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Cumulative Trauma Disorders – "The Disease of the 90's": An Interdisciplinary Analysis

Denis Paul Juge, Harold M. Stokes, and John C. Pine

I. INTRODUCTION

Cumulative trauma disorders (also called repetitive stress injuries or repetitive motion injuries) involve injuries to tendons, tendon sheaths, muscles and nerves of the hands, wrists, elbows, arms, shoulders, legs or back that are caused or aggravated by repetitive motion of the involved limb. This article will refer to such injuries as cumulative trauma disorders and will use the abbreviation "CTDs." This article will investigate the nature of the medical conditions incorporated within the classification of CTDs, the legislative and jurisprudential response to these injuries within the workers' compensation law of Louisiana and the statistical picture of these claims in the workers' compensation system.

CTDs are described as "the No. 1 occupational hazard of the 1990's."¹ The number of reported incidences of CTDs in the United States has nearly quadrupled since 1984 (from 18% of occupational disease claims in 1984 to 61% in 1990).² The second most frequently performed surgery in America is carpal tunnel release which is the procedure for relieving carpal tunnel syndrome. Carpal tunnel syndrome is one of the most common cumulative trauma disorders.³ In 1990, CTD's caused U.S. employers to spend \$20 billion in related workers' compensation and absenteeism costs. An average CTD claim

in the United States costs \$29,000 in medical care and lost wages, which is 50% more than any other work-related injury or illness.⁴

The Occupational Safety and Health Administration (OSHA) projects that by the year 2000, half of all workers' compensation claims will be related to CTDs.⁵ In addition to the workers' compensation costs associated with CTD claims, there is the very real threat of fines being imposed by OSHA. In 1988, OSHA levied a \$3.1 million fine against IBP, the nation's largest meatpacker, for exposing 20% of its workers to CTDs. John Morell & Company, another meatpacker, was fined \$4.3 million for CTD related reasons.⁶ The outlook on the national level is one of a continued interest and concern for the future of CTDs among employers, employee representatives and OSHA.

II. THE MEDICAL PERSPECTIVE

Physicians are acutely aware of medical problems experienced by workers and of the connection these injuries and diseases have to the workplace. However, this awareness is not of recent origin. In 1700, Ramazzini presented the first comprehensive treatise on this subject, including such issues as toxic exposure and the relationship between repetitive actions and work injuries.⁷ Recent studies in the area of CTDs raised some questions as to the extent emotional or psychological factors may increase or extend the physical symptoms.

Dr. Damian C.R. Ireland noted that in Australia during the 1980's, a large number of workers complained of pain in their upper limbs. According to Dr. Ireland, the physicians made no objective physical findings. The only subjective complaints were those of pain (clinical examinations were negative). The condition seemed to affect the young to middle-aged employees engaged in lowpaying, monotonous, low prestige occupations such as data processors, typists, clerks, cashiers, bank tellers, musicians, textile workers and machinists. These patients did not have clearly defined and distinguishable subjective symptoms. The Australians designated their epidemic as "Repetitive Strain Injury."⁸ There is some justifiable concern that what was a legitimate diagnosis in the United States of cumulative trauma disorder may have evolved into a non-specific and primarily psychological malady such as those described by Dr. Ireland.

Cumulative trauma disorders in the United States generally involve injuries to the arms and hands:

Flexor tenovaginitis stenosans (trigger finger) is characterized by pain, grinding, and triggering of the flexor tendons of a finger or thumb.

de Quervain's tenosynovitis is characterized by tenderness, grinding, and triggering of the extensor tendons of the thumb at the wrist level.

Lateral epicondylitis (tennis elbow) is the result of repeated resisted wrist extension and the repeated use of the hand in a twisting fashion, such as turning a screwdriver, pulling a wrench repetitively, or even striking a ball with a racquet repetitively.

Carpal tunnel syndrome is the most common of the cumulative trauma disorders. This condition involves a compression of the median nerve at the wrist against the overlying transverse carpal ligament. It results in numbness and tingling of the thumb, index and long fingers. The pressure against the median nerve is usually caused by inflammation of the flexor tendons at the wrist. Extreme wrist position is implicated as a factor in the development of carpal tunnel syndrome and of tenosynovitis at the wrist. Thus, high force and high repetition are recognized as major factors in the development of cumulative trauma disorders.⁹

Management of these conditions is difficult. Modification of work and other activities that localizes stress to a particular area may result in a successful outcome without surgery. An early surgical approach may relieve symptoms temporarily, but then a return to the same type of work often results in symptom recurrence. While surgery may be indicated on occasion, it should only be performed in conjunction with the efforts to modify the job to prevent recurrences.

The interplay of other non-employment factors makes it difficult for a physician to identify the workplace as the cause of carpal tunnel syndrome. For example, diabetes is considered an etiologic factor in carpal tunnel syndrome as well as a hormonal imbalance in menopause.

During the twenty-two year career of this author, the number of keyboard operators presenting symptoms characteristic of carpal tunnel syndrome has increased. From 1980 through 1991, an average of eighty-seven patients per year presented symptoms of carpal tunnel syndrome. Prior to 1988, no patients related their symptoms to their work. In 1988, 3.5% of these patients related keyboard activities to carpal tunnel syndrome. In 1989, 9.2% attributed their symptoms to their work. In 1992, of the 135 patients presenting symptoms of carpal tunnel syndrome, 23% attributed their symptoms to their keyboard work. During the first ten months of 1994, of 129 patients presenting symptoms of carpal tunnel syndrome, 36% attributed their symptoms to their keyboard work.

