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This guide was designed to help physicians interpret the results of a medical examination. By combining the standard clinical assessment procedure with guidelines concerning the identification of etiological factors, it helps physicians identify the cause of injury.

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De Quervain’s Tenosynovitis

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De Quervain’s Tenosynovitis

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The diagnosis of cumulative trauma disorders (CTDs) presents many unique problems, especially for physicians. The absence of precise criteria upon which to establish a clinical diagnosis of CTD or decide whether a musculoskeletal injury is related to occupational factors was noted by several members of the advisory committee supporting an international expert group mandated by the IRSST to review the literature on CTDs*. To remedy this situation, in 1992 the IRSST asked a group of researchers to develop diagnostic guides for carpal tunnel syndrome, De Quervain’s tenosynovitis, and tendinitis of the shoulder.

The project team was initially composed of Louis Patry, occupational medicine physician and ergonomist, and Michel Rossignol, occupational medicine physician and epidemiologist, but quickly grew and increased the scope of its expertise through the addition of Marie-Jeanne Costa, a nurse with ergonomics training, and Martine Baillargeon, a plastic surgeon. All four team members participated in the drafting of the guides.

These guides were designed to help physicians arrive at a clinical diagnosis and identify the most probable etiological agents. It should be noted that these guides were not designed for administrative or legal purposes and that their reliability has not been evaluated by the researchers.

The publication of these guides designed specifically for physicians is one more advance in the IRSST’s efforts to shed light on the phenomenon of cumulative trauma disorders and provide specialists with appropriate tools with which to prevent these injuries and reduce related risk factors.

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This guide is the second in a series of practical summaries of current medical knowledge on musculoskeletal injuries with well-documented occupational etiology, namely:

- carpal tunnel syndrome (CTS)
- De Quervain’s tenosynovitis
- tendinitis of the shoulder

When occupational in origin, these injuries are often referred to as “CTDs”, a term applicable to “problems and diseases of the musculoskeletal system that include, among their causes, some factor related to work” (Hagberg et al., 1995). Whatever term is used to designate them—occupational overuse syndrome (OOS), repetitive strain injuries (RSI) or cumulative trauma disorders (CTDs) in English, troubles musculo-squelettiques (TMS), lésions musculo-squelettiques (LMS), lésions musculo-tendineuses (LMS), lésions musculo-tendineuses liées aux tâches répétitives, or pathologies d’hyper-sollicitation in French—their defining characteristic is the presence of an injury caused by biomechanical strain due to tension, pressure, or friction which is excessively forceful, repetitive, or prolonged.

This guide is designed for physicians who are called upon in the course of their practice to diagnose musculoskeletal injuries and establish the extent to which these injuries are caused by their patient’s work. Its goal is to help physicians arrive at clinical and etiological diagnoses. To this end, the guide first reviews the anatomical, physiopathological, and etiological knowledge upon which diagnosis depends. This is followed by guidelines for the evaluation of symptoms, the conduct of the clinical examination, and the control of potential risk factors related to the development of the injury.

Musculoskeletal injuries may have many causes. For carpal tunnel syndrome (CTS), De Quervain’s tenosynovitis, and tendinitis of the shoulder, these include not only occupational, sports-related, recreational, and household activities, but also specific health problems and conditions. This guide was prepared in response to requests from physicians, increasingly preoccupied by CTDs, for information and support on this subject. Although the approach taken emphasizes the documentation of potential occupational risk factors—a subject little discussed in formal medical training—it does not neglect the evaluation of other potential causes of De Quervain’s tenosynovitis.

This guide is meant to be used in a clinical setting. To help physicians collect the information they need to diagnose the injury and establish its causes, it therefore includes a series of questions, presented in readily identifiable text boxes, for them to ask their patients. These questions were derived from psycho-physical scales used by ergonomists to subjectively evaluate workload (Sinclair, 1992) and medical questionnaires developed for the diagnosis of CTS and the evaluation of functional capacity (Katz et al., 1994; Levine et al., 1993; Rossignol et al., 1995).
Should however a physician remain unable to come to a definitive conclusion about the work-relatedness of an injury after consulting this guide, she or he should continue to seek information which will enable her or him to better evaluate the occupational musculoskeletal load to which her or his patient is subjected.

