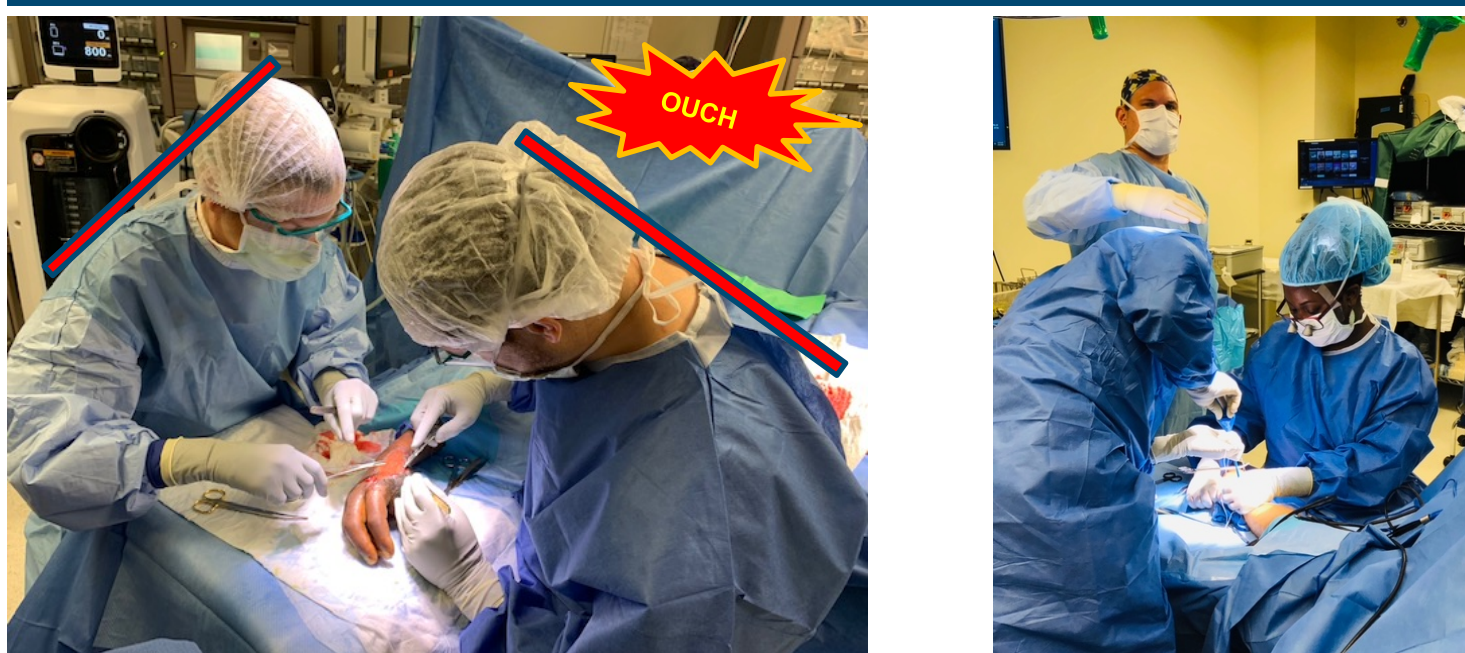


Fixing Hands, Breaking Backs: The Ergonomics and Physical Detriment of the Hand Surgeon

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BACKGROUND



- **Work-Related Musculoskeletal Disorders (WMSDs)** in surgeons have been well documented in the literature, with rates as high as 66%-94% for open surgery and 73%-100% for conventional laparoscopy.
- Data examining plastic surgeons specifically revealed that 78-81% have symptoms of musculoskeletal discomfort, most commonly in the neck, shoulders, and lower back.
- Recent data identified strong risk factors for MSK discomfort experienced by plastic surgeons, including the use of:
 - Loupes/microscope - Increased tension on cervical musculature to maintain head position + weight of headgear
 - Sitting stools - Increased discomfort in the trunk
- **The purpose of this study was to examine the types, frequencies, and contributing factors of WMSDs experienced by hand surgeons.**

METHODS

A pre-approved REDCap® survey was emailed to all active members of the American Association for Hand Surgery (AAHS). This survey included 12 demographic and 13 Nordic Musculoskeletal questions. Invitations were sent twice, and data collection remained open for 30 days.



