



Proven Methods for Reducing Musculoskeletal Pain in Dental Operators

Musculoskeletal pain is a wide-reaching problem that affects up to 93% of dental operators.¹ At some point in their long careers, most dentists and dental surgeons, assistants and hygienists will experience some type of pain in one of the following anatomical regions:

- Upper or lower back
- Neck
- Hips
- Shoulders
- Hands/Wrists
- Elbows



The Causes of Musculoskeletal Pain in Dental Operators

Most normal dental procedures require steady, repetitive movements that, when combined with awkward and static postures, lead to undue stress on joints. When combined with the average load of 8-12 patients per day, this slow-burn of continuous pinch grips, forceful exertions, vibrations, and other fine movements adds up over time. What starts as pain and discomfort at first can ultimately lead to reduced patient load, medical leaves, disability – even shorter careers – in the long-term. While automated tools like ultrasonic scalers help operators cut down on movement, studies have shown that these instruments can cause vibration white finger, acrocyanosis, hand-arm vibration syndrome and other maladies.

Pain Management for Dental Operators

Conventional solutions for musculoskeletal disorders include medication, physical therapy and splints. Some operators choose alternative treatments that include chiropractic care, acupuncture, herbal products and supplements, and massage therapy. The commonality among these methods, whether conventional or alternative, is cost, and many also require substantial time away from the office.

While it's always advisable to seek medical attention if a problem persists or worsens, **there are two major sources of pain management for dental operators** that don't require time away from treating patients:

1. **Daily stretches and exercises**
2. **Proper patient positioning**

Stretches & Exercises to Alleviate Musculoskeletal Pain*

There are many stretches and exercises that can be done without purchasing weights and equipment or leaving your office. These can even be incorporated into your daily practice for all members of your staff. You can make time in your day to do these exercises:

- At lunch
- In between patients
- As a 15-minute team event before your first patient arrives
- At the end of the day after your last patient

You can even post these exercises somewhere in your office so that employees can learn to do them and take them home with them on the weekends.



CAT/CAMEL STRETCH

For the Upper Back:

The "Aquaman": Lie on your stomach and slowly lift your right arm and left leg off the ground. Alternate to the other arm and leg. Repeat 8-12 times.

Cat/Camel stretch: Get on all fours and round your back while contracting your abs. Hold this position for three seconds before returning to neutral. Then arch your back and hold for three seconds. Repeat 8-12 times.



CHILD'S POSE

For the Lower Back:

Bridges: Lie on your back, bend your knees and place your feet on the floor. Slowly raise your hips off the ground while contracting your abs. Repeat 8-12 times.

Child's pose: Lie face down with your knees tucked under you and your arms extended in front of you, palms down on the floor. Hold this position.



SCALENE STRETCH

For the Neck:

Chin tucks: Sit in a chair and gently tuck your chin in towards your larynx. Repeat 8-12 times.

Scalene stretch: Sit in a chair and tuck in your chin. Use your hand to gently side bend your head. Hold for 10 seconds. Switch sides and repeat.

For the Hips:

Hip flexion: Stand up straight. Lift your leg off the floor and hold it so it creates a 90-degree angle at the hip. Hold for five seconds. Switch legs and repeat 8-12 times.

Lunging hip flexor stretch: Kneel on your right knee and place your left foot flat on the floor in front of you with your knee bent. Slowly lean forward while stretching your right hip toward the floor. Hold for 15 seconds. Switch sides and repeat three times.



For the Shoulders:

Single arm planks: Get into a push up position. Take your left arm from the floor and suspend it straight out in front of your body. Hold for 15 seconds. Switch arms and repeat 5-10 times.

Cross body shoulder stretch: Stand straight and grab one arm just above your elbow. Slowly pull your arm across your body, keeping it at shoulder height, and hold for 15 seconds. Switch arms and repeat three times.

For the Hands/Wrists & Elbows:

Prayer stretch: Stand up straight and place your hands together in a prayer position, your palms and elbows should be touching. Keeping your palms together, slowly spread your elbows while lowering your hands towards your waist (into a prayer position). Hold for 15 seconds and repeat three times.

Desk press: Sit and place both hands (palm up) on the underside of a desk. Press upwards and hold for 5-10 seconds. Repeat three times.



