Musculoskeletal Disorders & Prevention of the Dental Hygienist

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The purpose of this research project is to inform all future and current dental hygienist’s and dentists of their leading occupational hazard known as musculoskeletal disorder (MSDs). This topic will address where symptoms occur, examples, and solutions to the dental professionals most popular health risk. In this paper, we hope to provide students and hygienists with information that will help identify the early signs of MSDs, prevent and alleviate any major costly conditions. Taking into account the health risks and following the recommendations provided, one might prevent MSDs and other disorders from affecting their career in the dental field.

 “Musculoskeletal disorders (MSD) are widely acknowledged as one of the most common workplace injuries, with health systems around the world.” (Hayes, Taylor, Smith, 2012, pg. 265) The CDC definition of musculoskeletal disorders (MSDs) are injuries or disorders of the muscles, nerves, tendons, joints, cartilage, and disorders of the nerves, tendons, muscles and supporting structures of the upper and lower limbs, neck, and lower back that are caused, exacerbated by sudden exertion or prolonged exposure to physical factors such as repetition, force, vibration, or awkward posture. (<http://www.cdc.gov/niosh/programs/msd>) Repetitive scaling and awkward positioning are the main contributing factors for MSDs. The most primary injury sites for hygienist’s are the neck, shoulders, lower back, dominant hand, mid/upper back, and non-dominant hand. Predictors of MSDs were the types of practice. In General and Private practice they had shoulder pain and in Periodontal practice there was more forearm pain. The types of scaling that caused pain were hard scaling which caused neck pain, and ultrasonic scaling which caused shoulder pain. This is why remembering the basics of posture, proper scaling, mirror and finger rests are so important. During our research we found that “60% of dentist’s and hygienists have experienced musculoskeletal pain and continue to be a major source of disability and lost work time in dental professionals.” (<http://www.ada.org/en/publications/ada-professional-product-review-ppr/archives/2014/november/ergonomics-and-dental-practice-preventing-work-related-musculoskeletal-problems>) When wearing Loupes dental professionals were less likely to experience shoulder, neck, hand or wrist pain (Hayes, Taylor, Smith, 2012, Pg. 266). Loupes greatly decreases poor vision during intraoral procedures, helps with not having to stray away from neutral positioning, and puts less eye strain on the clinician. If loupes are not made for the clinician wearing them this could intensify musculoskeletal issues. Loupes must be fitted properly for that person, along with the correct magnification. It has been said that loupes also increase production of the dental office by assisting the hygienist in co-diagnosing patients along side the dentist. “Production has increased as a direct result of wearing the loupes and light. The dentist’s production also increases when the dental hygienist can co-diagnose patient restorative and periodontal needs.” (Dental Hygiene Economics. www.rdhmag.com/articles/print/volume-31/issue-8/features/dental-hygiene-economics.html.)

As hygiene students we have been told countless times to watch our positions in our chair and our patients chair along with how much force we place on our instruments when scaling. All of these factors come to mind when trying to relieve MSD symptoms. As we research MSD symptoms and the prevalence of the causes our findings have told us that repetition, long hours, awkward positions, instrument design, chair positioning for the patient and the force exerted on the instrument when scaling are all factors we need to be aware of to prevent MSD symptoms from occurring. To help avoid these contributing factors the clinician should always go back to the basics: position, grasp, mirror, finger rests, and stroke. They should maintain a neutral body position throughout the day and make sure they are relaxing their grip on the instruments when scaling. When scaling you should be using the modified pen grasp and have a stable fulcrum. A stable fulcrum helps with strokes, prevents unexpected movements, and decreases the muscle load. Excessive force and lengthy exertions can be eliminated with making sure your instruments are sharp for each patient. When instruments are sharp it decreases the amount of strokes used, removes calculus easier and will help decrease clinician fatigue. The clinician should take into account the weight, diameter, and texture of the instruments they are using. The heavier the instrument or the smaller the diameter the more strain you will be placing on your muscles because it will be cause you to have a much tighter grip on these types of instruments. The texture of the instrument helps to have a better grip and more control. Therefore, the clinician should try having instruments that are lighter in weight and larger in diameter, which causes a loosening of their grip and to have a textured handle. The strokes the dental hygienist should be using are short, controlled, biting strokes. These strokes help eliminate extreme flexion, hyperextension and rotation of the wrist when scaling. There are also specific chairs that can help reduce the amount of stress we put on our bodies during dental exams. These chairs have adjustable back rests, seats, and contoured seating which is good for some but others might need a saddle stool, ball chair or even a dynamic seat. All of these options are more of a preference than something you have to have. Mirror and finger rests are very important to the dental hygienist, they have a lot of different uses to help create better positioning and reduce muscle stress.

CAM (Complementary and alternative medicine) therapies have been shown to help reduce and exacerbate the symptoms of MSD. CAM therapies can be used after a person that seeks traditional medicine does not have any alleviation from pain. “Using CAM therapies has increased job happiness, security and overall health and well-being, contributed to career longevity, and enabled RDHs to work the number of hours they prefer” (Chismark, Millar, 2014). “Yoga, massage therapy, acupuncture, mind-body therapy, meditation, herbal supplements and osteopathy which is form of drug-free non-invasive manual medicine that focuses on total body health by treating and strengthening the musculoskeletal framework, are all apart of CAM therapies. Our main focus for how to alleviate and reduce MSD symptoms and pain in the office and at home will be yoga positions, and stretching techniques for the dental hygienist. Yoga is a CAM therapy that unites the body, mind, and spirit using breathing methods and a series of standing and seated postures. It is a mindful type of practice where individuals focus their breath and attention on proper alignment in order to gain the full benefits of each pose. There are many types of yoga styles, including but not limited to Hatha, Vinyasa, Kundalini, and Iyengar.” Kundalini yoga combines meditation, mantra, physical exercises and breathing techniques where as Vinyasa and Iyengar focuses only on posture and breathing techniques. “Yoga targets a number of muscle groups, leading to improved posture and spinal alignment. Yoga has been shown to reduce pain, the need for medication, and to improve function among the general population. Pain reduction has been reported when individuals practiced yoga at least once a week for a minimum of 12 consecutive weeks. Yoga has also been shown to reduce stress and bring a sense of peace and well being to the mind. Since yoga has been shown to reduce pain among the general population, serious consideration should be taken to incorporate yoga into the dental hygiene curriculum to prevent pain while in school and later in the career.” (Chismark, Millar, 2014) There are various chair side stretches and yoga positions you can incorporate into your daily routine such as finger and arm stretches, and wrist and shoulder rolls.

Therefore, in conclusion to this research paper, we hope all readers who are pursuing a career in the dental field take into account the effects of Musculoskeletal Disorder. We want people to understand this leading occupational hazard, the early symptoms of MSDs, proper positioning, and stretching techniques that could help prolong the career of someone in the dental field. We recommend further researching the CAM therapies mentioned, reading more about the warning signs of MSDs, and how someone could incorporate this into their own routines at work. Most importantly, we want people to not fear becoming a dentist or hygienist because of this disorder, but to know how they could prevent it.