RESULTS

1200 AAHS members were invited. 96(8%) responses were received

Demographics:

- Mode age range: 35-44 yrs (33.3%)
- Gender: 69% male, 31% female
- Role: 90.8% attendings, 4.6% residents, 3.4% retired
- Practice type:
 - Academic (including trainees) (48.3%), Group private practice (24.1%) Solo private practice (18.4%)
- 70% of practices are majority (75-100%) hand surgery.
- 63% of respondents use loupes every case, with 93% using at least once a week.
- Majority (60%) use microscope at least one a month.

Key findings:

- 70% respondents attribute some discomfort they experience to their profession.
- 72% of respondents did not see a physician for their discomfort, while of those who did, the majority was for shoulder discomfort (8%)
- 63% of respondents had musculoskeletal discomfort, with the majority localized to the neck (29%), wrist (28%), and lower back (21%)

Figure 1. Type of discomfort in last year

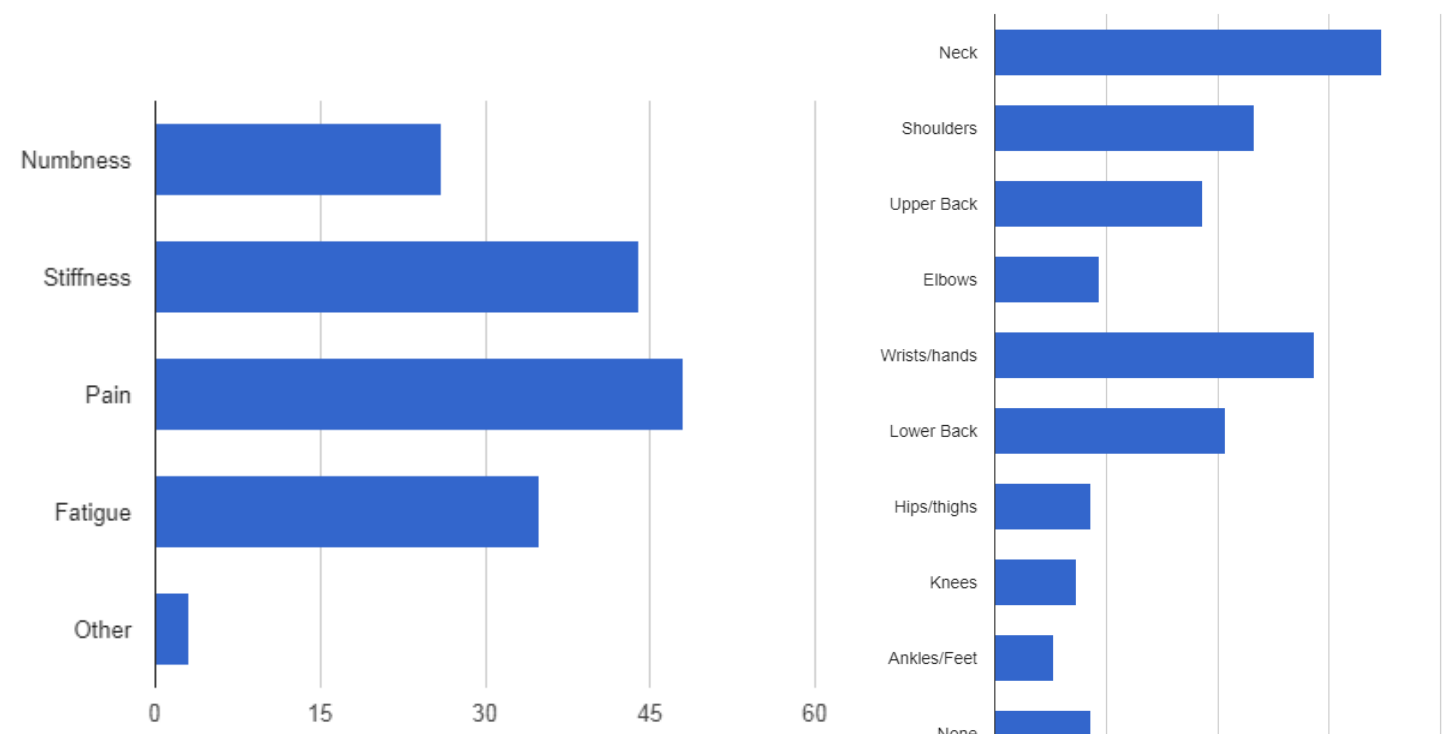
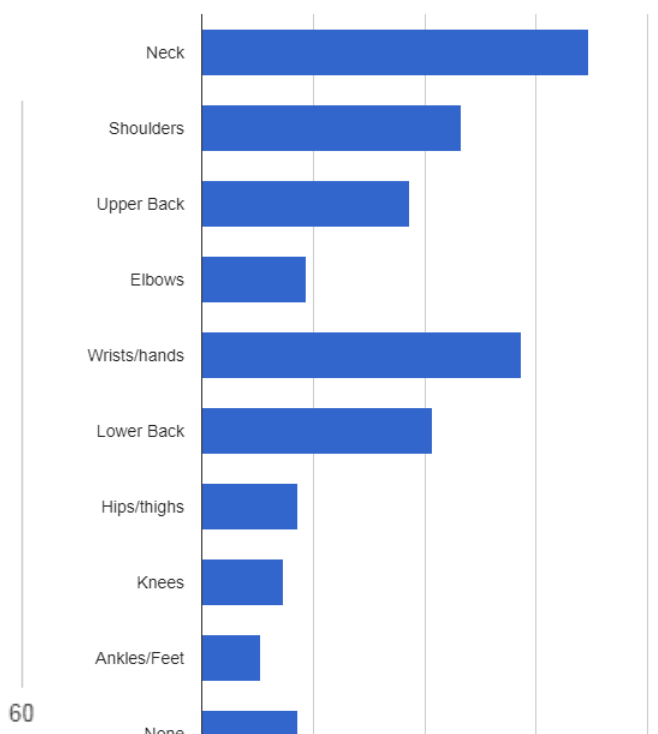


