

ERGONOMICS IN THE WORKPLACE

PREVENTING MUSCULOSKELETAL DISORDERS AND PROMOTING CAREER LONGEVITY

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ONE DENTAL HYGIENIST'S EXPERIENCE



INTRODUCTION

Dental professionals face increased strain due to repetitive tasks and posture constraints

Dentistry requires precision in a confined workspace

Dentistry has high physical and visual demands

As a result, there is an increased risk of occupational injury



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OBJECTIVES

- Define ergonomics and explain its relevance
- Describe the history and prevalence of MSDs
- Discuss risk factors (posture, repetition, static positioning)
- Determine signs of poor posture
- Apply correct ergonomic practices
- Indicate a commitment to injury prevention and career longevity.



WHAT IS ERGONOMICS?

What does that mean to you?

“Ergonomics (or human factors) is the scientific discipline concerned with the understanding of the interactions among human and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance.”

- International Ergonomics Association Executive Council, August 2000

IN SIMPLER TERMS...

RELEVANCE TO DENTAL PROFESSIONALS

- Work in small, confined spaces
- Perform repetitive fine motor movements
- Maintain static posture for long periods

These demands increase ergonomic risk

RELEVANCE TO ADMINISTRATIVE PROFESSIONALS

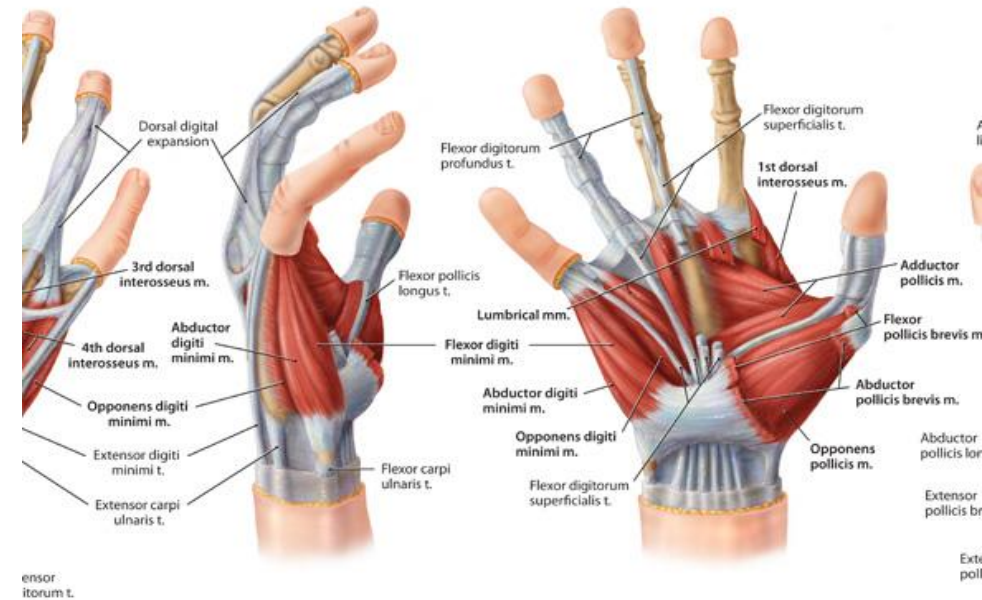
- Prolonged sitting
- Computer-based tasks
- Repetitive typing and mouse use

Poor workstation setup contributes to MSDs

WHAT ARE MUSCULOSKELETAL DISORDERS (MSD'S)?

