The Preventive & Hygiene Insights from The Richmond Institute

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In This Issue:

Abstract:

Dental health care workers are at risk for developing workplace related musculoskeletal disorders (WRMSD).Properly fitted, ergonomic devices and well-designed workstations reduce the risk of WRMSD. Telephone headsets and correct computer monitor positioning eliminate neck strain. Magnification loupes increase visual acuity, improve clinical outcomes and reduce upper body stress. Ergonomic seating with adjustable armrests provide upper body support. Quality ergonomic devices and user friendly workstations reduce WRMSD risks.

Learning Objectives:

- Learn to reduce the risk of developing a WRMSD
- Describe the features and benefits of using hands-free acoustical headsets.
- Appreciate how magnification loupes create non-stressful work postures.
- Understand how the components of magnification loupes.
- Discover how operator chair with arms reduce stress to upper body musculature.

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Editor:

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Photo courtesy of Carla Gantz, RDH.

Have you ever wondered why you are so tired after working all day in your dental practice? There are many reasons for people to feel worn-out but postural discrepancies play a large role in the development of overall fatigue.^{1:3} Shoulder, neck and back pain are the most common complaints affecting seven out of ten dental practitioners and support staff workers.

If OSHA inspectors wanted to find candidates to demonstrate poor workplace ergonomics, they would not have to look any farther than a local dental office. Every day of the week dental office personnel are at risk for developing a work place related musculoskeletal disorder (WRMSD).¹⁻⁸ Chronic neck and shoulder pain does not have to be the result of spending a day working in the dental office.

No one is immune to WRMSD injuries. Poor postural habits contribute significantly to the development of many types of cumulative trauma disorders.⁸ Look at your own posture and that of everyone in your office. Most dental office personnel spend hours working with slumped shoulders, leaning their head forward or cocked to one side.⁹⁻¹³

Everyone from business office administrators, to doctors, dental assistants, hygienists and lab technicians are at risk. The postures many clinicians assume while practicing and the pace of many of today's practices place dental personnel at increased risk for developing a WRMSD.

Often ignored or tolerated, pain is part of your body's natural warning system. Many aches and pains are a direct result of how we work. Poor posture places stress on the entire skeletal system as well as delicate nerves and blood vessels. Over time, poor posture can result in a repetitive stress injury. Some injuries have a short duration and easy

Working In A Dental Practice Shouldn't Be A Pain In the Neck!

Anne Nugent Guignon, RDH, MPH

to resolve, while others can lead to huge medical bills, unresolved chronic pain and in some cases the permanent loss of one's career.

Ergonomists know that awkward body postures are a major contributor to the development of work place related musculoskeletal disorders. While not all injuries should be solely attributed to work habits, our postural habits in the workplace and the amount of time we spend in the dental office every day¹² contribute significantly to painful conditions such as tension neck syndrome, thoracic outlet syndrome, cervical myofacitis, torn rotator cuffs and chronic headaches.^{8,12,14-17}

Unfortunately, the list goes on and on, but the message is clear. Far too many dental professionals suffer needless injuries. Learning to eliminate unnecessary physical stresses creates a more relaxed working environment where we can focus our attention on quality patient care rather than every increasing neck and shoulder discomfort. Prevention of ergonomic injuries needs to be a key component of workplace related safety.^{23,8,14,18-21}

Ergonomists analyze work tasks and devise ways that workers can perform a task effectively and comfortably. Poor workplace ergonomics creates an environment where the worker must accommodate to a particular device, piece of equipment, physical layout or how a task is performed. These accommodations, repeated over time, can result in one or more cumulative trauma disorders.⁸

Each time we lean our head forward in an unsupported position working over a patient or computer, stress to the upper body musculature increases dramatically. The average head weighs about 8 pounds. Positioning your head as little as one quarter of an inch forward significantly increases the demand on the entire upper body musculoskeletal system. Improper positioning forces the upper body to support a load equivalent to forty pounds. No wonder, so many of us leave our offices every day with stiff shoulders, aching necks and sore backs!

