



Physiotherapy for hand dysfunction



**Increasing the Conformance of Academia
towards Rehabilitation Engineering (i-CARE)**

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BATTI
Ideas transforming the future

Introduction



- **rehabilitation** of hands following injuries and illnesses are very important to **maintain** and **improve** hand function
- The hand and wrist have multiple **bones**, **muscles**, **tendons** and **ligaments** that are susceptible to the same injuries as the other parts of your body
- Hands are in constant motion whether at **work** or **recreation**. Often (especially with age) they can become **sore**, **stiff** and **ache**, due to **over usage**, **injuries**, or **specific conditions** such as **arthritis**.



- Exercises can help hands stay **healthy** and **strong**, and may even help to **decrease** the effects of **repetitive motions** such as **typing** or **arthritis**.
- Hand and wrist **exercises** help to **gradually improve** the **strength** and **movement** of the hand and wrist following an **illness** or **injury**.
- There are **a lot** of exercises for **hands** (**wrist** and **fingers**)



Wrist Ext



Wrist Ext w/Band



Wrist Flex



Wrist Flex w/Band

WRIST EXERCISE



Wrist Exercises



- **Forearm on a table**, hand hangs off the side of the table palm down.
- Then, move hand up and down, bending at your wrist. Repeat with your palm facing up.
- **Thumb Extension** and **Flexion** Start with palm open.
- Then, practice moving thumb over to your 5th digit. Continue to move thumb back and forth between these 2 positions.
- **Palm Up and Down**, Place hand palm-up on a table.
- Then flip your hand palm-down. Repeat 10 times



- **Wrist Bend Movement**

- Gently bend the wrist back and forth while supporting arm on the table. Repeat 10 back-and-forth movements.

- **Wrist Side Movement**

- Place affected hand palm-down on the table then bend the wrist side-to-side.

- **Rolling Movement**

- Using a water bottle, place it into the affected hand with your palm-side up on a table. Then, practice curling your fingers in to grasp the bottle, and then relax. Repeat 10 times.

