Ergonomics in Dental Practice

INTRODUCTION

Recently, “Ergonomics” has become a popular term. The term has been used with most professions but increasingly in the dental profession. The word ‘Ergonomics’ was derived from the Greek word: Ergo which means work; and ‘nomos’ meaning natural laws. It is the science of fitting the job settings conducive to the worker. In simple terminology, Ergonomics is a way to work smarter- nut harder, by designing tools, equipment, work stations and tasks to fit the job to the worker- NOT the worker to the job. Proper ergonomic design is necessary to prevent repetitive strain injuries (RSI), which can develop over time and can lead to long term disability.

What are some of the most common ergonomic issues/risks that dentists face in clinical practice?

1. Poor working postures and positions.
2. Sustained muscular contractions during long procedures that can lead to decreased blood flow to tissues, muscle spasms and increased stress on pain-producing structures.
3. Significant repetitive movements with forceful exertions during many procedures.
4. Visual fatigue due to poor visualization, inadequate lighting of the oral cavity or lack of magnification.
5. Poorly working equipment or lack of adjustable equipment.
6. Stressed patients: practitioners often share the stress felt by patients.

SITTING POSTURE: Human spine has four natural curves; cervical lordosis, thoracic kyphosis, lumbar lordosis and sacral kyphosis (Fig: 1). When sitting unsupported frequent posture dentistry the lumbar lordosis flattens. The bony infrastructure provides little support to the spine, which now is hanging on the muscles, ligaments and connective tissue at the back of the spine, causing tension in these structures. Ischemia can ensue, leading to low back strain and trigger points. Maintaining the cervical lordosis in the proper position is equally important

Mechanisms MSDs in Dentistry:

Prolonged Static Postures (PSPs): When the human body is subjected repeatedly to PSPs, it can initiate a series of events that may result in pain, injury or a career-ending MSD.

Muscle Ischemia/Necrosis and Imbalances: During treatment, operators strive to maintain a neutral, balanced posture and find themselves in sustained awkward postures. These postures often lead to stressed and shortened muscles which can become ischemic and painful, exerting asymmetrical forces that can cause misalignment of the spinal column (Al Wazzan et al, 2001).

Hypomobile Joints: During periods of PSPs or when joints are restricted due to muscle contractions, synovial fluid production is reduced and joint hypomobility may result.
pan and armrests, because in most dental offices, many people of different sizes use the same workstation (F)

(3) Work close to your body: Position the chair close to the patient and position the instrument tray close to the chair. This way, dentist does not have to overextend himself to reach the patient or instruments, putting excessive stress on back, shoulders and arms. Think of the 90° rule of having elbows, hips, knees, and ankles all forming 90° angles.

(4) Minimize excessive wrist movements: Try to keep them in a neutral position (palms facing each other, shoulder width apart with wrists straight), which puts wrist muscles and tendons in a much better relationship to perform the work.

(5) Avoid excessive finger movements: When one can combine the excessive forces needed to hold the instruments with the amount of repetitions that he/she can perform each day, one can see the tremendous toll that this takes on the small muscles of fingers. Retraining of shoulders and arms to position hands

Conclusion: Ergonomics have come into the profession in a big way. Further development of dental ergonomics must take place on the basis of a coherent vision of the future. In this regard, it must be clear exactly what ergonomics is and what developments have already taken place. Some aspects of particular interest are (i) the prevention of occupational diseases; (ii) legal responsibility for protecting the health and safety of employees and students; (iii) education, academic development and research of dental ergonomics using organizational models in daily dental practice. By practising correct postures, the working capacity and productivity of dental professionals will enhance. They can work in a pain-free environment for quality dental care to their patients.

REFERENCE