

Ergonomics: Important Aspect for Dental Students

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Editorial

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Editorial

Recent socio-economic changes (stiffer competition, more demanding patients, more intensive working conditions) have made the daily work of the dentist increasingly stressful. Excessive mental pressures have given rise to problems that affect the musculoskeletal and nervous systems. It is a well-known fact that stress can cause muscular cramps and pain, especially in the trapezius muscle. When asked whether they regarded dental work as stressful 91% of the respondents answered in the affirmative.

Work of a static character is performed with the force of the muscles maintained in a fixed position. In cases of static exertion the blood flow is impeded by the contracture of the muscles, and the accumulated waste products causes acidity, tiredness and muscular pain. Dental practitioners are frequently exposed to a variety of occupational hazards such as physical, chemical, biological, and ergonomics which create musculoskeletal disorders.

Disorders of the musculoskeletal system is not a new problem for dentists. The dental profession not only involves intellectual, but also physical effort. The energy expended in such work is not great (approx. 1.2 kcal/min). Nevertheless, it is important to bear in mind that dentists perform the vast majority of their clinical procedures in a constrained posture and with static loading of the muscles, which is much more harmful for all systems, in particular the nervous- and musculoskeletal systems than dynamic loading.

While performing clinical procedures dentists must adopt a standing or sitting position, usually while bending over and twisting the spine and at the same time placing excessive pressure on tissue located on the same side and extending onto the opposite side. This constrained, un-

physiological posture of the body leads to loading of the muscles of the back, neck, shoulders and to the pressure of the intervertebral discs pushed outwards onto the ligaments, zygapophyseal joints and nerve bundles. The long-term effect of muscle contracture and spinal loading is deformation of the osteo-articular system as well as pain in the musculoskeletal system. This pain is sometimes so acute that dentists are forced temporarily to interrupt their professional work or even retire early. Despite the fact that dentists are increasingly overworked the tempo of life has increased significantly in the last few years and more and more stress-inducing factors have come into play.

Because of the burdensome nature of the dentist's work experts recommend physical exercise outside the dental clinic. Spending prolonged periods in a fixed position, thereby placing pressure on muscles and increasing skeletal loading, and having to focus on a small field of vision is sufficient reason for dentists to activate both tensed-up muscles and those not engaged or only to a lesser extent engaged in the working process. One factor that affects the dentist's ability to tolerate physical loading (both dynamic and static) is physical fitness. To work the whole time in the optimal ergonomic position the dentist requires highly resilient back and pectoral girdle muscles. For example, if the trapezius muscle tires the operator begins to adopt a posture with rounded, raised shoulders. This is especially important for women, as their muscles are approximately one third less resilient than those of men, and thus more quickly assume an incorrect position during work. They are thus more susceptible to musculoskeletal disorders. Aerobic exercises are necessary to strengthen muscles and in this way prevent the occurrence of pain, while stretching can be helpful in softening pain in muscles and joints. Work related musculoskeletal disorder is very common

problem amongst dentist as they are involved in static posture for long time. It not only affect the work efficiency but also practice in long run. so, the aim of study was to assess the knowledge of ergonomics in Dental preclinical undergraduate students. There is strong relation between the incorrect working posture and the musculoskeletal disorders.

Dentistry involves, clinical procedures to be performed on patients which requires continuous sitting and standing position. While performing the procedures operator/students ignore the working posture and position which leads to postural imbalance. This causes pain and discomfort in upper and lower back, neck region, arms and finally to musculoskeletal disorders. Ergonomics in dentistry is defined as reduction in cognitive and physical stress, preventing occupational diseases, thereby improving efficiency, with better quality and greater comfort for both the practitioners and patients.

To avoid the dangers to health connected with their work dentists should constantly educate themselves in how to prevent musculoskeletal disorders as well as in all aspects of dental ergonomics in the broadest sense of this term. They should begin learning about ergonomics during their undergraduate coursework and continue to do so throughout their entire professional careers.

Perception of dental professionals toward ergonomics revealed that majority of them had knowledge of ergonomics but their attitude was not satisfactory, so there is a need to motivate and promote ergonomics through ergonomically designed dental instruments and

working stools. Dental students using conventional chairs need immediate change in their posture. Implementing an ergonomic posture is necessary as they are at high risk for developing musculoskeletal disorders. A poor ergonomic posture can make the dental students get habituated to the wrong working style which might lead to MSDs (Musculoskeletal diseases). It is advisable to acclimatize to good habits at the inception of the course, to prevent MSDs later in life. To reduce discomfort in the neck and upper back it is highly recommended that working distance should be maintained for optimal posture, with shoulders relaxed and elbows closed to the sides. Before starting any clinical work, the operator must adjust the arm rest which will improve elbow support and decrease neck and shoulder fatigue. Discomfort in the lower back can be prevented by using a saddle type operator stool with lumbar support.

This is to maintain the natural lower back curvature which also allows to the operator to stay closer to the patient. The lumbar support should always stay in contact with the operator's back. It is recommended to conduct more research through observational studies, physical examination and assessment.

Ergonomics should be covered and taught as part of the dental curriculum to reduce risks of WMSD in the future. Therefore, ergonomics improvements, health promotion and institutional interventions are needed for reducing the risks for WMSD. It is equally important to develop intervention programs to address the students' knowledge and practice of ergonomics during their Undergraduate Pre-clinical session.