Finally, it should be noted that this guide does not address the issues of multiple injuries and the psychosocial aspects of musculoskeletal injuries, important as they may be for the global evaluation of the patient.
# TABLE OF CONTENTS

## Chapter 1 – General Considerations
- Introduction and Terminology .......................................................................................................... 1
- Epidemiology ........................................................................................................................................ 1
- Anatomical Review .............................................................................................................................. 1
- Pathophysiology ................................................................................................................................... 1

## Chapter 2 – Etiology
- General Considerations ....................................................................................................................... 3
- Work-relatedness of Musculoskeletal Strain .................................................................................... 3

## Chapter 3 – Differential Diagnosis
- Thumb carpometacarpal osteoarthrosis ........................................................................................... 5
- Intersection Syndrome ........................................................................................................................ 6
- Wartenberg’s Syndrome ..................................................................................................................... 6
- Brachioradialis Insertion Tendinitis (Insertion of the Brachioradialis) ....................................... 7
- Tendinitis of the Extensor Digitorum Communis ......................................................................... 7

## Chapter 4 – Clinical Considerations
- Symptoms .............................................................................................................................................. 9
  - Location of Symptoms (Where?) .............................................................................................. 9
  - Onset of Symptoms (When?) ............................................................................................... 9
  - Characteristics of Onset (How?) ........................................................................................... 9
- Impact on Activities of Daily Living .............................................................................................. 10

## Chapter 5 – Recording of Information on Exposure Factors
- Occupational History ........................................................................................................................ 11
  - Previous Work ............................................................................................................................ 11
  - Current Work ...................................................................................................................................... 12
- Current Work and Organisational Factors ............................................................................. 14
  - Sports-related, Recreational, And Household Activities .......................................................... 15

## Chapter 6 – Clinical Examination
- Physical Examination ........................................................................................................................ 17
  - Observation ...................................................................................................................................... 17
  - Palpation ....................................................................................................................................... 17
  - Assessment of Range of Movement .............................................................................................. 17
INTRODUCTION AND TERMINOLOGY

De Quervain’s tenosynovitis or teninitis was first described in 1895 by Fritz De Quervain, a Swiss surgeon. Prior to this, the first use of the terms “tenosynovitis” and “crepitating peritendinitis” to describe injuries to the tendons and surrounding tissues was by Velpeau in 1825. This condition is a wrist teninitis with inflammation of the tendon sheaths of the abductor pollicis longus and extensor pollicis brevis.

EPIDEMIOLOGY

De Quervain’s tenosynovitis is the most common tenosynovitis affecting the dorsal tendons of the wrist. It is usually diagnosed in individuals between 30 and 50 years of age and is ten times more prevalent among women than men (Dupuis, 1986). American and Scandinavian studies examining the relation between work activities and De Quervain’s tenosynovitis have rarely distinguished between this condition and other types of tendinitis of the wrist and hands. Epidemiological studies have demonstrated that workers in the meat processing and manufacturing industries run a higher risk of developing tendinitis of the hand and wrist; performing highly repetitive work increases the relative risk of developing De Quervain’s tenosynovitis to 3.3, while performing work requiring the exertion of great force increases it to 6.1. Among individuals performing work that is both highly repetitive and forceful, the relative risk is 29 (Hagberg et al., 1995).

ANATOMICAL REVIEW

The tendons of the forearm are relatively long, extending beyond the wrist to cover the dorsal aspect of the hand and thumb. The tendons of the abductor pollicis longus and extensor pollicis brevis both run through the groove of the radial styloid process in the first of the six dorsal compartments of the wrist and have their insertion at the base of the first metacarpal and the proximal phalanx of the thumb (Figure 1.1).

These muscles, individually and jointly, extend and abduct the trapezometacarpal joint and extend the metacarpophalangeal joint. They are also active during radial deviation and, to a lesser extent, flexion of the wrist (Kendall et al., 1988). Both are innervated by the posterior interosseous branch of the radial nerve, which originates mostly in the C6, C7, and C8 roots.

PATHOPHYSIOLOGY

De Quervain’s tenosynovitis is a stenosing tenosynovitis involving inflammation of the tendon sheath of the extensor pollicis brevis and abductor pollicis longus (Dupuis, 1986; Hagberg et al., 1995). The rigidity of the structures and limited space within the wrist compartment favour the development of tenosynovitis.
Tenosynovitis may result from trauma or from excessive friction between the tendon and surrounding tissues during movements of the thumb and wrist. The thickness of the synovial membranes is an indication of the stage of the tendinitis. As the inflammation progresses, the tendon tends to thin out and become more friable, and stenosis increases. In the final stages, the sheath of the first dorsal compartment thickens, becomes fibrous, and impinges on the space of the fibro-osseous groove. This may result in “trigger finger”, a chronic form of De Quervain’s tenosynovitis.
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