

# Benefits Of Yoga For Dental Professionals

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**Abstract:** Dental profession is very demanding in terms of engrossment and impreciseness required while performing any procedure or operation. Due to inconvenient sitting postures attributable to limited working area and even more restricted access inside the oral cavity, dentists tend to neglect the posture while operating. Due to the long working hours, the dentist tends to brace the body with the support of legs in a sitting position which leads to muscle ischemia. Once the dental procedure is complete and they get back to normal position the muscle ischemia reflects in the form of mild to excruciating pain leaving the neck, shoulder and back regions in utter discomfort. A simple change in lifestyle by regular practice of yoga and meditation, helps make a major difference in dentists to escape this health hazard, leading a healthier and happier life while enjoying professional success. Yoga is the science of the mind and soul. Yoga has transformed into a widely used physical, mental and spiritual exercise worldwide for both overall wellness and specific health ailments. Yoga focuses on mindfulness, pranayama (breathing exercises) and meditation by facilitating relaxation of body and mind, intern contributing to decreased perception of pain. Practicing yoga as a daily routine for dentists offers a way to counteract or avoid many physical conditions that are commonly seen in dental care team members.<sup>2</sup>

**key words:** Yoga, Pranayama, Musculo skeletal disorders, Ailments, Asanas, Occupation.

## 1. INTRODUCTION

Dental profession is very demanding both mentally and physically. In most cases dental professionals work in positions that maintain arms and shoulder girdles in a very unstable and unsupported positions. This leads to dysfunctional postures of the spine, such as thoracic kyphosis and forward head posture leading to various musculoskeletal disorders. Poor posture of dentists leads to back, neck, shoulder pain, rotator cuff injuries, thoracic outlet syndrome, herniated discs leading to degenerative disc disease and arthritis, tingling and numbness in hands and feet, tendonitis, bursitis, carpal tunnel syndrome, sciatica<sup>3</sup>. A study found that over 87% of dentists reported at least one symptom of Musculoskeletal disorder in the past 12 months. Another study in Greece showed that 62% of dentists reported at least one musculoskeletal complaint while 30% had chronic complaints. Reported prevalence of Musculoskeletal disorders is about 63 to 93 percent among dental care professionals<sup>4</sup>. According to literature, back pain is the most common complaint among dentists followed by neck pain.<sup>5</sup> And the most common sites of pain among the dentists are the lumbar and the cervical vertebrae. These are characterized by discomfort, continual pain or impairment in various parts of the musculoskeletal system like nerves, tendons, joints, ligaments, muscles, and structures that support limbs, neck and back.<sup>6</sup>

The possible parameters in dentists, which may have a role to play may include age, gender, experience, academic grade, dominant hand, clinical hours and specialty.<sup>7</sup> Some associated factors causing pathogenesis and persistence of musculoskeletal disorders in dentists include, static and dynamic awkward postures, repetitive movements<sup>8</sup>, fine-tuned function, vibrating instruments, inappropriate lighting,

genetic factors, physical conditioning, emotional stress and psychological factors.<sup>9,10</sup> These problems can be ventilated by growing awareness about the importance of the postures used during work, redesigning the workstation to promote neutral positions and by following healthy work practices to overcome stress of work on the professionals body and by practicing yoga and meditation.<sup>11</sup>