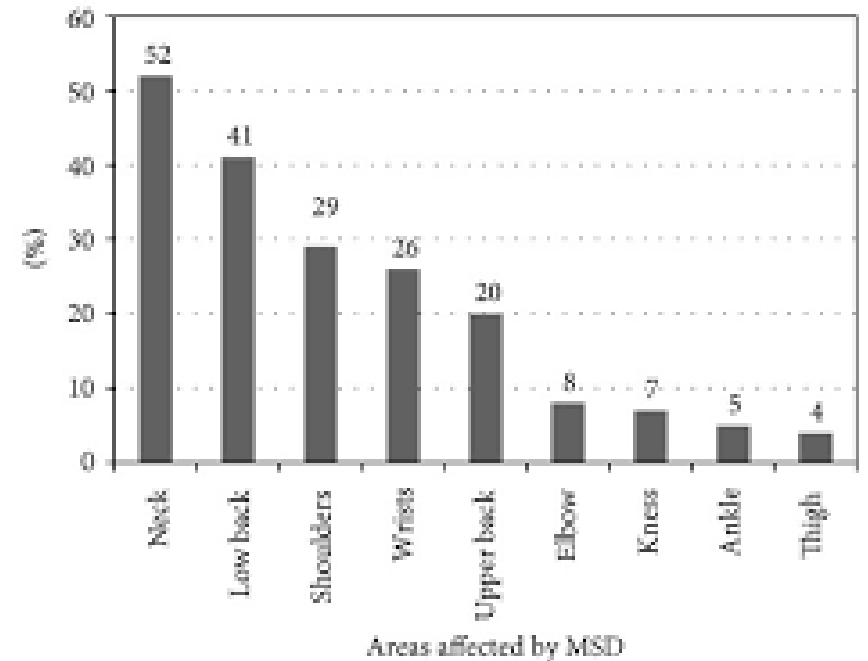
- Injuries affecting muscles, joints, tendons, and nerves
- Develop gradually from repeated strain

Muscles and Tendons in the Hand



PREVALENCE IN DENTISTRY

- MSD prevalence ranges from 64-93% among dental professionals
- Most commonly affects:
 - Neck
 - Shoulders
 - Lower back

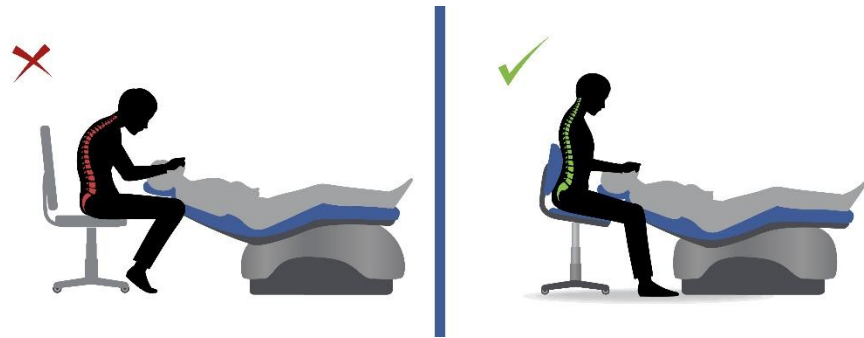


RISK FACTORS IN DENTISTRY

- Repetitive movements
- Static posture
- Awkward positioning
- Forceful exertion
- Inadequate workspaces



REPETITIVE MOVEMENTS & POSITIONING



- Continuous hand and wrist movement
- Leaning for visibility
- Twisting during procedures

