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Managing the Risk of Repetitive Stress Injuries

RSIs can cut short the careers of dentists and staff members. To combat this threat, dentists may need to make ergonomic adjustments to the work environment.

Chronic work-related musculoskeletal disorders are becoming more prevalent in the American workplace. The Bureau of Labor Statistics estimates that more than 60 percent of new workplace ailments reported in 1995 were repetitive stress injuries (RSIs). The costs are staggering: in 1997, workers' compensation for RSI and back injuries claims amounted to an estimated \$20 billion, while the indirect costs (including lost work time, reduced productivity and rehabilitation expenses) added an additional \$100 billion.

RSIs are the result of excessive demands on the mind and/or body. When the body doesn't have a chance to heal adequately, the damage is cumulative and can eventually become disabling.

CTDs and Dentistry

Upper extremity cumulative trauma disorders (CTDs) are recognized as an occupational hazard for dentists and staff. Repetitive hand or wrist movements coupled with prolonged, awkward body positioning can lead to chronic injury. Symptoms include tingling or numbness in the fingers and hands, sharp pains, burning sensations, hand stiffness, thumb weakness, inability to make a fist and diminished grip strength.

The most obvious risks associated with CTDs are dentist and employee injuries, long- and short-term disability claims, and workers' compensation claims. However, the reduced grip strength and loss of tactile sensitivity and dexterity associated with CTDs can also lead to patient injuries and significantly increase the potential for professional liability claims. CTDs are clearly a significant risk management issue for all dentists.

Reducing the Risk

Experts agree that the key to reducing RSI is decreasing stress and adjusting the work environment to the body's needs. In general, this means

- avoiding (as much as possible) repetitive tasks, awkward posture and forceful arm and hand movements
- taking frequent breaks
- performing stretching exercises at regular intervals

Equipment and Procedures

Dentists seeking to minimize RSI problems should also pay careful attention to certain equipment and procedure issues.

Gloves. The advent of universal infection control procedures led many practitioners to don ambidextrous latex exam gloves, which were originally intended for brief medical examinations, not prolonged use. These gloves exert a continuous, counteracting force against the thumb when the hand is in a functioning

position. This can fatigue the thumb muscles, compress or constrict the blood supply and contribute to CTDs. Right and left-hand gloves are more appropriate for dental personnel who wear latex gloves for extended periods.

Handpieces. Handpiece design and sterilization protocols also play a role in CTDs. Using a straight-nose cone slowspeed handpiece with a disposable prophylaxis-angle results in significant wrist deviation, awkward wrist posture and increased joint vibration. Autoclavable contra-angle handpieces and prophylaxis-angle designs are reported to be ergonomically preferable. In addition, using plastic sheath barriers on non-autoclavable handpieces increases the grip force required to hold and maneuver the instruments because the barriers significantly reduce the coefficient of friction normally found directly between instrument surfaces and latex gloves.

Hygiene procedures. Traditional dental hygiene procedures can cause nerve compression, leading to tendinitis and carpal tunnel syndrome. Researchers have discovered a significant correlation between symptoms (such as nocturnal pain, numbness, paresthesia and clumsiness), the time spent treating patients and the types of patients treated. Using hand instruments with larger, lighter handles can reduce the fatigue and trauma associated with scaling and root planing procedures. Scheduling breaks between appointments, staggering the frequency of scaling and root planing appointments, and limiting the number of patients treated per day may also help reduce these risks.

Dental assistant risks. Dental assistants often assume awkward body positions when caring for patients and frequently battle rear delivery system cords and hoses that exert pressure on shoulders, arms, wrists and fingers. Proper patient positioning, good body mechanics, correct seating and ergonomic operatory design can address these risk factors.

Computer terminals. Office managers and staff members now rely heavily on computer keyboards and pointing devices. They often cradle telephone handsets with their neck and shoulders while juggling phone duties, insurance forms and appointment books. Telephone headsets, workspaces designed around work flow and ergonomically sound work stations can help decrease the incidence and severity of employee injuries and consequent workers' compensation claims. Comfortable employees perform better and project a more professional image.

Many dentists are also incorporating computer terminals into the operatory environment. Both infection control concerns and ergonomic issues need to be addressed when designing a computerized operatory workspace.

Early intervention is crucial to reducing the impact of RSI on your dental practice. By implementing appropriate solutions, dentists can reduce potential pain and discomfort, improve productivity and increase patient satisfaction.

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