Work place areas should be arranged so that workers perform tasks using neutral body postures to reduce as much physical stress as possible.^{23,6,12,20} A worker using neutral postures either sits or stands with the head upright and shoulders relaxed.¹⁷ With today's technology, this goal is entirely possible.

One might think that the clinical staff is at the greatest risk for shoulder and neck pain. Dentists, hygienists and assistants frequently lean forward to get a better view of the patient's oral cavity, but those in the business office are at risk for injury as well. Far too many people cradle the phone receiver between their head and shoulder leaving them free to perform other tasks while talking on the phone or waiting for a live person to answer a placed call.

Tension on the telephone cord creates additional stress for traditional landline handsets. Cordless phones fit comfortably in the palm of the hand. Cordless models were not designed to be held tightly between the head and the shoulder of the user. Cell phones increase neck strain even more because they are so small.

So what is the answer to our colleagues in the front office? Headsets! Years ago, workers who answered multiple phone lines all day long used headsets. With the popularity of cell phones and an increasing awareness of ergonomic issues, headset technologies are being developed everyday to meet the needs of a variety of workplace issues. Modern day versions can literally eliminate neck and shoulder discomfort experienced by those that spend their workday answering questions and booking appointments via the phone. Cordless units allow one to move freely around their workspace in contrast to a headset that plugs directly into a counter mounted receiver.

Headsets come in a variety of designs. Some attach to a headband, others fit neatly over the ear and there are devices that fit snugly in the external ear. Headsets must be comfortable, deliver quality sound and should contain controls for both volume and muting. Speakerphones are a poor solution however; because one must consider patient confidentiality and the potential to violate current HIPAA regulations.

The height and position of the computer screen is an important consideration. Desk heights and surface sizes vary. Administrative personnel should be able to sit comfortably with their head in a neutral position to view the monitor. Clinical personal entering data in the treatment room need should have screens adjusted appropriately as well and need comfortable microphones for voice activated data entry.

Maintaining a neutral body posture is the key to ergonomic success in the treatment room as well.^{3,9,20,22-25} Unless you are wearing properly fitted magnification loupes or using a surgical microscope it is likely that you work with your body slumped forward, shoulders rounded, elbows up in the air and head twisted and bent at amazing angles. Magnification is the cornerstone to achieving a non-stressful posture. Everyone in the clinical setting would benefit from the postural benefits provided by properly fitted magnification loupes.^{8,16}

Reading glasses or "drug store cheaters" are a very shortsighted solution. Reading glasses are a single lens system and provide a magnified image at a specific distance. Even though the image appears enlarged, one is forced to keep their head in a static position to keep the image sharp. Since the oral cavity is not a flat plane like a book page, reading glasses do not solve the problem.

Some clinicians wear reading glasses that are stronger than what they need. This is a very risky strategy. Increasing the diopter value beyond one's prescribed correction results in a decreased working distance. This forces one to lean over in a compromised posture to keep the magnified image in focus.



Clinicians working with the head in an unsupported, forward bent unsupported position, rounded shoulders, and perching on the edge of the operator are at high risk for developing workplace related musculoskeletal disorders (WRMSD).

Selecting a good magnification system can seem overwhelming, but understanding the technology will allow you to purchase a system that works effectively in your clinical setting. A number of factors need to be considered including type of magnification system, strength, quality of the optics, image resolution, width of field, depth of field, amount of available light, weight, frame size/style, manufacturer reliability/customer support, company repair/return policy and price.²⁴

Today's dental practitioners can select from several different types of magnification systems. Clip-on loupes have a fixed working range and are designed with a specific power of magnification, such as 2X. Some safety goggles are fabricated with specific diopter corrections. These types of magnification systems provide the same type of image enhancement as reading glasses.

Compound loupes are magnification systems made with a series of lenses, housed in a tube-shaped ocular. Compound loupes create an image that stays in focus over a range, thus eliminating static head positioning, which is a significant risk factor for developing a WRMSD. These loupes are available in two different styles: flip-up or through the lens (TTL).

