With approximately 96% of dental hygienists experiencing work-related pain, the development of prevention strategies to address musculoskeletal disorders (MSD) is key to ensuring a long and healthy career in the dental hygiene profession. Dental hygienists report pain in the neck, shoulder, and hand/wrist areas more than other dental professionals. Pain and injury may also be related to the type of practice a dental hygienist performs. In a survey of 560 American dental hygienists, practitioners working in general private practice were more likely to report shoulder pain, while those working in periodontal practice were more likely to report forearm pain. Dental hygienists who use mostly hand instrumentation reported more neck pain as opposed to those who scaled most frequently with an ultrasonic unit, who noted more pain in the shoulder and back.

Working postures are the primary risk factors for MSDs in dental hygienists, as they spend 50% of their time working in forward bent postures with at least 30° of trunk flexion and 30° of neck flexion. Practitioners who work longer hours and treat more patients tend to be at higher risk of MSDs as well.

The Role of Stretching

Incorporating stretching exercises at work may help dental hygienists reduce the risk of MSDs and improve wellness. Though stretching is commonly associated with warming up prior to and after playing sports, the average worker or "industrial athlete" must also consider this activity in preparing his/her body for the physical demands of the work day. Repetitive tasks can shorten muscles—making them tight and painful. Stretching may help increase a joint's range of motion and lengthen the muscle and its associated tendons.

The forearm experiences decreased blood flow after 90 minutes of repetitive hand and wrist activities, and blood flow normalizes after 5 minutes to 10 minutes of a stretching exercise. Results of a recent systematic review of the literature suggest that the physiological effects of stretching may contribute to reducing discomfort and pain. However, if improperly performed, stretching may actually cause or aggravate injuries.

Neck Stretches
Stress Management

Dental hygienists may suffer from significant mental stress and anxiety at work.\textsuperscript{10,11} Stretching exercises may help reduce muscle tightness commonly associated with stress and anxiety.

The practice of yoga may be a good way for dental hygienists to start a regular stretching exercise routine. Though yoga also involves some muscle strengthening in addition to relaxation exercise, there is a significant emphasis on the enhancement of flexibility. Yoga may be effective for stress reduction and injury prevention in the workplace.\textsuperscript{12} Research has demonstrated that 15 minutes of chair-based yoga can elicit the relaxation response through the reduction of several physiological and psychological markers of stress, including respiratory rate.\textsuperscript{13} Yoga practice has been shown to reduce the symptoms of osteoarthritis of the hands and carpal tunnel syndrome.\textsuperscript{14,15}

**Figure 1:** Active range of motion exercise. Rotate head to the side. Perform five times in each direction holding for 5 seconds only.

**Figure 2 and Figure 3:** Chin tuck. Keep the eyes level while actively retracting the neck. A finger may be used to guide the movement. Perform five times with a 5-second hold.

**Figure 4:** Upper trapezius stretch. Move the ear toward the shoulder while holding the opposite shoulder down.

**Strategies to Improve Hand and Wrist Health**

Upper extremity pain is common among dental hygienists and it significantly affects the longevity of a dental hygiene career. A survey of dental...
hygienists in the United States Army found that 75% suffered from hand problems, while another study noted that 61% of oral hygienists in South Africa experienced hand pain. Incorporating upper extremity stretches, such as wrist extention and wrist flexion exercises (Figure 5 and Figure 6), can help maintain hand and wrist health. Practice-based ergonomic interventions are also available to decrease the risk of hand and wrist injury.

1. Ergonomic gloves are designed to reduce muscle effort and improve comfort.
2. Cordless handpieces can help reduce effort by removing the drag caused by cords.
3. Lightweight handpieces should also be considered to decrease muscle strain.
4. Choosing lightweight instruments with large-diameter handles can help limit hand fatigue because the larger handles encourage a more relaxed grasp.

**CHEST STRETCHES**

**Figure 7:** Shoulder retraction. Pull the shoulders up then back, holding 5 seconds. Repeat five times.

**Figure 8:** Corner stretch. Walk into corner, don’t lean forward. Feel the stretch in the chest and shoulder area.

**Figure 9:** Partner chest stretch. Relax as the partner pulls the arms back and the hands toward one another.

**Figure 10:** Spinal extension on foam or towel roll. Relax as the spine bends backward and the chest opens up.

**Suggested Stretches**
Because dental hygienists spend so much time standing in a flexed, forward-bent position, stretching the flexor muscles of the spine and neck may be helpful. Also, since upper extremity pain is so prevalent, a good stretching program should address this area as well. Stretching the low back musculature could also prove beneficial since low back pain due to prolonged standing and forward-bent postures is common. The photos featured here outline a brief stretching program that may target the needed areas to help prevent MSD and alleviate stress in dental hygienists. Unless otherwise indicated, each stretch should be performed for 30 seconds to 60 seconds. Stretches may be performed prior to work, during breaks, between patients, and at the end of the day. It may help to take a deep breath through the nose and breathe slowly out the mouth during the stretch to promote relaxation.

As with any activity, stretching exercise can become potentially harmful if the practitioner is overzealous. Overstretching can distend the muscles so greatly that strain or injury results. Generally speaking, pain should be avoided during stretching, which means the individual should not push too hard or too far into the range of motion. It is also important to avoid bouncing at the end range in favor of a slow, progressive stretch. Individuals suffering from any medical problems affecting the musculoskeletal system should consult with a physician or physical therapist prior to beginning an exercise program; diseases such as osteoarthritis, lupus, fibromyalgia syndrome, and spinal disc disease may warrant special caution.

**YOGA STRETCHES**

![Figure 11: Lateral bend. Raise one arm overhead and bend to the opposite side. The neck should be in a comfortable position, avoiding pain and irritation.](image1)

Figure 11: Lateral bend. Raise one arm overhead and bend to the opposite side. The neck should be in a comfortable position, avoiding pain and irritation.

![Figure 12: The camel. Kneel on a soft surface and bend backward at the waist. Actively contract the gluteal musculature while relaxing into the pose. Keep the neck in a comfortable position.](image2)

Figure 12: The camel. Kneel on a soft surface and bend backward at the waist. Actively contract the gluteal musculature while relaxing into the pose. Keep the neck in a comfortable position.

![Figure 13: Advanced camel. Place hands on ankles and lean backward into the stretch. Keep the neck in a comfortable position.](image3)

Figure 13: Advanced camel. Place hands on ankles and lean backward into the stretch. Keep the neck in a comfortable position.
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References