## PERSPECTIVES ON YOGA

Yoga practice was documented as early as 3000 BC in the Indian subcontinent. The word 'yoga' is derived from Sanskrit word "yuz", which is often understood as meaning 'union'. Yoga is defined as a Hindu spiritual and ascetic discipline, a part of which, including breath control, simple meditation, and the adoption of specific bodily postures, is widely practiced for health and relaxation. Yoga is practiced for purpose of uniting the mind, body and spirit.<sup>12</sup> It is estimated that 16 million people in the USA practice yoga in some form, with 61% reporting that yoga is the essence for maintaining health.<sup>13</sup> Yoga influences the vital, mental, emotional, intellectual and spiritual aspects of a person. At different levels, yoga approaches to relax, energize, remodel and strengthen body and psyche.<sup>14</sup> The "asanas" (postures) and pranayama (breathing exercises) harmonize the physiological system and initiate a relaxation response in the nervous and endocrinal system. Meditation and pranayama, along with relaxing asanas, can help individuals deal with the emotional aspects as well like chronic pain, reduce anxiety and depression by improving the quality of life perceived.<sup>14</sup> Practicing yoga reduces metabolism, quite breathing, stabilizes blood pressure, reduced muscle tension, decreases heart rate and slows brain wave pattern. The function of visceral organs improves with the sense of relaxation with deeper sleep by diminishing fatigue.<sup>14</sup> The following stretches can be practiced either chair side or at home.

CHAIR SIDE YOGA STRETCHES	HOME YOGA STRETCHES
Neck stretches - Right and left side neck stretches Extension and forward flexion	Bhujangasan or cobra pose
Chest expansion arm stretch	Padmasana or lotus pose
Wrist bending	Trikonasana or Triangle pose
Seated alternate arm raise	Sirshasana or head stand pose
	Vairasana or Diamond pose

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## CHAIR SIDE YOGA STRETCHES

The most affected painful body regions among dentists are the neck, shoulder, and back regions, it is important to strengthen the muscles in those areas. A meta-analysis of Randomized control trial done by Holtzman and colleagues in 2013 examined the current literature for the strongest evidence of the efficacy of yoga as a potential treatment for Chronic lower back pain.<sup>15</sup> In addition to Lower back pain, neck pain is also one of the most commonly reported symptoms seen in primary care centres and dentists.<sup>16</sup> Neck stretches (Figure 1) The neck has a large range of motion there is decreased stability and vulnerability to injury. The large muscles that are responsible for gross movement include the trapezius, levator scapulae, sternocleidomastoid and the splenius, while the smaller muscles that are responsible for stability and fine movements include the scalenes, rotatores, semispinalis, and longissimus; in addition the scapular stabilizers are important muscles in regards to neck function. Patients with chronic neck pain may have associated biomechanical deficits, including poor posture, contracted upper neck muscles, altered breathing patterns, and weak scapular stabilizers. The yoga asanas strengthen muscles that tend to become weak and deconditioned in patients that have chronic neck pain, including the rhomboids and lower trapezius, both of which are key muscles in spine and scapular stabilization. Right and left side neck stretches

**Exercise:** Sit in operator's chair as far back as possible so that the lower back is supported. Feet wide apart, belly button pulled into spine, chest lifted, shoulders down and back, chin tucked slightly in. Bring the right ear to the right shoulder, place the right hand on top of the head, apply light pressure until a stretch is felt along the side of the neck. Hold on to this position for 8 to 10 breaths and repeat the same on the opposite side.

**Neck stretches - Extension and forward flexion**

**Exercise:** Sit in operator's chair as far back as possible so that the lower back is supported. Feet wide apart, belly button pulled into spine, chest lifted, shoulders down and back, chin tucked slightly in. For neck extension, Interlock fingers behind head to support head. Keep elbows parallel to each other. Release the head backwards any amount, keeping chin tucked in slightly. Hold on to this position for 8 to 10 breaths and release. For neck forward flexion, Interlock fingers behind head to support head. Keep elbows parallel to each other. Lengthen chin towards chest any amount, keeping chin tucked in slightly. Hold on to this position for 8 to 10 breaths and release.

**Chest expansion arm stretch (Figure 2)** This opens up the chest and stretches the pectoralis muscles while bringing the shoulders back into a neutral position. This pose counterbalances the forward "hunching" of the shoulders. Interlace the fingers behind the back while moving the shoulders away from the ears. Squeeze the shoulder blades together behind the back. Hold for eight breaths to 10 breaths and release.