Flip-up magnification loupes have binoculars mounted on a conventional glasses frame. A simple hinge mechanism allows clinicians a choice to view a magnified image or to reposition the oculars above the line of sight, for tasks that do not require magnification such writing clinical notes or conversing with a patient. Flip-up oculars must be positioned to meet the user's specific vision requirements.

Flip-up models tend to feel heavier to the user because the weight distribution is farther down on the bridge of the nose. In some cases, several different clinicians may be able to wear the same pair of loupes but only if each has the same working distance and none require any type of vision correction.

Through-the-lens (TTL) magnification offers the most custom fit. Oculars are mounted directly into the glasses' carrier lens according to a clinician's individual working distance and specific eye measurements.

TTL's offer some unique benefits. TTL loupes feel lighter weight. Since the ocular is closer to the eye, TTL magnification loupes typically have a greater width and depth of field. A larger amount of light passes

Postural Nightmares



Poor telephone ergonomics.



Unnecessary bending.

Photo courtesy of Catherine Cichy, RDH



Poor dental assisting posture.





Forward head, rounded shoulders and arm abduction. Photo courtesy of Kathy Sockett, RDH, BS

Straining arms, shoulders and neck. Photo courtesy of Mitzi White, RDH



Magnification loupes fabricated with an insufficient working distance. Photo courtesy of Harold Henson, RDH, MEd

through the ocular, which is an important factor for those experiencing the challenge of needing additional illumination.

Loupes come in a wide range of magnification strengths. As the strength of magnification increases, the width field decreases. In other words, clinicians that choose to wear lower power magnification will be able to see the entire mouth, in contrast to higher-powered loupes that allow users a more detailed view of a defined area.

The strength of the magnification determines the size, not the clarity of the image. Popular magnification strengths are often reported as 2x, 2.5x, 2.6x, 3.3x and 3.8x, however there is no industry-wide standard measurement for magnifying power. Lower strengths allow clinicians to view the entire mouth at one time. Higher magnification levels provide a magnified image of just a few teeth, which can be critical when placing today's technique sensitive esthetic restorations.

While the power of loupes is a well-known feature, the quality of the optics is the largest factor in determining the price. Optical resolution refers to image clarity when viewing small structures. As optical resolution increases, the clarity of image improves, resulting in well-defined, crisp images. The optics should be clear from edge to edge.

Width of field refers to the size of the viewing area. A wider field also promotes less eye fatigue. Field width is linked to the diameter of the telescope, the optical design and the magnifying power – the higher the power, the smaller the width of field.

Adequate depth of field allows the clinical field to remain in focus with out moving one's head. Imagine the benefit of seeing the entire oral cavity from the facial of the central incisor to the distal of the maxillary second molar with out putting your head in some type of awkward position. Field depth is highly dependent on the available lighting, the optical design, the magnifying power and the eye's ability to focus (accommodation). Quality magnification loupes typically have depth of field of 3 to 6 inches. As the strength of the magnification loupes increase, depth of field decreases.

A proper declination or working angle also helps prevent ergonomic injuries. The oculars must be mounted or positioned so the clinician views a clear magnified image without tilting the head forward or back. Correct declination allows one to maintain a neutral body posture.²⁵

Magnification alone does not insure correct body posture. Each clinician has their own unique working range, which is the distance from the eye to the actual working field. For example, a short clinician may require a long working range in order to maintain a neutral body posture, therefore it is wise to have specific measurements taken, since loupes are not a "one size fits all technology".

In order to be successful, magnification loupes should be custom fitted. In other words, it is unlikely that someone's "cast off loupes" would fit a new recipient any more than we could wear each other's eyeglasses.

To obtain accurate measurements for magnification loupes sit up straight with the shoulders in a relaxed position, keep elbows tucked close to the trunk of the body with forearms parallel to the floor. Adjust the height of the patient chair so the patient's head is positioned at level of the clinician's waist,¹⁶ allowing the clinician to perform tasks maintaining a neutral wrist position. Measurements are often taken at professional dental meetings; however, it is can be beneficial to have them calculated in your own treatment room.

