

Yoga Amalgamation with Dentistry: Skill in Action

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Abstract

Dentistry 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. Dental patients often present with gingival bleeding, teeth grinding and dry mouth. Yoga provides advantages in handling the human body's bodily and psychological issues. Yoga helps to calm the body and controls the pro-inflammatory cytokines and also helps to boost the body's oxidative status; thus decreases gingival bleeding, rate of dental caries occurrence and mouth dryness among dental patients. Yoga also reinforces the strict work postures of the dentist who follows traditional asanas. Yoga is agile, soothing and highly efficient, and a great way to relieve pain and distress for dentists and their patients and lessen the musculoskeletal discomfort involved in the practice. This review is intended to give a general overview of the application and benefits of yoga in the dentistry.

Key-words: Asanas, Cancer, Dentistry, Oral hygiene, Stress, Yoga.

Introduction

Dentistry is very demanding both mentally and physically. Dentistry is one of the professions that demand prolonged static position with limited mobility. Repeated prolonged static postures resisting gravity during their work are thought to initiate a series of events that could account for pain and injuries in dentists. This makes dentist in a high risk of occupational postural & musculoskeletal problems. [1] In the year 2003, Valachi & Valachi stated that 87.2% dentist suffer from at least one symptom of musculoskeletal diseases at some point in their life. [2] While Rao AR et al, in the year 2011, described work-related musculoskeletal disorders among dental surgeons and reported that 73.3% dental surgeons experienced stiffness in the back and 23.3% experienced severe pain in their neck. [3]

The patients visiting the dentists are no short of anxiety by such stressful and elaborate dental procedures. The oral symptoms of stress among dental patients, such as canker sores, gum diseases, TMJ disorders, and burning mouth syndrome can be detected. [4] The tension in the jaw muscle can cause jaw clenching and teeth grinding. It can also cause the jaw to shift and thus can affect the alignment of the teeth. Dry mouth may leads to halitosis, which causes decay of teeth and periodontal diseases.[5] Long term stress can lead to chronically elevated levels of the stress hormone cortisol, which can

weaken the immune system. Halitosis and weakened immunity present favorable conditions for bacteria to colonize and thus invade the gums. The stress can exaggerate and cause tooth loss.[6]These problems of dentistry can be ventilated by growing awareness among dentist and patient about the importance of the postures used during work and mental stress, redesigning the workstation to promote neutral positions and by following healthy work practices to overcome stress by practicing yoga and meditation

Perspectives on Yoga

The practice of yoga in the Indian subcontinent was documented as early as 3000 BC. The word 'yoga' is derived from the Sanskrit word yuz, which is often interpreted as meaning 'to unite'. Yoga focuses on the body, breathing, and mind, which can be accomplished by asanas (exercise postures), pranayama (breathing techniques) and meditation.[7] Yoga prevents the impairment of cellular immunity seen in stress. Yoga involves mind-body relaxation techniques and cushions of the changes related to stress. Since yoga involves mind-body relaxation techniques along with mild to moderate physical asanas, yoga may optimize the production of the pro-inflammatory cytokines.[8]

Yoga influences the vital, mental, emotional, intellectual and spiritual aspects of a person. At different levels, yoga approaches to relax, energize,

remodel and strengthen the body. [9] 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.[9] The following stretches can be practiced either by the dentist at chair side or by the patient at home. [Table-1] [10]

Table 1: Yoga stretches can be practiced either by the dentist at chair side or by the patient at home

Chair side yoga stretches	Home yoga stretch
Neck stretches-Right and left side neck stretch Extension and forward flexion	Bhujangasan
Chest expansion arm stretch	Padm asana
Wrist bending	Trilon asana
Seated alternate arm raise	Vajr asana

Yoga function for dentist

For dental care professionals, it is necessary to improve the posture and condition of the body to prevent chronic musculoskeletal disorders. 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.[11] The yoga asanas strengthen muscles that tend to become weak and reconditioned in dentists that have chronic neck pain, including the rhomboids and lower trapezius, both of which are key muscles in spine and scapular stabilization.[12] Bhujangasan, padmasana, and trikonasana are various asans of yoga that is very helpful in counteracting any habitual distorting of the normal spinal, lower back and muscle pain among the dentist. Vajrasana is a sitting asana in yoga which helps in majority cases of varicose veins in dentist.[13,14] It is a kneeling position sitting on the heels, due to this asana, the blood flow to the lower limbs is reduced. 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. [15,16] Therefore devoting 40-50 minutes on an average every day gives surprising results dentist can remain fresh mentally and physically away from the professional hazards.[17]

Yoga function for patients

Yoga prevents the impairment of cellular immunity seen in stress. [18] The “asanas” (postures) and pranayama (breathing exercises) of yoga 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 and may optimize the production of the pro-inflammatory cytokines. [19] It can be hypothesized that yoga is helpful in the prevention of dental diseases and the maintenance of good oral hygiene in the following ways. [20]

