

“Yoga Mudras” for the Hands to Assist the Radiologist in Daily Work Activities

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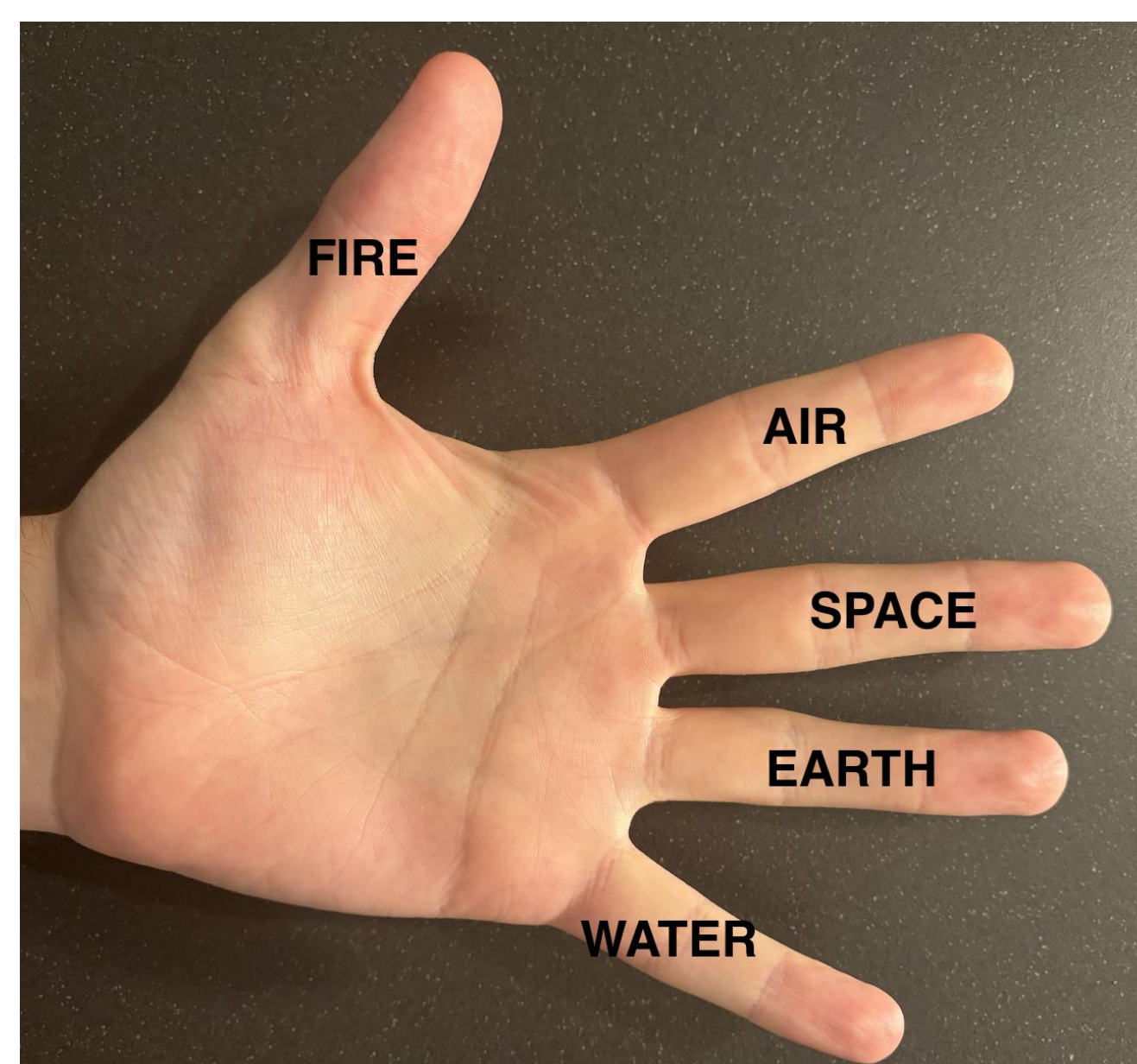
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BACKGROUND