Today's manufacturers offer a much wider variety of frame styles and colors than even a decade ago. The overall frame construction is a critical factor for long-term durability. Newer, lighter weight titanium frames are both durable and comfortable. Traditional steel or plastic frames are heavier. Adjustable head straps fastened just behind the head prevent slippage and counterbalance the overall weight. The nose pad must conform comfortably to the bridge of the nose. Two factors are required to successfully transition into the world of magnification: properly fitted high quality loupes and a desire to enhance how you practice. Clinicians often select loupes at a dental convention; however, the true test of magnification comes in your own practice setting. Some practitioners adjust to loupes in a couple of days; others require more time.

Many practitioners think that wearing magnification will cause their vision to deteriorate, while in fact properly fitted loupes lessen eyestrain in addition to improving posture. A specific vision correction can be added to any loupes lens. It is wise to have a current vision examination before placing a final order. A local optician can update a prescription in a flip up system. The manufacturer must install any prescription change in TTL magnification. Many clinicians find it convenient to schedule updates while they are away from their practice.

Company reliability and customer service are also very important to consider. Most manufacturers offer some type of payment plan and ample trial periods. Several manufacturers also offer plans at the time of purchase that cover annual refurbishing and prescription changes.

Purchasing a pair of custom loupes is a substantial investment. It is important to consider the number of years that you will wear magnification and purchase the best quality possible. If the initial price of magnification seems high, divide the cost by the number of years you will practice.

Consider trading the risk of developing a cumulative trauma disorder versus improved clinical comfort and more accurate visual acuity. High quality loupes last for years when they are cared for properly. In reality the cost of today's loupes amount to pennies per day over time. More and more dentists, dental hygienists, dental assistants and laboratory technicians are discovering the unique benefits of magnification and find it impossible to practice without this all-important technology. Some even purchase a backup pair.

Chairs with arms play a valuable role in reducing shoulder and neck discomfort when clinicians, as well as business office staff, learn to use the arms to support the weight of the upper body.^{216,21,29-31} Adjustable armrests allow the individual user to customize a chair to fit one's personal body build, resulting in a more relaxed upper body posture.¹⁶ Raising the height of the seat pan so the hip joint is several inches higher than the knees also reduces strain in the back.¹⁶

Although we generally sit to perform clinical treatment there are occasions where standing is more appropriate. Clinicians frequently stand when taking radiographs, impressions, extraoral photographs and extracting teeth. In addition, some patients cannot tolerate a reclined patient chair. It doesn't take much time to adjust the height of the patient chair to avoid unnecessary bending.

We are health care practitioners focused on preventing dental disease. Are our prevention thoughts limited only to issues in the oral cavity, or should we enlarge our focus to consider workplace safety for everyone in the dental office? Repetitive stress disorders are the most common occupational injury among dental health care workers. Equip your environment to be comfortable. Discover how to sit up straight, use magnification loupes and put on a headset. Your shoulders neck and back will thank you every day!

The Solutions



Headsets eliminate neck stress.



Properly fitted magnification loupes promote neutral body postures. Photo courtesy of Harold Henson, RDH, MEd.



Operator chairs with padded arm rests provide support for upper body musculature.