Figure 2. Location of discomfort in last year



CONCERN FOR FUTURE

- 34.9%, respondents state they worry these symptoms will interfere with ability to perform surgery in future.
- Over half (53%) experience symptoms weekly, with 31.3% having daily symptoms.
- 14.9% respondents have sustained a MSK injury directly related to work.
- 4 of those respondents (30.8%) had to decrease surgical workload while 10 (76.9%) had to receive treatment for the injury.



Figure 3. Onset of discomfort

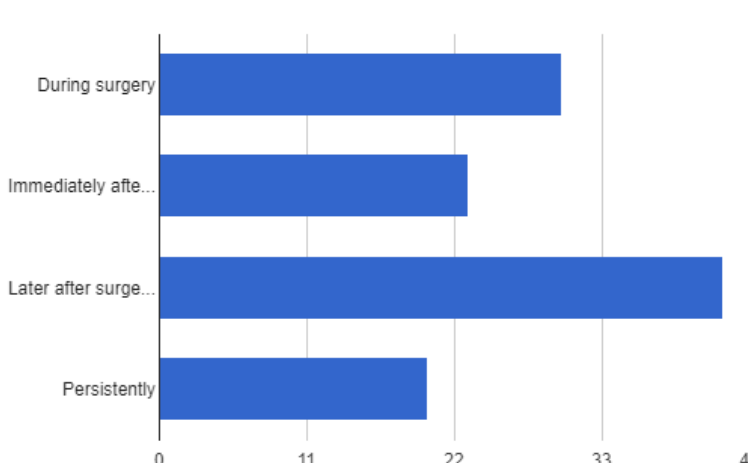


Figure 5. Types of medical treatment attempted

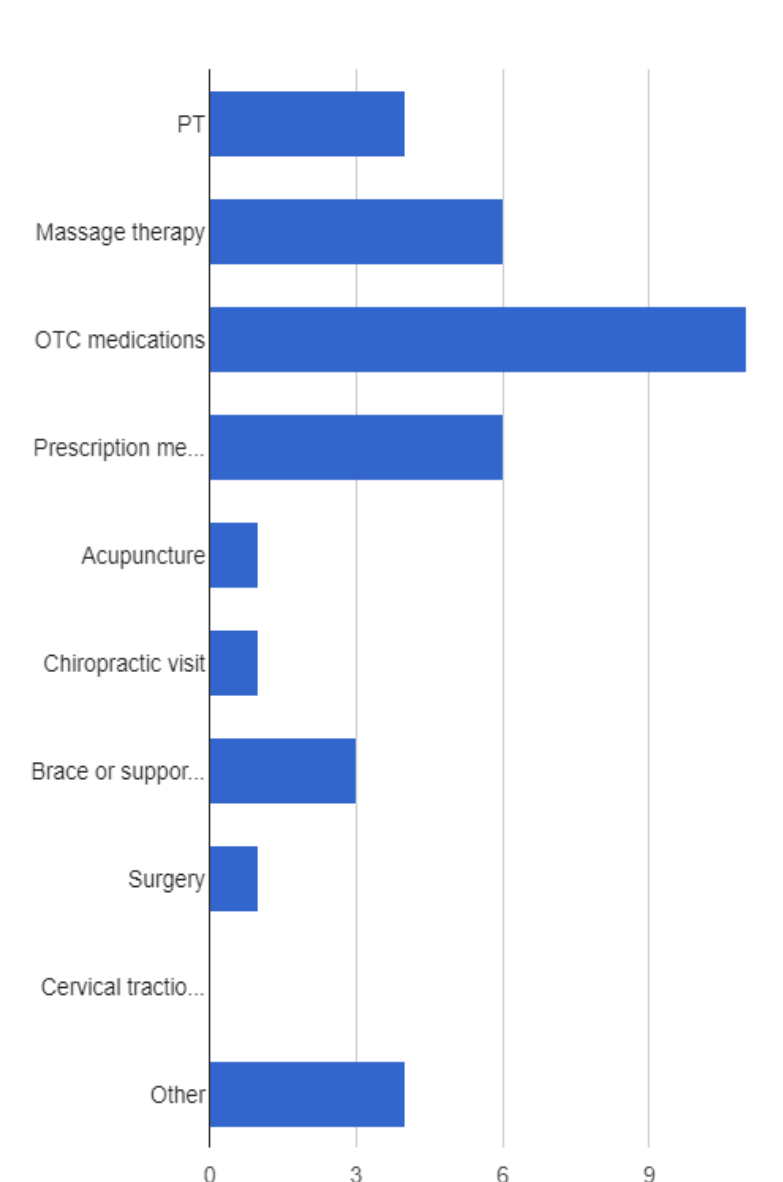
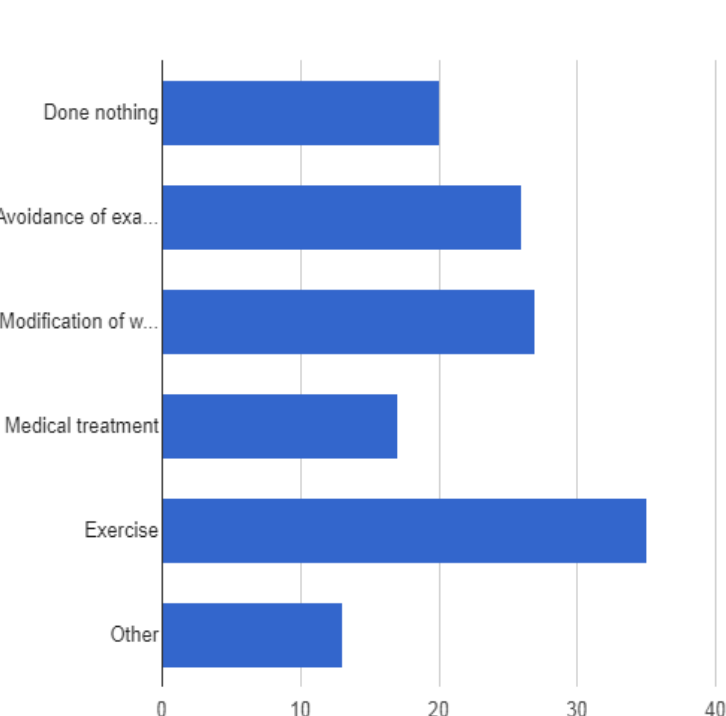


Figure 4. Treatments attempted



CONCLUSIONS

- The ergonomics of hand surgery, including the use of loupes, microscopes, and sitting stools, appear to cause significant discomfort and detriment to the hand surgeon, especially in the neck, upper extremity, and lower back.
- Our data indicates that hand surgeons have rates of MSK discomfort attributed to their profession similar to other previously studied "high risk" surgical subspecialists.
- Further research on injury patterns will allow for the development of ergonomic preventative measures, with the goal of facilitating longer and more productive careers for hand surgeons.

SUMMARY

- The majority of responding hand surgeons have MSK discomfort related to their profession.
- Pain in the neck, wrist, shoulders, and lower back are most common.
- The discomfort occurs most commonly after surgery.
- Most respondents do not seek medical care.
- 1 in 3 respondents believe these symptoms will interfere with their ability to perform surgery in the future.
- 1 in 6 respondents have had a significant work-related musculoskeletal injury.

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