Thus, not only is the number of patients presenting themselves with carpal tunnel syndrome increasing, so also is the number of patients who attribute their symptoms to their work. If we take out of these statistics the number of patients who attribute their condition to work, then the basic number of patients with carpal tunnel syndrome each year remains fairly constant, at the average of eighty-seven.

What accounts for this epidemic during this short period of time? Has the nature of the employment really changed so drastically so as to create a new population of individuals with cumulative trauma disorders? Is it possible that we are experiencing a phenomena similar to that experienced in Australia and chronicled by Dr. Ireland?

It is interesting to note that throughout this twenty-two year experience, only two self-employed court reporters presented symptoms of carpal tunnel syndrome. They did not attribute their symptoms to their work. They underwent successful surgery for their conditions and returned to work without further difficulty. However, of the last forty-six patients who attributed their carpal tunnel syndrome to work, only ten have returned to their prior jobs without difficulty.

This author has noted that patients with carpal tunnel syndrome, who undergo surgical intervention, usually have a full recovery in four to six weeks with no restrictions on future activity. However, patients who relate their condition to work tend to have much longer disabilities, perhaps twelve weeks or longer. Many of these patients never return to work. The possibility of secondary gain through the workers' compensation system may be a factor in this delayed recovery. This author believes that this statistic is representative of results in hand surgery practices throughout the United States.

In the cumulative trauma disorder cases brought into the legal arena, the physician is often asked if the work activities either caused the cumulative trauma disorder or aggravated a preexisting condition which resulted in the cumulative trauma disorder. The legal system directs the attention to the work-place as the focus of causation. However, a physician is trained to consider all relevant factors when looking for the etiology of these conditions. Relevant factors include the patient's age, sex, hereditary influences, presence of other diseases (i.e., diabetes), hormonal imbalance, presence of tumors or other conditions causing inflammation and swelling and the patient's work and non-work activities. Isolating the physician's attention to one area may resolve the legal issue, but it does not do justice to the question of what caused the cumulative trauma disorder. Certainly, the repetitive use of the arm or hand can be a factor in the development of a CTD. However, if it were the sole cause, everyone who engaged in repetitive arm or hand motion would suffer from these disorders. Evidence shows that psychological factors play an important role in the CTDs epidemic.

III. THE LEGAL PERSPECTIVE

. Despite the determination of the Louisiana Legislature to repel the flow of cumulative trauma claims in Louisiana, the courts have little difficulty in molding the legislative definition of "accident" to fit their fondness for CTDs. Is our legislature being Draconian in their rejection of these claims? Have the courts opened up the flood-gates of litigation by accepting CTDs into the workers'

compensation system? H. Douglas Jones and Cathy Jackson suggest that repetitive use injuries by their very nature mandate closer scrutiny than do traumatic injuries for many reasons:

[T]he cumulative nature and gradual onset of the symptoms; the subjective history related by the patient; the lack of objective diagnostic tests; non-occupational factors including age, sex, and a host of medical conditions which precipitate the same. or similar symptoms; job dissatisfaction; and the effects of the litigation process. Eminently qualified medical experts and well-documented empirical studies mandate a conclusion that repetitive use symptoms are not work related simply because they manifested themselves at work.¹⁰

In their article, Jones and Jackson relate a study performed by Norton M. Hadler, M.D., Professor of Medicine and Microbiology/immunology at the University of North Carolina at Chapel Hill. The study involved U.S. West Communications, an employer of over fifty-five thousand workers in fourteen states. The company was experiencing a mounting problem with CTDs during the 1980's (documented by inspections by National Institute of Occupational Health and Safety and citations from OSHA). Of the fourteen states where U.S. West had employees, CTDs affected a substantial number of employees in *only four states* (Colorado, Arizona, Oregon and Washington). Even among the four .problem states, there were significant differences in the recovery of employees who were treated by the company physician and those who were treated by outside medical providers. In Arizona, over 90% of those employees treated by the company medical department returned to work without restrictions. The thirty employees who sought treatment outside the company had normal diagnostic studies. Yet, they had seventy invasive or surgical procedures performed upon them, including eighteen carpal tunnel releases, twelve series of stellate blocks and nine thoracic outlet syndrome procedures.¹¹

In Arizona, 78% of the workers who reported CTDs returned to full-time employment without restrictions. The employees who were treated by outside physicians (thirty-six employees) had only twenty surgical procedures (no multiple procedures were proposed).¹² A majority of the employees treated by outside physicians were able to return to work. Jones and Jackson pondered the significance of this study:

Why were three times as many surgical procedures performed on the Colorado workers? Why were so many invasive procedures performed with no objective test findings? Are the workers in states such as Utah, with minimal reports of problems, suffering in silence? Do reported Cumulative Trauma Disorders have a "contagious" effect among coworkers?¹³