References

- 1. Hagberg M. ABC of work related disorders: Neck and arm disorders. Br Med J 1996; 313(7054):419-22.
- 2. Nunn PJ. Posture for dental hygiene practice. In DC Murphy (Ed.), Ergonomics and the dental care worker. 1998. pp.217-236. Washington, D.C.: Amer Pub Health Assn.
- 3. Michalak-Turcotte C. Controlling dental hygiene work-related musculoskeletal disorders: The ergonomic process. J Dent Hyg 2000; 74(1):41-48.
- 4. Liskiewicz ST, Kerschbaum WE. Cumulative trauma disorders: an ergonomic approach for prevention. J Dent Hyg 1997;71(4):162-67.
- 5. Liss G, Jesin E. Musculoskeletal problems among dental hygienists: A Canadian study. In DC Murphy (Ed.), Ergonomics and the dental care worker. 1998. pp.143-68. Washington, D.C.: Amer Pub Health Assn.
- 6. Michalak-Turcotte C, Atwood-Sanders M. Ergonomic strategies for the dental hygienist Part II. J Prac Hyg 2000; 9(3)35-38.
- 7. Poindexter SM. All the right moves: ergonomics and the dental hygienist at work. Access 1995;9(1):19-28, 33.
- 8. Valachi B, Valachi K. Mechanisms leading to musculoskeletal disorders in dentistry. JADA 2003;134(10)1344-50.
- 9. Andrews N, Vigoren G. Ergonomics: muscle fatigue, posture, magnification and illumination. Compend Contin Educ Dent. 2002; 23(3) :261-266,268,270.
- 10. Bleeker ML. A medical-ergonomic program for prevention of upper extremity and back disorders in the practice of dentistry. In DC Murphy (Ed.), Ergonomics and the dental care worker. 1998. pp.341-354. Washington, D.C.: Amer Pub Health Assn.
- 11. Finsen L, Christensen H, Bakke M. Musculoskeletal disorders among dentists and variation in dental work. Appl Eraon 1998: 29(2):119-25.
- 12. Oberg T, Karsznia A, Sandsjo L, Kadefors R. Work load, fatigue and pause patterns in clinical dental hygiene. J Dent Hyg 1995;69(5);223-29.
- 13. Pascarelli EF, Hsu YP. Understanding work-related upper extremity disorders: clinical findings in 485 computer users, musicians, and others. J Occup Rehabil. 2001 Mar;11(1):1-21.
- 14. Mani L, Gerr F. Work-related upper extremity musculoskeletal disorders. Prim Care 2000;27(4):845-64.
- 15. Stitik TP, et al. An analysis of cumulative trauma disorders in dental hygienists. J Prac Hyg 2000;9(2)19-25.
- 16. Valachi B. Improving your musculoskeletal health. Dim Dent Hyg 2003;1(3):20-6.
- 17. Valachi B, Valachi K. Mechanisms leading to musculoskeletal disorders in dentistry. JADA 2003;134(10)1344-50.

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18. Bernacki EJ et al. An ergonomics program designed to reduce the incidence of upper extremity work related musculoskeletal disorders. J Occup Environ Med 1999;41(12):1032-41.

- 19. Carayon P, Smith MJ, Haims MC. Work organization, job stress, and work related musculoskeletal disorders. Hum Factors 1999: 41(4):644-63.
- 20. Rucker LM, Boyd MA. Optimizing dental operatory working environments. In DC Murphy (Ed.), Ergonomics and the dental care worker. 1998. pp. 301-318. Washington, D.C.: Amer Pub Health Assn.
- 21. Tatro DE. Ergonomics for the dental hygienist. J Prac Hyg 1997;6(1):35-9.
- 22. Branson BG, et al. Effect of magnification lenses on student operator posture. J Dent Educ. 2004;68(3):384-89.
- 23. Branson BG, et al. Validity and reliability of a dental operator posture assessment instrument. J Dent Hyg. 2002;76(4):255-61.
- 24. Pencek L. Benefits of magnification in dental hygiene practice. J Prac Hyg 1997;6(1):13-15.
- 25. Rucker L et al. Declination angle and its role in selecting surgical telescopes. JADA 1999;130(7)1096-100.
- 26. Akesson I et al. Quantifying work load in neck, shoulders and wrists in female dentists. Int Arch Occup Environ Health 1997;69;461-74.
- 27. Syme SE, Fried JL, Strassler HE. Enhanced visualization using magnification systems. J Dent Hyg 1997:71(5):202-6.
- 28. Gomolka K. Dental ergonomics: Instrumental ideas for reducing hand and eye strain. Dent Prod Rep 2000;(3):104-13.
- 29. Liskiewicz ST, Kerschbaum WE. Cumulative trauma disorders: an ergonomic approach for prevention. J Dent Hyg 1997;71(4):162-7.
- 30. Milerad E, Ericson MO. Effects of precision and force demands, grip diameter, and arm support during manual work: and electromyographic study. *Ergonomics* 1994;37(2)255-64.
- 31. Parsell DE, Weber MD, Anderson BC, Cobb GW Jr. Evaluation of ergonomic dental stools through clinical stimulation. Gen Dent 2000: 48(4):440-4.

