

# MSD

## Musculoskeletal Disorders

In your workplace, very few activities can instantly cause injuries or pain. On the other hand, certain postures and tasks, seemingly harmless and trivial, are repeated so many times over several months and even years, that they eventually lead to injuries. This may sometimes make work and life in general more difficult, and can even lead to permanent disability.

Did you know that, although most electrologists are right-handed, many of them suffer pain in their left shoulder? The simple act of keeping the client's skin taut may lead to injuries, making work uncomfortable, painful, require treatment and even lead to days of lost work! Holding the probeholder or keeping the client's skin taut are not, however, the leading causes of shoulder pain, it is the act of keeping the arm elevated for several minutes at a time, several times a day.

Over the years, work-related pain and disabilities that lead to long-term injuries have been defined in many different ways. We use the term «musculoskeletal disorders (MSD)».

Musculoskeletal disorders are related to different stresses that are often combined in a single work situation, i.e. stresses related to fixed postures, force or repetitive movements. One or several factors may be present. Their combination increases the level of risk.

### Combination of factors that may cause injuries

Injuries may be caused either by the repetition of the same movement over and over again, or the lack of movement in a fixed, i.e. static, posture. The back and shoulders, involved in stabilizing the upper limbs, are particularly affected by this type of posture.

The amount of force required to perform tasks with high accuracy is also a critical factor in the development of MSD. As the muscular effort increases, energy and blood circulation decrease, thereby leading to rapid muscular fatigue. The amount of time needed to recover may quickly exceed the actual time of work. If the resting time is insufficient, injuries may occur in muscle tissues. It has been shown (source: Patry, 1996) that the combination of force and repetition factors increases the risk of MSD by a factor of 29!

In 2000, a study on the reduction and prevention of MSD in dental clinics was undertaken by Mrs. Rose-Ange Proteau, ergonomist at the Association for Health and Safety in the Workplace (ASSTSAS). Mr. Denis Marchand, Ph.D. and professor at the Department of Ergonomics at UQAM, coordinated the study funded by the Institut de recherche Robert Sauvé en santé et sécurité du travail (IRSST).

Mrs. Proteau collaborated with Mrs. Lyne Noiseux, industrial designer for Akio Design, to design and develop new movable elbow supports, adapted for repetitive tasks that demand accuracy. In a clinical study conducted with dental hygienists, the muscular activity of eight muscles was measured by surface electromyogram (EMG) before and after one month of using the new supports. The results showed a significant reduction of muscular strain, down 50%.

Since 2001, it has been proven that Posiflex™ movable elbow supports prevent and reduce the risk of MSD for electrologists. Mrs. Hélène Dionne, electrologist and former dental hygienist, was the first to show that the work of an electrologist is similar to dental work, since it requires the same accuracy and repetitive movements.

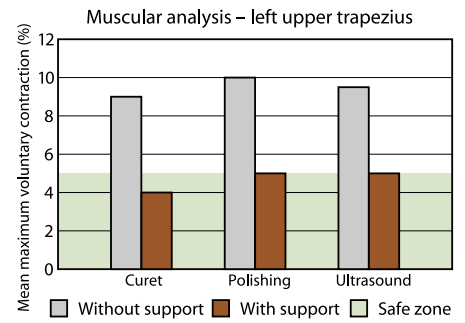
The Posiflex™ movable elbow supports are equipped with a ball-and-socket mechanism that flows with the body's natural movements, while it supports the weight of the arm. The elbow support is very helpful to maintain a good posture throughout the day. The pad, made of urethane gel, is very comfortable for the elbow. The height adjustment helps keep the shoulder relaxed while you work.

After using Posiflex™ supports for a few weeks, Mrs. Dionne told us: «Before using Posiflex™ elbow supports, I would often experience fatigue and even pain in my shoulder and neck at the end of the day. Since I discovered Posiflex™ elbow supports, I no longer have these aches and pains, even after working long hours» (see "Dectro Specials", Canada only). ♦

**Reference**

Rose-Ange Proteau, ergonomist, ASSTAS, Guide de prévention des troubles musculo-squelettiques en clinique dentaire, 2002.

Patry, 1996.



Excerpt from the study: mean percentage of muscular strain (MS) in the upper trapezius muscle with and without movable elbow supports. The safety zone is below 5%; the elbow supports are successful in keeping the MS at or below this safety level.

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