In analyzing the experience of U.S. West, Dr. Hadler expressed concern that we may be drowned by a flood of repetitive trauma claims (as was Australia

during the early 1980's). The Australian epidemic was labeled an "iatrogenic sociopolitical phenomenon," iatrogenic meaning "induced in a patient by a physician's actions or words."¹⁴ The epidemic reached such voracity that 2,800 cases in the state of Victoria were reported in 1985. In the same year, 34% of the national telephone company's operators complained of repetitive strain injuries.¹⁵ Dr. Damian Ireland, an orthopaedic surgeon, who observed this phenomenon in Australia, has suggested striking similarities between CTDs and what was known as Repetitive Strain Injury (R.S.I.) in Australia (which has now all but disappeared). These similarities include:

1. An epidemic spread and increase in the incidence of occupational arm pain without a plausible explanation in terms of detrimental changes in:
 - Work practices
 - Work technology
 - Work stations
2. CTDs like RSI in many areas have become an umbrella diagnosis category for both physical and non-physical occupational arm pain, legitimizing the latter.
3. Reports of successful treatment of CTDs using either conservative physical methods or surgical methods are most elusive.
4. CTDs like RSI do not affect the self-employed. CTDs and RSI predominantly affect those engaged in repetitive, monotonous, low paid, low prestige tasks with low job satisfaction.¹⁶

A. CTDs and the Workers' Compensation System

The workers' compensation system is designed as a no-fault industrial insurance program to provide workers and their families economic security in the event the worker is injured or killed while performing services for the employer. However, the system is not intended to be a universal health and accident insurance program. It is always necessary that the worker show the injury and disability were caused by the employment. To avoid mixing job-related causes of injury with non-employment sources, the statute requires that the employee prove his injury resulted from an ACCIDENT. If the injury is a disease, the employee must prove the disease is caused by conditions PECULIAR to the employer's trade, business or process.

B. The 1914 Workers' Compensation Act's Definition of Accident

The 1914 Workers' Compensation Act defined accident to mean an unexpected event happening suddenly. The Act excluded forms of disease that did not result from an accident.¹⁷

C. Occupational Diseases

The original workers' compensation laws had no provision for disabilities which might have resulted from an employee's exposure to conditions at work. The Occupational Disease Law was first introduced in Louisiana in 1952. This law only recognized diseases as compensable if they were listed in the statute¹⁸ (e.g., silicosis, asbestosis). In 1975, the legislature amended the law to permit compensation for any occupational disease if the disease is "peculiar" to the employer's trade, business or process.¹⁹

D. The Definiteness Rule

Applying these "accident" and "occupational disease" definitions to claims of cumulative stress disorders would result in few, if any, awards of compensation benefits. The essence of the CTDs claim is that the trauma causing the injury is not sudden but is "cumulative." There are few occupations that qualify as those in which CTDs are "peculiar" to the occupation or process. Thus, the earlier decisions rejected the arguments of cumulative trauma and insisted upon a showing of a definite time and place as to the cause of the injury. The second circuit in *Sparks v. Employers Mutual Liability Insurance Co. of Wisconsin*²⁰ (the first reported CTD claim in Louisiana) denied the plaintiff workers' compensation benefits. Sparks alleged he developed Spasmodic Torticollis (jerking of the neck) due to the repetitive positioning of his neck while performing his work as a rip saw operator.

E. Erosion of the Definiteness Rule

The definiteness rule dominated Louisiana jurisprudence until the 1970's. The initial break developed with the Louisiana Supreme Court's decision in *Ferguson v. HDE, Inc.*²¹ Ferguson, a sawmill worker, received less pay than he expected. He became extremely irate and engaged in an angry discourse with his supervisor. During this argument, Ferguson felt a sudden flash of pain which was the onset of a disabling stroke. The *Ferguson* case provided jurisprudential support for the proposition that the focus of attention for determining whether an "accident" has occurred should be on the effect the incident has upon the employee. Therefore, the focus should not be on the specific work activity. If the employee can show a final break-down in the part of the body affected by the work, then there is an "accident."

The court used this broader definition of "accident" to award compensation to a meat boner and trimmer because his exposure to temperature changes 150 times a day aggravated his dormant rheumatoid arthritis.²² The meat boner and trimmer's job required him to go in and out of the cooler. Similarly, a welder

who developed pneumonia was awarded compensation benefits. The welder's job required him to go in and out of a high temperature environment.²³ The Louisiana Supreme Court reaffirmed its approval for this trend in *Parks v. Insurance Co. of North America*.²⁴ The court awarded benefits to a seamstress who contracted bronchitis as a result of continuous contact with dust and lint present in her workplace. The identification of a definite accidental event occurring at work was not required for the court to award compensation. The court stated that "Louisiana is among the many jurisdictions that look to the employee to determine whether there was an unexpected and catastrophic effect upon him in deciding that an injury is accidental."²⁵

The fourth circuit cited *Parks* to justify its award of benefits to a supervisor (the employees were on strike) who suffered a back injury after several days of heavy labor. The fourth circuit awarded the supervisor benefits even though the supervisor could not identify a single, traumatic event. The court stated:

This man did not have a single incident or a single accident. He had a whole series of accidents every time he picked up a heavy timber, loaded it onto and off a delivery truck, fed it into a planer, or shaper or saw or other mill machinery; this whole series of (to him with his high pain threshold) minor accidents cumulatively produced his disabling injury.²⁶

The second circuit eventually succumbed to this new theory of cumulative trauma or micro-traumas. In *McCoy v. Kroger Co.*,²⁷ the second circuit awarded benefits to a stock clerk who developed flat feet, callouses and poor circulation which were caused or aggravated by the constant standing and walking required by his job.