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CE Questions: Working In A Dental Practice Shouldn't Be A Pain In the Neck!

Test Instructions - Please fill in the bubble corresponding to the answer you believe is correct. Detach the answer sheet from the newsletter and either mail or fax to The Richmond Institute for Continuing Education.

- 1. Poor postural habits contribute significantly to the development of many types of cumulative trauma disorders. What percentage of dental practitioners and support staff workers complain about shoulder, neck and back pain?
 - a. One out of two
 - b. Working in a dental office does not pose a
 - significant risk
 - c. Less than ten percent d. Seven out of ten
 - e. Four out of nine
- Dental office workers are at risk for developing workplace related musculoskeletal disorders.
 Which of the following conditions would is never classified as a WRMSD?
 - a. Chronic headaches
 - b. Alopecia
 - c. Tension neck syndrome
 - d. Cervical myofacitis
 - e. Thoracic outlet syndrome
 - f. All of these conditions can be a WRMSD
- 3. Characteristics of poor upper body posture include. Which of the following posture/s is not considered a risk factor for developing an upper body cumulative trauma disorder?
 - a. Rounded shoulders
 - b. Elbows positioned more than ten degrees away from the trunk of the body c. Head leaned forward in an unsupported
 - position d. Crossing one's ankles
 - e. Upper body slumped forward
 - f. All but D
 - g. A, B, D, E
 - h. B and E only
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- 4. Which factor/s contribute to poor telephone ergonomics?
 - a. Cradling the receiver between the head and shoulder
 - b. Using a speaker phone
- c. Tension on the phone cord
- d. Talking on a cell phone
- e. B, C, and D
- f. A and C
- 5. Telephone headsets should have the following characteristics
 - a. Fit the user's ear and/or head comfortably b. Contain controls for volume and muting
 - c. Be fabricated with in fashionable colors
- d. Deliver quality sound
- e. All but C
- f. A and D
- 6. Many clinicians now wear magnification loupes in dental practice. What are the key factors in selecting a proper magnification system?
 - a. All of the following factors are important b.Weight of the optics

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- c. Strength and clarity of the images d. Type of system –
- a. Type of system Flip-ups or TTL's
- e. Width and depth of field
- f. Amount of available light
- g. Overall all cost is the most
 - important consideration

- 7. Through the lens (TTL's) loupes oculars are directly mounted into the carrier lens according to a clinicians individual working distance and specific eye measurements. The oculars in flip-up loupes can not be positioned to meet a clinician's specific visual requirements.
 - a. The first statement is FALSE and the second statement is TRUE.
 - b. The first statement is TRUE and the second statement is FALSE.
 - c. Both statements are TRUE. d. Both statements are FALSE
- 8. Width of field refers to the size of the viewing area and is linked to the diameter of the telescope, the optical design and the magnifying power. Depth of field is dependent on the available lighting, optical design, magnifying power and the eye's ability to focus (accommodation). As the strength of the magnification increases, both the width and depth of field decrease.
 - a. Only the first and last statement are correct b. All three statements are correct
 - c. All three statements are false
 - d. The first two statements are correct and the last is false.

- 9. In order to obtain accurate measurements for magnification loupes Clinician positioning should include:
 - a. Positioning is irrelevant
 - b. Sitting up straight with shoulders in a relaxed position
 - c. Head tilted forward
 - d. The height of the patient's head eight inches below the clinician's chin
 - e. Elbows tucked close to the body
 - f. Forearms parallel to the floor
 - g. B, C, D, E h. B, E, F
- 10. Which of the following factor/s contribute to a clinician comfort when wearing magnification loupes?
 - a. Properly adjusted head strap
 - b. Correct declination angle
 - c. Weight and size of frame
 - d. Correct working distance
 - e. Properly adjusted silicone nose pads f. All

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