A portrait of a middle-aged man with short, graying hair and blue eyes. He is wearing a white lab coat over a light blue collared shirt and a blue and black striped tie. A pair of surgical loupes is hanging from his neck. The background is a solid black color.

Midmark White Paper:
4 Reasons to Take
Ergonomics Seriously



Introduction

Dentistry is one of the best careers in the world. Offering rewarding work, control of your career path, excellent salary potential and enviable work-life balance, it's easy to see why U.S. News and World Report recently ranked it fourth on its list of 100 best jobs. Even among other jobs in health care, dentists ranked a high second, above physicians and surgeons.¹ Yet it also sits atop another far less admirable list. Dental hygienist is the #1 most damaging profession to your health according to the U.S. Department of Labor, and dentist is #2.²

How can dentistry be more dangerous than mining or law enforcement? Aside from exposure to disease, the main culprit is the amount of time dentists and their assistants spend sitting in positions that can lead to lifelong debilitating conditions, including musculoskeletal disorder and cardiovascular disease.

Ergonomics is the study of people at work with the goal of reducing stress and eliminating these types of injuries and disorders associated with the overuse of muscles, bad posture and repeated tasks.³ Ergonomic study determines how to best utilize the people, equipment and operatory environment in order to do the job safely and efficiently. Here, we examine the four biggest risks to the dentist and dental team when ergonomics is ignored or minimized.

Facing Reality

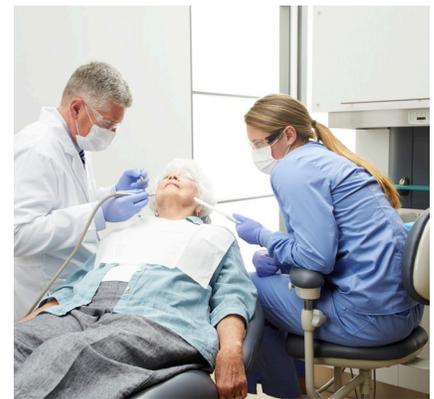
When you imagine the professions most susceptible to a career-ending injury, football and hockey may come quickly to mind. Perhaps you picture shows about crab fishermen on the dangerous Bering Sea. The statistics, however, paint a sobering picture for dentistry. Because the whole world of dentistry centers on the oral cavity, a space the size of a tennis ball, every procedure demands incredible focus and a carefully choreographed procedural plan built around ergonomic principles. From injury to chronic illness and loss of livelihood, the following consequences of ignoring ergonomics are very real.

1. MUSCULOSKELETAL DISORDERS

More than 80% of dentists in the US have reported suffering from neck, shoulder and lower back pain.⁴ The very nature of their work is the reason the risk for injury is so high. Doctors and assistants have to hold a sustained awkward position, complete a repetitive task with forceful hand exertion, and use great precision, making the body more rigidly positioned. This is repeated every day, all day, and can lead to repetitive stress injury. Continued repetitive stress injury can develop into a musculoskeletal disorder (MSD). And, eventually, MSD can compound into cumulative trauma disorder, a condition that cannot be reversed.

92% of dental clinicians reported MSD symptoms in at least one anatomical region within one year, and dental hygienists were the group most affected.⁵ According to an Annals of Medical and Health Sciences Research article, 61% of dentists had pain associated with MSD in a 1-year period, and over 50% of those had more than one MSD-related pain.⁶ The stress of improper ergonomics takes its toll on dentists, dental assistants and dental hygienists alike and can lead to a cascade of chronic conditions.

Dental clinicians must examine the way the operatory functions and how everyone and everything is positioned within it. How much they are sitting throughout the day is also part of that positioning puzzle. A study referenced by Virginia Commonwealth University (VCU) found a significant correlation between length of time spent sitting and severity of low back pain among dentists.⁷ Keeping the body in a neutral position as much as possible, along with regular breaks for standing and walking are critical ergonomic considerations to prevent the compounding issues that lead to lifelong MSD symptoms.