- a) Oral cavity conditions: The holistic approach of yoga gives importance to maintain the hygiene of the oral cavity, proper diet, and nutrition as well. In 2017 Singh et al stated the potential of yoga in the treatment and prevention of oral health problems such as chronic periodontal diseases, dental caries, dry mouth, and salivary dysfunction, dental pain, neuralgia and oral complication of diabetes, such as dry mouth, dental caries, candidiasis, and periodontal diseases.[21]
- b) Stress-related oral cavity diseases: Stress-related oral diseases may vary from dental caries, gingival bleeding, clenching of the jaw, my of ascial pain dysfunction syndrome, minor aphthous ulcers, oral lichen planus, and burning mouth syndrome. In the year 2014 study done by Sharan et al stated the usefulness of Yoga in patients with cervical myofascial pain syndrome resulted in significant improvement in the quality of health, physical capacity (strength), cervical range of motion, decrease in the disability, and pain.22 Butterfield et al, in the year 2017 suggested the use of yoga as a complementary or combination therapy for the management of stress, anxiety, and depression.[23] Eliminating stress with yoga prevents pain and oral health problems. A few yoga postures such as forward bends, twists, and inverted poses are believed to increase saliva production. Literature available on yoga suggested that the khechari mudra (placing the tip of the tongue along the roof of the mouth towards the back of the nostrils and holding it for some time) is thought to be an effective way to get the salivary glands activated.[24]
- c) Anti-inflammatory effect of yoga: In the 2015 study by Rajbhoy et al , suggested 12 weeks of yoga postures and pranayama practice reduced pro-inflammatory cytokine and increased anti-

inflammatory cytokine.[25] In the year 2017 Singh et al revealed that Yoga enhances the systemic immunity which in turn enhances the oral defense mechanisms. Impact of yoga on oxidative stress level, pro-inflammatory cytokines and improving immune function can facilitate to reduce the chronic gingival inflammation and improve the health of gingiva.[21]

- d) Orofacial habits: Yoga helps in myofunctional therapy of facial and tongue exercises to promote a proper tongue position. Yoga therapy is useful for the treatment of mouth-breathing habit, lip incompetence, tongue thrust habit, as well as in the correction of thumb-sucking habit and bruxism. Yogic practices such as shitali (cooling breath) and sheetkari pranayama (hissing breath) performed by children can produce correct alignment of teeth avoiding their irregular development as stated in the year 2016 by Vijender K et al.[1]
- e) Yoga for Tobacco De-Addiction: Apart from causing disease, disability, and death, tobacco addiction also leads to social, environmental, and economic burdens.[20] Some yogic purification techniques such as Jala neti (nasal cleansing with warm water), postures such as bhujangasana (cobra pose), dhanurasana (bow pose), virabhadrasana (warrior pose), ushtrasana (camel pose), deep breathing techniques such as pranayama, Sudarshan kriya, relaxation, and meditation are very much useful in quitting the tobacco habit.[20] Jha and Li in the year 2017 stated that practicing alternate nostril breathing has immediate reductions in the strength of urges to smoke, reductions in craving, withdrawal symptoms of smoking, and increasing pulmonary function test.[26] Yoga cultivates determination and willpower in a smoker, which are the primary strengths needed to quit smoking. The deep breathing in pranayama neutralizes the irresistible cravings for tobacco. Yoga helps to quit tobacco without any side effects. Bock et al. in the year 2014 revealed the effect of 12 weeks of Iyengar yoga helps in smoking cessation, by improving attention and deliberative planning by providing mindfulness training as part of yoga practice.[27]
- f) Dental Patients in Management of Anxiety: Dental therapy in patients is considered to elicit distress, panic and anxiety reaction. Yoga may be helpful in minimizing certain anxious feelings in dental patients. Deep breathing exercises alone can help patients relax and stay calm during treatment. In the year 2007, Lovas & Lovas

observed that rapid relaxation for 2–3 min before dental procedures of injecting a local anesthetic and focusing on breathing during the dental procedure helps to reduce anxiety and the amount of anesthesia required.[28] Kakodkar PV et al in 2016 stated the effect of a short 10-min chairside yoga session before the extraction procedure and observed that it can reduce the anxiety levels and increase the comfort levels among dental patients.[29]

Implication of Yoga in oral cancer

Oral cancer is often linked with obesity which is a major risk factor in other cancers other than the use of tobacco. In obese females, Nerve growth factor (NGF) is found to be increased during oral cancer progression.[30,31] Yogic breathing procedures produce theta waves in the brain which may potentially regulate the molecular expression of neurotrophic NGF.[32,33] Regular exercise has been found to balance homeostasis and repair brain damage, therefore suppression in neuropathic NGF. Along with modulation on neurogenesis, yoga also helps in enhancing memory and learning processes. [34] Yoga may be a valuable approach for not only changing health but also a device for synergizing cancer care including radiotherapy and chemotherapy and for avoiding precancerous to malignancy. Therefore, yoga may constitute a possible therapeutic and palliative modality for oral cancer depends on the economic and encouraging lifestyle.

The major drawback of the current dental education system is that there is no stress management module in regular training. Yoga offers a promising, cost-effective, well-tolerated complementary preventive and therapeutic modality that can be easily integrated into present dental education. The Government of India through the Ministry of AYUSH is strongly promoting Yoga for health professional education. A holistic health module should be included in the dental curriculum that will be based on the specific needs of dental professionals and feasible to implement. [20] Yoga professionals may be appointed at dental educational institutions to carry out training programs for the dental students, faculty and patients, regularly and few yoga postures should be included in day to day routine.

Conclusion

Yoga, as a science and ideology that incorporates physical, psychological, and moral wellbeing elements complement dental education. Yoga advantages significantly lead to preventive dentistry and oral hygiene as a complementary add-on treatment to regular dental procedures. An integrated

method of incorporating yoga in the dental program would offer dental students a more successful integrated approach to treating patients. Incorporating yoga into dental education would promote good wellness and well- potential dental practitioners, efficient patient treatment, and strengthen community health care programs. Combining contemporary dental education and ancient yoga knowledge with meditation would offer us comprehensive healthcare that will prove beneficial for group preventive and therapeutic needs.

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