In our review of the jurisprudence of this Circuit, we have been unable to locate any case where the plaintiff was compensated by this court in the absence of a final giving way or breaking down such that a single specific incident could be pointed to as the "accident." However, the other circuits have apparently not been so strict. We likewise believe the Supreme Court of this state has determined, by virtue of *Ferguson, supra*, and particularly *Parks, supra*, that the definition of "accident" in our compensation act does not require a final conclusory event. In our view the current jurisprudential definition is such that an "accident" has occurred within the meaning of the compensation act where the conditions of employment provided continual strain or trauma as here, or exposure, as in *Parks, supra*, and these events cumulatively combine to aggravate a pre-existing condition so as to disable the employee--even *though each individual event in itself is very minor in character*.²⁸

In justifying its departure from the definiteness rule, the court noted what it believed to be a disparity in the awarding of benefits. Benefits were awarded if the employee's disability resulted after a final, identifiable event at work. However, benefits were denied if the injuries were the result of a cumulation of events at work and not from a single episode. The court stated:

It does not make sense to repair the balloon that suddenly bursts from being slowly over expanded and leave unrepaired the one that gradually collapses from a slow leak.²⁹

Critics of this reasoning suggest that the disparity may lie in the notion that both balloons were intended to be repaired by the workers' compensation system. In *Malloy v. AT&T Consumer Products, A Division of AT&T Technologies, Inc.*,³⁰ the second circuit had little difficulty in awarding compensation to a keypunch operator who developed neck and shoulder pain over a three-year period of employment. The keypunch operator sat in a fixed position for extended periods of time with her neck in a hyperextended position while making repetitive strokes on a keyboard.

The third circuit cited the *Malloy* decision in support of its award to a payroll supervisor in *Hale v. Pinecrest State School*.³¹ The plaintiff developed cervical problems during her seventeen years of employment at Pincrest. Her job required her to use the telephone, which she placed between her ear, neck and shoulder to allow her to look at invoices and computer printouts that were on top of her desk. She was required to frequently turn her head from side to side to glance at the payroll ledgers and sit with her neck in a cocked position for long periods of time. The *Malloy* decision was also referenced as authority by the fourth circuit in awarding benefits to a plaintiff whose back injury resulted in continuous "microtraumas."³²

The application of the repetitive trauma rule to carpal tunnel claims made its debut in 1983 when the second circuit decided *Calhoun v. Fireman's Fund Insurance Companies*.³³ The plaintiff was diagnosed with bilateral carpal tunnel syndrome. When the plaintiff first noted pain in her wrist, she had been employed for one month as a wrapper in a poultry processing plant. Her job duties involved taking the neck, heart and gizzard of the chicken from an assembly line belt and wrapping these three parts in a single wrapper. She had a quota of fifteen wraps per minute. After complaining of her wrist pain, she was reassigned to the job of stuffing the already wrapped parts into the cavity of the chickens passing on a conveyor belt. The employer did not contest the issue of whether the plaintiff suffered an "accident." The primary issue on appeal was the trial court's finding of permanent and total disability. The trial court was affirmed on appeal.³⁴

Assembly line work was the locus of the plaintiff's cumulative trauma injury in *Ainsworth v. Wells Lanont Corp. and Protective Insurance Co.*³⁵ Ainsworth

was diagnosed with de Quervain's Disease, an inflammation of the wrist at the base of the thumb. For over eight years, Ainsworth was employed as a stitcher for the defendant, a manufacturer of leather work-gloves. While sewing the fingers of a glove, she noticed a sharp pain in her wrist. As in the *Calhoun* case, the defendant did not question the issue of an "accident" but contested the claim for wage loss benefits. In *Benton v. Aetna Casualty & Surety Co.*,³⁶ another assembly line worker was awarded wage loss benefits for her bilateral carpal tunnel syndrome which developed after only two weeks into her assignment of "sizing mines" in an ammunition plant. Her duties required her to use clamps in placing clusters in the mines. Again, the "accident" issue was not raised by the employer.

A challenge to a carpal tunnel claim was finally made by an employer in *Howell v. Savoy Medical Center*.³⁷ Howell was a twenty-three year old dietary aide who had been employed for less than two months when she was terminated from her employment. She did not advise her employer of any complaints regarding her carpal tunnel symptoms until after she was terminated. The plaintiff alleged that her job required her to use her wrist to push and pull food carts to rooms one hour per day. In denying her claim, the court noted the testimony of one of the physicians who testified that carpal tunnel syndrome would require highly repetitive activity occurring for more than one year.

Benefits were also denied to an assembly line worker for thoracic outlet syndrome and possible carpal tunnel syndrome in *Harris v. General Motors, Truck and Coach Division*.³⁸ The plaintiff's job involved the use of a welding gun suspended from the ceiling and operated by pulling and pushing it across the windshield frame of cars on the assembly line. The plaintiff alleged that she began to experience numbness in her fingers after working with the gun for about one week. She testified that several weeks later, while hanging wallpaper at home, she began to feel pain in her left arm and under her left breast. The court denied benefits to the plaintiff based primarily on impeachment evidence that showed she had complained to a physician about pain in the same anatomical region PRIOR to her use of the welding gun.