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2. CARDIOVASCULAR DISEASE, TYPE 2 DIABETES AND OBESITY

Americans are suffering devastating long-term health damage from not moving enough. Our lifestyles that once were full of physical exertion and manual labor have become sedentary. Thanks to our rapid technological advances, even tasks that provided some physical exercise just a few years ago have been replaced by technology. Why vacuum when a robotic vacuum can do it for us? Why go to the grocery store when we can easily order groceries online and have them delivered right to our doors?

This phenomenon has also permeated the workforce. Over the last three decades, employment in jobs requiring higher levels of physical skills has increased only 18%, vastly lower than the 83% growth in jobs requiring social skills or the 77% increased employment in jobs requiring analytical skills.⁸ This dramatic shift has created a need for us to determine the effects of too much sitting. Studies are finding, not surprisingly, that significant changes are happening in the body when people sit too much, leading to rising rates of obesity, type 2 diabetes and cardiovascular disease. According to one of these studies, "The dire concern for the future may rest with growing numbers of people unaware of the potential insidious dangers of sitting too much and who are not taking advantage of the benefits of maintaining nonexercised activity throughout much of the day."⁹

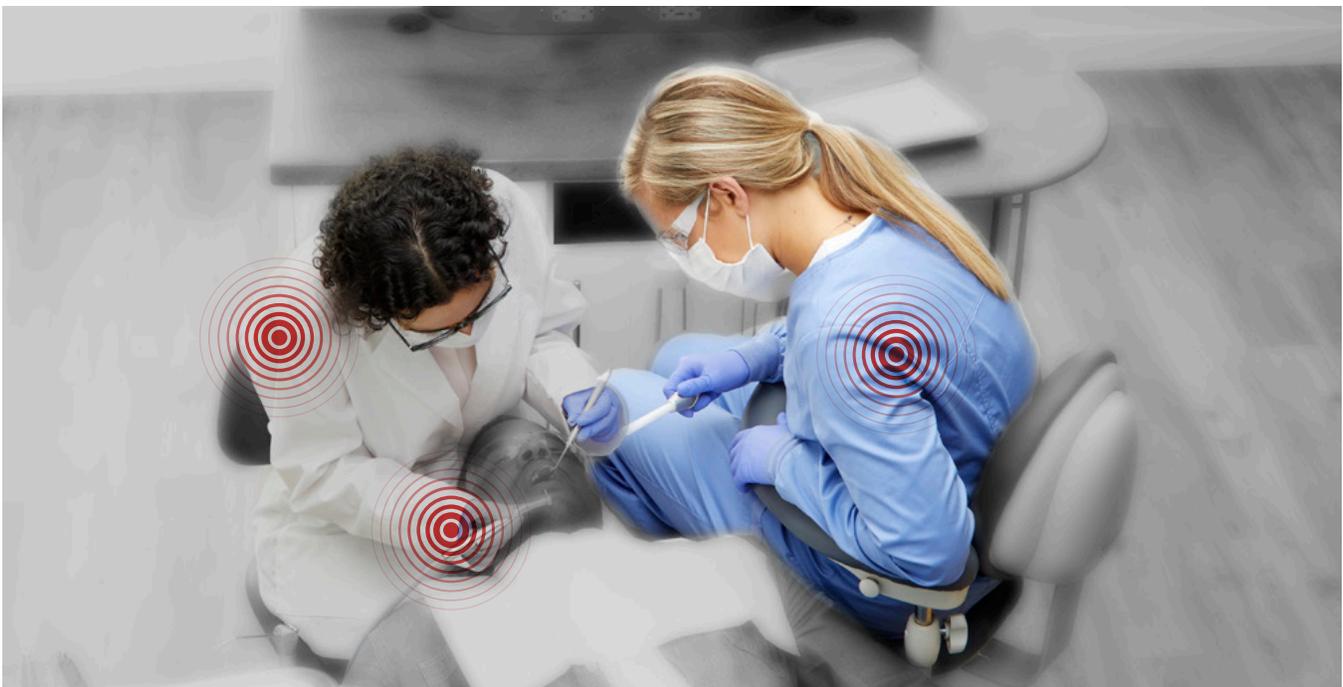
Like the rest of today's workforce, dentists and dental assistants spend a large portion of their days sitting. Take seriously the ergonomics of your operatory, examining all the tasks required for the job and the ways those tasks might be completed. Simple changes in your daily routine can have a big impact on your likelihood of suffering any of the diseases related to poor ergonomics. A recent study found that "any type of brief, yet frequent, muscular contraction throughout the day may be necessary to short-circuit unhealthy molecular signals causing metabolic diseases."⁹