These increase strain on muscles and joints

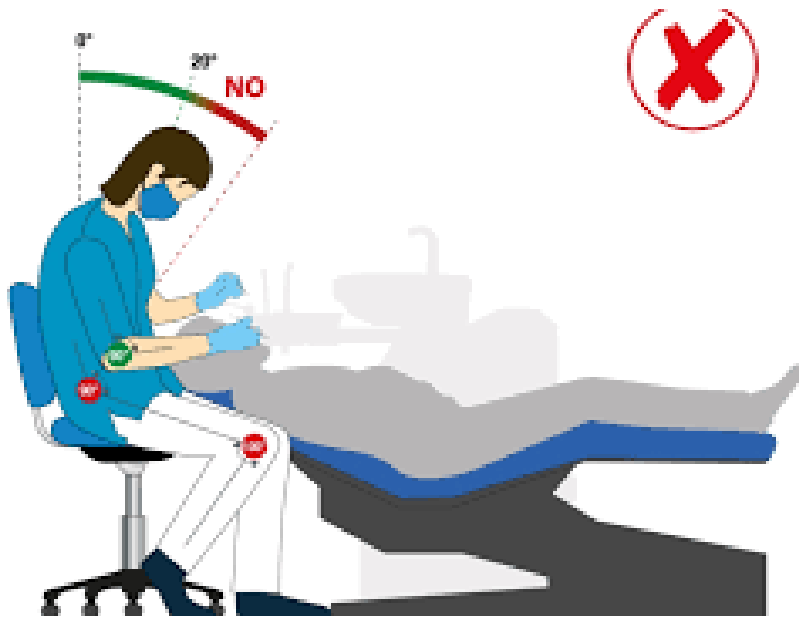
STATIC POSTURE



- Sustained muscle contraction
- Reduced blood flow
- Increased fatigue

Major contributor to
MSD development

SIGNS OF POOR POSTURE



- Forward head posture
- Rounded shoulders
- Slouching
- Twisting spine

IMPROPER SITTING POSITIONS

- Sitting too far from the patient
- Leaning instead of repositioning the patient
- Elevated shoulders
- Lack of back support



These positions increase musculoskeletal strain

PRINCIPLES OF CORRECT ERGONOMICS

- Maintain neutral spine
- Keep joints aligned
- Minimize strain
- Position work within comfortable reach

DENTISTS & DENTAL HYGIENISTS



- Upright posture
- Feet flat on floor
- Elbows close to body
- Minimal neck flexion
- Proper posture improves efficiency and reduces fatigue

PATIENT POSITIONING

- Adjust chair height
- Optimize visibility
- Avoid leaning

Key concept: bring the patient to you



DENTAL ASSISTANTS

- Sit slightly higher than the operator
- Maintain neutral posture
- Avoid twisting
- Keep instruments within reach



FOUR- HANDED DENTISTRY

- Improves efficiency
- Reduces unnecessary movement
- Supports ergonomic positioning

ADMINISTRATIVE STAFF



- Monitor at eye level
- Proper lumbar support
- Neutral wrist positioning
- Feet flat on floor

Ergonomic interventions are essential for maintaining professional health



Prevent workplace injury



Promote long-term career sustainability



Improve overall well-being



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PROFESSIONAL RESPONSIBILITY

- Recognize early signs of strain
- Make posture adjustments
- Advocate for ergonomic improvements in the workplace



KEY TAKEAWAYS

- Ergonomics reduces risk of MSDs
- Dental professionals are at high risk
- Proper posture and positioning are critical
- Long-term habits determine career health

REFERENCES

- American Dental Association. (2022). *Workplace ergonomics*. <https://www.ada.org/resources/practice/wellness/workplace-ergonomics>
- Galla, A., Chowdhry, A., Bagga, A., Moradia, L., Tadikonda, A. N., Pentapati, K. C., & Mysore, N. K. (2022). Dental practitioners' knowledge, attitudes, and practices of ergonomics – a cross-sectional web-based survey. *Acta Biomedica*, 93(Suppl 2), e2022048. <https://doi.org/10.23750/abm.v93iS2.12908>
- **Kashmiri, R.** (2026). *Four-handed dentistry* [PowerPoint slides]. SlideShare. <https://www.slideshare.net/slideshow/four-handed-dentistry/87361077>
- Santos, W., Rojas, C., Isidoro, R., Lorente, A., Dias, A., Mariscal, G., Benlloch, M., & Lorente, R. (2025). *Efficacy of ergonomic interventions on work-related musculoskeletal pain: A systematic review and meta-analysis*. **Journal of Clinical Medicine**, 14(9), 3034. <https://doi.org/10.3390/jcm14093034>
- University of North Carolina at Chapel Hill Environment, Health and Safety. (2026). Musculoskeletal disorders. <https://ehs.unc.edu/topics/ergonomics/musculoskeletal-disorders>

QUESTIONS, COMMENTS???