



Musculo-Skeletal Disorders among Dentist and Yoga Pose

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Received 15 August, 2016; Accepted 17 September, 2016 © The author(s) 2016. Published with open access at www.questjournals.org

ABSTRACT: Every individual performs some or other form of occupation or work to earn livelihood and to stay mentally and physically in sound health. Every occupation is associated with some or other side effects referred to as occupational hazard. Dentistry as a profession is a very demanding and challenging profession. To gain accessibility and better visibility dentist attain physical postures which are detrimental to their health. Among the numerous side effects of dentistry musculo-skeletal disorders is one of the most common hazards affecting the dentist. Yoga which originated in India is a form of physical, mental and spiritual practice. In present day the physical postures of Yoga is used to alleviate health problems, reduce stress and make the spine supple in contemporary times. There are numerous yoga poses which have effect on the musculo-skeletal tissues and which when performed as advised have the capacity to negate the musculo-skeletal disorder. Yoga poses which have maximum effect on musculo-skeletal tissues are much easier to perform, less time consuming and are ideal for dentist to follow. Musculo-skeletal disorder among dental profession is a well established fact and yoga poses or exercise can be the best remedial measure to prevent the same.

Keywords: Occupation, Musculo-skeletal disorders, Yoga, Exercise, Poses.

I. INTRODUCTION

Occupation is the work that an individual performs on a daily basis to earn livelihood and to remain mentally and physically fit and in sound health. Every occupation or work an individual performs has got some or other form of side effects or has negative effect on an individual's health. For example soldiers are more prone to accidents and injuries than general population or a coal mine worker is more prone to develop lung or respiratory diseases than his counterpart in other occupation. Disease or ailments that results due to or because of the nature of work an individual performs is referred to as occupational hazards. An occupational hazard or disease is identified when it is more prevalent in a given body of workers than in the general population [1, 2].

Dentistry or dental profession is also a form of occupation. Dentistry as a profession is a very specialized and demanding occupation because of its nature of work such as small working area, awkward working postures, constant focus and high degree of precision etc causes lots of discomfort and illness over a period of time to dentist. To gain access and better visibility of oral cavity dentist tend to acquire skeletal postures which may be detrimental to their good health especially musculo-skeletal tissues. Together with this long duration of dental procedures, high degree of concentration and constant working postures leads to health hazards among the dentists. The occupational hazards that are common in dental profession are cross infection, musculoskeletal disorders, stress and anxiety, radiation, allergic reactions, eye and ear related problems, etc.

II. MUSCULO-SKELETAL DISORDERS

Of the many occupational hazards that a dentist is exposed to musculoskeletal disorder may be considered as one of the most important hazards that a dentist is prone to. Studies have shown that dentist report more frequent and worse health problem [3] particularly musculoskeletal pain [4]. The term MSD refers to conditions that involve the nerves, tendons, muscles and supporting structures of the body [5]. WHO defines MSD as "a disorder of the muscles, tendons, peripheral nerves, muscles system not directly resulting from an acute or instantaneous event ex slips or falls. Musculo-skeletal pain, particularly back pain has been found to be a major health problem for dental practitioners [4, 6]. Studies indicate that back, neck and shoulder or arm pain is present in up to 81% of dental operators [7]. While the occasional back and neck ache is not a cause of alarm,

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if regularly occurring pain or discomfort is ignored, the cumulative physiological damage can lead to an injury or a career ending disability [8]. To obtain good vision and access dentists tend to bend their backs, over flex and twist their neck and raise their arms and shoulders which may cause pressure on nerve roots producing pain and over a period of time this overstressing of muscles and ligaments may result in musculoskeletal disorder.

2.1 Symptoms of MSD [9]

- 1) Excessive fatigue in the shoulder and neck
- 2) Tingling, burning or other pain in arms
- 3) Weak Grip, cramping of hands
- 4) Numbness in fingers and hand
- 5) Clumsiness and dropping of objects
- 6) Hypersensitivity in hands and fingers

2.2 Some of the reasons for MSD:

- 1) Improper patient height and position
- 2) Improper height and type of dentist operating stool
- 3) Repetitive, forceful and stressful muscular actions (Carpel Tunnel Syndrome)
- 4) Improper posture for better visibility and accessibility especially while working on upper maxillary region
- 5) Long, constant and repetitive working postures.

