

Journal of Dental Science and Therapy

Musculoskeletal Pain in Dentists: Protecting Yourself in the Workplace

Colleen A Watson, DDS^{1*} and Ana Sangadala B.S., DDS²

¹Clinical Instructor, College of Dentistry, New York University

²Candidate Class of 2017

***Corresponding author:** Colleen A Watson, DDS, Clinical Instructor, College of Dentistry, New York University, USA; E mail: caw2008@nyu.edu

Article Type: Review, **Submission Date:** 27 February 2017, **Accepted Date:** 25 March 2017, **Published Date:** 29 June 2017.

Citation: Colleen A Watson, DDS and Ana Sangadala B.S., DDS (2017) Musculoskeletal Pain in Dentists: Protecting Yourself in the Workplace. J. Dent. Sci. Ther 1(3): 6-7. doi: <https://doi.org/10.24218/jdst.2017.12>.

Copyright: © 2017 Colleen Watson and Ana Sangadala. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Back pain is a common complaint amongst the US work force and is the most common reason people see primary care physicians. This presents a large burden on industry in the workplace and economy. It has been estimated that people who suffer from back pain will miss twelve more days of work per year than their healthy counterparts [1]. The economic impact of this results in a loss of 100-200 billion dollars from lost productivity in the workplace [2]. There is no greater evidence of this burden than among dental professionals. Research estimates that 33-87% of dentists experience musculoskeletal pain in their back, neck, and shoulders [1,3-7]. Even more alarming is that these complaints are equally as common amongst dental trainees as they are practicing dentists, with Rising et al showing that over 70% of dental students report having back pain by their third year [8]. These results indicate that some dentists are practicing their entire careers suffering from musculoskeletal pain, which by definition would classify the pain as a chronic pain syndrome. While many dentists may be able to adjust to and work through their chronic pain, it is associated with higher rates of depression, anxiety, sleep disturbance and heart disease. Therefore, it is imperative that dentists become knowledgeable about musculoskeletal health and how to prevent musculoskeletal pain in order to have a sustainably healthy long-term career. In this literature review, we have identified 17 articles from the PubMed Database for scientific literature. Keywords of “musculoskeletal pain dentist” and “dentist occupational health pain” were used to search for articles. 50 abstracts were reviewed, and these were narrowed to 17 articles for this review based on relevance, recent studies, and quality of study. We have compiled the qualitative results and important findings from the results of the studies to compose this review of current findings on musculoskeletal pain in dentists.

Bergquist-Ullman et al performed a prospective cohort study for back pain with 13,000 workers, with 8,500 “manual” workers

and 4500 “office” workers. The primary difference between the two groups was that the “office” workers performed their jobs from a primarily seated position. In contrast “manual” workers performed their primarily from a standing position. In this respect, the “office” workers represent a cohort of patients for which information regarding musculoskeletal pain in dentists may be extrapolated. The study showed that amongst “office” workers with back pain, 26% experienced radiation of their back pain to the gluteal region or thigh, the majority of patients would characterize their pain as intense, over half experienced continuous aching, and pain when leaning forward and sitting was the predominating functional limitation [9].

In the dental population, causes of musculoskeletal pain are multifactorial – including but not limited to prolonged muscle contraction, muscle imbalances, and poor posture [10]. Posture, representing the contributing factor that dentists maintain the greatest control over, is unique to each dental operator based upon the clinical scenario. As a consequence, there has been difficulty in defining postural standards for practicing dental professionals. With that said, the most up to date research indicates that prolonged sitting in a flexed posture is the most common cause of low back pain in dentists, while prolonged sitting in a static posture is the most common cause of neck and upper back pain in dentists [11]. These findings come on the heels of Spine Health research revealing that lumbar intradiscal pressure is higher while sitting in comparison to standing [12].

Gender may also be a contributing factor in dentists developing musculoskeletal pain. In a 2009 publication in the *Spine* journal by Janssen et al, it was revealed that male and female spines have unique and distinct characteristics. Notably, the female spine was found to be less rotationally stable in comparison to the male spine [13]. This may explain why female dentists have a higher incidence of pain and discomfort than their male counterparts

[6,8]. Interestingly, current survey data indicates that younger dentists experience more pain and discomfort than older dentists [6]. This implies that, perhaps, over time dental professionals develop strategies to attenuate musculoskeletal pain.