F. The Legislative Challenge to the Repetitive Trauma Cases

In the 1989 legislative session, employers in Louisiana expressed their concern that cumulative trauma claims would place too great a burden upon the workers' compensation system. Legislation passed requiring a definiteness in time and place for compensable injuries:³⁹

As used in this Chapter, unless the context clearly indicates otherwise, the following terms shall be given the meaning ascribed to them in this Section:

(1) "Accident" means an unexpected or unforeseen *actual, precipitous* event happening suddenly or violently, with or without human fault, and

directly producing at the time objective *findings* of an injury *which is more than simply a gradual deterioration or progressive degeneration.*⁴⁰

Recognizing the possibility that the cumulative trauma claims would be asserted under the occupational disease statute (absent a specific legislative deterrent), the business forces urged the legislature to also amend the occupational disease law."⁴¹

B. An occupational disease means only that disease or illness which is due to causes and conditions characteristic of and peculiar to the particular trade, occupation, process, or employment in which the employee is exposed to such disease. *Degenerative disc disease, spinal stenosis, arthritis of any type, mental illness, and heart-related or perivascular diseases are specifically excluded from the classification of an occupational disease for the purpose of this Section.*⁴²

This statute was amended the following year (after lobbying efforts from claimant attorneys) to permit carpal tunnel syndrome to be classified as an occupational disease.⁴³

With the 1989 and 1990 amendments, cumulative trauma claims were at best, limited to the rigid evidentiary rules of the occupational disease law (having been expelled from the domain of "accidents"). The difficulty of meeting this burden is demonstrated in *Ford v. Hart Associates*.⁴⁴ The workers' compensation judge noted that the plaintiff must show either an "accident" or an "occupational disease." As no accident occurred, the court held that the claimant had failed to meet her burden of proving that her carpal tunnel syndrome was an occupational disease.⁴⁵ Under the provisions of the occupational disease law, if an employee is employed for less than twelve months, then it is presumed that the disease was not caused by the employment. To rebut the presumption, the employee must prove the causal connection by "an overwhelming preponderance of evidence."⁴⁶

Similarly, a structural fitter was denied benefits for his claim of epicondylitis ("tennis elbow") which was allegedly caused by the repetitive rotation of his hand and forearm as he used C-clamps.⁴⁷ The Court held that there was no evidence of an "accident" and that the plaintiff failed to establish an "occupational disease." The court made particular note of the lack of evidence that the occupation of structural fitter had a high incidence of tennis elbow.⁴⁸

However, a dishwasher and kitchen helper who had been employed for less than twelve months by the defendant was found to have met the burden of proof to establish that her thoracic outlet syndrome and carpal tunnel syndrome were occupational diseases.⁴⁹ Her duties consisted of washing, rinsing, drying and storing large, heavy pots and pans, some of which were kept in overhead shelves. Her treating

physician testified that the plaintiff's medical conditions were caused by the repetitive nature of her work.

G. The Courts Were Not Impressed

Except for the cases addressing cumulative trauma claims as occupational diseases, the judiciary has not greeted the 1989 legislative effort to limit cumulative trauma claims with enthusiasm. For example, the first circuit in *Dyson v. State Employees Group Benefits Program*⁵⁰ awarded benefits to a clerk who developed pain in her feet after standing all day at work making copies at a photocopier. The clerk was diagnosed with an inflammation in the heel (a cumulative trauma disorder). The court found an "accident" based on the claimant's testimony that on a particular day she felt a very sharp pain in her feet as she turned to pick up a large bundle of copies. The court rejected the suggestion that the statute requires more than the event described by the plaintiff and argued that it was inconsistent with the purpose of the Workers' Compensation Act to deny benefits to workers who are "worn down by their work rather than immediately crippled by it."⁵¹

The second circuit also discovered that the requirement of an event at work producing the injury can be supplied by the testimony of the employee that there was a particular moment in time in which the job traumas RESULTED in an injury. In *Rice v. AT & T*,⁵² the employee worked on an assembly line installing parts in cable telephones. The employee had a history of back trouble and had undergone disc surgery. She testified she felt tightness in her back, radiating down into her right leg when she attempted to push her chair closer to the assembly line while twisting and turning at the same time to reach the parts.⁵³ The court reviewed the legislative amendment to the definition of accident and concluded "the term accident now includes a weakened condition which collapses due to a precipitous event, but does not include a weakened condition which gradually degenerates over time."⁵⁴ Thus, the message to potential cumulative trauma claimants is to identify an "event."⁵⁵

The third circuit joined the chorus in *Borel v. Dynamic Offshore Contractors*⁵⁶ The workers' compensation judge denied benefits to the plaintiff based on the finding that the problems with his neck, back and shoulders were the result of work over several months and not as the result of an "accident" as required in the 1989 amendment to Louisiana Revised Statutes 23:1021(1). The third circuit reversed and awarded benefits. The court noted the claimant did identify the particular day he was injured. The court stated:

Even though Borel could only offer conjecture that it was his lifting of the pipe at the end of the day which injured him, we find that the close proximity of the onset of pain and stiffness satisfied the analysis utilized in *Rice, supra*. Furthermore, considering the repeated heavy physical labor which Borel was required to perform, in light of Dynamic's

knowledge that he had a back defect as recorded in his pre-employment physical, we further find that he proved that he was involved in a compensable work-accident as enunciated in *Dyson, supra*.⁵⁷

Clearly, the jurisprudential trend favors the acceptance of CTDs as compensable events. A judge seeking to assist the claimant in making his claim fit into the "accident" paradigm will look for a particular incident which can be given the designation of an "accident."