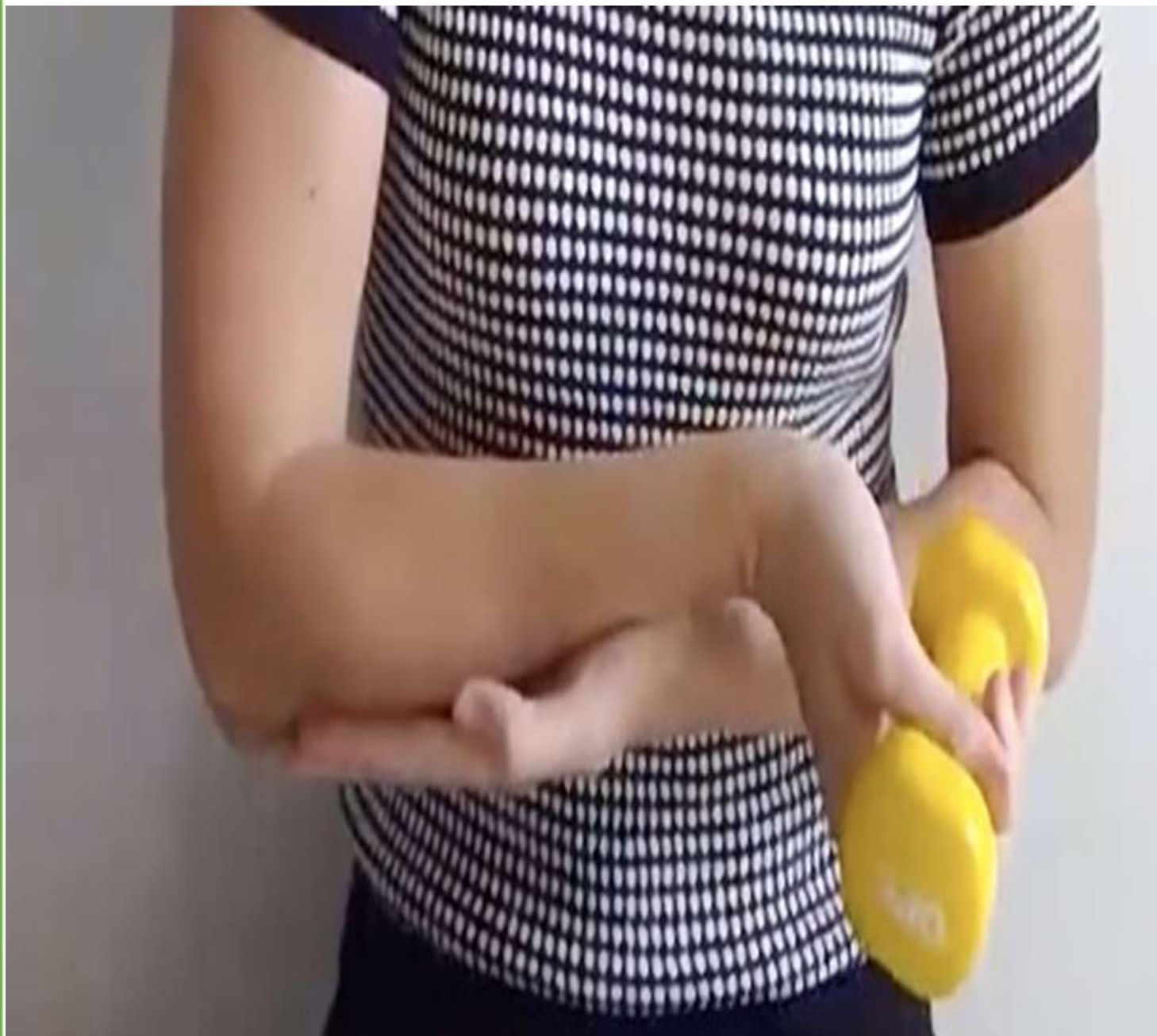
- **Wrist flexion**

- Take the same object and hold it in the affected hand. Then, practice flexing and extending the wrist.

Resistive wrist extension



Resistive wrist flexion



HAND GRIP EXERCISER:

- Hand exerciser is used for hand rehabilitation.
- It helps in increasing range of motion of all the fingers.
- It increases the strength of the muscles of the hand.
- It is used as a progressive resisted exercise for hand.



FINGER EXERCISE SPRINGS:

- Finger exercise springs are used for strengthening of fingers.
- The varied resistances help in providing feedback to the patients of increasing strength of the muscles.



Easy Hand Therapy Exercises

- These are great for hand strengthening exercises:
- **Stacking Coins**
- Using loose change practice stacking coins on top of each other. This will help improve **fine motor skills**.
- **Playing Board Games**
- If you want to make things more fun, add playing board games like **chess** which require practice of **fine motor skills**.
- **Putting Together a Puzzle**
- A great hand therapy exercise that also **works cognitive skills**

- **Grip And Release**

- Take **a pen** and place it on a table. Then, practice gripping the pen with affected hand and move it across the table. Release, and repeat by bringing the pen back to the other side of the table.

- **Pen Spin**

- Take the same pen and practice spinning it with your thumb and index finger.

- **Finger Curl**

- Practice touching your thumb to each of your fingertips, starting with your index finger and moving down toward your pinky.

EXERCISE BALLS:

- Exercise balls are specially designed for the improvement of motor skills of the hands.
- The benefits are:
 - Improves strength
 - Improves gripping activities
 - Helps in prehension and precision training



Hand Therapy Ball Exercises Guide

- **Power Grip**
- **Squeeze** the hand therapy ball with fingers and thumb. Focus on pressing the pads and tips of your fingers into the ball.
- **Pinch**
- Pinch the ball with fingers and thumb extended. Press your fingers down into the top of the ball and your thumb upward on the bottom of the ball.
- **Table Roll**
- Roll the ball from the tip of your fingers to your palm.

- **Finger Flexion**
- Hold the ball in palm and press your fingers into the ball. This is different from the power grip above because you're focusing on an inward movement instead of a global gripping movement. Imagine pressing your fingers straight into your palm.
- **Thumb Roll**
- Use your thumb to roll the ball in a circular motion on the palm.
- **Finger Squeeze**
- Squeeze the ball between two fingers – any two fingers you please.
- **Thumb Opposition** Roll the ball side to side on your palm using your thumb.

Ball Exercises



RESISTANCE PUTTY:

- Used commonly for hand therapy.
- They are often used in physiotherapy/rehabilitation exercises and can help prevent future hand and wrist problems.
- The goal is to increase the strength of muscles tendons and joints of the hand.