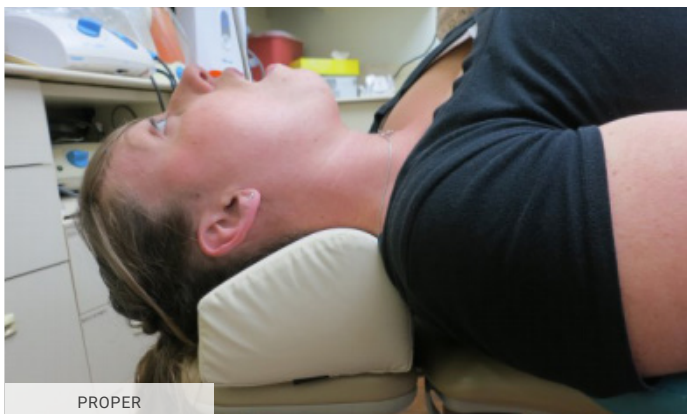
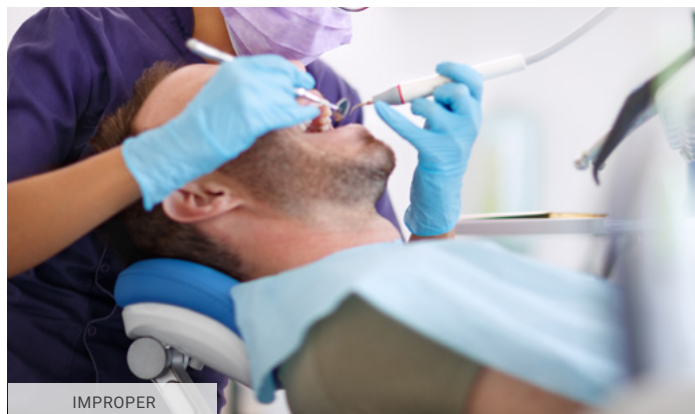
**These are for general information purposes only. Please consult with a physician if you are experiencing pain or signs of musculoskeletal disorders and before you do any physical exercise.*

How to Properly Position Patients

Properly positioning patients to allow dental operators to maintain an ergonomic position will greatly reduce the strain placed on all regions of the body during treatment. When patients are not in an optimal position for an operator to have sustained visibility and access to treatment areas, operators often make up the difference through unhealthy head rotations that put too much strain on the segments of the neck (from C1 to C7). Maintaining these positions can also contribute to weakening of the muscles of the neck, particularly those of the deep cervical flexor that control fine movements of the head.

As operators experience discomfort in one area, the body will often compensate by placing undue stress on another area. This results in hunched postures, causing weakness and pain in back muscles as well as the thoracic (T1-T12) and lumbar (L1-L5) segments of the back, and awkward positioning of the shoulders, elbows and wrists.

To preserve the best ergonomic working posture when working behind the upper arch, patients should be positioned so that the occlusal plane of the upper arch is 20-25 degrees behind the vertical.



The use of dental chair accessories like Headrest Pillows, Knee Supports and Backrests help position patients properly and keep them steady during treatment, allowing operators to ergonomically position themselves in a comfortable position during treatment. The trouble is that double-articulating headrests don't allow for a patient's head to be comfortably positioned in this manner during treatment, but well-designed dental headrests can be placed on a dental chair to solve this issue. Dental headrests gently guide a patient's head backwards, giving operators easy access to the upper dental arch without placing too much strain on the patient's occiput.

When patients are positioned correctly, operators are free to treat both maxillary and mandibular teeth with proper visualization and posture.

About Crescent Products

Crescent Products are the original innovators of patient comfort and dental ergonomics. Often copied but never duplicated, our dental headrests and chair accessories were the first products on the market to help dental operators position their patients comfortably while allowing them maximum treatment area with minimum strain on their bodies. Co-designed by Bethany Valachi, PT, MS, CEAS, Crescent's line of dental chair accessories is everything dental operators need to treat comfortably, all while giving their patients a dental experience they will remember.

Sources

1. Exercise Prescriptions to Prevent Musculoskeletal Disorders in Dentists: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4149167/>
2. Mechanized scaling with ultrasonics: Perils and proactive measures: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3800401/>