IV. THE STATISTICAL PERSPECTIVE

The analysis of the cumulative trauma disorder experience in Louisiana is not complete without an examination of the recorded claims filed with the Office of Workers' Compensation.⁵⁸ It should be noted that prior to the creation of the Office in 1983,⁵⁹ there was no agency of the state collecting workers' compensation accident data. Therefore, we are still in the early stages of compiling information about accidents and occupational diseases in Louisiana. To our knowledge, this is the first effort to draw any relationship between the statistical records of claims with the jurisprudential developments of the law. The records of 1993 are not available to the public and, thus, are not available to the authors for this study.

A. Injury/illness Database System

Records used in this study of injuries and illnesses relating to CTDs were obtained from the Louisiana Office of Workers' Compensation. Data on occupational injuries and illnesses is initially collected from employers when an employee has not reported to work for seven days because of the work-related injury. The state reporting requirement has no effect on the employee's benefits, and the employee's medical expenses are fully compensable even when the employee does not miss a single day of work.

An employer is not required to report a work-related injury to the Office of Workers' Compensation unless the seven day absence from work requirement is met. Exceptions to this requirement occur when an employee is fatally injured. The result is that records collected by the Office of Workers' Compensation and included in this study reflect more serious injuries and illnesses than records maintained by employers which reflect all work-related injuries and illnesses. It should be noted that each state has established a time period for employers to report job related injuries. The time away from work required before a case is reported varies from one to seven days. Thus, the findings in this study may not be completely comparable to states with a different reporting period. Fifteen states have a seven day period similar to Louisiana's requirement for reporting compensable cases to the state workers' compensation agency.

Louisiana's record keeping system is based on the Supplementary Database System established by the Bureau of Labor Statistics (BLS). Data collected by state workers' compensation programs is recognized as a potentially valuable source of information about occupational injuries and illnesses. The BLS recognizes that systematic collection and exchange of data is a valuable source of information for both compensation and safety agencies. The SDS evolved from a study initiated in 1973 by the BLS in cooperation with thirty-six state offices of workers' compensation. In 1976, the BLS initiated the current structure for the SDS. This project standardized occupational injury and illness data from state workers' compensation agencies and provided the states with a means of analyzing work-related injuries on a state wide basis. In addition, the SDS achieved a degree of comparability in injury and illness data from state to state, but it did not affect the variations in coverage and reporting requirements among states. Finally, the SDS program provides states with prescribed data elements, classification systems and standard record formats.

The SDS is intended to supplement information provided by the *Annual Survey* and provide a basis for research on the characteristics of occupational injuries and illnesses. The *Annual Survey of Occupational Injuries and Illnesses* (*Annual Survey*) is a key source of national estimates of the number and rate of occupational injuries and illnesses. Until the early 1990's, the *Annual Survey* did not provide information about the characteristics of occupational injuries and illnesses which are of value in accident prevention work. Today, the BLS collects data directly from employers. The BLS provides estimates on the frequency and duration of work-related injuries in industrial classifications. It also provides the characteristics of these work-related injuries. The present study will complement statistics collected by the BLS and include an analysis of the costs to employers.

The primary source of information for the Louisiana Office of Workers' Compensation is the first report of injury or illness form (OWC 1007). By law, employers must submit the first report of injury or illness form to the state workers' compensation agencies. All states require such "First Reports" and each is similar to the Occupational Safety and Health Administration's (OSHA) "Supplementary Record of Occupational Injuries and Illnesses" (OSHA No. 101).

B. Characteristics of Reportable Cases of Cumulative Trauma Disorders

A significant number of cases of cumulative trauma disorders were reported to the Louisiana Office of Workers' Compensation in 1985 through 1992.⁶⁰ Although the number of cases decreased from 1985 (231) through 1992 (151), Louisiana employers are concerned with the ongoing potential for an increase in the number of cumulative trauma disorders in the workplace.

Manufacturing operations lead the other divisions of industry with 46% of all cumulative trauma disorders.⁶¹ The services industries are second with 18% and retail trade with 12%. Within the manufacturing industries, motor vehicle and car bodies occupations have the largest number of cases with 17% of the reported cases. Grocery stores, department stores and variety stores also have a significant number of reported cases with a total of fifty-seven cases (4%). General medical and surgical hospitals also have a large number of reported cases with fifty-one (4%).

Claimants' occupations are widely distributed among operations, production, services and helpers occupation groups as defined by the U.S. Department of Commerce.⁶² Technicians, retail sales workers, secretaries, food service personnel, automobile mechanics, precision apparel workers, textile seamstresses and truck drivers each have approximately 2% of the reported cases. The largest percentage of reported cases occurs in the assemblers occupations and laborers (excluding construction occupations). These occupational groups all frequently use their hands and wrists. This repeated use of the hand and wrist sets the stage for the occurrence of cumulative trauma disorders.

The parts of the body most affected by these reported cases include the upper extremities with 68% of the cases. The parts of the body afflicted with CTDs most frequently reported are the wrist, hand and fingers with 50% of all cumulative trauma disorders. Shoulders, knees and elbows also have a large percentage of reported cases, each with 8% of the reported cases.

