

A Guide on RSI Prevention in Guitarists and Bassists

Kaitlin Gomez

Faculty Mentor: Zakkoyya H. Lewis, Ph.D

Purpose

The purpose of this guide is to inform guitarists and electric bass players in an easy-to-understand manner on how to identify repetitive strain injuries (RSIs) in their hands and wrists, as well as present exercises and stretches they can do as preventative measures.

Background

- **Repetitive strain injury:** general term for a condition caused by constant, repetitive movements with no recovery time between each one [1]
- RSIs affect millions, can be costly to treat, and may be very painful [2]
- Estimates have shown that 50-80% of musicians will experience an RSI, mostly in the upper limbs [3]
- Guitarists and bassists are especially prone because of the awkward and strained positions their hands take
- There are multiple methods to prevent RSIs

What is an RSI?

- **Examples of RSIs**
 - Carpal tunnel syndrome
 - Tendinitis
 - Trigger finger
- **Symptoms**
 - General pain
 - Swelling
 - Numbness
 - Stiffness
 - Tingling sensation [4]

Prevention

Stretches [8]

Elbow



Supination



Pronation

Wrist



Rotation



Wave

Fingers



Finger to thumb touch



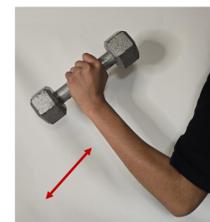
Alternating flexion/extension

Exercises [9-10]

Elbow



Hammer exercise



Hammer exercise

Wrist

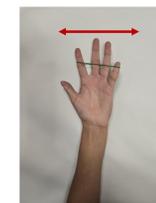


Extension

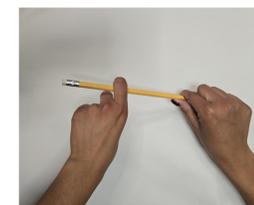


Ball grip

Fingers



Finger spread

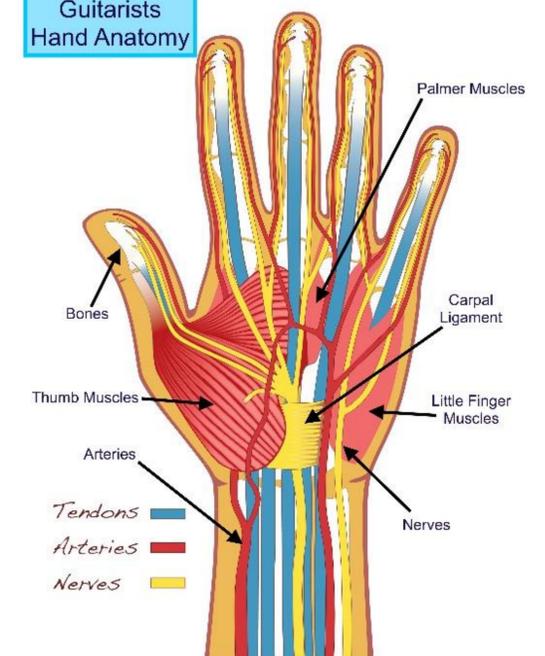


Flexion with pencil

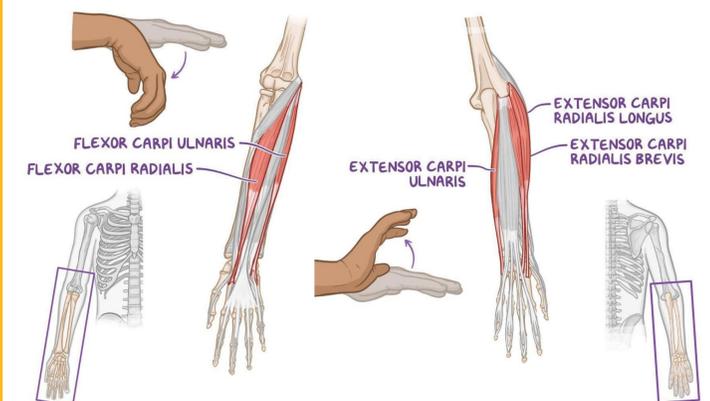
The Hand, Wrist, and Elbow

- Made up of various bones, muscles, tendons, ligaments, and nerves
- Work together to provide a wide range of motion
- The hand allows movements in the fingers
- The wrist allows movements in the hand
- Elbow flexion impacts wrist and finger flexion [5]

Guitarists Hand Anatomy



[6]



[7]

References

1. Borrelli, C. D., Mercer, C., Kelly, J., & Hogg, P. (2015). Repetitive Strain Injury – RSI. In *Digital Mammography* (pp. 195–202). Springer International Publishing. https://doi.org/10.1007/978-3-319-04831-4_23
2. Lacerda, E. M., Nâcul, L. C., Augusto, L. G. da S., Olinto, M. T. A., Rocha, D. C., & Wanderley, D. C. (2005). Prevalence and associations of symptoms of upper extremities, repetitive strain injuries (RSI) and "RSI-like condition". A cross sectional study of bank workers in Northeast Brazil. *BMC Public Health*, 5(1), 107–107. <https://doi.org/10.1186/1471-2458-5-107>
3. Yang, N., Fufa, D. T., & Wolff, A. L. (2021). A musician-centered approach to management of performance-related upper musculoskeletal injuries. *Journal of Hand Therapy*, 34(2), 208–216. <https://doi.org/10.1016/j.jht.2021.04.006>
5. Escudero, R. B., Rezende, M. R. de, Wataya, E. Y., Pontes, F. V. de, Cho, Á. B., & Pisani, M. J. (2017). Correlation between the elbow flexion and the hand and wrist flexion after neurotization of the fascicles of the ulnar nerve to the motor branch to the biceps. *Revista Brasileira de Ortopedia*, 52(3), 309–314. <https://doi.org/10.1016/j.rboe.2017.04.006>
6. Freeman, R. (n.d.). Guitarists Hand Anatomy. Hand Anatomy - Tuned In Guitar Lessons. Tuned In Guitar Lessons, Inc. Retrieved from <https://www.tunedinguitarlessons.com/hand-anatomy>.
7. Elsevier. (n.d.). *Joints of the wrist and hand*. Osmosis. Retrieved from https://www.osmosis.org/learn/Joints_of_the_wrist_and_hand.
8. NHS 24. (n.d.). Exercises for wrist, hand and finger problems | NHS inform. NHS inform. <https://www.nhsinform.scot/illnesses-and-conditions/muscle-bone-and-joints/arm-shoulder-and-hand-problems-and-conditions/exercises-for-wrist-hand-and-finger-problems/>
9. Hager, E. (2010). Proprioception of the Wrist Joint: A Review of Current Concepts and Possible Implications on the Rehabilitation of the Wrist. *Journal of Hand Therapy*, 23(1), 2–17. <https://doi.org/10.1016/j.jht.2009.09.008>
10. Chelsea and Westminster Hospital. (n.d.). *Wrist stability and strengthening*. <https://www.chelwest.nhs.uk/services/therapy-services/hand-therapy/links/wrist-stability-and-strengthening-exercises.pdf>