Given the nature of dentistry as a profession, back pain is a persistent problem. We need to be diligent in finding ways to alleviate back pain, and more importantly, prevent back pain. Present literature recommends a few techniques for practicing dentists to prevent the initiation back pain. Postural changes shown to decrease back pain in dentists include sitting low, using a dental mirror more often while working, and ensuring proper lumbar support, including using a lumbar roll [5,14,15]. In addition to postural changes, physical exercise and alternating between sitting and standing while working have been shown to decrease reported pain scores amongst dentists [16,17].

In conclusion, back pain is a tremendous public health problem not only for our patients but also for us as dental professionals. Poor posture while working appears to be the single most important contributing factor to the development of musculoskeletal pain in dentists. Young dentists and dental trainees should focus on mastering procedural techniques while sitting low in their work chairs, frequently using the dental mirror, and ensuring proper lumbar support while sitting. Developing these good habits while training will decrease the likelihood of experiencing musculoskeletal pain. The articles that were reviewed allow us to recognize specific muscle groups, demographics, and habits associated with musculoskeletal pain in dentists. Further research in techniques to alleviate back pain and identifying triggers may help to deepen our understanding of ergonomics in the field of dentistry.

References

1. Leggat PA, Smith DR. Musculoskeletal disorders self-reported by dentists in Queensland, Australia. *Aust Dent J*. 2006; 51(4):324-327.
2. World Health Organization "Priority Medicines for Europe and the World 2013 Update".
3. Marshall ED, Duncombe LM, Robinson RQ, Kilbreath SL. Musculoskeletal symptoms in New South Wales dentists. *Aust Dent J*. 1997; 42(4):240-246.
4. Pargali N, Jowkar N. Prevalence of musculoskeletal pain among dentists in Shiraz, Southern Iran. *Int J Occup Environ Med*. 2010; 1(2):69-74.
5. Rundcrantz BL, Johnsson B, Moritz U. Cervical pain and discomfort among dentists. Epidemiological, clinical and therapeutic aspects. Part 1. A survey of pain and discomfort. *Swed Dent J*. 1990; 14(2):71-80.
6. Rundcrantz BL. Pain and discomfort in the musculoskeletal system among dentists. *Swed Dent J Suppl*. 1991; 76:1-102.
7. Chowanadisai S, Kukiattrakoon B, Yamong B, Kedjarune U, Leggat PA. Occupational health problems of dentists in southern Thailand. *Int Dent J*. 2000; 50(1):36-40.
8. Rising DW, Bennett BC, Hursh K, Plesh O. Reports of body pain in a dental student population. *J Am Dent Assoc*. 2005; 136(1):81-86.
9. Bergquist-Ullman M, Larsson U. Acute low back pain in industry. A controlled prospective study with special reference to therapy and confounding factors. *Acta Orthop Scand*. 1977;(170):1-117.
10. Valachi B, Valachi K. Mechanisms leading to musculoskeletal disorders in dentistry. *J Am Dent Assoc*. 2003; 134(10):1344-1350.
11. Murphy S, Buckle P, Stubbs D. Classroom posture and self-reported back and neck pain in schoolchildren. *Appl Ergon*. 2004; 35(2):113-120.
12. Claus A, Hides J, Moseley GL, Hodges P. Sitting versus standing: does the intradiscal pressure cause disc degeneration or low back pain? *J Electromyogr Kinesiol*. 2008; 18(4):550-558.
13. Janssen MM, Drevelle X, Humbert L, Skalli W, Castelein RM. Differences in male and female spino-pelvic alignment in asymptomatic young adults: a three-dimensional analysis using upright low-dose digital biplanar X-rays. *Spine (Phila Pa 1976)*. 2009; 34(23):E826-32.
14. Williams MM, Hawley JA, McKenzie RA, van Wijmen PM. A comparison of the effects of two sitting postures on back and referred pain. *Spine (Phila Pa 1976)*. 1991; 16(10):1185-1191.
15. Hardage JL, Gildersleeve JR, Rugh JD. Clinical work posture for the dentist: an electromyographic study. *J Am Dent Assoc*. 1983; 107(6):937-939.
16. Ratzon NZ, Yaros T, Mizlik A, Kanner T. Musculoskeletal symptoms among dentists in relation to work posture. *Work*. 2000; 15(3):153-158.
17. Lehto TU, Helenius HY, Alaranta HT. Musculoskeletal symptoms of dentists assessed by a multidisciplinary approach. *Community Dent Oral Epidemiol*. 1991; 19(1):38-44.