Women tend to have the largest percentage of reported cases (52%) of CTDs. Men have 48% of the cases. The high percentage of male claimants may result from such a large percentage of reported cases from male dominated professions such as automobile mechanics, truck driving and labor. The age group that dominates the reported cases includes the fifty-five to sixty-four age group with 42% of the cases.⁶³ Younger workers in the twenty to twenty-four age group have only 5%. The twenty-five to thirty-four and thirty-five to forty-four age groups each have 21% of the cases. The large percentage of workers over age fifty-five who have CTDs suggest that age might be a factor that makes the older worker more likely to have such diseases.

C. Costs Associated with CTDs

Data on the costs associated with CTDs is provided to the Louisiana Office of Workers' Compensation by employers or insurance carriers after a reported case is closed. Cases closed between 1988 and 1992 were analyzed with the following observations. The average total compensation for CTDs was \$4,043. The average expenses associated with these cases including hospital, medical, rehab, legal and transportation expenses came to \$5,931. Settlements reported during this period averaged \$15,804.⁶⁴

No significant difference appeared when occupational groups were analyzed for total compensation and expenses.⁶⁵ Each major occupational group has approximately \$3,000 in total compensation and \$5,000 in expenses. The large variations in the average settlement amount for the occupational groups may be a result of the number of reported settlements in the occupational groups rather than a result of real differences in exposure for these occupations.

The total cost of closed cases seems to be growing from \$4,291 in 1988 to \$10,841 in 1992.⁶⁶ Again, the settlement variations should be viewed with caution since the number of settlements by year fluctuates dramatically.

The costs, when analyzed by division of industry, seem to have a significant variation.⁶⁷ Construction compensation at \$10,101 and expenses at \$7,735 are much higher than for the other divisions of industry. Wholesale trade has the lowest average costs with \$1,132 for compensation and \$2,242 for expenses.

Costs are greatest for shoulders, fingers and wrists.⁶⁸ Fingers and hands have the largest number of reported cases. The variation reflected in the costs associated with shoulders may be a result of the low number of reported cases for shoulders. The costs for wrists include \$5,559 for expenses and \$3,484 for compensation. The costs for fingers include \$4,767 for expenses and \$3,420 for compensation.

V. CONCLUSION

Although the rate of increase in cumulative trauma disorder claims in Louisiana does not appear to be approaching OSHA's prediction of one-half of all claims by the year 2000, we have clear evidence of an increase in the number of reported claims since 1985. There has also been a steady increase in the costs per claim. The industries and occupations with the greatest number of claims are (not surprisingly) industries and occupations in which the employees are required to perform repetitive hand and arm movements.

There is considerable controversy in the medical community regarding the validity of making a causal connection between the activities at work and the diseases associated with CTDs. There is also concern among physicians that psychological factors may be involved in the growing number of patients reporting symptoms of CTDs.

The jurisprudential developments in the area of CTDs have shown a lack of judicial regard for the legislative efforts to require the plaintiff to establish an "accident." Claims for compensation for CTDs which are asserted as occupational diseases are not favored by the courts. CTDs which can be associated by the worker with any "event" will usually be regarded as compensable, despite the

legislative urging that an actual "accident" occur at work.

Should Louisiana begin to experience the epidemic predicted by OSHA and actually experienced by Australia during the 1980's, we may find the legislature asserting a clearer limitation on the awards for cumulative trauma disorders.

NOTES

1. Dramatic Rise in Repetitive Motion Injuries and OSHA's Response: Hearing Before the Sub-common Employment and Housing of the House. Comm. on Government Operations, 101st Cong., 1st Sess. 1 (1989) (opening statement of Tom Lantos, Chairman).
2. David E. LeGrande, *Concerned Union Focuses on Cumulative Trauma, Video Display Terminals*. National Council on Compensation Insurance Safe Workplace, Fall 1993, at 22.
3. Barbara Goldoftas, *Wince While You Work: Repetitive Motion injuries*, Business & Society Review, Spring 1991, at 46.
4. John D. Copeland. *The New Arkansas Workers' Compensation Act: Did the Pendulum Swing Too Far?*, 47 Ark. L. Rev. 1 (1994).
5. Maria Mallory & Hazel Bradford, *Ani invisible Workplace Hazard Gets Harder to Ignore*. Business Week, Jan. 30, 1989, at 92.
6. William J. Maakestad & Charles Helm, *Promoting Workplace Safety and Health in the Post-Regulatory Era: A Primer on Non-OSHA Legal Incentives That Influence Employer Decisions To Control Occupational Hazards*, 17 N. Ky. L. Rev. 9, 10-11 (1989).
7. Bernardino Ramazzini, *DeMorbis artificum diatritia [Diseases of Workers]* (Wilmer C. Wright trans., University of Chicago Press, 1940).
8. D. C. R. Ireland, Occupational Disorders of The Upper Extremity 79-88 (1992).
9. See generally Henry Gray, Gray's Anatomy (Charles Mayo Goss ed.. 29th ed. 1973).
10. H. Douglas Jones & Cathy Jackson, *Cumulative Trauma Disorders: A Repetitive Strain On The Workers' Compensation System*, 20 N. Ky. L. Rev. 765, 776-77 (1993).
11. *Id.* at 774-75.
12. *Id.* at 775.
13. *Id.*

14. *Id.* at 776.

