



Review Article

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Complimentary and Alternative therapy in dentistry - Yoga

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Abstract

Modern day habits, sedentary lifestyles, hectic work schedule and lack of physical activity leads to stress accumulation in the body. Stress in turn results in depression, anxiety, mental health problems and leads to lack of motivation and personality disorders, a vicious cycle sets in. Stress response is the mechanism by which the body reacts to any threat or damage. An automatic process known as “fight or flight” comes into play due to the body’s defence mechanism, during a time of danger. High blood pressure, anxiety and depression are results of stressful lifestyle. Apart from affecting the mental and physical health, it also degrades oral health. Occurrences of canker sores, teeth grinding, TMJ disorders, gum diseases and dry mouth are a few to mention. Stress can exaggerate and cause tooth loss. Yoga is said to unite the body, mind, spirit and prevents impairment of cellular immunity seen during stress. Scientific literature has evidence that practise of yoga causes down regulation of the hypothalamic pituitary – adrenal axis and thereby improves mental and physical health. This review paper highlights the importance of YOGA-A HOLISTIC APPROACH in combating and preventing dental problems.

Keywords: Yoga, Mudra, Asanas, Dental Health.

INTRODUCTION

Yoga is an ancient Indian practice of exercise which mainly focuses on breathing and helps in maintaining good health and prevents occurrence of many diseases^[1]. The word yoga originates from the sanskrit word YUZ, meaning UNION^[1]. It has become one of the subjects of researches in the past few decades as a therapeutic mode for these modern epidemics^[2]. Yoga asana’s which are practiced regularly create more resistant immune system^[3] Yoga has been defined as systematic practice and implementation of mind and body in the living process of human being to keep harmony within self, within society and with nature^[3].

Globalisation and modernisation has led to lifestyle changes which has resulted in modern epidemics like stress, hypertension and cardiovascular diseases diabetes mellitus^[2]. One of the adverse effects of modernisation is accumulated stress and stress induced disorders. Stress leads to loss of equilibrium between parasympathetic and sympathetic nervous system. Decrease in stress levels leads to reduction in feelings of depression and anxiety and improves sagacity of wellbeing^[1]. Yoga benefits by reducing inflammation, relieving the pain and improves the immune status^[1].

Being a widely predominant phenomenon in the modern world, stress has become a major threat to health at a global level^[1]. Stress is the reason for deprived quality of life, lower mental health, reduced work efficiency, greater suffering, and increased physician visits, accumulation of work pressures, sedentary lifestyle, lack of physical activities, altered sleep pattern, which in turn results in depression, anxiety, mental health problems and leads to lack of motivation and personality disorders. This results in a vicious cycle of stress. Stress has become an issue of public health concern and the practise of yoga promises to be one of the approaches to combat it^[6].

Stress response is the mechanism by which the body reacts to any threat or damage. An automatic process known as “fight or flight” comes into play due to the body’s defence mechanism, during a time of danger. A stressful regime may not only lead to systemic disorders but it can also cause oral health related problems such as gum diseases, dental caries, autoimmune disorders, burning mouth syndrome dry mouth and even oral cancer can be detected in patients. Stress can exaggerate and can cause even tooth loss^[3]. Stressful individuals give lesser significance for oral health maintenance^[1]. Individuals with high anxiety levels

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appear to be more susceptible to periodontal disease. The WHO reported that 10-15% of the world population suffered from severe periodontitis^[5]. It has also been proven that psychological stress can affect the periodontal tissues either directly through biological mechanism or indirectly through the changes in routine such as disregarding oral hygiene measures, smoking more heavily and consuming more fat and sugar in diet ^[5].

Yoga is said to unite the body, mind, soul and prevents the impairment of cellular immunity secondary to stress^[1]. Yoga is one of the alternative medicine for various physiological diseases and psychological disorders^[7]. Scientific literature supports the belief that yoga heals the body via down regulation of HPA axis and sympathetic nervous system. The levels of cytokines like TNF α , IL-6 are reduced by the regular practise of yoga^[8]. It also rallies the oxidative status of the body thereby reduces the stresses of life. Known for its beneficial effects on both physiological and psychological parameters, yoga helps to maintain quality of life. ^[5].

Variations in psychological functioning, neurotrophic pathways, activity of HPA axis, and inflammatory pathway signaling are associated with yoga and meditation, resulting in enhanced stress resilience and well-being^[8].

XEROSTOMIA

The inherent function of saliva is to wash away food particles and bacteria. The antibacterial enzymes present, break down food and helps in swallowing ^[9]. When production of saliva is reduced due to various reasons, bacteria is likely to grow and accumulate in the oral cavity and results in "morning breath or bad breath" ^[10]. A dehydrated/dry mouth creates a niche for bacteria to thrive and cause plaque buildup, tooth decay and eventually gum disease. The breathing techniques practiced as part of yoga stimulates the salivary glands and prevents the oral cavity from drying. The forward bends, twists and inverted poses of yoga are known to increase the amount of saliva produced by the salivary glands ^[10].

