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**Promote Ergonomic Health**

Amber W. Hunt  
*Old Dominion University*, anwalter@odu.edu

Kimberly B. Lintag-Nguyen  
*Old Dominion University*, klintag@odu.edu

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Impacting the muscles, bones, joints, tendons, and ligaments, musculoskeletal disorders (MSDs) are associated with pain and affect individuals’ well-being by limiting mobility, dexterity, and functional ability. The prevalence of musculoskeletal pain reported by dental hygienists ranges between 64% and 93%. Musculoskeletal pain can negatively affect work life, requiring a leave of absence, fewer work hours, or a change in profession.

Dental hygienists frequently report pain in the neck, shoulders, hands, wrists, upper back, and lower back. The repetitive nature of the job in addition to the need to hold static and awkward postures and use a pinch grip put dental hygienists at elevated risk for MSDs. Appropriate positioning, ergonomic equipment, complimentary and alternative medicine (CAM), and prevention techniques may help dental hygienists support career longevity.

Maintain Appropriate Positioning

Appropriate ergonomics is important in preventing MSDs and repetitive motion injuries. Dental hygienists should sit in a neutral body position to prevent strain. This neutral position allows the spine’s three natural curves to align with the ears, shoulders, and hips in a straight line. Neutral body positions include:

- Head tilted at 0° to 20°
- Shoulders in a horizontal line with slight forward bend
- Elbows less than 20° from the body
- Angle between the forearms and upper arms between 60° and 100°
- Wrist aligned with the surface with the pinky finger slightly lower than the thumb

Ergonomic Equipment

Reducing muscle strain is important in minimizing MSD risk. The use of equipment to support positive ergonomics can help reduce this risk.

Dental hygienists should try their clinician seats down about 5° to help maintain the natural lower curve of the spine, which reduces disc pressure. If the clinician chair cannot be tilted down, an ergonomic wedge cushion can be used to approximate proper position. Another option is to use a saddle stool, which has active tilt to help meet the clinician’s natural optical curve. Saddle stools also allow dental hygienists to sit with the appropriate foot position—shoulder width apart.

The use of loupes may help dental hygienists improve their working posture and reduce pain. When comparing posture between clinicians who wore loupes and those who wore traditional eyewear, those who wore loupes demonstrated superior posture. Results of an analysis of the relationship between posture and pain showed that wearing loupes improved posture, shoulder, and hand pain, while no significant difference was found in neck pain between the two groups.

The repetitive nature of the job in addition to the need to hold static and awkward postures and use a pinch grip put dental hygienists at elevated risk for MSDs. Appropriate positioning, ergonomic equipment, complimentary and alternative medicine (CAM), and prevention techniques may help dental hygienists support career longevity.

TABLE 1 . Stretches for Dental Hygienists

<table>
<thead>
<tr>
<th>Part of Body</th>
<th>Type/Name of Stretch</th>
<th>Stretch Description</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neck</td>
<td>Range of motion exercise</td>
<td>Rotate the head to the side</td>
<td>Hold for 5 seconds, repeating five times in each direction</td>
</tr>
<tr>
<td>Neck</td>
<td>Upper trapezius stretch</td>
<td>Move the ear toward the closest shoulder, while holding the opposite shoulder down with your hand</td>
<td>Hold for 30 seconds to 60 seconds on each side</td>
</tr>
<tr>
<td>Wrist</td>
<td>Wrist flexion</td>
<td>Hold one arm in front of you with wrist flexion (bend palm down toward the wrist) and apply pressure toward you with opposite hand</td>
<td>Hold for 30 seconds to 60 seconds on each wrist</td>
</tr>
<tr>
<td>Wrist</td>
<td>Wrist extension</td>
<td>Hold your arm in front of you with wrist extension (palm is facing away from you and wrist is facing up) and apply pressure toward you with opposite hand</td>
<td>Hold for 30 seconds to 60 seconds on each wrist</td>
</tr>
<tr>
<td>Chest</td>
<td>Shoulder retraction</td>
<td>Full shoulders up toward ears then back down</td>
<td>Hold for 5 seconds, repeating five times</td>
</tr>
</tbody>
</table>

Other ergonomic considerations are sharpness of instruments and proper glove fit. Sharp instruments result in more effective calculus removal without the need to exert as much force and implement repetitive movements. Sharp instruments are important because they require less pressure to remove calculus deposits. Utilizing a soft "C"-shape modified pin grasp also reduces musculoskeletal stress during instrumentation. Largely, wearing gloves that fit properly and loosely across the wrist and palms of the hand will prevent muscle strain. Wearing gloves that are too tight may cause MSD symptoms such as tingling, numbness, or pain in the wrist, hand, or fingers.
Prevention and Treatment

Preventing MSDs or improving symptoms associated with MSDs can be accomplished through a variety of modalities. A physician can be consulted or CAM therapies such as physical exercise, chiropractic therapy, yoga, acupuncture, and massage can be implemented.

Repetitive motions can shorten muscles, making them painful. Stretching can lengthen the muscle, increase range of motion, and boost blood flow, reducing pain.21 Exercise also helps to improve MSD symptoms. Seeking the advice of a primary care provider is prudent to learn which type of exercise may be the most helpful.

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Yoga helps control breathing, meditation, and body posture to promote relaxation and health. A study on dental hygiene students and yoga revealed that those who incorporated yoga in their routine for 1 hour twice a week were in significantly less musculoskeletal pain than those who did not do yoga.22

Acupuncture, a technique derived from traditional Chinese therapy, uses needles that are inserted into specific points in the body to allow pain.23 The mechanisms of action include the release of neuropeptides, such as opioid peptides, for managing pain. Acupuncture may help alleviate neck pain, face pain, and neck headaches. While the benefits of acupuncture can be felt immediately, treatment usually consists of approximately 10 sessions.

Massage therapy positively affects pain.24 It stimulates endorphins and endorphins, which aid in reducing pain, and the analgesic effect. Swedish massage uses light strokes on the superficial layers of muscles to promote relaxation by reducing muscle tension. Another technique is deep tissue massage, which uses stronger pressure to target deeper layers of muscles and tissues.

Conclusion

Dental hygiene must be conscious of strategies to reduce the risk of MSDs in order to support a long and successful career. Appropriate positioning, ergonomic equipment, and traditional and CAM therapies can be considered to maximize musculoskeletal health.

References