15. D. C. R. Ireland, *Psychological and Physical Affects of Occupational An, Pain*, Journal of Hand Surgery, Feb. 1988, at 5.

16. *Id.*

17. Section 38.1. Be it further enacted, etc., That the word "accident," as used in this act shall, unless a different meaning is clearly indicated by the context, be construed to mean an unexpected or unforeseen event happening suddenly or violently, with or without human fault and producing at the time objective symptoms of an injury. Section 39.1. Be it further enacted, etc., That the terms "Injury" and "Personal Injuries" shall include only injuries by violence to the physical structure of the body and such diseases or infections as naturally result therefrom. The said terms shall in no case be constructed to include any other form of disease or derangement, howsoever caused or contracted.

18. 1952 La. Acts No. 532.

19. 1975 La. Acts No. 583.

20. 83 So. 2d 453 (La. App. 2d Cir. 1955).

21. 270 So. 2d 867 (La. 1972).

22. Gales v. Great Atlantic & Pacific Tea Co., 342 So. 2d 241 (La. App. 4th Cir. 1977).

23. Gotte v. Cities Service Oil Co., 298 So. 2d 920 (La. App. 3d Cir. 1974).

24. 340 So. 2d 276 (La. 1976).

25. *Id.* at 281.

26. Scanlan v. Bernard Lumber Co., 365 So. 2d 39, 41 (La. App. 4th Cir. 1978).

27. 431 So. 2d 824 (La. App. 2d Cir. 1983).

28. *Id.* at 829.

29. *Id.* at 830.

30. 475 So. 2d 80 (La. App. 2d Cir. 1985).

31. 505 So. 2d 987 (La. App. 3d Cir.), *writ denied*, 508 So. 2d 76 (1987).

32. Houston v. Kaiser Aluminum and Chem. Corp., 531 So. 2d 1129 (La. App. 4th Cir. 1988); see *a/so* Reed v. Southern Baptist Hosp., 541 So. 2d 233 (La. App. 4th Cir. 1989).

33. 437 So. 2d 900 (La. App. 2d Cir. 1983).

34. *Id.* at 904. The award was based on the "odd-lot" doctrine which was legislatively overruled by the 1983 amendments to Louisiana Revised Statutes 23:1221(2).

35. 499 So. 2d 534 (La. App. 2d Cir. 1986).

36. 545 So. 2d 712 (La. App. 2d Cir.), *writ denied*, 550 So. 2d 633 (1989).

37. 564 So. 2d 1316 (La. App. 3d Cir. 1990).

38. 577 So. 2d 1160 (La. App. 2d Cir. 1991). Impeachment evidence was also crucial' in defeating the plaintiff's cumulative trauma claim (tendinitis of right wrist) in Defatta v. General Motors Corp.. 605 So. 2d 616 (La. App. 2d Cir. 1992).

39. 1989 La. Acts No. 454, § 1021.

40. La. R.S. 23:1021 (Supp. 1995) (emphasis added).

41. 1989 La. Acts No. 454, § 2.

42. La. R.S. 23:1031.IB (Supp. 1995) (emphasis added).

43. 1990 La. Acts No. 943, § I.

44. 605 So. 2d 713 (La. App. 2d Cir. 1992).

45. *Id.* at 716.

46. La. R.S. 23:1031.1(D) (1985).

47. Picard v. Dynamic Offshore Contractors and Gray Ins. Co., 618 So. 2d 1183 (La. App. 3d Cir. 1993).

48. *Id.* at 1185.

49. Willis v. Dry Creek Nutrition Sen's., 640 So. 2d 708, 712 (La. App. 3d Cir. 1994).

50. 610 So. 2d 953 (La. App. 1st Cir. 1992).

51. *Id.* at 956.

52. 614 So. 2d 358 (La. App. 2d Cir. 1993).

53. *Id.*

54. *Id.* at 361.

55. In *Smith v. UNR Home Prods.*, 607 So. 2d 898 (La. App. 2d Cir. 1992), *rev'd and remanded on other grounds*, 614 So. 2d 54 (La. 1993), the second circuit rejected the workers' compensation judge's award of benefits noting that the plaintiff had originally testified in his deposition that his back problems were the result of gradual deterioration and that his trial testimony in which he identified a particular "event" established contradictory testimony. Thus, he did not meet his burden of proof. See also *Shelton v. Wall*, 614 So. 2d 828 (La. App. 2d Cir. 1993), in which the court of appeal reversed the trial court's award of benefits and held that the claimant failed to meet her burden to prove that a job accident occurred.

56. 626 So. 2d 565 (La. App. 3d Cir. 1993), *writ denied*, 630 So. 2d 801 (La. 1994).

57. *Id.* at 568.

58. The statistical information in this section was obtained from the Louisiana Office of Workers' Compensation records.

59. 1983 La. Act I. Extraordinary Session.

60. Office of Workers' Compensation, *supra* note 58, at Table I.

61. *Id.* at Table 2.

62. *Id.* at Table 3.

63.. *Id.* at Table 4.

64. *Id.* at Table 5.

65. *Id.* at Table 6.

66. *Id.* at Table 7.

67. *Id.* at Table 8.

68. *Id.* at Table 9.