**Wrist bending (Figure 3)** This relieves pain in the wrist and improves range of motion. Extend the right arm to shoulder height and bring the fingers together. Bend the right hand at the wrist, pointing the fingers up, and place the left hand on the fingertips. Gently pull the right fingers, and hold for four breaths to six breaths. Next, bend the right hand at the wrist, fingers pointing to the floor, and place the left hand on the fingertips. Gently pull the right fingers, and hold for four breaths to six breaths. Repeat the same movements with the left arm.<sup>12</sup>

**Seated alternate arm raise** This stretches the muscles of the upper and lower back and brings circulation to the neck and shoulders to reduce

pain. stretches the muscles of the upper and lower back and brings circulation to the neck and shoulders to reduce pain. Inhale and move the right arm toward the ceiling and pause; exhale as the right arm is brought back to neutral. Inhale and move the left arm toward the ceiling; pause. Exhale as the left arm is brought back to neutral. Repeat four times to six times.

<sup>12</sup>

## YOGA STRETCHES TO DO AT HOME

For dental care professionals, it is necessary to improve the posture and condition of the body to prevent chronic musculoskeletal disorders. Bhujangasan or cobra pose (Figure 4) is one of the asanas which make the spine flexible and rejuvenates and revitalizes the spinal cord. It also helps in the treatment of cervical spondylosis and is very helpful in counteracting any habitual distorting of the normal spinal curves. It also strengthens the arms, chest, and shoulders. The muscles along the spine are strengthened helping to support the spinal column. Posture is vastly improved as the shoulders roll back, the chest opens, and the neck elongates. A smile naturally arises as we open yourself to this heart-felt posture. Our body and brain revitalizes with this increased oxygen flow. As circulation improves, our cells are deeply nourished with oxygenated blood and cleansed of waste products.<sup>13</sup> Padmasana or lotus pose (Figure 5) Padmasana also work wonders for the spinal cord by keeping it erect, healthy and flexible. This is a cross legged asana. In this the feet are placed on opposite thighs. This is mainly used for meditation, yoga. It keeps the lungs filled with oxygenated air and by keeping the diaphragm in proper position and also strengthens the legs by pulling the nerves, muscles and bones taut and thereby massaging thoroughly.<sup>13</sup> Trikonasana or Triangle pose (Figure 6) relieves sciatica and back pain; strengthens the ankles, legs, and thighs; and stretches the hamstrings, shoulders, hips, chest, and spine. Separate the legs while turning the right foot forward at 90° and the left foot turned in slightly. Align the right heel with the left heel. The right kneecap should be over the right ankle. Extend the arms out to the side and inhale, lengthening through the sides of the torso. Then exhale and reach the right arm forward; move the left hip back; place the right hand onto the shin or ankle; and extend the left arm toward the ceiling while looking up at the left hand (look down at the right foot if this strains the neck). Engage the leg muscles and hold for four breaths to five breaths. Repeat on the opposite side.

**Sirshasana or head stand pose (Figure 7)** In the supported headstand (Salambasirshasana) the body is completely inverted, and held upright supported by the forearms, while the head rests lightly on the floor. This can help improve normal and diseased eyes by increasing blood circulation in the organ. It also prevents the development of long and short sightedness. Further, it also tones the muscles around the eye and giving them a new sparkle.

**Vajrasana or Diamond pose (Figure 8)** Vajrasana is a sitting asana in yoga which helps in majority cases of varicose veins. It is a kneeling position sitting on the heels. Due to this asana, the blood flow to the lower limbs is reduced. Skin diseases occur due to allergy or poor resistance. The cure lies in strengthening the vital organs like the pituitary and thyroid glands helps in majority cases of varicose veins. The biggest advantage about yoga is that it is not rigorous and doesn't require long sessions, but can be carried out during short breaks, in the time between treating two patients, or while waiting for a filling or restoration to set. Another important

factor is that yoga not only strengthens the musculoskeletal system but also decreases stress by releasing endorphins and other hormones, which is another contributing factor for the perception of musculoskeletal discomfort by an individual. Devoting 40-50 minutes on an average every day gives surprising results as one can remain fresh mentally and physically away from the professional hazards.<sup>13</sup>