III. YOGA

Yoga is a physical, mental and spiritual practice or discipline which originated in India. In vedic Sanskrit yoga means “to add” “to unite” or to attach in its most common literal sense [10]. Yoga was performed and used in India since a long time however it gained publicity and popularity around late 1980’s to early 1990. It was introduced and gained publicity in western world as a form of physical exercise whereas in India it has much more use such as spiritual and meditation values. As the population practicing Yoga increased steadily and documented evidence showing cure of common ailments like stress, strain, common body ache, obesity, joint pains etc it became more acceptable worldwide. Yoga has established itself into a science in modern world. In present day the physical postures of Yoga is used to alleviate health problems, reduce stress and make the spine supple in contemporary times [10]. Yoga is also used as a complete exercise program and physical therapy routine [11]. Roughly 16 million people in the USA practice some form of yoga, with 61% reporting that yoga is important for maintaining health [12].

3.1 Yoga as Cure for MSD

Movement therapies such as Yoga and taichi have been shown to reduce chronic pain associated with musculoskeletal and joint diseases [13]. Yoga is a physiological and practice that involves physical postures, breathing exercises and meditation to improve overall well-being [14]. Yoga has been used to alleviate musculo-skeletal pain and has been associated with significant improvement in range of motion and function, decreased tenderness [15, 16]; lower levels of depressive symptoms [17] and decreased pain during activity in patients with musculoskeletal disorders [15, 16]. William et al [18] found that Yoga significantly improved functions and reduced pain in participants with chronic low back pain and showed significant improvement in pain related outcomes, pain intensity, functional disability, depression and pain medication usage. Sherman et al [16] reported on the effectiveness of 12 weeks of Yoga sessions compared to conventional therapeutic exercise classes or a self care book and demonstrated that 6 weeks of viniyoga was slightly more effective than conventional exercise and concluded that Yoga was a more effective treatment than a self care book for improving functions and reducing chronic low back pain.

IV. YOGA EXERCISES FOR MSD [19, 20]

In this section we will deal with some of the common yoga poses or exercises for MSD pain. The exercises mentioned here are few among lot of yoga poses that can be performed for relief from MSD. The exercises selected are based on the ease of doing, simplicity and to have maximum effect on MSD. These exercises can be performed by dentist regularly as they are simple and less time consuming.

4.1 Cat & Cow Pose: MARJARIASANA & BITILASAN

This pose is performed for neck and shoulder pain as well as for lower back pain. In this pose you have to be in table top position on your hands and knees and spine in neutral position. On the inhale, round the spine and curve up into your cat pose [Fig 1]. On the exhale, arch the back and lift the chest to come into a cow pose [Fig 2]. Repeat the exercise three to five times, focusing on the breath. These postures help to massage the spine,

while also stretching the back and the torso. Cat-cow tilts can be an effective headache reliever, in addition to opening up the back and stretching the spine.

4.2 Downward Dog Pose: Adho Mukha Svanasana

This pose is a great total body stretch that targets back extensors, or the large muscles that help form your lower back, support your spine and help you stand and lift objects. Start in tabletop and raise your hips so your body is in an upside down V position. Relax your head and neck and draw your inner thighs toward the back of the room. Spreading your shoulder blades apart will stretch your upper back even more, and reaching your hips up and back will help to open your lower back [Fig 3]. Hold the position for 5 to 10 breaths, and repeat the pose five to seven times. This pose lengthens and straightens the muscles of the body. It reduces tension in the shoulders, relaxes the neck, and lets a little more blood flow get to the brain.

The pose is also great for stretching out the wrists and hands, which may become sore or tired from hours of typing or due to holding of instruments or handpiece in case of dentist.

4.3 Child Pose: Balasana

This is an excellent pose not only to relax but it also stretches our entire back and hip. Start on all fours; sit down with your legs folded beneath you, toes touching and knees spread apart from each other, keeping your arms forward; sit back so that your butt is resting just above your heels [Fig 4]. Drape your chest down between your thighs, bringing your forehead to the floor and either extending the arms out in front of you or resting them by your sides.

Hold and breathe deeply, feeling the breath reach all the way into your hips. The more you extend in either direction, the more you'll feel relief.

4.4 Fish Pose: Matsyasana

It is an excellent tension reducer, and can also be therapeutic for fatigue and anxiety, according to Yoga Journal. To come into the pose, sit up on your hips with legs stretched out together in front of you and toes pointed. Bring your hands under your hips and lean back to prop yourself up on your forearms. Then, lift the chest above the shoulders and drop the head back to the ground behind you [Fig 5].

Try to maintain most of the weight of your head in your elbows and forearms, not the crown of the head. Breathe deeply and rest in the pose for 15-30 seconds.

4.5 Cobra Pose: Bhujangasana

Lying on the floor put your hands on the ground slightly in front of you and tuck the elbows into the chest. Push up into your hands, lifting into a slight backbend and drawing the shoulders down [Fig 6].

Turn your gaze upwards, and try not to take any tension into the face or jaw. This pose lengthens and strengthens the back, opens up the chest and counteracts sitting hunch all over the day. It is also a good exercise for the neck and shoulder.

