



## Chairside Stretching & Trigger Points

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Studies suggest that the increase in operator pain since the 1960's may be due to longer work periods without breaks, due in part to use of four-handed dentistry techniques.<sup>14,19</sup> Having the operator take frequent breaks<sup>20</sup> and reverse position are integral to an effective injury prevention program in dentistry.

It is difficult for most operators to avoid PSPs. In optimal PSPs, muscle ischemia and joint hypomobility can occur due to prolonged muscular contractions. When assuming awkward PSPs, dental professionals are predisposed to developing muscle imbalances caused by repeatedly flexing forward, bending to the side and rotating in one direction. In general, dentists tend to lose flexibility in those directions opposite to which they are postured statically during the day<sup>21</sup>.

Stretches performed in the reverse direction of awkward PSPs may prevent muscle imbalances that can lead to pain and MSDs. Directional stretches can be performed in or out of the operatory and incorporated into a daily routine that facilitates balanced musculoskeletal health. Directional stretching involves a rotation, sidebending or extension component that generally is in the opposite direction of that in which in which the operator usually works. (Fig. 4). This strategy addresses the muscle imbalances that tend to develop.

Frequent stretching addresses the detrimental physiological changes that can develop while working in optimal or awkward PSPs; ischemia, trigger points, muscle imbalances, joint hypomobility, nerve compression, and disc degeneration. Furthermore, stretching:

- Increases blood flow to muscles
- Increases production of joint synovial fluid
- Reduces formation of trigger points
- Maintains normal joint range of motion
- Increases nutrient supply to vertebral discs
- Creates a relaxation response in the central nervous system
- Warms up the muscle before beginning work
- Identifies tight structures that may be predisposed to injury

### **How to Stretch Safely**

To avoid injury during stretching, keep the following tips in mind:

- assume the starting position for the stretch
- breathe in deeply
- exhale as you slowly increase the intensity of the stretch up to a point of mild tension or discomfort
- hold the stretch for 2-4 breathing cycles
- slowly release the stretch—come back to neutral position. Repeat the stretch, if time allows.
- Avoid stretching in a painful range. Discontinue stretching if it increases pain.
- Perform stretches in both directions (Figures 4A-C illustrate one direction only) to detect uni-lateral tightness. Perform the directional stretch

primarily toward the tightest side throughout the workday. At home, perform stretches in both directions.

### **Stretching during Microbreaks**

To prevent injury from occurring to muscles and other tissues, the operator should allow for rest periods to replenish and nourish the stressed structures. If these breaks are too far apart, the rate of damage will exceed the rate of repair, ultimately resulting in breakdown of tissue. According to Karwowski and Marras,<sup>6</sup> resting for more than 50 seconds does not result in an increased force-generation capacity (strength) of the muscles. This indicates that to optimize the strength capacity of the worker and minimize the risk of experiencing muscle strain, a schedule of brief, yet frequent rest periods would be more beneficial to workers than lengthy infrequent rest periods.

In a study on the efficacy of microbreaks during the workday, McLean and colleagues<sup>22</sup> found that by complying with regularly scheduled “microbreaks”, the subjects had less discomfort and that the addition of 30 second microbreaks showed no detrimental effect on worker productivity. Other authors have pointed to the efficacy of using micropauses and stretching during dental procedures.<sup>23-25</sup> Stretches can be modified so that operators can perform the stretches easily at chairside (Fig 5), while wearing their gloves. Operators should perform directional stretches regularly throughout the day, both in and out of the operatory setting.

Operators can also benefit by walking or performing other activities involving movement. during longer breaks.

## **Trigger points**

Trigger points may cause dental operators to experience pain that is not relieved with stretching, but actually worsened by it. This pain may be caused by a sustained contraction inside a tight band of muscle known as a trigger point, which feels like a small hard knot<sup>27</sup>. When firm pressure is applied, trigger points are quite painful and may refer pain to another area. They neither allow the muscle fibers to contract, nor relax, thereby effectively decreasing flexibility and reducing blood flow to the muscle. Therefore, it is important that operators release trigger points as soon as possible. There are various methods to treat trigger points, including:

- physical therapist trained in trigger point therapy, contract/relax technique or muscle energy technique
- neuromuscular therapist
- massage therapist trained in trigger point therapy
- physician trained in spray and stretch technique or trigger point injection
- self administration of trigger point therapy using a tennis or other small ball between your back and a wall, or using a trigger point self-massage tool<sup>28</sup>

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