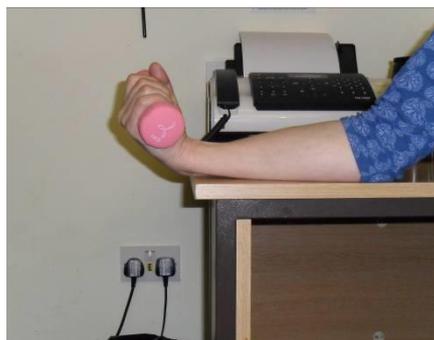
- **Wrist extension** (Raising the back of hand up towards your shoulder)

Rest your arm on a table with the wrist creases to the very edge of the table and your elbow kept firmly down against the table throughout the exercise. Start with your hand lowered as far as possible holding the weight securely. Raise your hand back and up towards your shoulder, hold for 5 seconds then slowly under control lower it back down to the start position. Repeat this 10 times to start and when this becomes easy to do with the initial weight, progress by increasing the weight you are holding.



- **Wrist flexion** (Pulling the palm of your hand up towards your shoulder)  
Rest your arm on a table with the palm facing up and the wrist creases to the edge of the table, keeping your elbow securely down on the table throughout the exercise. Start with your hand lowered as far as possible then raise up towards your shoulder, hold for 5 seconds then slowly lower under control back to start position. Repeat as above

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- As a functional progression, these 2 exercises above can be performed with the elbow straight and the arm out straight at shoulder height.
- **Wrist radial and Ulnar deviation** (Moving of your hand side to side from the thumb side and then towards the little finger side.)

Rest your arm on a table with the thumb facing up towards the ceiling. Holding the weight securely, start with the little finger side of your hand lowered towards the floor. Then raise the hand up towards the ceiling, do not let your arm roll over flat to the table as you raise the hand. This is a bit like a chopping action down to the little finger side and up to the thumb side of the hand.



- **Combination of the previous 3 movements for function stability( Wrist extension with Radial deviation through to Wrist flexion with Ulna deviation)**

Take hold of a light pen as if it's a dart you are going to throw. With your elbow resting on a table and hand held upright above elbow, support forearm with other hand. Now go through the motion slowly and gently as if you were throwing the dart. If there is no pain and no click in your wrist you can progress by holding something a little heavier and build this up gradually until you can control a light dumbbell (1Kg max)

- **Wrist supination and pronation** (Elbow bent to a right angle held to your side with palm facing up then turned to face down)

This next exercise can be done holding a walking stick, an umbrella, a golf club, or varying sizes of hammer.

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Standing up straight, holding the stick at its mid point to start, with the palm facing down and your elbow bent and held tight to your side. Turn the stick by attempting to turn your palm to face to the ceiling, keep a firm full grip of the stick, do not let your fingers release their hold. You should turn as far as you can, keeping slow control of the movement and then return to the start position under control.



This exercise can be made more challenging by moving your hand towards the straight end of the stick rather than the mid point, eventually you should manage to hold the stick right at its very end and control through the complete range of movement. If the stick seems too easy then try using a hammer with the hammer head held out on the thumb side.

- As a functional progression, this same exercise can be performed with the elbow straight and the arm out straight at shoulder height
- **Wrist strengthening through dexterity exercises** (using your fingers for grip actions, requires the wrist to be stabilised).

You can hold a variety of objects and try to move them around in your hand for example hold a ball and turn it away from you or towards you by using your fingers only, keeping your wrist still and straight with either the palm facing up or facing down (which requires greater finger strength).



You could also try dropping and catching the ball without it bouncing on the floor.

Using small objects such as marbles, Scrabble pieces, dried peas, coins, buttons, paper clips, try picking them up one at a time until you have as many as possible within your hand. Then let them out of your hand one by one without dropping

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any. Try taking washing off the line keeping as many of the pegs as possible within your hand, without dropping any.



To progress grip strength with wrist movement, try wringing a towel as tight as possible, firstly your favoured way and then try in the opposite direction. It's surprising how much more of a challenge it is to twist it the way you're not used to doing.



If you need further information please contact your Therapy Department:

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For further information please visit our hand service web site

<http://tinyurl.com/uhcwhand>

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