## DISCUSSION

According to various studies, back, neck and shoulder or arm pain is present in up to 81% of dental operators (Bramson et al, 1998).<sup>14</sup> Thus devoting 40-50 minutes on an average every day gives surprising results as one can remain fresh mentally and physically away from the professional hazards. Reported prevalence of MSD pain for dentists and dental care aides was highest in the lower back region, shoulders and neck. However, the majority of the studies have been concentrated on 12-month pain in the low back and predominantly in hospitals. Few researchers have investigated pain in the upper and lower extremities (less than 27% of the studies).<sup>15</sup> Another cross-sectional study aimed at analyzing: 1. the main musculoskeletal symptoms (MSS) presented by hospital nursing workers and; 2. personal, occupational, and health factors related to MSS among them. The low back (57%), shoulder (52%), and neck (48%) were identified as the most affected regions. The logistic regression analysis showed that low back symptoms in the last 12 months were significantly associated with LPN (licensed practices nurses) activities. These results indicate the need for preventive programs in the hospital environment in order to control more severe MSS in nursing professionals.<sup>16</sup> A systematic review in 2013 and meta-analysis of the literature on yoga for low back pain by Cramer et al screened studies published through 2012 that were Randomized control trial comparing yoga to control conditions in patients with CLBP. The main outcome measures were pain, back specific disability, generic disability, health-related quality of life, and global improvement.<sup>17</sup> Yoga's effectiveness for managing chronic neck pain is becoming more evident in the literature. In 2013, Cramer and colleagues published a RCT that evaluated the effect of Iyengar yoga compared with exercise on chronic nonspecific neck pain. The study showed that yoga was more effective in relieving chronic nonspecific neck pain than a home-based exercise program.<sup>18</sup> Koneru and Tanikonda (2015) found that yoga was more effective than other modes of physical activities like aerobics, brisk walk; sports, etc. neck, shoulder and lower back are the most prevalent musculoskeletal disorders among office workers. They did a comparison among 300 dentists who were doing Yoga. Their results showed that the group who were doing Yoga had a decrease in their musculoskeletal disorders scores. The severity of pain was measured by Nordic questionnaire. They reported that 89.5% of yoga practitioners were free of musculoskeletal pain compared to those who didn't practice yoga.<sup>19</sup> According to study conducted by Kovačevska Ivona, ergonomics along with regular exercises, relaxation techniques (meditation, pilates, biofeedback & yoga), proper nutrition helps dentists combat stress, improving the quality of life, ultimately leading to extended careers.<sup>20</sup> In 2015 in a research by Peppone et al., they showed that 4 weeks of Yoga training exercise can decrease the symptoms of musculoskeletal disorders.<sup>21</sup> In 2016, Cheung et al., introduced Yoga as an effective method for managing musculoskeletal conditions. Yoga is an increasingly popular

multimodal mind-body exercise that aims to promote flexibility, strength, endurance, and balance.<sup>22</sup>

## CONCLUSION

When the dentist works in a sitting position, more than half of the body muscles extend support, so as to enable the body to be in a static posture. If the same posture is continued for a longer period of time, muscle ischemia happens which further causes musculoskeletal disorders which exhibit in the form of pain. The intensity of this pain can vary from mild discomfort in the neck, shoulder and back region to excruciating one, so much so that it leaves the health care professional disinterested in work, slowing down with practice, placing a halt in professional work and getting treatment from specialists for the same. Yoga has a positive impact not only on musculoskeletal system but also on a wide variety of physiologic functions, including strengthening bones and reducing osteoporosis, lowering blood sugar levels, reducing blood pressure, boosting the functionality of the immune and adrenal systems, and increasing sleep. Practicing yoga as a daily routine offers a way to counteract or avoid many physical conditions that are commonly seen in dental care team members.

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