The Khechari mudra is a gesture that is known to direct energy and activate the salivary glands^[9]. The mudra involves drawing the tip of the tongue along the roof of the mouth toward the back of the nostrils to the upper throat and then holding that pose with your eyes and mouth closed for as long as you can^[9].

By increasing salivary production through the practice of yoga, it is possible to reduce the growth of bacteria in our oral cavity and regulate the spread of toxins through our bloodstream^[9].

DENTAL CARIES

Antimicrobial peptides (AMPs) are one of the important group of molecules belongs to the innate immune system. At different sites in the human body, it is involved in first line defense. Through initiation of cytokine release as well as chemotactic activities, AMP's have a wide spectrum of action against bacteria, fungi and viruses. ^[10]. α - defensins are expressed in the gingival crevicular fluid, while β - defensins are found in the oral epithelial cells and saliva. In caries active children, the α -defensin levels are lower when compared to caries free children. ^[11] Studies reveal that the innate immune system of children respond to a caries activity by increased production of AMP'S. Presence of these AMP'S in increased amount in saliva reduces the risk for further caries development. ^[10] YOGA plays an important role, by maintaining the levels of the antimicrobial peptides like α and β defensins and thereby reducing the caries risk in all the individuals ^[10].

PERIODONTITIS

The essential causative factor for periodontal diseases are bacterial plaque, microbial by products and host immune response^[12]. Periodontitis is one of the most common oral diseases which occurs in

individuals who are exposed to high levels of stress, high levels of attribute, poor oral hygiene habits and underlying systemic conditions like diabetes mellitus^[12]. It is characterized by loss of periodontal attachment apparatus, formation of periodontal pockets and apical migration of epithelial attachment^[12]. The effects of periodontitis extend beyond the oral cavity and the spread of both bacteria and bacterial products originating in the oral biofilms and inflamed periodontium, via bloodstream affects the body. ^[12]. This results in interaction with various systemic diseases notably diabetes, atherosclerosis, rheumatoid arthritis and pulmonary infections. This leads to masticatory dysfunction, thereby changes their dietary patterns ^[12].

Effective management of gingivitis and promotion of healthy lifestyles, both at population and individual levels are the modes of intervention for preventing periodontitis^[5]. According to Vettore M V et al it is been concluded that individuals with high levels of trait anxiety appeared to be more prone to periodontal disease^[13]. It is been observed that there will be difference in the levels of state and trait anxiety before and after the practice of yoga^[13].

The basis for periodontal disease progression is mainly through inflammatory destruction which is aggravated by stress. The individuals who are physically dynamic have reduced inflammatory markers as compared to people with a sedentary lifestyle. Pro inflammatory cytokines such IL-6, TNF- α are responsible for periodontal disease progression Regular physical activity is associated is reduced levels of IL-6 and other pro inflammatory cytokines^[14]. Thus yoga has an retrograde effect on stress and stress induced periodontitis so it can be used as an aide with the standard periodontal therapy for better treatment outcome^[14].

Physical activities energises the production and release of IL-6 from muscles which in turn reduces the inflammation^[13]. Pranayama exercises can be performed in adjunct to SRP. pranayama can be used as additional modality to provide a new aspect in the treatment of periodontitis ^[13]

ORAL CANCER

Oral cancer exhibits decrease in cell death, whereas it increases in case of neurodegenerative disorders and thus both have an inverse relation. The primary experimental cellular biomarkers such as nerve growth factor (NGF), tumor necrosis factor-alpha (TNF- α), and interleukin-6 (IL-6) are used to review the intonation of oral cancer, obesity, and neurodegenerative disorders^[15]. Intervention through yoga practise influences these molecules and alters them in oral cancer patients. Breathing creates theta waves in brain which may possibly normalize the molecular expression of neurotrophic NGF. Breathing exercises in yoga intensifies the parasympathetic power, vagal tone, and decreases sympathetic discharges which sequentially generates theta waves in brain which ultimately effects the NGF expression^[15].

CONCLUSION

A number of dental problems, right from plaque build up to enamel erosion and tooth decay can be prevented by reducing stress, improving posture, and stimulating saliva production. Yoga, with its slow breathing, progressive exercise, which encompasses meditation and relaxation, is an integrated system that balances the body, energy, mind, and emotions synergistically, enabling each individual to reach its potential, regardless of the age, sex, and phenotype. Combined use of good oral hygiene practices like teeth brushing, flossing, and regular dental cleanings by professional dental hygienist along with the practice of yoga can pave way for healthy teeth and gums.

Conflict of Interest

None.

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