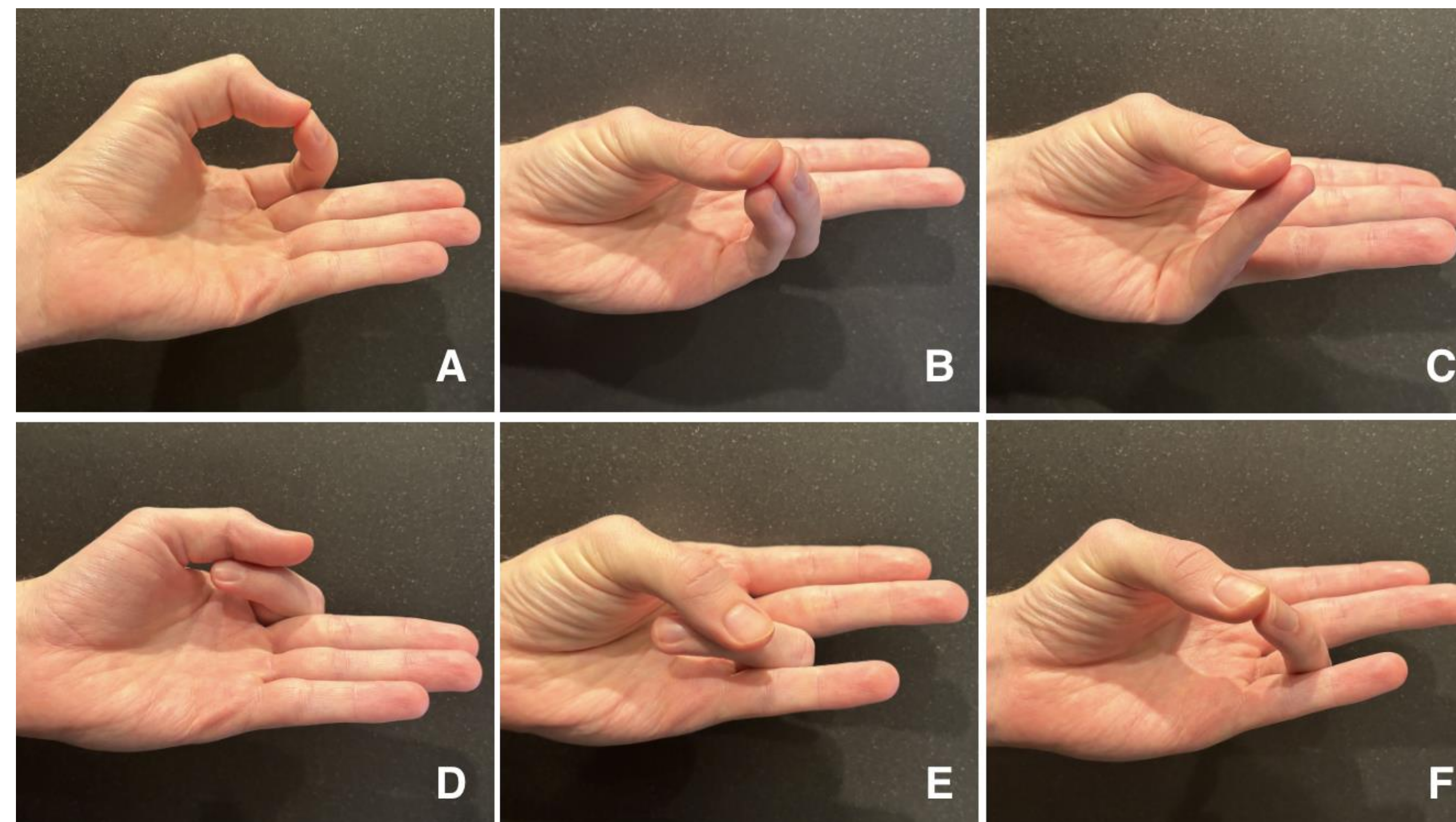
- Repetitive stress injuries (RSI) are occupational overuse syndromes caused by repetitive motions, vibrations, and/or sustained unnatural movements
- Typically musculoskeletal or neurologic
- Due to their unique work environment, radiologists are prone to developing RSI
- High mouse and keyboard use are associated with tenosynovitis, carpal tunnel syndrome, cubital tunnel syndrome
- Musculoskeletal injuries involving the wrist, hands and fingers are common in ultrasonographers and interventionalists
- RSI will likely increase as workloads increase
- Mudras are symbolic or ritualistic yoga poses believed to regulate and restore balance of energy elements
- Many mudras consist of hand and finger exercises that may serve beneficial for radiologists prone to developing RSI

METHODS

- Panchaboothas are believed to be energy elements of the body
 - Agni: fire
 - Vayu: air
 - Akasha: space
 - Prithvi: earth
 - Jala: water
- Each finger corresponds to a panchaboothas



METHODS



- Believed to restore energy element imbalances, mudras also act as wrist, hand and finger strengthening and stretching exercises.
- Across various forms of yoga, hundreds of mudras exist. Basic examples include:
 - a) Gyan mudra: mudra of knowledge and wisdom
 - b) Prana mudra: mudra of vitality
 - c) Varun mudra: associated with water element
 - d) Vayu mudra: associated with air element
 - e) Suraya mudra: associated with heat element
 - f) Prithvi mudra: associated with earth element

RESULTS

- Yoga-based therapy can improve hands/wrist pain, grip strength, grip endurance and median nerve conduction in populations prone to RSI^{1,10}
- Yoga-based therapy focusing on upper extremity strength, flexibility and balance can improve grip strength and pain associated with carpal tunnel syndrome⁴
- Yoga-based therapy can decrease pain during activity, decrease tenderness and improve finger range of motion for osteoarthritis of the hands³

DISCUSSION

- While limited, current literature suggests that yoga-based therapies can improve pain and functionality secondary to several chronic musculoskeletal diseases involving the wrists, hands and fingers
- Improvements in strength and endurance following a yoga-based exercise regimen are likely due to isometric contractions required for holding various poses
- Improvements in nerve conduction is likely due to nerve decompression and improved local blood flow that delays ischemia
- These diseases overlap with RSI that radiologists are at increased risk for developing
- While variability exists between yoga-based interventions described in the literature, the utilization of muscles and joints in the upper extremities remains consistent
- Given that mudras often focus on the wrists, hands and fingers, these ritualistic poses can double as exercise tools for combating certain radiologist-prone RSI

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