4.6 Triangle Pose:

In this pose there is both stretching and strengthening of the back muscles together with that of the neck and shoulders. Stand with your feet about three feet apart and parallel to each other. Rotate your right foot so the right heel is in line with the arch of the left foot. With your arms extended to the side, tilt at the hip to reach your right hand toward the ground, on either side of your foot. Rotate your body to the side and reach the fingers of your left hand toward the sky as shown in [Fig 7].

Look at your left hand (as long as it doesn't hurt your neck!) and hold for five to seven breaths before switching sides.

4.7 Spinal Twist: Marichyasana C

There is great variety in respect to spinal twist pose. However the common and probably the easy one is the Marichyasana C. In this pose keep your left leg straight and bend your right leg so your foot is flat. Place your right hand on the floor behind you for support, like a tripod, and twist so you can hook your left elbow over the right thigh [Fig 8].

It's a known fact that any form of physical exercise should not be started at one go and warm up exercise to relax the muscle and tissue is very important. Similarly exercise to cool down the body after vigorous exercise is equally important.

For warm up one can perform Standing Forward: Uttanasana Pose: Stand with your feet at hips-width distance, and slowly bend forward from the hips to come into the forward bend [Fig 9].

Then, try adding an arm bind to stretch the shoulders: Interlace your hands at the lower back and stretch the arms over your head and hands towards the ground in front of you. This helps in warming up the spine as well as the shoulders and neck muscles.

To cool down after vigorous yoga regime and to relax; the best pose would be the Sitali Breathing/ Easy Pose: Sukhasana. Come up to sit in a comfortable, cross-legged position. Place one or two folded blankets under your seat so that your knees are lower than your hips [Fig 10].

In this position one can also do neck rolling. To relax and cool down one should close his or her eyes and do slow deep breathing for about 10 to 15 times.

5. Figures



Fig 1 Cat Pose



Fig 2 Cow Pose



Fig 3 Downward Dog Pose



Fig 4 Child Pose

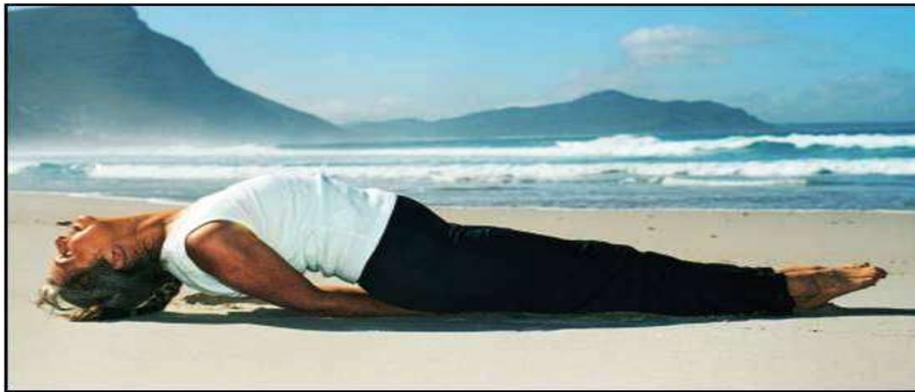


Fig 5 Fish Pose



Fig 6 Cobra Pose



Fig 7 Triangle Pose



Fig 8 Spinal Twist



Fig 9 Standing Forward



Fig 10 Easy Pose

V. CONCLUSION

The purpose of this review article was to recognize musculo-skeletal disorder as a serious and one of the most common occupational hazards of dental profession and to suggest some simple but yet effective yoga exercises for the benefits of the dental professionals. MSD among dental professionals is a well established fact. Numerous research and studies have been conducted in this regard and it should be recognized as one of the most important hazard of dentistry as a profession. Almost every dentist in his/her career will at some point of time will suffer from MSD. As always stated that prevention is better than cure, habit of exercise among dentist should be emphasized from the time they take up dentistry as profession. To start or to make your body perform any form of exercise at the later stage of one's life is always difficult and so should be started at an early age of one's life. Yoga as a cure for MSD is a well known fact now. Yoga exercise among the dental professionals should be emphasized from their college days only so that the habit of exercise among dentist is inculcated from the very start of their career. A formal yoga program should be followed and initiated at various dental institutions so as to develop the habit of exercise among the dental professionals. On an average an individual should devote at least 30 minutes in a day for yoga exercise. This much of exercise is sufficient to undo the likely damage which may happen to our musculo-skeletal tissues after long day of work.

ACKNOWLEDGEMENT

The yoga poses and exercise image are courtesy and copied from Everydayhealth.com and Doyouyoga.com website.

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