Hand Therapy Putty Exercises

- Finger Scissors Therapeutic hook.
- Squeeze the putty between fingers
- **Fingertip Pinch**
- Pinch the putty using thumb and fingertips
- **Power Grip**
- Squeeze all fingers into the putty
- Therapeutic full fist. Flat Pinch
- Pinch the putty down into thumb with straightened fingers

- **Finger Spread**
- Wrap the putty around two fingers and spread fingers apart
- **Finger Extension**
- Wrap the putty around a hooked finger and then straighten your finger using the putty as resistance
- **Full Grip**
- Squeeze down on the putty, pressing your fingers into your palm

Putty Exercises



Putty Exercises



More Ideas



- **Flex bars** are another good strengthening tool.
- From **a supinated position** bend Twist and Bend into a **U** shape
- From **a pronated position** bend it into an **N** shape
- **Hammer**
- Move hammer down into pronation. Use the weighted end of hammer to help the action
- Move hammer down into supination
- **Power web flexion.**
- **Power web for grip strengthening**



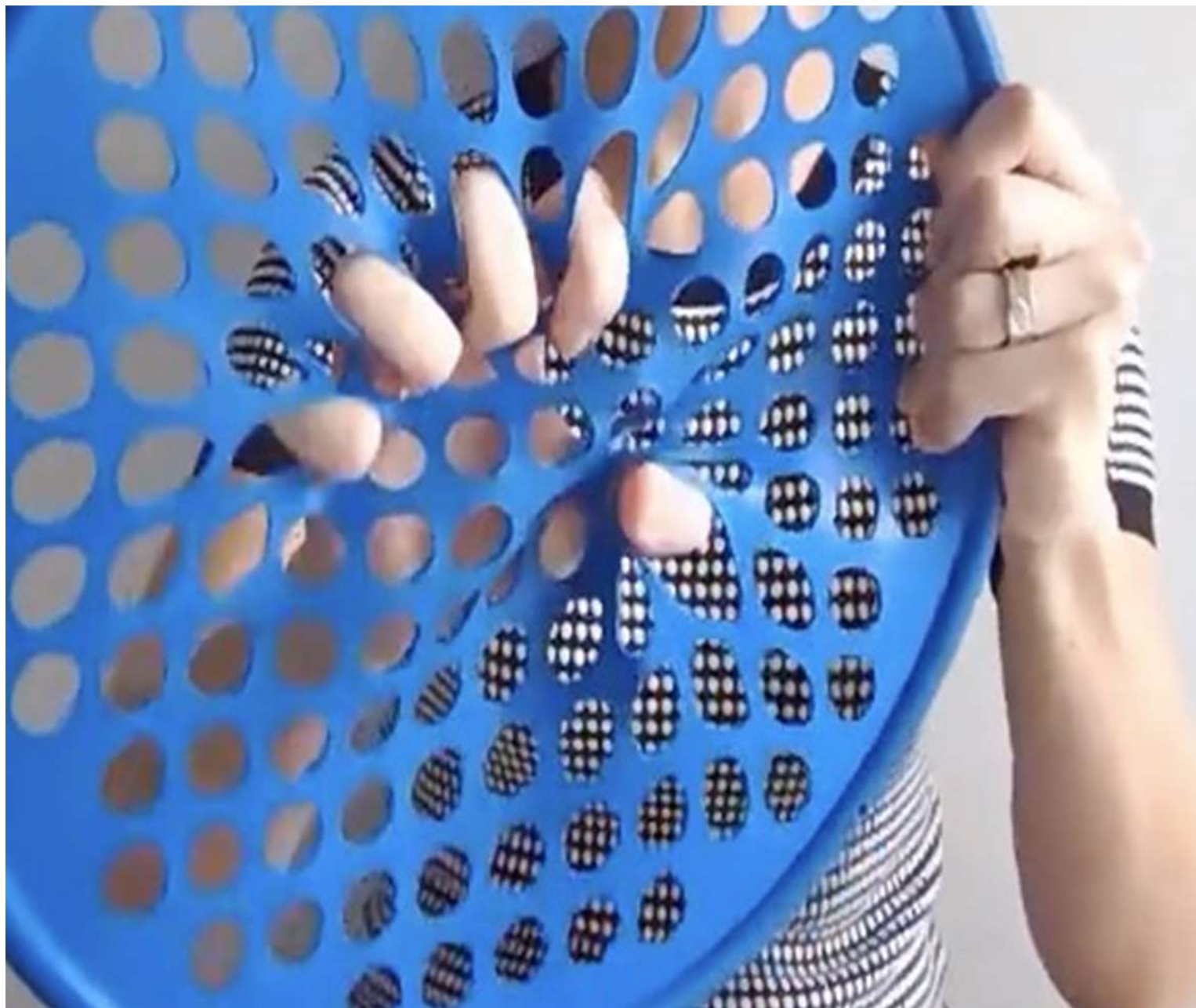
Flex bar exercise



Flex bar exercise



Web exercise



Thank You

Keep connected with i-CARE project:

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