

# *Healthy Wrists and Hands in String Players*

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## **Introduction**

### **Brief Overview of Anatomy**

- Bones:
  - Radius and Ulna
  - Carpal bones – 8 bones in two rows
  - Metacarpal bones – 5 bones that make up palm
  - Phalanges – 14 bones that make up your fingers
- Tendons: the fibrous tissue at the end of muscle that attach muscle to bone
- Ligaments: tough bands of fibrous tissue that connect bones
- Muscles: Those in forearm and palm work together to keep the wrist and hand moving, stable, and aligned
- Nerves: Radial, Ulnar, and Median

### **Exercises for Flexibility and Strength of the Hand**

- Putty Exercises
- Thumb mobility – touching each joint of fingers
- Hand “Smear” to activate all joints
- Small objects for coordination and dexterity

### **Exercises for the Wrist/Forearm**

- Planes of motion
  - Flexion
  - Extension
  - Radial deviation
  - Ulnar deviation
  - Supination
  - Pronation
- Flexbar exercises (can also be done with spatula, hammer, small weight, bow, fat dowel)
  - Rotation left and right (supination and pronation), keep elbow tucked in by side
  - For radial and ulnar deviation: hold with thumb up, keeping arm still extend toward pinky and pull back
  - Twisting forward and back for flexion and extension
- Four planes of motion with weighted dowel
- Supported light weight or weighted medicine ball

### **Stretches for Nerve Release**

- Radial nerve – flex wrist and reach behind, lean head towards opposite shoulder
- Ulna Nerve – extend wrist, bend elbow, hold “waitress tray”

### **Hand and Wrist Opening to Counter All of the Gripping Motions**

- Thumb stretch against side of table
- Passing ball from hand to hand using arm rotation (open hold)
- Palming a ball
- Bouncing and catching a ball against the floor or a wall
- Mini push-ups on back of chair, edge of countertop, on Bosu or ball
- Fine motor motion of wrist (pronated) rotating ball on table
- Fine motor motion of wrist (supinated) Frisbee with small ball
- Manual traction

### **Self-Mobilization and Massage**

- How to reduce swelling and encourage lymph drainage
- Massage by hand, primarily move from end of fingers toward elbow
- Palm/carpal opening
- Ball – self-determined pressure using small ball or lacrosse size balls
- Decompression of wrist

### **Reference Materials:**

- *American Society of Hand Therapists.* <https://www.asht.org>
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- Smail, Kate. *Personal Interview on Hand Therapist Recommended Exercises.* Mercy Integrated Physical Therapy. January 9, 2019.

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