3. LOST PRODUCTIVITY

The dentist and the hygienist are the top producers in the practice. If they aren't able to produce, everything suffers. Work-related MSD make up 34% of lost workdays due to injury.¹⁰ Have you considered the overall cost of work-related health risks, and MSD specifically, to your practice and your team? Each of those workdays represents not only the lost productivity from the injured employee but also the other employees who must pick up the extra workload of their coworker and let some of their own regular tasks go unfinished. Your patient load may even need to drop in order to keep it manageable while staff are out for injuries.

Whether an injured employee loses workdays or not, his or her productivity will undoubtedly suffer while working through the injury or chronic pain. Perhaps they must take more frequent breaks, or they simply complete each task slower. All of it adds up to take a chunk out of your bottom line each and every time an injury occurs.

OSHA estimates the average cost per incident for injuries like sprains, strains, inflammation and carpal tunnel syndrome is \$64,000.¹¹ How much additional revenue would you need to recoup that loss? At a 25% profit margin, you'd need an additional \$258K in production per incident. With just a few incidents, your revenue would need to grow by millions. Ignoring ergonomics has a real, very heavy cost.



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4. EARLY RETIREMENT OR CAREER CHANGE

One-third of dental clinicians cite MSD as the reason for early retirement.¹² This departure could be a full retirement, losing the profession that has sustained their livelihood. It could be the choice to limit their work or a shift in types of procedures. It could also be a major career change.

Dr. Steve Poss, a dentist for 36 years, was mostly focused on full mouth restoration and cosmetic dentistry until 2008, when he woke up unable to move his left arm. A cervical disc had completely dislodged, and he had emergency surgery to fuse several vertebrae. Less than 6 months later, he had another surgery. "At the time, I was 52 years old," explains Dr. Poss. "Years of over the shoulder training and performing these long procedures, as well as bad ergonomics, had destroyed my body."

He knew he wanted to practice another 15–20 years, but the physical limitations were pushing him to find an alternative to the long, highly focused and repetitive procedures he had been doing. After a third surgery on his lower back in 2012, he made the decision to sell the restorative portion of his practice and start a practice entirely devoted to dental sleep medicine and temporomandibular joint disorders (TMJ).

"Going in to a new practice at the age of 62, I knew I had to be aware of everything dealing with ergonomics and posture at all times, especially since I have had multiple surgeries because of my lack of ergonomics before. I knew my limitations, and Midmark contributed their experience to assist me in the proper chair placement and patient placement so I would not put any strain on my neck or back."

Dr. Poss had to completely change his career plan to continue practicing. Some dentists end up having to leave their careers altogether. At a time when dentists are graduating from college with hundreds of thousands of dollars in debt and working much later in their lives, early retirement can lead to a seismic shift in their lifestyle. Some may even need to find a new career in a completely different field to finish their working years and maintain some semblance of the quality of life to which they have grown accustomed.



"Years of over the shoulder training and performing these long procedures, as well as bad ergonomics, had destroyed my body."

—Dr. Steve Poss

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Conclusion

It takes less than 2 years for a healthy dental clinician to develop MSD symptoms.¹³ Think back to dental school. How many times did you have to compromise your positioning to gain better access to the oral cavity? Even in the very beginning of your career, before you ever left school, you were probably developing minor repetitive stress injuries, feeling the nagging back, neck and wrist pain that, in the long run, might lead to career-ending MSD symptoms.

There is no better time than now to deeply examine how better ergonomics can positively affect your health and the health of your team.

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